Aging, Equity, and the Climate Crisis

Engaging Older People in Building Thriving, Resilient Communities

Report
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CLIMATE EQUITY
POLICY CENTER

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Executive Summary

Older adults are woven throughout our communities. Sometimes cherished and sometimes undervalued, older people make up a significant part of the population of the United States. Yet too often, older adults' vulnerability is an afterthought in climate policy, and their skills and experience are overlooked in planning for climate change. We need to do better. Older adults are at high risk from the threats of climate change, and these dangers are particularly acute for older adults of color and lower income older people.

This report discusses why and how older adults are at risk, examining aspects of aging that may increase danger from climate threats. It looks at how specific climate threats endanger older people, and how inequitably distributed these dangers are, exploring ways in which race and income intersect with these challenges.

Fortunately, there are many actions that we can take to protect against the risks that threaten older adults, while also advancing racial and economic justice. We need to include older people in thinking about and planning for our changing climate, ensuring real engagement with older adults of color, those with limited English, and those who are low-income or unhoused. We also need a range of policies, programs, and investments focused on ensuring the safety and well-being of older adults in light of climate change. The good news: actions that benefit older adults bring additional protections for everyone else as well. We can create a future that supports safety and health for older people, greater racial justice, and thriving, climate-safe communities.

This report begins with **Chapter 1**, an introduction to the topic of aging, equity, and the climate crisis. In **Chapter 2**, the report illuminates the diversity of the population of older adults in the United States, a growing group that is nearly 20 percent of the population, including fit and active individuals, frail "oldest old" adults, and people in between. The population of older adults of color is growing too, with the percent anticipated to almost double between 2007 and 2040. At the same time, older adults also include a high percentage of economically insecure individuals, as well as a large population of unhoused older adults. As the report explores, structural racism and resource limitations act to exacerbate the challenges of climate change for many older adults of color and low-income older people. Highlighting the many contributions that older adults bring to communities, the chapter closes by describing the benefits available to communities that engage and include older adults in responding to the climate crisis.

Chapter 3 and 4 then turn to how the risks of climate change specifically affect older adults, and how these risks intersect with race, class, and other aspects of identity. In **Chapter 3** we look at acute climate disasters – extreme heat, storms, wildfires, and their aftereffects – and explore the dangers for older adults. In **Chapter 4**, we explore climate threats that play out over longer periods of time – infectious disease, drought, and mental and social health. We assess each climate threat, its equity implications, effects on older people, and potential solutions. Moving more explicitly from problems to solutions, **Chapter 5** explores how equitable policy approaches can protect older adults from climate threats while providing a range of other benefits. The chapter sets out a range of policy areas: inclusive decision-making, accessible public spaces, cooler communities, affordable and resilient housing, care infrastructure, and more. For each area we highlight specific key policies and actions that can equitably address the well-being of older adults in the face of a changing climate. **Chapter 6** concludes the report.

The climate crisis presents a host of dangers to older people, dangers that are particularly acute for older adults of color and low-income older adults. This report seeks to identify these dangers and their solutions, helping us move toward a future of climate resilience, justice, and safety for older adults and everyone else.

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1 Introduction

Everyone is at risk as climate change intensifies. Still, some groups are affected more than others. As Americans live longer and healthier lives, there are more older adults than ever – but this group experiences some of the highest risk from climate change. The climate crisis has the greatest impacts on people who are already experiencing other systemic inequalities. Older adults of color and lower income older people are even higher risk than the general older population.

We need to act now to ensure that our responses to climate change adequately address threats to older adults, are grounded in equity, and provide the policy and community infrastructure to support older people in leading long, healthy, satisfying lives. We urgently need comprehensive and creative public investments at the city, state, and federal level to prioritize vulnerable populations like older adults as we contend with increasingly frequent and powerful storms, wildfires, heatwaves, and disease.

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2 Background

The population of older Americans is nearing 20 percent of the total US population. This large and diverse group of people both has the potential to contribute significantly to the fight against climate change, and also has specific needs for protection from its dangers. Older people have higher rates of disability and are more vulnerable to climate stressors than the average person. In addition, engaging older adults in climate policymaking and ensuring that their needs are addressed will have broader benefits for the entire population, since many of the changes needed to support older people through the climate crisis also benefit everybody else.

What Does the Population of Older Adults Look Like?

Who exactly falls into the category of "older adult"? Some authorities define this group as including people aged 65 and above (US CDC), while others start at age 60 (the United Nations and World Health Organization).* This difference is partly due to how old age affects people differently, with different intensities, and at varying points in the aging process. These different effects are based upon genetics, cultural and environmental factors, and more. It is widely accepted that the population group of older adults is growing rapidly – not just as a percentage of the overall population, but also in total number. In 2019, 54 million people in the US were 65 years or older, making up 16 percent

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* Because age brackets are not consistent between data sets, reports and other communications about older adults also use a combination of ranges.

of the US population. By 2040, this number is predicted to reach almost 81 million people, and by 2060, older adults are expected to be 25 percent (95 million) of the US population.[1] Not only are there more older adults overall, but the population of older adults is itself aging: there is an increase in the numbers of very old adults (often defined as 75 to 85 years old) and oldest old adults (over 85 or 90 years old), who have very different needs and vulnerabilities. Reasons for this growth include increasing life expectancy, general population growth, and the aging of the baby boomer generation.

Nearly 30 percent of older adults in the United States are considered economically insecure, living at or below 200 percent of the federal poverty level.[2] Greater healthcare expenses and lower employment levels mean that poverty rates are higher for older people, and continue to rise for many older adults as they enter their 80s.[3] Low-income older adults are more vulnerable to climate change and may lack funds to heat or cool their homes. Older adults are at the highest risk of paying more than 30 percent of their income for rent, creating housing insecurity and limiting spending on other necessities. Older adults are the fastest growing age group of people who are homeless; their numbers will triple by 2030. Half of single individuals experiencing homelessness in the US are over the age of 50.[4] Unhoused older adults often find health conditions aggravated by lack of access to adequate housing and basic necessities. These health vulnerabilities are compounded during extreme weather events.

People of color also constitute a growing percentage of the older adult population, predicted to increase from 19 percent of those over 65 in 2007 to 34 percent (28 million people) in 2040.[5] Black, Indigenous, and other people of color experience impacts of structural racism such as the wealth gap, higher stress levels, more exposure to toxins, barriers to receiving adequate physical and mental healthcare, and more; these are amplified by the climate crisis. Although older adults of color form a diverse group of different income levels and other characteristics, they are more likely on average to be lower income. For older adults of color, these overlapping conditions can increase vulnerability to climate disasters.

