

Health Equity in California Climate Change Policy



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California Department of Public Health

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Public Health Law Conference

*Increasing Health Equity While Addressing Climate Change
Across Sectors in the Built & Natural Environments*



Climate Change & Health Equity Section
California Department of Public Health

Today's Agenda:

- **Overview: Climate Change & Health Equity**
- **Health Equity Framework**
- **Racial equity and “Climate, Health, & Equity in All Policies”**
- **Embedding health equity** into State of California’s climate-related **policies, implementation of legislation, and grant guidelines**
- **Tools and examples** of health equity content in State climate policies

Climate Change & Health Equity Section:

Embedding health and equity in California climate action

Mission: Assure that **California's actions to prevent and prepare for climate change improve health equity.**

CCHES helps to implement California's climate change policies, contributing health equity guidance, research approaches, and tools, to **improve living conditions and health outcomes with and for people facing inequities.**

Strategies:

- **Embed health and equity into climate change programs and policies** so that implementation improves living conditions for communities facing inequities.
- **Guide State investment and resource distribution** to prioritize health equity.
- **Provide data, research, and tools** to reduce and prepare for the health effects of climate change and maximize the health equity benefits of climate action.
- **Increase the capacity of local and state health departments** to work on climate change and health equity through consultation and technical assistance.
- **Engage with climate justice and health equity stakeholders** to increase their decision-making power.

California Department of Public Health



Climate Change & Health Equity Section

Human Health Impacts of Climate Change

Environmental Degradation

Forced migration, civil conflict, mental health impacts, loss of jobs and income

Extreme Heat

Heat-related illness and death, cardiovascular failure

Severe Weather

Injuries, fatalities, loss of homes, mental health impacts

Water & Food Supply Impacts

Malnutrition, diarrheal disease

Degraded Living Conditions & Social Inequities

Exacerbation of existing social and health inequities and vulnerabilities

Changes In Vector Ecology

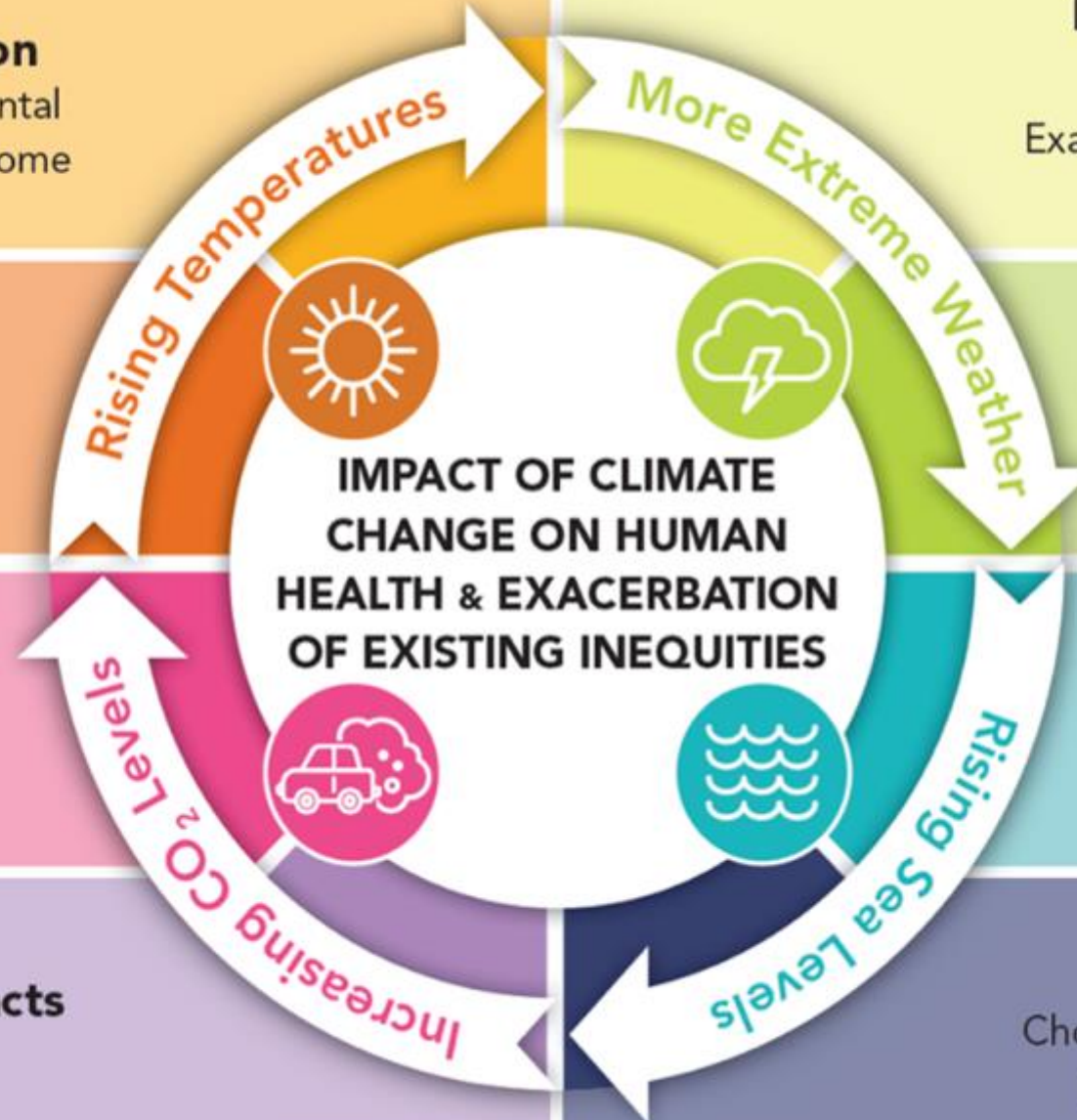
Malaria, dengue, encephalitis, hantavirus, Rift Valley fever, Lyme disease, chikungunya, West Nile virus

Air Pollution & Increasing Allergens

Asthma, cardiovascular disease, respiratory allergies

Water Quality Impacts

Cholera, cryptosporidiosis, Campylobacter, leptospirosis, harmful algal blooms



**CLIMATE CHANGE IS
ALREADY HARMING
HUMAN HEALTH.**

**PEOPLE FACING
INEQUITIES HURT
FIRST AND WORST.**

Image: Public News Service



Image: UC Davis



Image: CBS SF/Local



Image: US News



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Inequality Harms Health, Diminishes Climate Action

