



Health Equity and Climate Change

2.1 Fundamentals of Health Equity and Climate Change

It is hard to overstate the connections between climate change, health, and equity. The following framework (Figure 2.1.1) outlines these critical connections. See Appendices [1](#) and [2](#) for other foundational frameworks—including the [Healthy Communities Framework](#), [A Public Health Framework for Reducing Health Inequities](#), and others—that have informed action on climate change, health and equity.

- *The root causes and upstream drivers of climate change and health inequities are often the same:* Our energy, transportation, land use, housing, planning, food and agriculture, and socioeconomic systems are at once key contributors to climate pollution and key shapers of community living conditions. The powerful institutions largely responsible for constructing these systems influence and are influenced by social inequities such as class and race.
- *The health risks and impacts of climate change are not equally or fairly distributed across people, communities or nations.* The impacts of climate change on health are significantly moderated by individual and community vulnerability and resilience. Two critical components of climate vulnerability are pre-existing health status and living conditions. In the United States, these factors are shaped by economics and the distribution of money, power, social policies and politics at the global, national, state and local levels.¹ They differ by place, race, and income, as a result of inequities in the distribution of money and power, historical disinvestment in some communities, discriminatory practices and policies over time, structural racism, higher pollution burdens, and lesser access to resources for health. Therefore, low-income communities and communities of color are disproportionately affected by the health impacts of climate change.
- *Climate change exacerbates existing health and social inequities.* Climate change worsens environmental conditions (e.g., ozone pollution) associated with chronic illness and injury and causes social and economic dislocations that most impact disadvantaged communities.
- *Interventions that act on upstream shared systemic causes can most effectively address both climate change and health inequities.* Interventions to address climate change and health inequities range from upstream structural, policies, and systems changes to downstream treatment, rehabilitation, and disaster recovery efforts. Interventions along the entire spectrum are needed to protect and promote health in the era of climate change. However, upstream solutions have the greatest benefits, providing primary prevention and promoting healthy, equitable, sustainable, and resilient communities.⁷
- *Building political and economic power and voice are essential components of climate resilience.* Especially for historically disenfranchised low-income communities and communities of color, power imbalances have allowed the perpetuation of unhealthy living conditions associated with health inequities and climate vulnerability. The lack of power and voice constrains the ability of communities to respond to climate change impacts and contribute local knowledge to climate solutions. Building community power is required to transform systems to foster health.

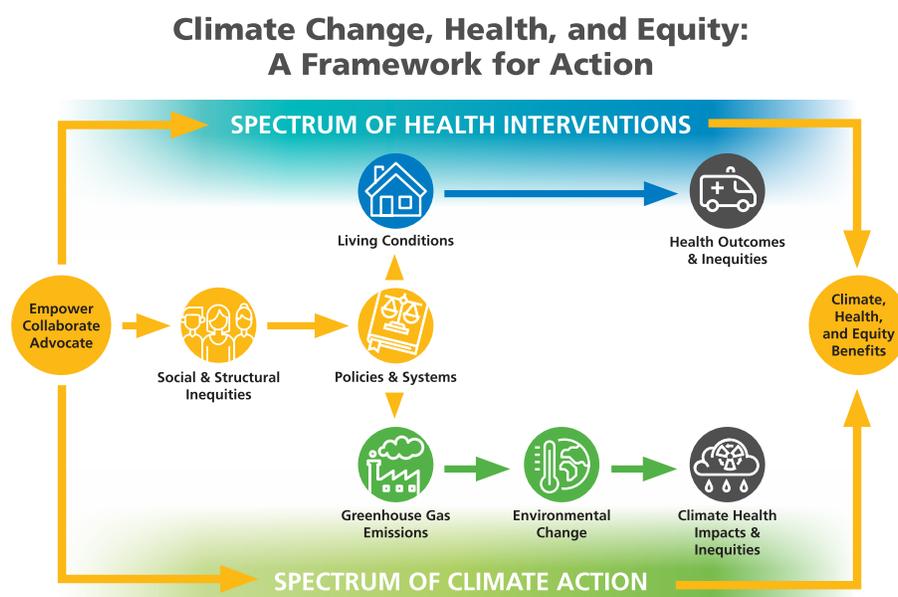
Health Equity: Some Definitions

Health equity means that everyone has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.²

Systems, social and structural inequities, and institutional power impact our environment, living conditions, behavior, and how we function as a society.