1/3
of US older adults are economically insecure

25%
of the US population will be older adults by 2060

9.5 million
older women in the US live alone

1/2
of single unhoused Americans are >50 years old
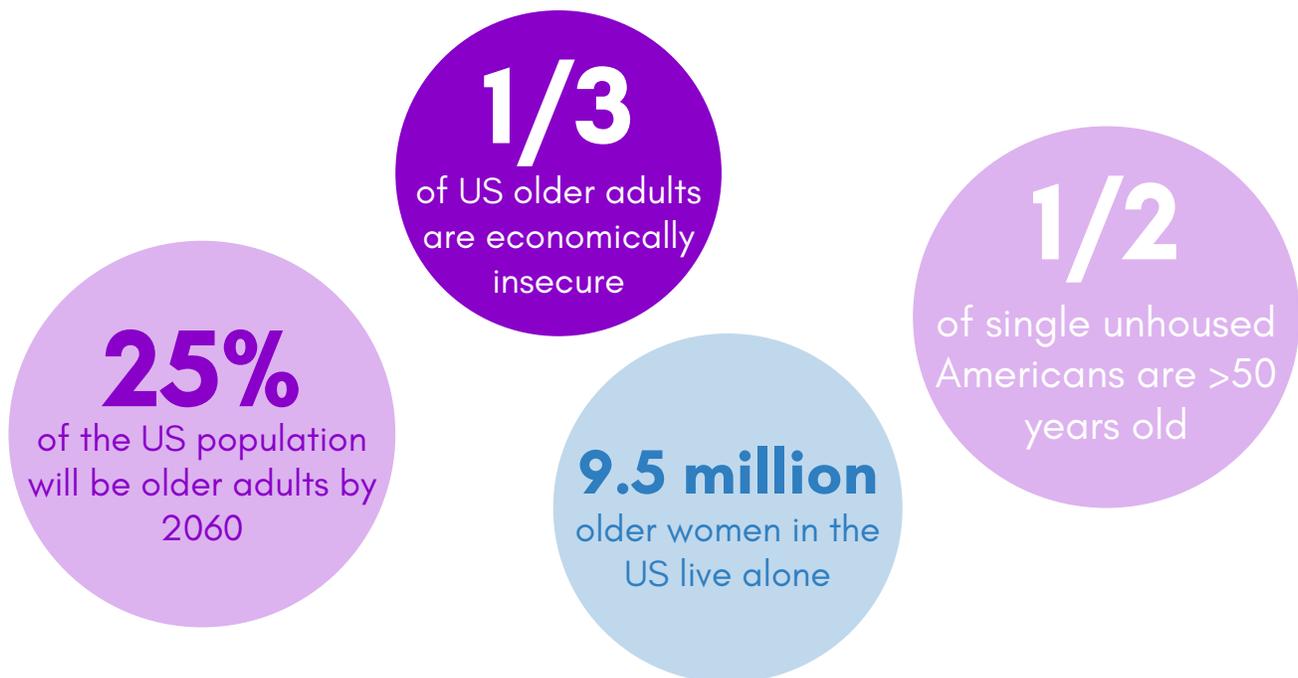
Why Are Older Adults At Risk?

Climate policy must consider aging both because older adults comprise a large and growing segment of the population, and also because older adults are among the most vulnerable to the climate crisis, with higher rates of injury, disease, and death during climate disasters. Aging is often accompanied by health challenges and higher rates of disability. As the population of older Americans continues to grow, so does the number of people living with chronic health conditions. Climate change will worsen these conditions and create new threats. We will see more injuries and deaths from extreme weather, more infectious diseases, and more precarious access to food, safe drinking water, clean air, and shelter. In addition, older adults may have limited mobility and autonomy and greater reliance on medications, electricity, and caregivers. These factors can mean that when climate disasters strike, they aggravate already precarious health situations or destabilize health situations that were previously under control.

Additionally, older adults are more likely to live alone and have smaller social support networks.[6] Older women are at greater risk than older men; in 2018, 9.5 million women over 65 lived alone, compared to only 4.8 million men over 65.[7] Social isolation can put older adults at added risk during climate disasters. For example, research on the 1995 Chicago heatwave, which killed over 700 people, found that social isolation was one of the leading risk factors for death, with the majority of fatalities occurring in people over 65 years old.

Contributions of an Engaged Older Population

Older adults should be engaged in climate planning efforts, not only because they are a large and growing segment of the population and have acute vulnerabilities to climate change, but also because of the assets they bring to this work. Climate change is a unique planetary threat, but many of the crises it brings and the changes we must make are not new. Older adults have seen plenty of change over their lives. They have experience living through times of crisis – natural disasters, wars, economic depressions, and other turmoil – and have valuable expertise and insight to share.

In many communities, older people are also among the most engaged groups. They often have many relationships, including with community leaders, and may have insights into the history or needs of the community from their extended experience living there. They have knowledge, social capital, and may have more free time to share with their community. Planning efforts that engage older people are more effective, more responsive to the needs of vulnerable groups, and bolster community capacity to have neighbors support each other's needs in times of crisis. The insights and engagement of older adults are crucial for communities to mitigate and adapt to the climate crisis.

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3 The Risks: Acute Climate Disasters

Different aspects of climate change pose a range of threats to older adults, but many of the most serious dangers are related to climate disasters. Extreme weather and climate disasters are increasingly common, with one in three American adults saying they have been affected by extreme weather in the past two years.[8] People at higher risk need particular attention, including older adults as a general group, with additional emphasis on low-income older adults and older adults of color.

In this chapter, we review different types of climate disasters – what they are, how they affect older adults, the equity challenges they pose, and the kinds of policies or actions that help. Because different kinds of climate disasters have different effects, we individually assess events like heatwaves, wildfires, hurricanes, winter storms, and floods. We also address specific challenges related to evacuation, recovery, and devastation's aftermath. Then, in Chapter C, we will turn to a different set of risks related to climate and aging – the emergence of chronic threats as changes cause challenges over longer time periods.

Extreme Heat

The Problem: Heat's Impact on Human Health
Globally and in the United States, heatwaves are becoming more frequent, more intense, and are lasting longer. Extreme heat is defined as summertime temperatures that are much hotter or more humid than average.[9] Because people's bodies are adapted for the temperatures in their regions, health suffers as heat rises for a specific area. Extreme

heat has particularly serious effects in cities, where the majority of Americans live. In cities, higher densities mean more concentrated energy emissions and hard, dry, dark surfaces create an added "heat island effect." In addition, areas at higher altitude struggle to cope with extreme heat, because local systems, whether human or natural, are not adapted to sustained high temperatures.

Extreme heat harms our health through a number of different pathways, increasing the danger of heat stroke, heart attacks, respiratory problems, kidney failure, and exhaustion. These health risks are a product of both how high the temperature gets and how long it stays hot. Even when days are extremely hot, cooler overnight temperatures help the body rest and recuperate from the strain of the heat. However, new climate trends involve high night temperatures too. When night temperatures do not drop during a heatwave, health risks become much more severe. Fans, air conditioning, and other cooling mechanisms become essential for surviving extreme heat.