BloombergTechnology ▼

Economic Equality Is Key to Solving Climate Change, Report Shows



Economic Equality Is Key to Solving Climate Change, Report Shows

Photographer: Joe Raedle/Getty Images Europe

By **Jeremy Hodges**

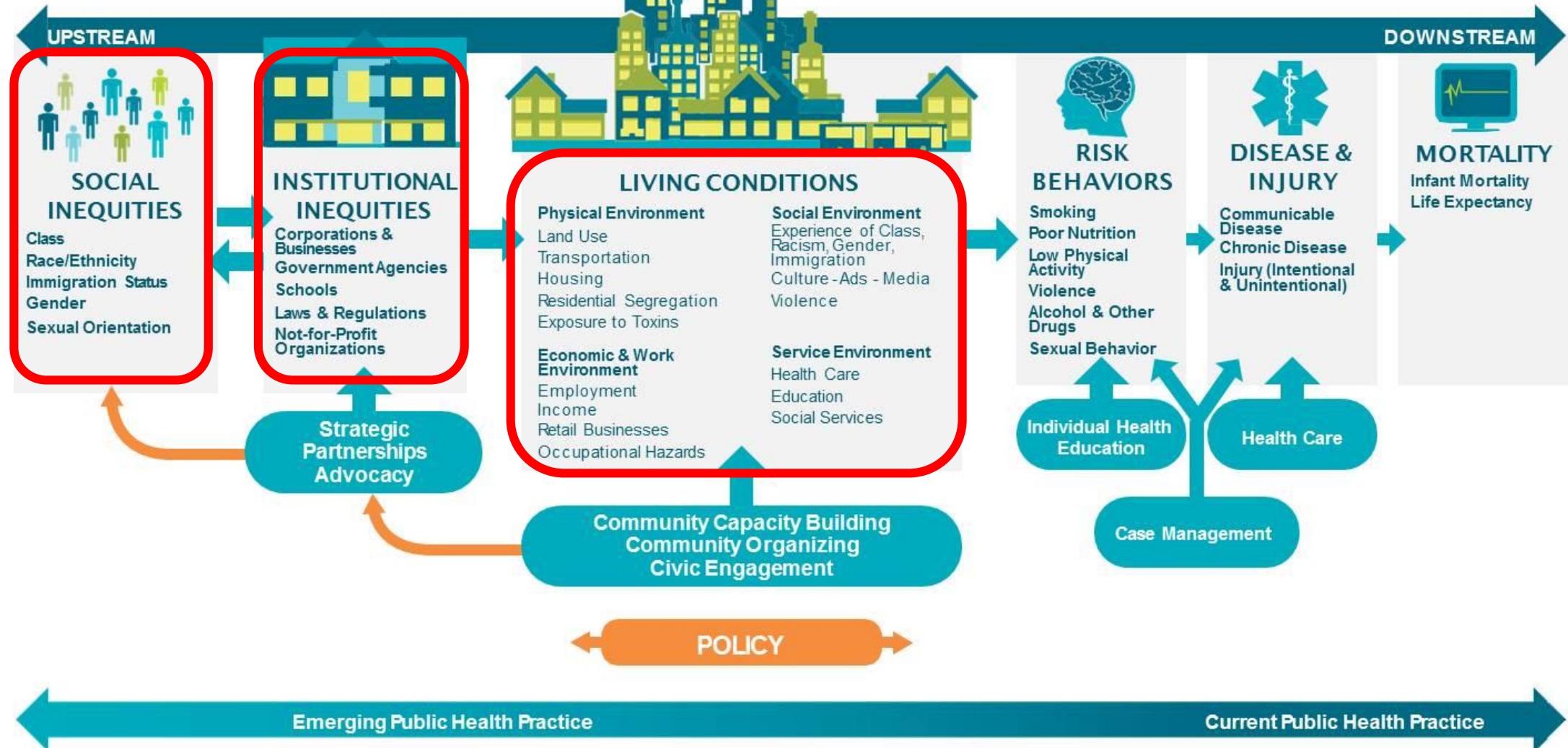
March 5, 2018, 8:00 AM PST

From **Climate Changed**

- **100 fossil fuel companies** account for **71%** of global emissions
- **10% of global population** responsible for **almost half** GHG emissions
- Link between **inequality** and **consumption** of water, meat, & petroleum, **CO2 emissions**, loss of biodiversity

Addressing the Causes of the Causes

A PUBLIC HEALTH FRAMEWORK FOR REDUCING HEALTH INEQUITIES
BAY AREA REGIONAL HEALTH INEQUITIES INITIATIVE



Source: Bay Area Regional Health Inequities Initiative (BARHII) Conceptual Framework, 2006.

A Low-Carbon, Climate-Resilient Community is...

Healthy, energy efficient, & affordable housing!



Clean air, green spaces for recreation!



Urban and community greening to keep cities cool.



Where there are good jobs, and safe neighborhoods.



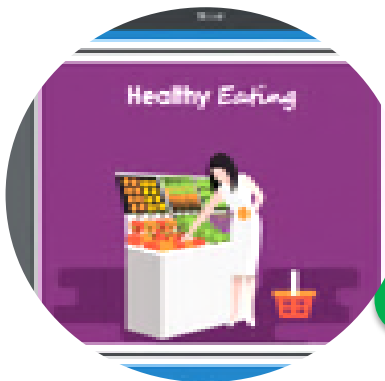
Kids have safe places to play and learn.



Healthy built environment including walkable & bikeable communities!



Access to affordable, healthy foods.



Where people know and care for one another.

A Healthy, Equitable Community

Racial Equity Lens

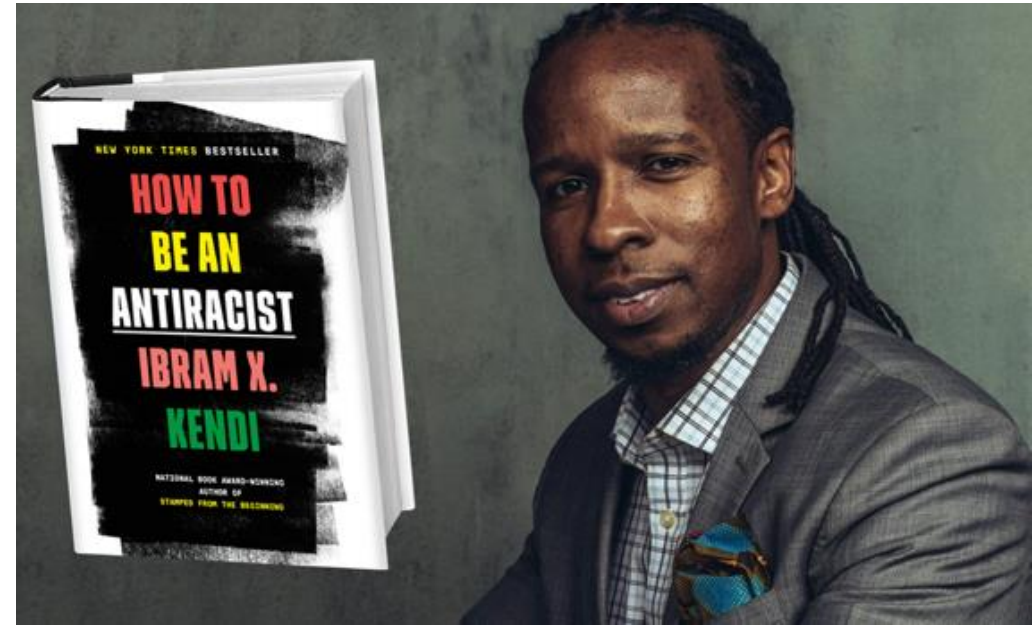


Photo: Istock JuanMonino

Culture and Ideas Flow from Policies

Ibram X. Kendi: **Racist policies lead to racist ideas, not the other way around.**

“A racist power creates racist policies out of raw self-interest. The racist policies necessitate racist ideas to justify them...I had been taught that racist ideas cause racist policies...But that gets the chain of events exactly wrong! The root problem...has always been the self-interest of racist power...Intellectuals **then** produced racist ideas to justify the racist policies.”



Similarly, **a culture of justice and health equity flows from equitable policies.**

Operationalizing Equity

Equity = Fair distribution of power and resources

Equity mechanisms:

- Prioritized financial incentives, investments, or resources
- Higher levels of service
- Facilities
- Capacity building or training
- Jobs
- Decision-making power

“Cash, capacity, control”

Climate Change & Health Vulnerability Indicators for California (CCHVIs)

Environmental Exposures:

Heat

Air Quality

Drought

Wildfires

Sea Level Rise

Adaptive Capacity:

Air Conditioning Ownership

Tree Canopy

Impervious Surfaces

Public Transit Access

Population Sensitivity:

Children and Elderly

Poverty

Education

Race and Ethnicity

Outdoor Workers

Vehicle Ownership

Linguistic Isolation

Disability

Health Insurance

Violent Crime Rate

Alameda County

Select an Indicator

Percent of households with no vehicle ownership

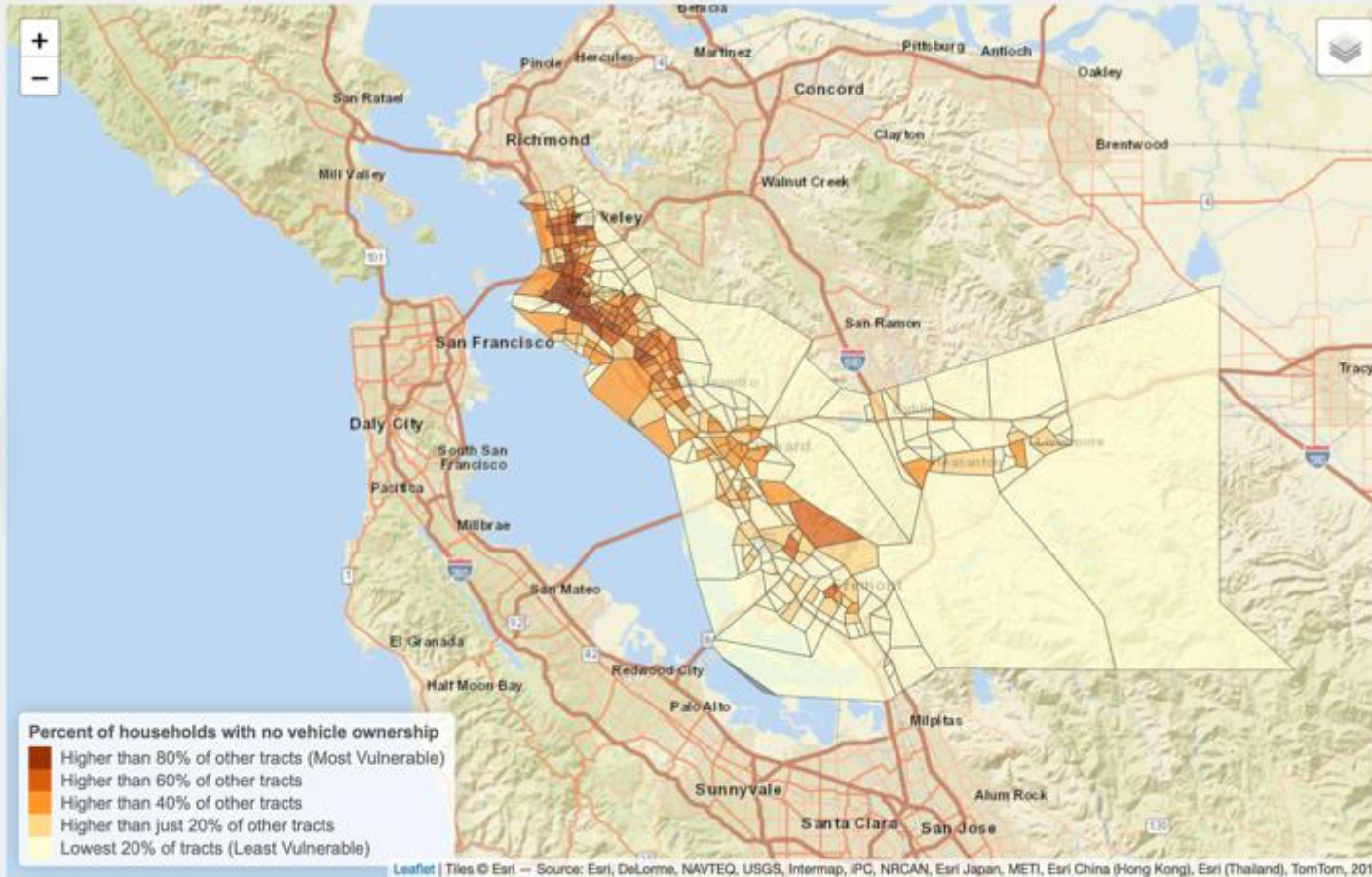
Strata

none

Transportation improves access to evacuation and shelter from climate hazards, such as wildfire, air pollution, heat waves, and flooding.

[Download the Narrative for this Indicator](#)

County Map



[Download the data in this Map](#)

What is the climate change challenge?

Vehicle ownership is a measure of mobility and access to transportation. Transportation is a critical resource for evacuation and survival during heat waves and other extreme weather events. For example, access to a vehicle is important during flooding which may require emergency evacuation of populations living in coastal and low-lying areas, and may also require adequate sheltering for displaced populations.

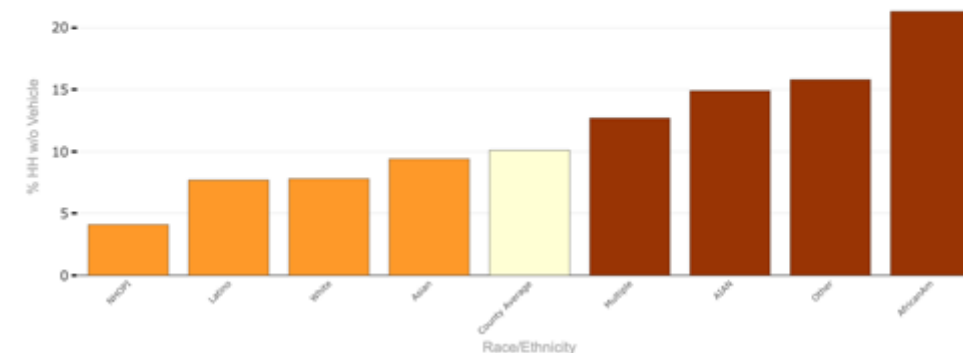
Why is this climate change impact important to health?

Vehicle ownership is important during extreme weather events because it improves access to evacuation or access to cooling centers or shelter from environmental exposures such as wildfire, air pollution, heat waves, or flooding. A survey among predominantly poor and African American Hurricane Katrina evacuees revealed that 34% reported lack of a car or other means of transportation as the main reason for not evacuating the storm's danger. In the Los Angeles-Long Beach Metropolitan Area, higher proportions of African Americans (20%), Latino (17%), and Asian (10%) households do not have access to a car compared to White households (8%).

Who is most impacted?

- Urban areas generally have lower rates of automobile ownership, particularly in inner city populations with low income.
- Some communities of color are more likely to have limited or no car ownership, which increases their risk of being impacted during heat and other extreme weather events. Populations with higher rates of people of color and poverty are less likely to own cars.

Differences by race



Vulnerability

Visualize California Counties based on levels of both an exposure variable and a population sensitivity variable.

The plot illustrates the intersection of hazard (from an aspect of climate change) and sensitivity (from circumstances of the population or place that tend to increase susceptibility to the hazards of climate change). Counties are assigned to the bottom (least), middle, or top (most) third for both exposure and sensitivity. The most vulnerable counties appear in top and right-most portions of the figure. Points are sized according to the population living in that county. Hover over points for the county name, population, and indicator values.

Some examples of important combinations to consider are

- Heat + elderly / outdoor workers / health insurance / air conditioning / tree canopy / impervious surfaces
- Ozone + children
- PM2.5 + children
- Wildfire + elderly / disability

[illegible]