- **Systems**³ are a collection of parts—physical structures, people, and organizations—that interact to provide an important function. Farms, farmers, packing plants, food inspectors, restaurants, and truckers all play a role in our food system. Social and structural inequities and powerful institutions interact to shape the systems that determine living conditions, human impacts on the climate, other environmental impacts, and health outcomes.
- **Social and Structural Inequities**⁴ refers to the historical disenfranchisement and unequal distributions of power, money, and resources that are often associated with class, race, ethnicity, place, immigration status, gender, and sexual orientation. These inequities are perpetuated by hierarchies in power through mechanisms rooted in key institutions and processes.⁵
- **Institutional Powers**⁶ and authorities (such as corporations, governments, school systems, and large NGOs) make decisions that impact the physical environment and shape the societal distribution of health-promoting resources and opportunities (e.g. parks, grocery stores, education, childcare, medical care, jobs). People in institutions and their decisions and actions are influenced by social values and mores that perpetuate inequities.

Figure 2.1.1: Climate Change and Health



Intergenerational Equity

“We have been mortgaging the health of future generations to realize economic and development gains in the present.”

The Rockefeller Foundation–Lancet Commission on Planetary Health

The actions of one generation affect the conditions of those that follow; climate change makes this more pressing than ever. Intergenerational equity means that fundamental rights and interests of future generations must be treated with equal value as the rights and interests of those living today. To ensure the survival and well-being of future generations we must sustain the most basic of earth’s resources—clean water, clean air, healthy soil, and climatic stability.

Young people are establishing a legal framework for achieving intergenerational equity. *Juliana v. U.S.* is a youth-filed constitutional climate lawsuit asserting that government actions that cause climate change violate the youngest generation’s constitutional rights to life, liberty, and property, as well as fail to protect essential public trust resources. Judges have upheld the case against efforts by the Obama and Trump Administrations to dismiss it.^{8,9}

Global Climate Inequities: Responsibility and Burden

The smallest and least developed countries often bear the most harmful burden of climate change, although they have contributed the least to the problem. Industrialized nations are responsible for the majority of climate pollution. From 1850 to 2011, the United States, European Union, China, Russian Federation, and Japan emitted two-thirds of the global CO₂ emissions, and the United States was responsible for 27% of global greenhouse gas emissions (GHGE). China has emerged as the world’s largest climate polluter. However, the United States ranks in eleventh place for per capita GHGE at 16.5 metric tons per capita¹⁰—more than three times the global average. China ranks 42nd (7.5 metric tons per capita) and India ranks 127th (1.7 metric tons per capita).¹¹

The World Health Organization estimates that 99% of the disease burden from climate change occurs in developing countries, 88% of which occurs in children under five.¹² From January 1980 through July 2013 there were 2.52 million deaths globally due to climate-related disasters, 51% of which occurred in the 49 least developed countries.¹³

2.2 Climate Vulnerability and Resilience

Climate Vulnerability

Climate vulnerability is the degree to which people or communities are at risk of experiencing the negative impacts of climate change.¹⁴ It is often tightly coupled with health and social inequities. Key components in climate vulnerability include exposure, sensitivity to threats, and capacity to adapt and respond.¹⁵ See Table 1 for more details.