The Greatest Danger for Older People

Heatwaves are one of the most serious climate-induced threats to older people. People over the age of 65 are many times more likely to die from heat exposure than younger people, accounting for over 80 percent of premature heat-related deaths in the United States.[10] Older adults are at more risk because of physical factors, since older people's

CASE STUDY:
New York City's "Be a Buddy" Program

In 2017, New York City launched the "Be a Buddy" program to overcome the challenges social isolation brings during storms, floods, and extreme temperatures. The program creates inter-neighborhood buddy systems between those at high risk of illness and volunteer neighbors so that they can exchange text messages and phone calls to check in with each other during extreme weather events and seek help when needed. In 2020, the program was expanded in response to quarantining measures and the added social isolation impacting health-vulnerable New Yorkers.

bodies are less likely to be able to cope with extreme heat and humidity, and older adults are more likely to take medications that interfere with the body's regulatory system. Other causes of risk include factors like higher rates of poverty and isolation, a lack of access to cooling systems at home, and a lack of community-level cooling. Heatwaves are correlated with higher risk of kidney failure, and older adults have greater vulnerability for kidney failure than the rest of the population. Extreme heat is a particular danger for low-income older adults, as energy use and costs increase with age and are likely to escalate as the climate crisis worsens.[11]

Even where high temperatures are not life threatening, they can have other negative effects. High night temperatures interfere with sleep, and climate change is exacerbating this issue.[12] The effects are twice as high in older adults, and ten times as high in low-income older adults. Sleep is important for a range of health benefits, and lack of sleep can contribute to falls, depression, cognitive problems, and risk of dementia, and may be more severe for older women than older men.[13]

Inequitable Effects of Extreme Heat

Extreme heat has the most severe effects on communities of color. A city's temperatures can vary as much as 20 degrees (F) by neighborhood, reflecting the long-term effects of racially discriminatory housing policies.[14,15,16] Lower-income, formerly redlined neighborhoods are the hottest, while historically white, wealthy, high-investment neighborhoods have greater access to tree cover, green space, and light-reflective surfaces. Analysis shows that in 2023, the average community in the contiguous US will experience 17 days with a heat index above 100 degrees Fahrenheit.[17] However, areas with a majority of residents of color will experience more than 27 days at this level, while areas that are predominantly white are likely to experience fewer than 11 days at this temperature. This unequal exposure to heat is compounded by racial disparities in access to cooling mechanisms. In addition, lower income households have less access to air conditioning across the country, with significant racial inequities.[18]

The burden of high energy costs also creates more danger from heat exposure. Low

**SPOTLIGHT:
Phoenix's "HeatReady"
& "Nature's Cooling
Systems" Programs**

Phoenix, Arizona is the hottest city in the US. Now experiencing more than 100 days over 100 degrees annually, Phoenix has created two programs to deal with the urban heat island effect and climate change-induced rising temperatures in the city.

The HeatReady Program creates emergency cooling centers and response systems, as well as communication protocols that treat extreme heat as a weather emergency.

Nature's Cooling Systems aims to reduce urban temperatures by building canopy cover in low-income communities, which face the greatest burden of extreme heat. It also invests in light-colored, porous paving for parking lots, which can reduce surface temperatures by as much as 27 degrees F compared to asphalt.

In combination, these two programs work with an equity focus to reduce how high temperatures affect communities and provide resources to help people cope with inevitable heat stress.

income households may limit use of fans or air conditioning to save money. Additionally, Black, Latinx, and Indigenous households are at greatest risk of having their utilities shut off due to unpaid bills.[19] Latinx* households are 80 percent more likely than white households to have their electricity disconnected by the provider. Eighteen percent of Latinx households and 13 percent of Black households in the US have had their utility provider disconnect their energy source. In the height of summer heat, this means no ability to turn on fans or air conditioning in communities that are already hotter.

Redlining and disparate tree cover and asphalt mean that today, communities of color experience 27 days a year with dangerous heat, while predominantly white communities experience fewer than 11 days.

What to Do: Contending with Extreme Heat Means Addressing Historic Injustices

Cities need long-term investments to create shade, reduce urban heat island effects, and provide spaces to socialize safely. These investments can take the form of increased greening – trees, neighborhood green spaces, and parks. Additionally, steps can be taken to reduce heat islands by decreasing the amount of pavement and roofs and their heat absorption. Finally, cities can ensure that people have access to resilience hubs and other cool indoor areas to socialize and escape the heat. Such investments must be made equitably – with more resources directed towards areas experiencing the biggest problems. Investing in infrastructure to cope with rising temperatures lets us begin to redress the decades of racist planning decisions that left neighborhoods of color hotter, poorer, and more prone to traffic violence than predominantly white neighborhoods.

In addition to infrastructure investments, programs can also address the effects of extreme heat. For example, programs aimed at checking on older adults and vulnerable residents during heatwaves can identify health crises and can ensure that people are able to get to cooling centers and meet other needs.

Agencies can also take steps to address the cost burdens and energy justice issues at stake with extreme heat. Higher heat exposure means higher summer energy bills, and communities of color are increasingly experiencing disproportionately expensive utility costs. The Low Income Home Energy Assistance Program (LIHEAP) is a federal program aimed at helping low-income households cover the costs of their energy bills. However, it is severely underfunded and only serves roughly 20 percent of eligible households.[20] Reducing utility costs through programs that assist financially or by supporting weatherproofing and solar conversions can help with this challenge.

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* The Indiana University study uses the term "Hispanic" rather than "Latinx" in the original publication.

Storms: Hurricanes, Floods, and Winter Storms

Changing climate patterns have brought more energy and moisture to our weather systems, creating increasingly intense storms of a variety of types. Climate change is increasing the frequency and severity of hurricanes, torrential downpours, mudslides, floods, polar vortex influences, blizzards, and winter storms. In this chapter, we explore three of these weather patterns that are causing the most devastation in the United States: hurricanes, floods, and winter storms.

The Problem: Hurricanes

Hotter temperatures, warming oceans, rising sea level, and melting glaciers and ice caps are all combining to make hurricanes more frequent, intense, and devastating. Whether affected people choose to evacuate or to stay, to return and rebuild, or to relocate permanently, there is no question that hurricanes impose significant costs. The estimated financial cost of a single hurricane is over $1 billion,[21] and this estimate does not factor in costs to physical or mental health, environmental degradation, or broader impacts on food systems and other supply chains. The months following a hurricane also see a higher death rate (as much as 33 percent) than average, as a result of injuries, infectious and respiratory diseases, and interruptions to healthcare.[22]

For a range of reasons, low-income areas are particularly susceptible to negative effects of hurricanes. This is in part because the homes in these areas may be older. Additionally, lower quality building materials mean such homes may be more vulnerable to high

winds and flooding. Moreover, low-income communities are more likely to be located in geographically vulnerable areas. As these storms become more common, intense, and affect a larger part of the country, the need for comprehensive policies and investments to help communities build resilience, implement robust emergency preparedness plans, and support reconstruction efforts cannot be overstated.

The Problem: Flooding

Climate change is bringing more damage from flooding to homes and communities, in both coastal areas and inland. Flooding is complex, and occurs in various ways as different factors intersect. Coastal flooding often occurs because of higher high tides due to sea level rise, combined with storms. Sea level rise is occurring because of the expansion of sea water due to warmer ocean temperatures, combined with melting ice and glaciers. Floods also occur near rivers or lakes due to extreme rainfall or rapidly melting snow, but flash floods can happen anywhere that experiences intense rainfall. Climate change is worsening extreme rainfall in many storms.

In addition to the immediate damage caused by a flood, receding floodwaters can leave mold and property damage that may affect people's health. Older people, who are already at greater risk for respiratory illness, may be less likely to notice and address mold and other forms of damage, leaving them exposed to it for longer. More than half of people

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CASE STUDY:
Preserving Culture and Rebuilding Princeville

Hurricane Matthew left 80 percent of the historically Black, rural town of Princeville, North Carolina underwater in October 2016. Given its location within the Tar River floodplain, another catastrophic flood felt inevitable. In the aftermath, residents and leadership were interested not only in preventing future hurricanes from wreaking the same degree of damage but also in preserving the history and community fabric of the town as it rebuilt; Princeville is the oldest incorporated Black town in the United States.