Vulnerability

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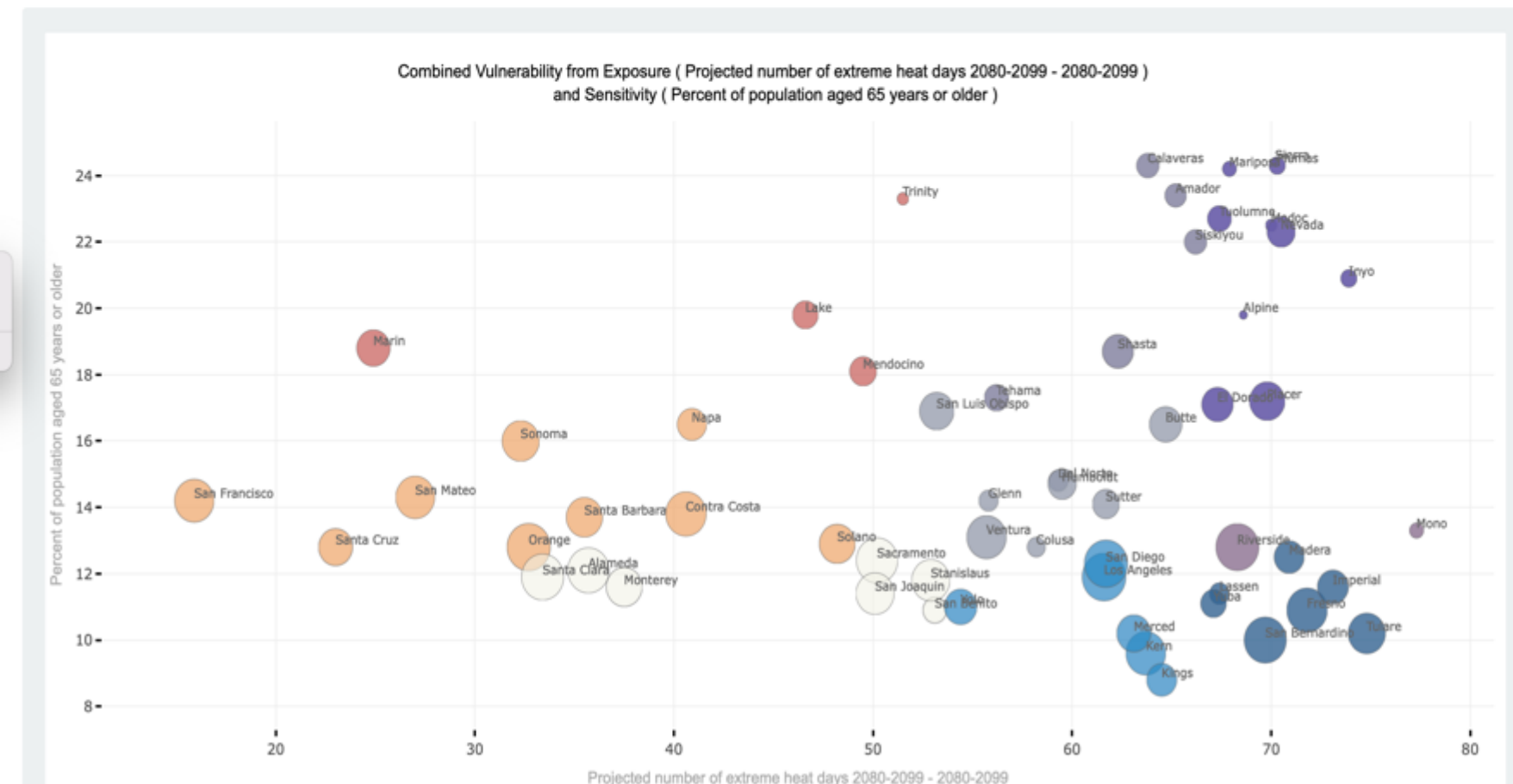
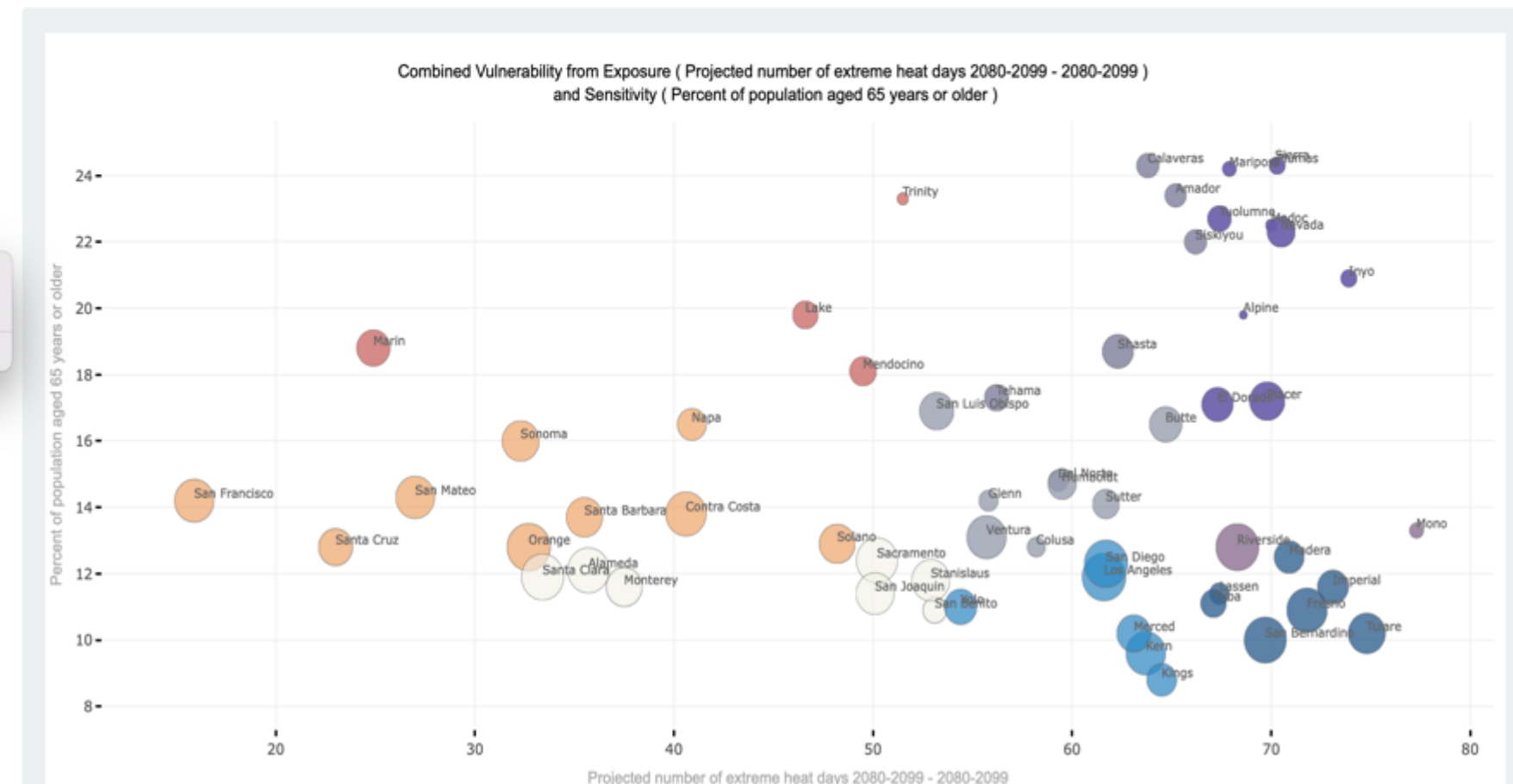
Some examples of important combinations to consider are