Table 2.2

COMPONENTS OF CLIMATE VULNERABILITY

Exposure to climate threats

- Geography and the nature of climate change impact particular locations differently.
 - Low-lying coastal communities are at greater risk of coastal flooding from sea level rise and tidal storm surges than communities at higher altitudes.
 - People living in flood plains are at higher risk of flooding with extreme precipitation.
 - Communities on or below steep hillsides are at risk of mudslides/landslides during extreme weather events.
 - Those living at the wilderness-urban interface are at higher risk of wildfires.
- Occupations can increase exposure to climate risks.
 - Outdoor workers such as agricultural, landscape, and construction workers are at greater risk of exposure to extreme heat.
 - First responders are at increased risk of death or injury during extreme events such as hurricanes or wildfires.

Sensitivity and susceptibility to climate threats

- Individual characteristics may increase susceptibility to climate risks. For example, older individuals and children have increased susceptibility to heat stress.
- Pre-existing health conditions and baseline prevalence of climate-sensitive diseases. (Differences in rates of these conditions and diseases often reflect health inequities.)
 - Those with asthma or chronic obstructive pulmonary disease (COPD) are at greater risk of respiratory illness from increased ozone, wildfire smoke, and increased pollen.
 - People with obesity, diabetes, cardiovascular disease, and mental illness are more susceptible to heat impacts.
 - Immunosuppression increases the risk of climate-related infectious disease.
- The baseline status of environmental quality intersects with climate impacts and subsequent health outcomes. For example, people living in areas with high baseline levels of air pollution are more vulnerable to increased ozone levels due to rising temperatures.

Capacity to adapt to and respond to climate threats

- Differential access to resources, which means that low-income individuals, households, and communities are less likely to
 - afford air conditioning to reduce heat risk, or to cope with rising food prices related to climate impacts on agriculture;
 - have insurance or financial resources to rebuild or relocate after an extreme weather event; or
 - enjoy the resources required to build infrastructure that promotes climate resilience and adaptation.
- Conditions of the built environment, such as
 - aging water and sewage infrastructure that leave some communities more prone to severe flooding and potential for water contamination;
 - few trees and parks in some neighborhoods increases risk from heat.
- Socially mediated capacity to reduce risk and to prepare and respond effectively.
- Disinvestment in public health and emergency response infrastructure and safety net resources limits the capacity for preparedness and response.
- Variable levels of social cohesion which reduces health impacts of climate change and builds social and political will to invest in climate action.

2.3 Race, Ethnicity, and Climate Change

Each of the subsections below have an [Appendix](#) with additional information about the effects of climate change on the health of the populations discussed (see [Appendix 3](#)).

African Americans

African American communities have lower income, less education, and poorer health status than non-Hispanic White communities overall, largely due to the legacy of slavery and historical discriminatory practices in housing, education, employment, and healthcare.¹⁶ These inequities contribute to greater vulnerability to climate impacts.

- African Americans are more likely to live in neighborhoods with few trees and more heat-trapping pavement.¹⁷ The rate of heat-related deaths in African Americans is 150–200% greater than that for non-Hispanic Whites.¹⁸
- African Americans have a 36% higher rate of asthma incidents and are 3 times more likely to die or visit the emergency room from asthma-related complication than non-Hispanic Whites.¹⁹
- One out of five of African American families live in poverty, compared to one out of fifteen White families. During an extreme weather event, these households have a smaller cushion against property damage or injuries, further complicated by lack of access to medical care and insurance.²⁰

Native Americans and Alaska Natives

Historical policies, such as colonization and genocide, the Indian Removal Act of 1830, and residential schools for Native American children have led to present-day social and health inequities in Native American and Alaskan Native communities, including loss of traditional lifestyles, persistent poverty, substandard health services, and lack of access to electricity, running water, and communication technologies.^{21,22}

- Traditional Native Americans and Alaska Natives (NA/AN) diets and subsistence hunting and fishing are at risk due to climate change.^{23,24}
- NA/AN communities lack access to clean, potable drinking water at higher rates than others.²⁵ Warmer water temperatures may exacerbate already-high rates of diarrhea-associated hospitalizations for Native American and Alaskan Native children.²⁶