So, partners from North Carolina State College, North Carolina State University, The University of North Carolina at Chapel Hill, and North Carolina Emergency Management hosted design workshops bringing together Princeville residents with designers from across the country. Through collaboration, they designed solutions to preserve Princeville's historic past for future generations while building resilience to the types of climate disasters that threatened to wash those memories away.

The resultant Princeville Heritage Walk is one notable example of the success of this community partnership. The trail illuminates the community's cultural assets while creating infrastructure for people to walk and bike safely. Princeville's successes demonstrate that community-engaged recovery efforts not only build resilience to future crises but help ensure that we carry important memories and community values forward with us.

over 50 also have no emergency savings and are unable to afford damage to their homes or vehicles after a flood, increasing their health vulnerability and limiting their mobility even more.[23]

Flooding can happen at a range of intensities, causing everything from large scale displacement to blocked off roadways and walking paths. Communities must prepare for a range of flooding scenarios and the health, safety, and mobility issues they might cause.

The Problem: Winter Storms

Winter storms are increasing in severity. Record breaking blizzards and deep freezes have shut down communities across the United States in recent years, fueled by the greater amount of moisture in the atmosphere and by changes in Arctic weather patterns and the polar vortex. For example, in 2021, Texas experienced hundreds of deaths, hundreds of thousands of people without power, and billions of dollars in damage after more than a week of subzero temperatures, icy rain, and snow.

As with hurricanes and other types of storms, winter storms are often accompanied by power outages. Older people may be disproportionately affected due to reliance on refrigerated medicines, mobility scooters, need to call for help, or other electricity-dependent health needs. They are also at greater risk for injury during blackouts due to decreased visibility and fragility, and greater susceptibility to hypothermia. In addition, overexertion from shoveling snow commonly causes heart attacks among older adults.[24]

Inequitable Effects: Targeting Older People's Health and Financial Vulnerabilities

Climate disasters affect Black, brown, and low-income communities particularly severely due to unequal exposure to climate risks, unequal resources to respond, and unequal recovery opportunities. Studies show that flooding in the United States disproportionately harms Black neighborhoods.[25] Because older adults experience many disaster-related vulnerabilities, inequities around structural racism and inequality can greatly increase the risks for low-income older adults and older adults of color.

As with heatwaves, older people are at acute risk during hurricanes, flooding, and winter storms, especially if they have poorer health or are financially insecure. For Hurricane Sandy, nearly half of all deaths were of people aged 65 and older. Hurricane Katrina affected older adults even more strongly, with almost half of deaths taking place among very old adults (people aged 75 and older), and 75 percent of deaths affecting people over 60, even though they represented just 16 percent of the total population.[26]

During a storm or potential flood event, older people may have lower mobility and greater medical needs, and so they are less able to evacuate. If they choose to stay in place, emergency services may be overwhelmed with crisis management and thus unable to respond to other health emergencies. Older adults with diminished cognitive capacity may not understand the magnitude of the risk or may face added challenges making and following through with emergency preparedness plans. Older adults with fewer financial resources can be reluctant to leave behind their property and possessions and have fewer evacuation options, while their homes are more likely to have structural issues that make them less secure in a storm. As power outages begin and communication networks fail, residents who stay are then trapped in their homes and unable to access medical care, food, water, or safe alternative shelter.

Older people living in long-term care facilities or in hospitals have even less autonomy over where they are

located during a storm, and must rely on the facility's emergency preparedness plans and resources to ride out the storm. The COVID-19 pandemic and other crisis events have underscored systemic failures in long-term care facilities' emergency preparedness plans. While many facilities lack basic emergency protocols,[27] even those that comply with regulations are often not integrated into broader community preparedness planning, leaving their residents more vulnerable in a disaster.[28]

What to Do: Preparation for Storms & for Energy Needs

Communities must alert their residents to emergency resources and protocols at the start of every storm season so that they can be as prepared for a storm as possible. Policies to subsidize weatherizing homes and installing renewable energy and battery storage, as well as preventing utility shut-offs, help keep people safe during storms. Education about generator use is also key to prevent carbon monoxide poisonings that routinely follow power outages.

What to Do: Important Community Investments for Resilience

Communities must invest in public infrastructure to deal with storms and flooding. Absorbent spaces such as parks and trails serve the dual function of designating recreational space for the community while absorbing storm runoff. Given how many low-income and older people rely on public transportation to navigate their communities, investing in public transit infrastructure is crucial to ensure that it is flood-proof and that people can still get to essential destinations after a flood. Public transit investment is also necessary to mitigate climate change by reducing fossil fuel emissions from private vehicles.

What to Do: Snow Clearance

Communities also need sidewalk snow clearance policies to ensure that walking paths are cleared along with roads to help create equity in daily activities and access to goods and services once the storm has passed. Further, policy that guarantees that older people and people with disabilities have publicly provided assistance for clearing snow in front of their homes if they are not able to do so themselves is important for their safety as well as for safe access for other members of the community.

What to Do: An Urgent Need for Housing Policy Reform

The majority of older adults prefer to age in their homes. Yet, the costs and challenges of managing and maintaining a home, especially in an area prone to storms and floods, makes this goal unattainable for many people, especially those on a fixed and limited income. Housing policy reform that supports the creation and maintenance of affordable, accessible, stable homes will prepare communities for increasingly frequent and treacherous storms and allow older adults to age in their communities.

Rental Housing

The Federal Emergency Management Agency (FEMA)'s National Risk Index shows that climate disasters pose an imminent threat to large swaths of the rental housing stock across the US.[29] Moreover, the number of affordable housing units at flood risk is set to triple by 2050: currently, over 7,600 affordable housing units flood each year but this number will jump to nearly 25,000 in the next three decades.[30] Basement-level units, often the most affordable units in a building, are the most at risk for flooding and mold contamination.

Communities must invest in protecting and weatherizing current affordable rental housing. One key approach is proactive rental inspection programs, which help ensure that tenants are protected from mold exposure and other health risks. They create mechanisms to enforce housing codes and

protect renters' health and safety without relying on tenant complaints, which can cause fears of eviction or retaliation.

Communities must also build more homes, focused in low risk areas, to meet the existing need and account for losses. Steps should also be taken to avoid concentrating affordable rental housing in low-lying areas and other areas that are particularly prone to damage from storms. Locating affordable housing in harm's way not only amplifies emergency costs for financially burdened people, but also threatens our already inadequate affordable housing supply.

Likewise, steps to protect low-income tenants and homeowners and secure long-term affordability must be taken to avoid "climate gentrification." Climate gentrification is the process through which low-income residents of a community deemed more climate resilient are displaced as wealthier individuals move in. Climate gentrification is a market response to the climate crisis. Whether displacement is driven by real estate speculation or individual decision-making, communities must protect against displacement through policies that secure long-term affordability, like rent control and community land trusts.

Manufactured Housing

Manufactured (or mobile) homes are a low-cost and widely available form of housing, and more than 3.2 million people over the age of 60 live in them. Older people comprise an outsized share of manufactured housing residents: 31 percent of the total 10.5 million American adults living in manufactured homes.[31] Though this housing option is cheap and attractive for many people, manufactured homes are particularly susceptible to strong winds and other storm damage.

This vulnerability is compounded by the legally precarious nature of manufactured homes, as residents often own their homes but not the land beneath them, creating an unusual situation where they must deal with the challenges of both homeownership and tenancy. Thus, when a storm causes flooding, water contamination, and other damage to the lot a manufactured home sits on, residents are less likely to receive government assistance with repairs and are reliant on often unaccountable landlords to make needed repairs. Tenant protections and protections for residents of manufactured housing lots are much needed for housing equity in the face of climate change.