Exposure Indicator

Projected number of extreme heat days 2080-2099

Sensitivity Indicator

Percent of population aged 65 years or older

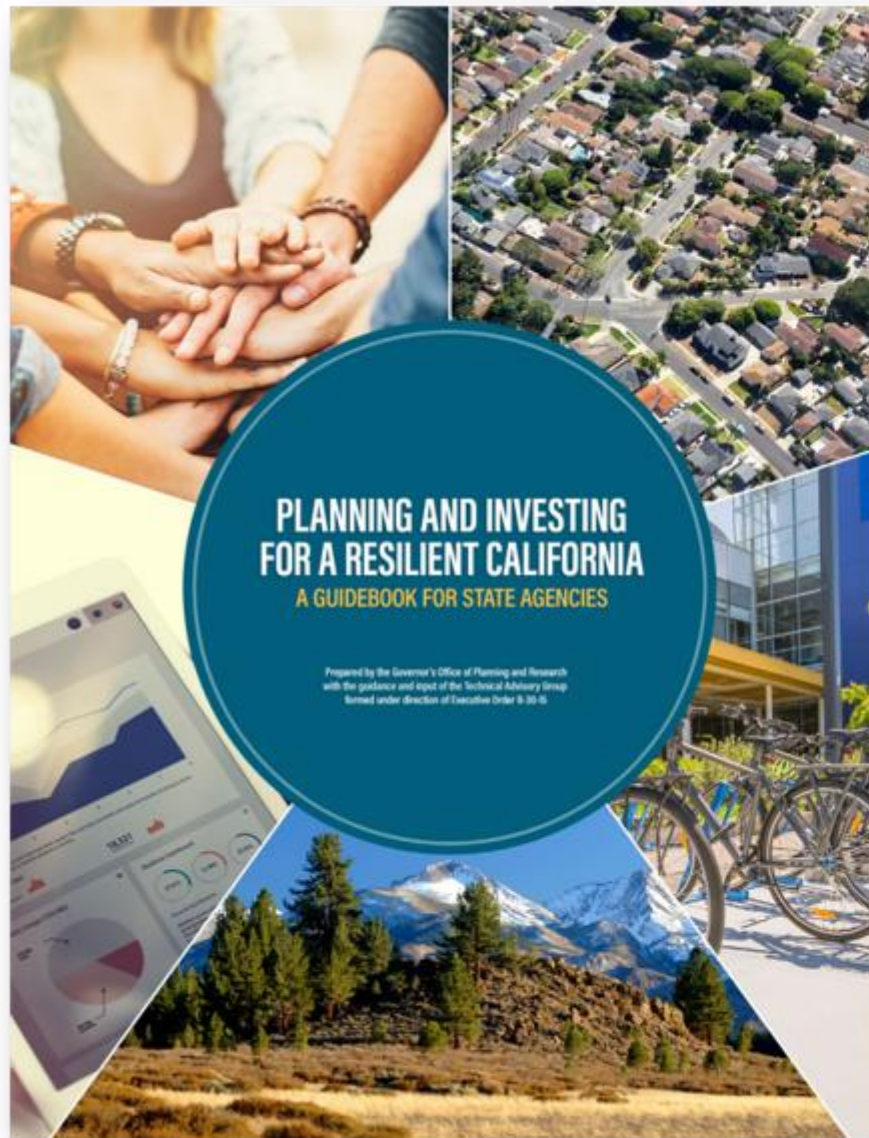


Climate, Health, & Equity in All State Policies



- **45 Day Community Wildfire Prevention & Mitigation Report** (CAL FIRE)
- Health analysis & EJ content for **AB 32 Scoping Plan** (CARB)
- **Low-Income Weatherization Program (LIWP) / AB 1232** implementation – improving health through **energy efficiency & weatherization of homes** (HHSA Community Services & Development Dept)
- **State Climate Adaptation Strategy** (AB 1482, CNRA, OPR)
- **Access to clean transportation & energy** for low-income Californians (SB 350, CARB, CEC)
- Progress Report on CA's **Sustainable Communities & Climate Protection Act** (SB 375, mandated by SB 150, CARB)
- **State Hazard Mitigation Plan & Adaptation Planning Guide** (CalOES)
- **Planning & Investing for a Resilient CA** – equity components (B-30-15, OPR)
- Health equity considerations in developing a State policy framework for the deployment of **Autonomous Vehicles** (CalSTA)
- Health benefits of reduced driving for CA **Mobile Source Strategy** (CARB)

Planning and Investing for a Resilient California



Appendix C Equity Checklist

The following checklist is intended to assist State agencies to ensure that plans and investments identify and protect the State's most vulnerable populations, as explained in Principle 2.

- » Which vulnerable populations may be impacted by or could benefit from your policy, initiative, program or budget?
 - » Have you identified these populations based on population characteristics, location, or both?
- » Have you designed a process to collaborate with vulnerable populations?
 - » Which best practices for meaningful engagement are you implementing (see [Community Engagement Best Practices](#))?
 - » Are you sharing as much decision-making power as feasible (see [Spectrum of Public Participation](#))?
 - » Is there a need for formal agreements to define collaboration, and if so how will you develop them (see an [example partnering agreement](#))?
- » How may the policy, initiative, program or budget increase racial equity?
- » How may the policy, initiative, program or budget decrease inequality in income or wealth?



Equity Checklist – Considerations for State Agencies

- Which vulnerable populations may be impacted or could benefit?
- Increase racial equity?
- Decrease inequality in income or wealth?
- Ensure safety and improve health outcomes?
- Prioritize vulnerable communities for employment and job training?
- Dedicated set-asides?
- Unintended consequences?

<http://opr.ca.gov/planning/icarp/resilient-ca.html>

Informing Policy: Health Analysis of Active Transportation

Healthy Mobility Options Tool / ITHIM CA: <https://skylab.cdph.ca.gov/HealthyMobilityOptionTool-ITHIM>

4x Increase in Walking & Transit; 9x Increase in Transit:



Typical CA resident replaces short car trips by increasing current levels of weekly walking and cycling from **41** to **181** minutes.



Annual increase of **790** fatal injuries to pedestrians and cyclists – underscoring continued need for active travel safety measures



11,307 fewer chronic disease deaths and **157,958** “disability-adjusted” years of life gained annually



Projected annual health benefits valued between **\$8 billion** and **\$108 billion**



Less car driving would improve air quality and prevent **19** additional deaths annually



Replacing short car trips with walking, cycling, and transit would also **decrease annual car carbon emissions by 10 MMT**

Guide State Investment & Resource Distribution to Prioritize Health Equity



Provide Health Equity Input to State Grants to CA Communities

- Affordable Housing & Sustainable Communities Program
- Transformative Climate Communities
- CA Climate Investments Technical Assistance Program
- Climate Change Research Grant Program
- Triennial Strategic Research Plan and Annual Research Plans
- SB 1 (Transportation) Adaptation Planning Grants
- SB 1 (Transportation) Sustainable Communities Grants Program
- Active Transportation Program
- Solutions for Congested Corridors, Local Partnership Program, Transit and Intercity Rail Operations & Capital
- Urban Greening Grant Program

Features Incorporated:

- Equity framework
- Prioritizing based on CCHVIs
- Community engagement & capacity building
- Local hiring, jobs creation & training
- Preventing displacement
- Partnering with health departments
- Reducing VMT & facilitating active transport

Potential Health Equity Benefits from State Climate Investments

<i>Emissions Reduction Grant Strategy</i>	<i>Health Determinants Potentially Affected</i>	<i>Health Conditions Potentially Improved</i>
Parks & Greening	Physical activity, heat, noise, air pollution, social cohesion	Cardiovascular, respiratory, heat-related illness, mental health, hearing
Housing & Buildings (affordable housing, residential stabilization, weatherization, green buildings)	Housing availability, quality, 'heat or eat dilemma', exposure to pests, hazards, and toxins, commute times & modes	Mental health, cardiovascular, respiratory, injuries, poisonings, cancer, infections, headaches, heat-related illness
Land Use & Transportation	Physical activity, access to healthy foods, commute times & modes, safety, air quality	Cardiovascular, cancer, osteoporosis, respiratory, mental health, injuries, birth outcomes
Green Jobs & Economic Development	Employment, working conditions, stress, economic security, wealth inequality	Occupational illnesses/injuries, mental health, life expectancy, overall health
Reducing Co-Pollutants of GHGs	Air quality	Cardiovascular, respiratory, heat-related illness, birth outcomes, cancer
Community Engagement	Social cohesion, power, self-efficacy, policy/economic changes, living conditions	Mental health, overall health, health inequities

Health Equity in California Climate Change Policy



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Thank you!

<http://bit.ly/cchep>



Climate Change & Health Equity Section
California Department of Public Health

Regenerative Agriculture, Climate, and Health Equity

National Public Health Law Conference--Virtual

September 23, 2021

Jill Krueger

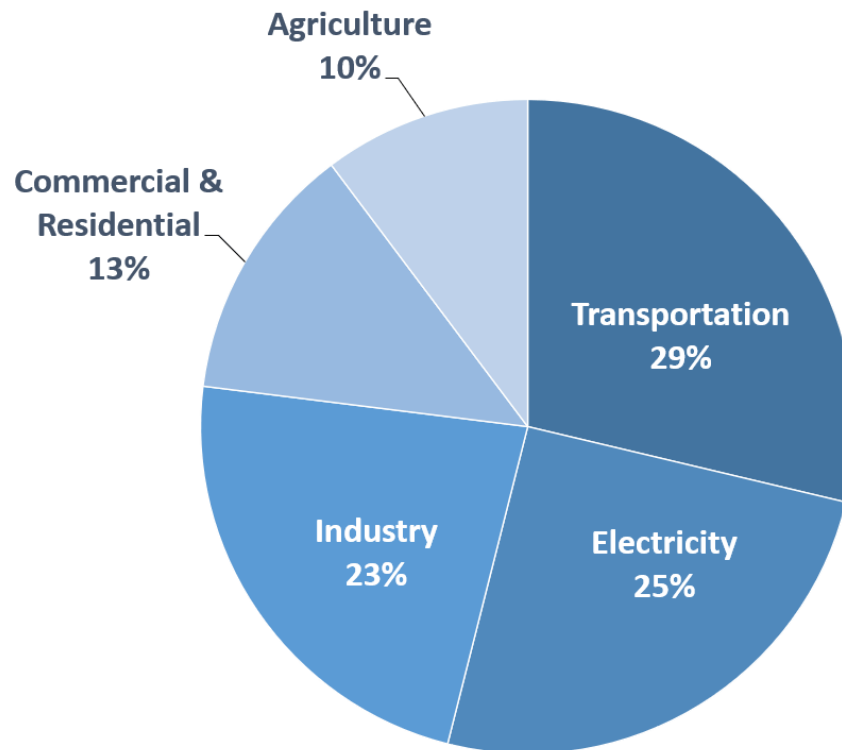


Outline

- » **Making the Connections: Agriculture and Climate Change; Climate Change and Human Health**
- » **Farm Policy as a Public Health Priority**
- » **An Agricultural Taxonomy (Industrial, Sustainable, Organic, Regenerative)**
- » **Federal—Farm Bill, 2020 CRRSSA, American Rescue Plan**
- » **Tribal—Tribal Adaptation Menu**
- » **State—Soil Health, Farmworker Health**
- » **Local—Soil Health, Composting/ Food Waste, Conservation Partnerships**