Latinos/Hispanics/Latinx

The three terms “Latinos” “Hispanics” “Latinx” are used here, but in the remainder of the document, “Latinos” will be used for ease of use. Latino communities have lower income, less education, and poorer health status than non-Hispanic White communities overall, largely due to historical discriminatory practices in housing, education, employment, and healthcare.²⁷

- Nearly 1 in 2 Latinos live in counties with poor air quality. Latino children are twice as likely to die from asthma as non-Latino whites, and Latino children living in areas with high levels of air pollution have a heightened risk of developing Type 2 diabetes.^{28,29,30}
- Over 1.8 million Latinos live within a half-mile radius of oil and gas development.³¹

Native Hawaiians and Pacific Islanders

Historical practices such as colonization and trade, the aggregation of census and health data, and a history of military testing have led to present-day social and health inequities that increase climate-related health risks in Native Hawaiian and Pacific Islander communities.³²

- Scientists project that by 2100, Hawai‘i and some Pacific islands will experience about 1ft–2.5ft higher sea-level rise when compared to global averages.³³
- A higher proportion of Pacific Islanders in the United States live in counties with pollution exceeding the federal air quality standards when compared with Asians and other racial groups.³⁴
 - Native Hawaiian and Pacific Islander communities experience high rates of asthma, expected to worsen as climate change worsens air quality.³⁵

2.4 Community Climate Resilience

Climate resilience is “the capacity of a community to anticipate, plan for and mitigate the risks— and seize the opportunities—associated with environmental and social change” brought about by climate change.³⁶

Earlier definitions framed resilience as the ability to “bounce back” from a stress or shock, possibly to unhealthful and inequitable conditions.³⁷ “Bouncing back” resilience might allocate resources to maintain the status quo or make marginal changes that do not fundamentally reduce vulnerabilities across the whole of a community. “Bouncing forward” resilience is characterized by greater openness and adaptability; it strives to see climate change as an opportunity to change social, economic, and political structures to promote equity and sustainability and to invest in systems changes that promote health and well-being.³⁸

The characteristics of vulnerability and resilience may coexist at the same time. For example, a neighborhood may be exposed to high levels of air pollution but also have a strong local food system and a high-quality community clinic. Improving the underlying health status and structural and system determinants of health is one of the most effective strategies to build climate resilience. See examples below of how LHDs can advance health equity and build community climate resilience.

2.5 What LHDs Can Do: Health Equity and Climate Resilience

Building resilience to climate change and addressing social and health inequities requires addressing the systemic causes of these challenges through collaboration and shared decision-making with impacted communities, community-based organizations, and other stakeholders across sectors. Below is a set of recommended actions LHDs can take to advance health equity and climate resilience within their current programs. For additional actions by climate impacts and LHD programs and functions see Sections [4](#), [6](#), and [7](#) respectively. For a comprehensive review of LHD action to advance health equity see Human Impact Partners [Health Equity Guide](#).⁴⁰

A climate-resilient community:³⁹

- Is committed to the transformative change required to build a healthy, equitable, and sustainable community.
- Takes action to build individual and collective capacity to respond proactively to and influence social, economic, and environmental change.
- Nurtures diversity, respects the experience and knowledge of all community members, and proactively engages all segments of a community in understanding and responding to change.
- Is organized in a way that provides capacity to recognize and act on problems and to learn from experience.
- Fosters social cohesion and collaboration across networks through bonding, bridging, and linking.
- Builds community capitals including economic, social, built, political, and environmental capitals.
- Supports investment in physical infrastructures and services that meet the needs of all residents.
- Recognizes the value of environmental resources and works to protect, enhance, and maintain them.