Homeownership

Financial protections from hurricanes and floods are also needed for homeowners. Currently, the insurance industry uses federal flood zone maps that underestimate flood risk in much of the country, and federal support to rebuild or relocate communities after a disaster is severely lacking. People living outside of FEMA-designated flood zones are unlikely to purchase flood insurance, leaving them without much financial assistance to rebuild or even recover losses after a storm. As extreme storms and floods become more common in the United States, including in places that are unaccustomed to such storms, the need is clear for comprehensive disaster relief and flood insurance policy guidance, as well as dramatic investment in affordable, resilient housing.

Federal support exists through the Weatherization Assistance Program to help low-income homeowners retrofit their homes for energy efficiency and to build protection against precipitation, flooding, mold, and poor insulation. However, this program is underfunded for the number of homes across the US in need of this support. And, while the incentive to make such improvements is clear for resident homeowners, it is less so for landlords, who often pass the cost of utilities on to tenants. Tenants' rent burden may then increase, adding to existing shortages of affordable rental housing in communities across the country.

Wildfires
The Problems: Destruction, Death, and Smoke

As with heatwaves and storms, wildfires are another type of disaster becoming dramatically more frequent and intense with climate change. Since the 1970s, large fires have increased 1,000 percent in the Northwest's forests, due to earlier snowmelt and longer fire seasons.[32] Because fires release carbon and pollutants, wildfires and global warming act as a devastating feedback loop, exacerbating each other's impacts and combining to harm human health.

Wildfires have two main effects on health: first, the immediate danger of death, injury, and displacement caused by a fire raging through a community, and second, the effects of smoke pollution on air quality in communities that may be hundreds of miles from the fire itself. There are additional effects that can harm health as well, of course: diminished water quality as ash and debris enter water systems, flooding due to decreased ability of burned areas to absorb water, mudslides, and more.

Smoke from wildfires has significant effects on the health and wellbeing of people in nearby communities and also those much further away: smoke can exacerbate asthma and lung and heart disease and lead to premature births, while ground-level ozone from wildfire smoke and warming temperatures aggravates asthma and other chronic pulmonary conditions, and can weaken the body's immune system.[33] Each year, smoke from wildfires causes thousands, maybe hundreds of thousands, of premature deaths around the world, and projections show the potential for millions to experience reduced lung, heart, and immunological functions with rising smoke emissions due to climate change.[34] The Australia fires of 2019 exposed 80 percent of the country to smoke, causing heart and lung problems that led to hundreds of deaths and thousands of hospitalizations.

Inequitable Effects: Wildfires Underscore Existing Structural Injustice

Wildfire smoke exacerbates existing disparities in communities' exposure to poor air quality, and exposure to pollution follows similar racial trends to extreme heat: Black and Latinx neighborhoods that were redlined in the 20th century continue to be exposed to higher levels of particulate matter and smog from vehicles and polluting industries than predominantly white neighborhoods.[35] This means that historically disinvested communities still bear the brunt of racist planning policies decades later, with higher rates of asthma, reduced lung function, and greater risk for heart disease and stroke.

When it comes to preparedness, response, and rebuilding, there are many systematic failures experienced by frontline communities. For example, undocumented Latinx and Indigenous immigrants have many layers of vulnerability to wildfires, and yet they are ineligible for federal disaster recovery aid and more likely to miss emergency preparedness guidance due to language barriers and fears of deportation.[36] During the Thomas Fire in Ventura and Santa Barbara counties in California in 2017, community-based immigrant rights and environmental justice groups had to step in for the state to save lives.[37] These groups translated preparedness

CASE STUDY: California's Community Resilience Centers

In 2021, the California Legislature invested $100 million into community centers across the state to build their capacity to serve as Community Resilience Centers. Strongly supported by environmental justice and other community groups, community resilience centers provide resources and refuge to those who need them during and after extreme weather events and wildfires.

The centers provide cooling, warmth, clean air filtration, and other services. They also coordinate essential communications during crises and are equipped with backup power such as generators and solar so that people have a source of energy when outages occur.

When they are not dealing with disasters, community resilience centers serve as places to build community and skills, and strengthen social ties that bolster resilience when crises do occur. This model invests in community capacity by supporting existing community organizations and centers to provide resources that meet locally specific needs.

Part of the success of this model is also that it takes a holistic view of what community resilience can look like beyond emergency preparedness and physical infrastructure. The approach is informed by community-led development of the resources the centers provide.

Redlining and racist planning decisions mean that Black and brown neighborhoods experience high ongoing levels of air pollution, creating a deadly underlying vulnerability to additional wildfire smoke.

resources and emergency guidance, supported labor protections for farmworkers experiencing unsafe working conditions during the fires, and provided private disaster relief funds to those ineligible for state-provided resources. As these deadly fires become more common, communities at risk must put plans into place to protect their most vulnerable members, including undocumented people, outdoor workers, children, and older adults, and provide resources to support them in their efforts to rebuild.

Older Adults Are Highly Vulnerable

People aged 85 years or older have the highest fire death rate, and are 4.1 times more likely to be killed in a fire than the average American.[38] While this is generally true for fires at large, older people are also at particular risk for wildfires. For example, in the 2018 Camp Fire, 71 of the 84 identified dead were people over the age of 60.[39] Older people's vulnerability to wildfires may be explained by the fact that they are more likely to have limited mobility and be unable to flee a fire. In addition, older people tend to live in more rural areas, where living costs are lower but the threat of wildfires is greater. Being on certain medications that impair judgment or alertness, or having cognitive disabilities, might also be contributing factors. Emergency procedures for wildfires must take the needs of older and disabled people into account and provide transportation and medical resources to ensure safe and timely evacuation.

For survivors of a wildfire, the health impacts are severe. In addition to PTSD and depression from the trauma of escaping a fire or losing one's home or possessions, wildfires produce immense air pollution even for those not directly in the fire's path. In fact, the radius of who is affected is difficult to calculate since dangerous particles can travel thousands of miles. These pollutants are found to be associated with a higher rate of heart disease, stroke, dementia and aggravate cognitive decline and loss of motor skills.[40][41] Thus, even when evacuation is not necessary, government should provide air quality alerts and air filters and masks to keep people safe from unhealthy pollution levels.

![Climate Equity Policy Center logo]

What to Do: Inclusive Planning and Preparation for Fire and Smoke Dangers

To protect older adults and other vulnerable groups from the dangers of wildfires and wildland smoke, communities need to engage in equity-focused planning and prepare a range of protections. As with other types of disasters, community-informed, equity-focused advance planning is crucial. Communities can identify those at particular risk – such as older adults in general, those with language barriers or limited mobility, and institutions like care facilities – and ensure that they are included in emergency plans. Communications plans must consider language, ability, and age.

Evacuation plans should address transportation needs and disability and mobility limitations. For areas with potential smoke exposure, communities should provide free or low-cost masks, monitors, and filtration units. Additionally, communities should create clean air refuges at schools, libraries, and resilience hubs.

Other key approaches include weatherization and access to local solar and renewable energy, which can reduce the risk of fires while enabling people to stay away from smoke and be safe and comfortable inside, even where there are power outages.