Total U.S. Greenhouse Gas Emissions by Economic Sector in 2019

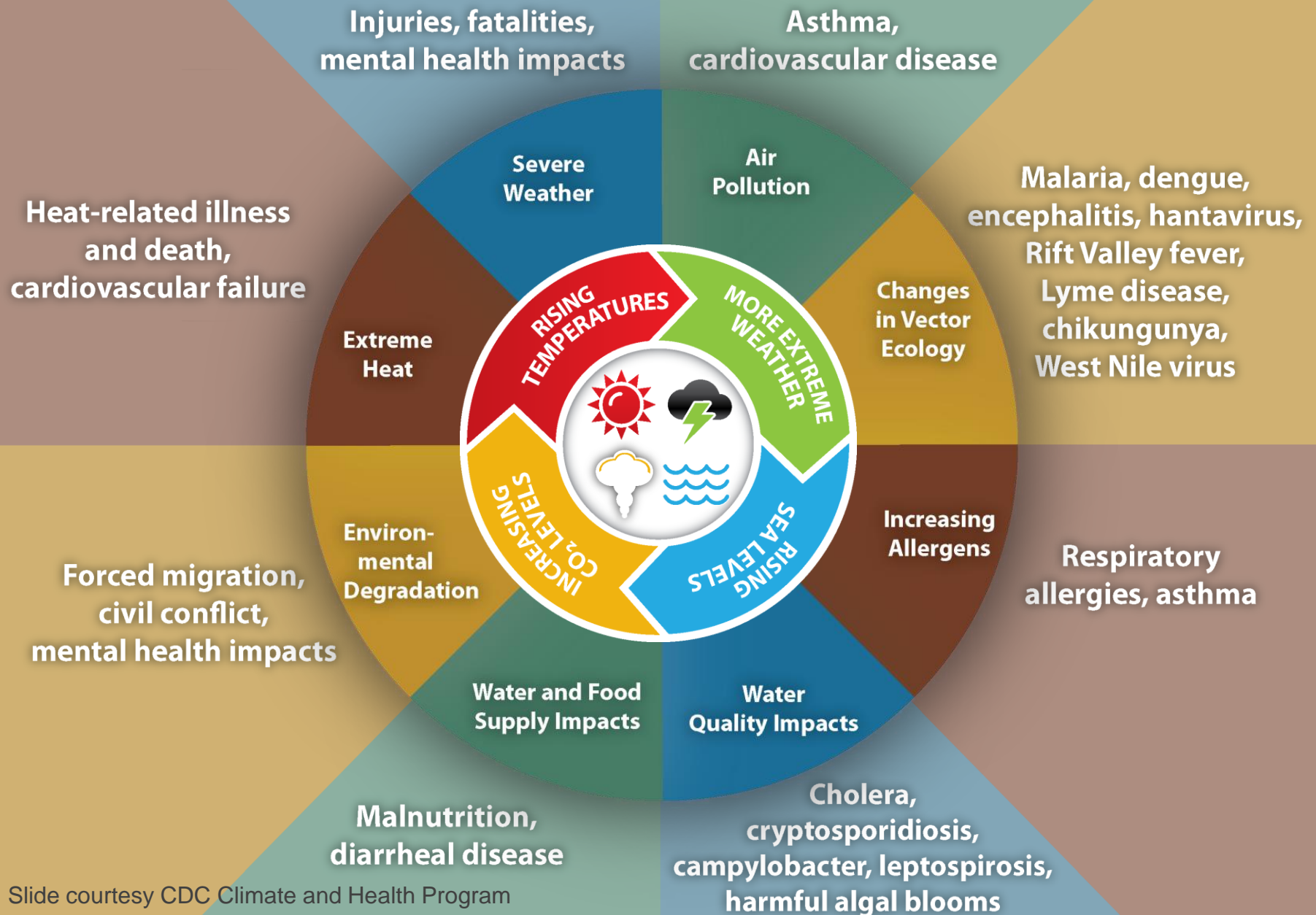


U.S. Environmental Protection Agency (2021). Inventory of U.S.
Greenhouse Gas Emissions and Sinks: 1990-2019



Niles, M., Ahuja, R., Esquivel, J., Mango, N., Duncan, M., Heller, M., & Tirado, C. (2017). *Climate Change and Food Systems: Assessing Impacts and Opportunities*, available at <https://futureoffood.org/wp-content/uploads/2021/03/CC-FS-Final-Report-November-2017.pdf> .

Impact of Climate Change on Human Health





U.S. CALL TO ACTION ON CLIMATE, HEALTH, AND EQUITY: A POLICY ACTION AGENDA



2019

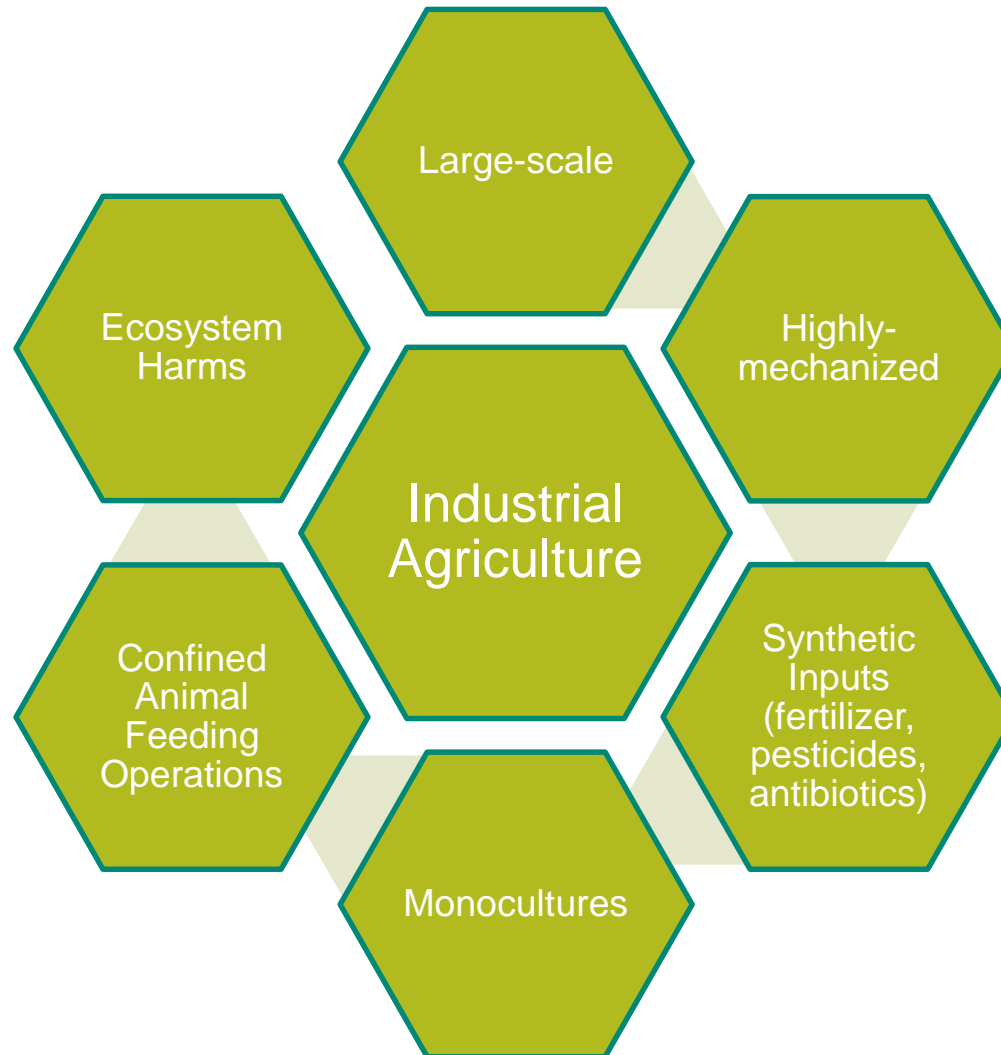
Climate change is one of the greatest threats to health America has ever faced—it is a true public health emergency. The health, safety and wellbeing of millions of people in the U.S. have already been harmed by human-caused climate change, and health risks in the future are dire without urgent action to fight climate change. As former Surgeon Generals Richard Carmona and David Satcher said: “We’re all at risk and our leaders must lead on global warming. Now.” But the health crisis caused by climate change also presents a major health opportunity. Building healthy energy, transportation, land use, and agriculture systems now will deliver immediate and sustained health benefits to all and reduce future health risks from climate change.