Assessment and Surveillance

- Include health and social inequities and vulnerabilities in climate and health vulnerability assessments.
- Improve data about vulnerable populations and health and social inequities and use it in planning and prioritization for climate and health programming.
 - Acknowledge missing data and data limitations that may limit ability to assess particular sub-groups.
- Highlight the most striking inequalities in data and publications and the root causes of these inequalities to provide clear, consistent, and widespread messages to decision makers, affected communities, partners, and the general public about the existence of and need to address health inequities.
- Use community-based participatory research or “citizen science” or “community science” and qualitative methods (e.g., surveys, interviews, focus groups) to identify indicators for climate and health vulnerability assessments and in data collection and interpretation.
 - Multnomah County Health Department (Oregon) contracted with a community-based organization, Coalition of Communities of Color and Portland State University Planning Department to create a climate and health tool and [interactive map](#) to inform LHD action and guide future jurisdiction investments. Community members were instrumental in selecting indicators included in the tool. See Section [7.1—Surveillance](#).

Intersectoral Collaboration

- Build awareness of the connection between the social determinants of health, and the shared systems that create inequities and contribute to climate change with partner government agencies and elected officials. Advance a narrative that emphasizes the climate change, health, and equity nexus and the solutions that confer climate, health, and equity benefits.
- In collaboration with other agencies, include equity in assessments, research, and policy and program decisions to examine the climate, health, and equity impacts of proposed policies, projects, and programs.
- In collaboration with other jurisdiction agencies and intersectoral partners advance policies and programs that address the underlying determinants of health and inequities in access to resources and infrastructure.
 - Promote urban agriculture and local food systems (e.g. community gardens).
 - Prioritize infrastructure investments to improve climate resilience and health equity in historically neglected communities (e.g. active transportation infrastructure, public parks and green space).
- Include climate, health, and equity language and data in jurisdiction plans, budgets, and assessments.
 - As part of the city’s 2018 One New York Plan, the NYC Department of Health and Mental Hygiene worked collaboratively with other city agencies to include public health and health equity in the city’s planning up until 2040, including for the city’s transportation and food systems.⁴¹
- Work across sectors to agree upon common language related to climate change, health, and equity. See Section [7.3—Collaboration](#).

Community Engagement and Education

- Conduct a scan to assess potential interest in the issue of climate change, health, and equity including both current and potentially new partners.
- Conduct outreach to local Environmental Justice (EJ) groups, Community-based Organizations (CBOs), and community leaders to begin conversations regarding their interest and activities related to climate change, health, and equity.
 - Los Angeles County Department of Public Health contracted with a local EJ organization, Communities for a Better Environment, to conduct a workshop to gather community input on LADPH's extreme heat response plan. Community recommendations will be compiled and included in the response plan.
- Make an effort to meet potential CBO or community partners where they are and to develop an understanding of their current priorities, concerns and challenges, membership and constituency, strengths and resources, and level of interest in climate change and health equity.
- See Section [7.2—Engagement](#) and Section [8—Communications](#).
 - The New Orleans Health Department partnered with Gulf Coast Center for Law & Policy to host community meetings to assess knowledge of the city's extreme weather response protocol, communicate impacts of climate change on health, identify community health service needs, and cultivate trust while prioritizing community action steps that address the intersection of climate and health.
- Recognize and acknowledge the inherent power dynamics between community members and government employees, people of color and White people, and people with different educational and socioeconomic backgrounds. Provide space and processes, such as agreed on ground rules for meetings and opportunities for one-on-one conversations, to address those dynamics.
- Identify strategies to build community capacity as you partner with CBOs and community members and leaders.
- Include community members in decision-making processes regarding LHD programs and investments.
- Establish fair and supportive mechanisms for participation when requesting CBO or community member participation in meetings or other partnership activities.
- Collaborate with CBOs and community members and leaders to develop culturally and linguistically appropriate materials for public information and dissemination and use an array of channels to ensure information reaches all members of the community.