Devastation's Aftermath
The Problem
The storm or fire that causes a climate disaster may only last a matter of days, but the destruction and instability it leaves in its wake lasts for months, years, or even decades. The after effects of disasters include financial costs, displacement and housing challenges, mental health harms, disruption of work or schooling, recovery from injury, and challenges in rebuilding communities.

Inequitable Effects: Federal Aid, Evacuation, and Disruptions to Care
Climate disasters are expensive, and low-income people are hit hard. Costs include evacuating, finding alternative shelter, lost earnings, and rebuilding from the destruction. Federal programs and policies are needed to support not only the communities directly impacted by climate disasters but also the communities receiving climate migrants, so that they can cope with the increased needs for shelter, emergency medical services, care infrastructure, expanded free and reduced school meal programs, and more.

Barriers to accessing assistance by low-income people can include literacy, immigration status, and comfort navigating bureaucracy. One barrier was recently removed when the Federal Emergency Management Agency (FEMA) reversed a long time policy that excluded from disaster assistance a common type of property ownership for Black people in the South, known as heir's property.[42] Nonetheless, FEMA's own analyses show that low-income survivors are less likely than upper income survivors to get emergency assistance, with poor renters 23 percent less likely than affluent renters to get housing

help, and poor homeowners receiving half as much assistance to rebuild. These failures often mean that Black and brown people get displaced after a disaster. Additional factors leading to inequitable recovery after a disaster include the wealth gap, which means that more white Americans have the savings that can enable a new start. Moreover, disaster survivors of color frequently experience bias and discrimination in trying to access recovery opportunities.[43]

People with chronic health conditions are also at greater risk in the aftermath of a disaster because electricity outages, evacuation, and prolonged displacement may all disrupt medical care needs. The American healthcare system, largely reliant on employer-provided coverage and regionally specific provider networks that may not cover care at a relocation site, contributes to added strain for people dealing with health conditions while displaced.

In addition, children are among the groups most affected by the disruption of a climate disaster, as their health and development may be affected by the cumulative effects of food insecurity, housing instability, schooling interruptions, the loss of social support systems, and other causes of trauma.

A PROLONGED RECOVERY FROM KATRINA In the aftermath of Hurricane Katrina, New Orleanians had elevated rates of PTSD, anxiety, depression, and short-term memory loss. Rates of domestic violence also increased.[44] Outmigration and inadequate investment in rebuilding have meant that many New Orleanians, especially low-income and Black New Orleanians, lost important social networks. Seventeen years later, neighborhood blocks are still freckled with empty homes and lots. While Hurricane Katrina might be the most famous American storm of the 21st century, it is not unique in the impact it had on people's physical, mental, or financial health.

Effects on Older Adults: The Trauma of Evacuation and Displacement
Climate disasters that require evacuation are threat multipliers for older people, and especially low-income older adults. Emergency moves can result in missed healthcare appointments, interrupted medicine routines, and left behind medicines and medical equipment. When people are displaced without adequate resources, they are likely to end up in precarious housing situations, with additional ramifications for their health. Research has shown that after a disaster that causes displacement, older people with more severe home damage are more likely to show cognitive decline compared to older people with minor home damage.[45] Depression and fewer informal social interactions with neighbors and friends are associated with higher odds of developing dementia.

In the long-term, the impacts of repeated destruction from climate disasters can be devastating for older adults who live in communities that are especially susceptible to repeated climate disasters. In addition to the economic costs of rebuilding, the psychological costs are immense, especially for older people who have deep, long held connections to their home. For those with dementia or visual impairments, the loss of familiar locations and social networks can be even more disorienting and distressing.

Effects on Older Adults: Immobility and Care Challenges

Roughly half of adults over 65 have a disability that makes it difficult to seek help in an extreme weather event, especially in more isolated areas where social services are difficult to access.[46] This impact is compounded for people with mobility challenges and cognitive impairments who might not get the evacuation assistance they need to flee storms or wildfires, delaying or preventing evacuation. Many older adults cannot drive or cannot afford car ownership, meaning that they rely on public transit. If these systems fail during a disaster, or are not well-connected to regional systems to help people escape disaster zones, people are barred from evacuating.

Lower income older people and those without reliable caregiver support are particularly at risk as well. People who do rely on caregivers to support their health and wellbeing might also be separated from their caregivers during a disaster evacuation. This can result in multiple layers of harm: a lack of care and assistance with the evacuation, lack of help with daily tasks, and also added vulnerability to elder abuse, wherein other people may seek to benefit off of an older person's vulnerable position and take financial, physical, emotional, or sexual advantage of them.[47]

CLIMATE REFUGEES Climate change is creating climate refugees. With increasingly frequent disasters and climate-induced economic shifts, people all over the world are experiencing displacement and need to find new homes, either domestically or internationally. Large-scale climate migration within the United States and internationally will have many effects that are not yet fully known. We can only anticipate the effects on population health, housing, and care needs. However, it is certain that these mass relocations will intensify the need for culturally sensitive policies to support an increasingly diverse population. This may be particularly true for older people, who may have more difficulty adjusting to a new community, learning a new language, finding trusted medical care, and creating new much-needed social networks. Communities should prepare to support and embrace new residents from within the US and abroad, welcoming them as assets who can help their new homes take on this crisis.

What to Do: Disaster Planning

Given that the top three states where older Americans are concentrated (California, Florida and Texas) are all at high risk for disaster-related evacuation, it is essential that all communities create evacuation plans with and for older people to ensure that their health and housing needs are met during a crisis. Plans should include specific steps to safely evacuate older people and people with disabilities and relocate them to destinations where their health, mobility and care needs are served.

Strategies to reach people with cognitive impairments are particularly important as they might not understand warnings and other communications about threats and assistance. Plans must also be disseminated in multiple languages and formats to ensure that they reach non-English speaking populations and other vulnerable populations. While the immediate challenges of evacuating communities might take precedence during a crisis, a crucial step in recovery is addressing the mental trauma that destruction and displacement causes.

CASE STUDY:
Older Adults Leading a Path to Recovery Through Ibasho

During the 2011 Tōhoku earthquake and tsunami, which killed over 18,000 people and displaced 65,000 more, many older people saved younger neighbors, friends and family members by advising them to get to higher ground before the tsunami struck. In the wake of the disaster, they continued passing down lessons on how to survive on limited resources.

Ibasho is an organization that formed to facilitate older people's continued leadership in recovery efforts and to ensure that as communities rebuilt, they were more resilient and more age-inclusive. After the success of its initial project in Massaki, Ofunato, Japan, it now works with communities around the world that want to bolster their resilience to climatic threats while valuing the contributions that their older community members can make.

In Japanese, ibasho means a place where you can feel like you belong and can be yourself. With projects in Japan, the Philippines, Nepal, and the Ivory Coast, Ibasho partners with local organizations to host workshops with older community members, assess needs, and create gathering spaces for older people to discuss strategies and disseminate resources to the rest of the community. Once Ibasho and older community leaders lay this foundation, the older residents take full control of the project. Based on community needs, they might provide care for children, grow food, run cafes and farmers markets, or supply other types of resources.

Ibasho's approach is a low-cost, community-driven method to reduce older people's social isolation while demonstrating their leadership within the community, providing essential community services, and building economic, social and climatic resilience.

4 The Risks: Chronic Threats

In this chapter, we discuss dangers that climate change poses for older adults that are not immediately related to acute extreme weather disasters. Increased infectious disease, drought, climate-related mental health stressors, and other challenges can also significantly affect the health and wellbeing of older adults.