4

Promote healthy, sustainable and resilient farms and food systems, forests, and natural lands. By changing what we eat, and how we grow, harvest and transport our food, we can protect our health, reduce obesity, diabetes, and heart disease, and significantly reduce our carbon footprint. Properly



Defining Terms





Organic Agriculture



ORGANIC PLAN The term “organic plan” means a plan of management of an organic farming or handling operation that has been agreed to by the producer or handler and the certifying agent and that includes written plans concerning all aspects of agricultural production or handling described in this chapter including crop rotation and other practices as required under this chapter.

ORGANICALLY PRODUCED The term “organically produced” means an agricultural product that is produced and handled in accordance with this chapter.

» 7 U.S.C. section 6502 (Organic Foods Production Act)



Sustainable Agriculture

The term “sustainable agriculture” means an integrated system of plant and animal production practices having a site-specific application that will, over the long-term—

- (A)**satisfy human food and fiber needs;
 - (B)**enhance environmental quality and the natural resource base upon which the agriculture economy depends;
 - (C)**make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
 - (D)**sustain the economic viability of farm operations; and
 - (E)**enhance the quality of life for farmers and society as a whole.
- » 7 U.S.C. section 3103 (relating to Sustainable Agriculture Research and Education)



Regenerative Agriculture

“Despite widespread interest in regenerative agriculture, no legal or regulatory definition of the term “regenerative agriculture” exists nor has a widely accepted definition emerged in common usage.”

Following an extensive review of the literature, a team of researchers concluded that definitions of regenerative agriculture vary in terms of how much they focus on process, outcomes, or both.

Newton P, Civita N, Frankel-Goldwater L, Bartel K and Johns C (2020) *What Is Regenerative Agriculture? A Review of Scholar and Practitioner Definitions Based on Processes and Outcomes*. FRONT. SUSTAIN. FOOD SYST.



Regenerative Ag—Processes and Outcomes

TABLE 1 | Summary of processes and outcomes that were included in definitions or descriptions of regenerative agriculture within journal articles and practitioner websites.

Dimension of regenerative agriculture	Journal articles		Practitioner websites	
	N	%	N	%
Processes				
Reduce tillage (or no-, minimal-, conservation-)	14	11.6	9	40.9
Protect/cover the soil	6	5.0	4	18.2
Use cover crops	10	8.3	8	36.4
Use crop rotations	12	9.9	7	31.8
Use crop plant diversity (including intercropping)	11	9.1	3	13.6
Incorporate perennials and trees	7	5.8	6	27.3
Restore natural habitats	3	2.5	1	4.5
Integrate livestock	23	19.0	9	40.9
Use ecological or natural principles or systems	9	7.4	3	13.6
Use no or low external inputs; maximize on-farm inputs	32	26.4	7	31.8
Use organic methods	10	8.3	3	13.6
Use natural pest control	7	5.8	2	9.1
Use no synthetic pesticides	15	12.4	4	18.2
Use organic fertilizers	8	6.6	2	9.1
Use compost, mulch, green manure, or crop residues	11	9.1	6	27.3
Use no synthetic fertilizers	15	12.4	5	22.7
Focus on localism and/or regionality	6	5.0	0	0.0
Focus on small scale systems	3	2.5	0	0.0
Rely on farm labor, including for local knowledge	3	2.5	0	0.0
Other	4	3.3	1	4.5

Outcomes

To improve ecosystem health (including ecosystem services)	21	17.4	7	31.8
To increase biodiversity	26	21.5	10	45.5
To improve water health (e.g., hydrology, storage, reduce pollution)	18	14.9	10	45.5
To improve soil health (e.g., structure, soil organic matter, fertility)	49	40.5	19	86.4
To increase carbon sequestration	21	17.4	14	63.6
To reduce greenhouse gas emissions	5	4.1	3	13.6
To improve animal welfare	0	0.0	3	13.6
To maintain or increase yields	10	8.3	5	22.7
To maintain or improve farm productivity	18	14.9	5	22.7
To increase crop health and/or resilience	9	7.4	3	13.6
To improve food access and/or food security	10	8.3	3	13.6
To improve food nutritional quality and/or human health	13	10.7	7	31.8
To improve food safety	2	1.7	1	4.5
To improve the social and/or economic wellbeing of communities	21	17.4	9	40.9
To increase farm profitability	19	15.7	6	27.3
To create a circular system and/or reduce waste	14	11.6	1	4.5
Other	5	4.1	3	13.6

Newton P, Civita N, Frankel-Goldwater L, Bartel K and Johns C (2020) *What Is Regenerative Agriculture? A Review of Scholar and Practitioner Definitions Based on Processes and Outcomes.*

FRONT. SUSTAIN. FOOD SYST.

The Farm Bill



A Publication of Farmers' Legal Action Group, Inc.

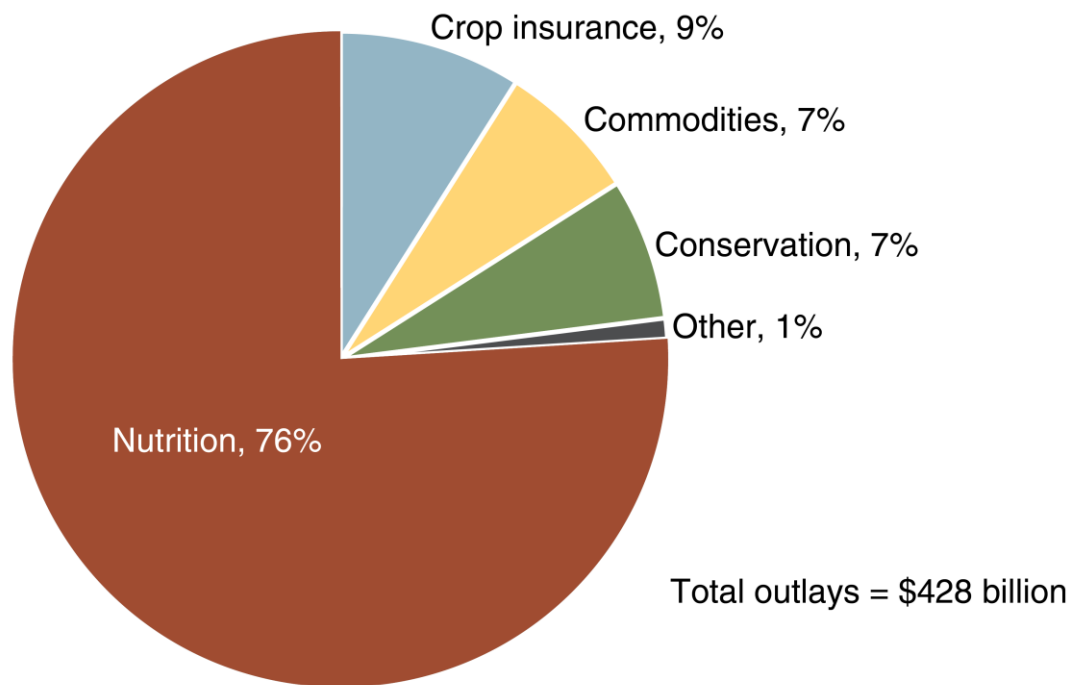
<http://www.flaginc.org/publication/planting-the-seeds-for-public-health-how-the-farm-bill-can-help-farmers-to-produce-and-distribute-healthy-foods/>



Why Analyze the Farm Bill?