Infectious Disease
The Problem

Hotter summers, milder winters, increased flooding, and ecosystem disruptions are among the ways the climate crisis is leading to more infectious disease risk. Research has found that of the 375 known infectious diseases to affect humans, 218 (56 percent) are made worse by extreme weather due to climate change.[48] As has been painfully evident from the COVID-19 pandemic, infectious diseases often pose a greater risk to older adults. This is because older adults are more likely to have weakened immune systems and existing health problems.

Vector-borne diseases will become more frequent as their viable geographic range grows. Between 2004 and 2018, nine new vector-borne diseases were detected in the United States and the number of reported cases of vector-borne disease more than doubled.[49] Diseases like dengue fever and West Nile virus have significant global mortality but were not previously common in the United States. These diseases are beginning to take a toll in the US as mosquitoes are more easily able to breed. Other pathogens that are endemic to the US, such as Lyme disease and rabies, will affect more people. The highest rates of Lyme disease in the US affect people aged 55 to 69.[50]

The proliferation of fungi and algal blooms will also take a toll. Fungal Valley Fever, for example, has seen an upsurge after years of decline. Cases increased 75 percent between 2014 and 2017, spreading from the southwestern US to the Pacific Northwest.[51] In addition, intensifying toxic algal blooms will disturb marine ecosystems and contaminate shellfish, leading to illness amongst humans and animals if consumed. Contaminated marine ecosystems can be particularly devastating for fishing communities that rely on safe fishing for their diets and livelihoods. More broadly, higher temperatures, humidity, flooding, and water system contamination mean greater risks for water- and food-borne illness that leads to gastrointestinal disease population-wide.

Inequitable Effects: Lessons from the COVID-19 Pandemic

The COVID-19 pandemic has made the disproportionate effect of infectious disease outbreaks on low-income communities and communities of color glaringly visible. Black, brown, Indigenous, and low-income people may be at higher risk due to a combination of higher rates of underlying health conditions, lower access to testing and treatment, and greater health and financial vulnerabilities from missing work because of contagion exposure.

COVID-19 is far from an anomaly; Black, brown, and low-income people are at greatest risk for many infectious diseases in the United States. An estimated 12 million people living in poverty in the United States have at least one disease termed a "neglected infection of poverty."[52] The primary groups affected by these diseases include Black and brown people living in the Southern US, along the US-Mexico border, and in highly segregated urban areas, as well as immigrants and white people living in poverty in Appalachia.[53] These groups are more likely to be living in areas with poor drainage and sewage clearance where standing water creates breeding grounds for disease-carrying vectors like mosquitoes. Lower access to air conditioning so that windows must be left open in the heat and poorer home insulation also create opportunities for pests to enter the home and infect people.

The COVID-19 pandemic reflects another systemic public health injustice: Indigenous communities are often undercounted in public health data, as a result of a history of neglect and colonial erasure of Indigenous people. For example, the CDC's quarterly COVID-19 reports only share numbers for racial groups that had at least 10 recorded COVID-19 deaths within a state that quarter.[54] Cumulative tolls on groups with smaller populations are therefore effectively hidden. Indigenous Americans are also the most undercounted population in the US Census.[55] Undercounting in data leads to underfunding, and leaving Indigenous communities without adequate investment in their public health infrastructure perpetuates an ongoing genocide. The loss of older Indigenous people is a loss of cultural knowledge, language, and traditions; the ravages of the pandemic magnify these losses.

What to Do: Robust Public Health Infrastructure
Access to quality healthcare infrastructure, sanitation infrastructure, and weatherized housing make marked differences in a person's susceptibility to many infectious diseases. The other crucial piece to prevent rampant outbreaks: building and investing in a robust public health infrastructure that can leap into action to quell outbreaks before they grow out of control.

Monitoring

Early screening is the difference between protecting the most vulnerable by stopping a nascent outbreak and allowing it to run rampant in a community. Disease monitoring and screening within particularly at-risk populations, including newborn screening, is essential, as is targeted treatments for communities with higher prevalence of an infectious disease. Communities must also prioritize investing in monitoring water and sanitation systems to prevent contagions from spreading through these essential infrastructures.

CLIMATE EQUITY
POLICY CENTER

Emergency Preparedness

The COVID-19 pandemic illustrated the disastrous consequences of underfunding emergency preparedness systems at the local, state, and federal levels. Ensuring that plans, resources, and staff are in place to respond to emergencies is crucial to successfully quelling them. Taking steps to guarantee that long-term care facilities and senior living communities are integrated into health protocols and emergency planning is also imperative to the safety and wellbeing of older adults.

Communication

Public health communications should be widely and frequently disseminated to alert the public about emergent pathogens and their risks, the importance of tick checks and how to conduct them, the dangers of standing water, and other important health advisories. Health departments must take deliberate steps to ensure that these communications reach particularly at-risk populations.

Communication is also essential within the health sector to ensure equitable and effective care. Communities must work to strengthen communication channels between public health departments and healthcare delivery entities so that resources are efficiently and rapidly distributed to where they are needed most.

Drought
The Problem

Climate change is causing increased drought. In 2022, roughly half of the states in the continental United States were experiencing drought.[56] As the Western megadrought entered its 22nd year, it was declared the worst such event in the region in 1200 years.[57] Drought is not only challenging for ecosystems, energy generation, and economic vitality, but also causes a range of threats to public health.[58]

Droughts can affect the quality, affordability, and availability of water. Wells may dry up, contaminants in groundwater may shift location and become dangerously concentrated, and algal blooms may harm water quality.[59] Obtaining sufficient clean water can become more expensive for individuals and communities. Droughts can also affect access to affordable food, with fisheries collapsing and farmers are unable to water and tend fields.

Additionally, droughts can cause job loss, financial stress, and business failure for individuals and businesses, and may create economic stress throughout a community. These challenges then contribute to grief, depression, and other mental health problems.

Droughts can also affect disease prevalence; they can increase mosquito-borne diseases, as stagnant and shallower waters may not support mosquito eating fish. People may inadvertently breed mosquitoes as they save water for reuse. Respiratory health may also be affected as droughts cause increased dust and particulate matter in the air and contribute to wildfire occurrence.

Effects on Older Adults

Older adults, especially low-income individuals, may be disproportionately affected by these challenges. One study showed that worsening droughts across the United States led to disproportionately high rates of mortality among people 65 years and older, with higher risks in areas where drought was not historically common.[60]

What to Do: Ensure Human Rights and Corporate Accountability

Communities must plan for droughts the way they do for many other forms of climatic disasters: by ensuring that food and clean water are accessible to everyone, healthcare institutions are prepared to cope with higher admissions from drought-related illness, and community outreach helps all community members know how they can access healthcare resources if they are in distress. Finally, communities must regulate polluting industries like the fossil fuel industry and industrial agriculture, to prevent them from polluting and overusing the community's precious drinkable water resources.[61]

Mental and Social Health

The Problem

As the effects of climate change become more pronounced, the connection between emotional distress and climate change is becoming widely recognized. Beyond the trauma of living through an existential crisis, there is also the grief of losing homes, livelihoods, loved ones, and cultures. For older people, who disproportionately live alone, may have shrinking social networks, and experience higher than average social isolation, the mental health impacts compound.