- » **Vehicle to promote better health**
- » **Enormous impact on crops grown, food access and nutrition, and quality of soil, air, and water**
- » **Main source of federal law governing agriculture (also addresses forestry, rural economic development, and trade)**
- » **2018 Farm Bill budget projected at about \$85 billion per year for five years**
- » **About 40% of U.S. land mass is farmland (900 million acres)**
- » **Influences “winners and losers,” based on race, type and size of farming operation, region**

Projected outlays under the 2018 Farm Act, 2019-2023



Sources: USDA, Economic Research Service calculations based on Congressional Budget Office estimates.



Conservation in the 2018 Farm Bill

- » **Conservation compliance for loans and crop insurance**
- » **Conservation programs (not an exhaustive list)**
 - Environmental Quality Incentives Program, Conservation Reserve Program, Conservation Stewardship Program, Farmable Wetlands Program, Emergency Conservation Program, Emergency Forest Restoration Program, Grasslands Reserve Program, Conservation Innovation Grants, Regional Conservation Partnership Program
- » **Correct poor farming practices, or reward best practices?**
- » **Sense of Congress re: watershed partnerships**
- » **New! Soil health and carbon sequestration provisions**
- » **New! Conservation practice standards and data collection**



Disaster Assistance in the 2018 Farm Bill

- » **Crop Insurance**
- » **Non-insurance Crop Disaster Assistance Program (NAP)**
- » **Ad hoc programs for loss of livestock, feed, trees/tree crops, honeybees, farm-raised fish, etc.**
- » **Farm and Ranch Stress Assistance Network**
- » **Vital part of the financial safety net for farmers.**
- » **Policy concern—Programs focus on recovery after a disaster; could do more to influence farming practices to prevent natural disasters**



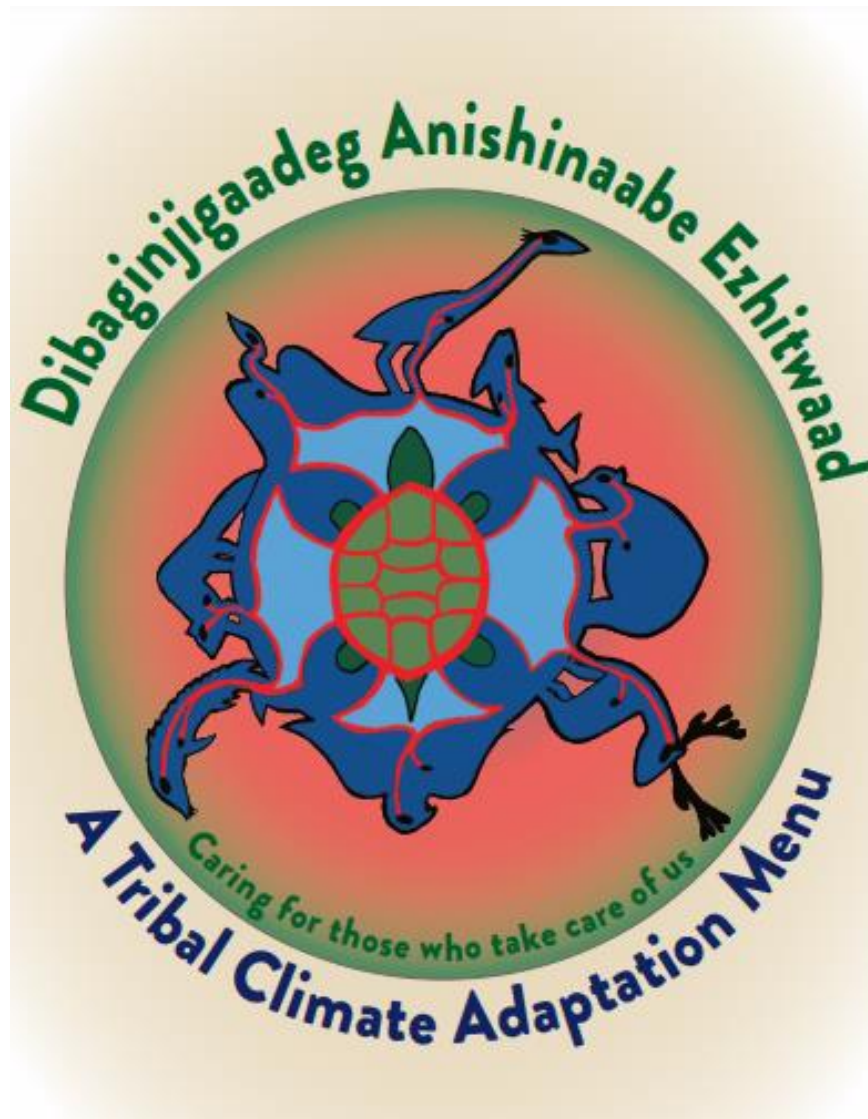
Racial Equity and the Farm Bill

- » Long-term, systematic discrimination in USDA programs, especially agriculture credit and loan programs
- » *Pigford* and progeny (*Keepseagle*, *Garcia*, *Love*)
- » Cooperative movements (Fannie Lou Hamer, Shirley and Charles Sherrod, Federation of Southern Cooperatives)

Monica White, FREEDOM FARMERS: AGRICULTURAL RESISTANCE AND THE BLACK FREEDOM MOVEMENT (2021)

- » Technical assistance and targeted funds for “socially disadvantaged farmers”
- » Heirs property – 2018 Farm Bill
- » Farm and Ranch Stress Assistance Network?
- » American Rescue Plan Act loan forgiveness for socially disadvantaged farmers

Tribal



State



State Level

» Promoting Soil Health

National Healthy Soils Policy Network—ME, MD, MA, NM, NY

Madison Delmendo, et al. (2021). *The scope of U.S. state soil health legislation: A mixed-methods policy analysis*. J. OF AGRICULTURE, FOOD SYSTEMS, AND COMMUNITY DEVELOPMENT, 10(3), 69–90.

» Regenerative Aquaculture

Seth Theuerkauf et al., *Habitat value of bivalve shellfish and seaweed aquaculture for fish and invertebrates: Pathways, synthesis and next steps*. REV AQUAC. 2021;00:1– 19.

» Regenerative Poultry Infrastructure (Minnesota)


Minnesota House File 1 (Article 3, sec. 2) (2021 Fifth Special Session)

» Farmworker Health/ Extreme Heat

Oregon, Colorado, California, Washington, Minnesota

Recent Reports by Vermont Law School Center for Agriculture and Food Systems, Johns Hopkins Center for Livable Future, Union of Concerned Scientists

A man in a blue checkered shirt and dark trousers is walking through a lush garden. Several brown chickens are pecking at the ground in the foreground. The garden is filled with various green plants and trees, creating a dense, natural environment. A 'Share' button is visible in the bottom right corner.

 Share

BRIAN POWERS/THE REGISTER

Engaging on Farm Policy from the Health Sector



Engaging with Agricultural Policy from a Public Health or Healthcare Perspective

Health Education

- Education
- Community Partnerships
- Policy Development
- Advocacy

Emergency Preparedness

- Education
- Community Partnerships
- Policy Development
- Advocacy

Communicable/Chronic Disease

- Education
- Community Partnerships
- Policy Development
- Advocacy

<https://www.neha.org/news-events/latest-news/climate-and-health-fact-sheets-neha>

<https://www.networkforphl.org/wp-content/uploads/2020/12/Action-Guide-Renewable-Energy-Standards.pdf>