A community's design and infrastructure play a central role in whether older people stay connected to social networks and support systems. Developing disabilities in later life often means older people must stop driving - the average American outlives their ability to drive by 7 to 10 years.[62] People living in car-dependent areas can thus feel trapped at home, isolated from the outside world. Likewise, most Americans prefer to age within their community but often cannot because of concerns around mobility, care needs, and the cost of maintaining a home. In addition, fewer than 4 percent of homes in the US have a combination of single-floor living, no step entries, and hallways and doorways wide enough to accommodate a wheelchair.[63] This makes it difficult for people developing disabilities to stay in a home or find a new one.

CASE STUDY:
8 80 Cities' Age-friendly Park Activation in Toronto

8 80 Cities partnered with Woodgreen Community Services, a senior service agency in Toronto, to activate outdoor spaces for older adults and encourage physical activity and social connection. Programs such as yoga, dance exercise, foreign language, and music class were offered as a result of community engagement findings. In addition to the physical and mental health benefits participants reported, they also said that these programs allowed them to make new friends and socialize more.

What to Do: Designing Communities for Independence

Communities that invest in care infrastructure and structures that support independence support older people's autonomy by design. Key components include providing affordable, accessible housing options in a variety of sizes so that older people can choose to age in their existing home or move into a more suitable home within their community. Communities with a variety of housing options can be more intergenerational. As people age, they may decide to downsize to a smaller, more manageable home while still being a part of their longtime community; this creates a pathway for younger families to move into larger homes vacated by their older neighbors. Rent control policies and anti-displacement protections also reduce pressures on older people to move away from their communities. These protections help keep communities more accessible for people of all incomes.

Access to reliable public transit options and walkable access to health services, food, parks, and other everyday necessities are also essential for older people to be able to safely and independently age in their communities. Based on average life expectancy and driving limitations for children and older adults, Americans are unable to drive for 30 percent of their lives. Walkable, transit-oriented communities promote better physical, mental, and social health for their residents. Such communities also support a healthier climate by reducing sprawl and emissions.

What to Do: Designing Communities for Social Connection

Public spaces that provide shade trees, porous, absorptive surfaces, and social programs not only serve important functions to help contend with heat and flooding, but also bring communities together to build crucial social ties. Engaging programming can also help support people's physical and cognitive health as they age. To fully serve older populations, these places must maximize accessibility by having disability-friendly public bathrooms and being connected through walking, biking, and transit networks with adequate seating throughout.

Improving social connectivity is an essential tool in the fight against climate change. Research shows that social connectedness between neighbors can be the difference between life and death when a crisis strikes. During storms, heatwaves, health crises, and other disasters, neighbors who know each other are more likely to check in on one another, recognize problems, offer support, and share resources. Those living in isolation have a harder time finding help when they need it. Communities that provide social infrastructure – the types of spaces and programs where neighborly connections can be formed – support people's ability to age in the places they love.

5

5 Policy Approaches

We can counter climate change's risks for older adults by inclusively developing and investing in solutions. These solutions can achieve many different kinds of benefits – for climate, for older people, for frontline communities, and for our nation's overall health and wellbeing. Solutions for the climate crisis can prioritize the needs of the frontline communities rather than pitting the needs of the planet and its most vulnerable people against each other. Thoughtful planning, engagement, and policymaking can create more vibrant and connected communities that are more responsive to older people's needs, more racially equitable, and address the climate crisis.
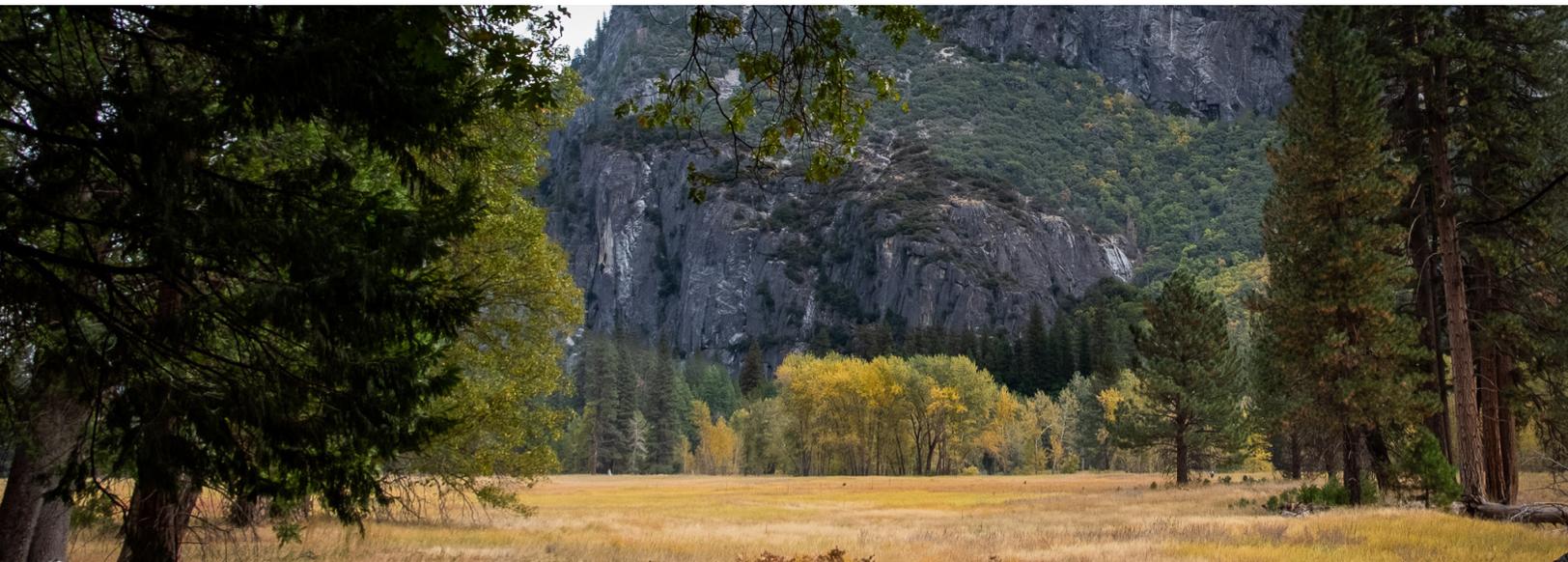
Ensure that decision-making processes are inclusive. Community engagement for infrastructure improvements and climate action plans must include older people, especially low-income, non-English speaking, and older people of color, empowering them to share their lived expertise on community needs and have their specific needs addressed.

Communities can:

- Include a diverse range of older adults in climate planning and policy at every stage: from community engagement to policy development and implementation.
- Ensure that policies embed participatory practices in governance, through approaches such as Baltimore's 2020 Water Accountability and Equity Act, which established an office of advocacy and appeals to advance water justice, prioritize customer needs, and translate challenges into policy improvements.[64]

Expand the reach and accessibility of disaster management plans. Evacuation plans must consider the challenges faced by older adults, particularly those with dementia, immunocompromising conditions, and other cognitive and physical disabilities. Communications should always be disseminated through numerous channels and in multiple languages, recognizing that non-English speaking and undocumented older adults may have less access to this information and more fears about going to state-run evacuation services and centers.

Communities can:

- Adopt resolutions committing to equitable disaster planning, and identify and engage key groups at risk locally.
- Ensure that budgets dedicate resources to increase accessibility of disaster planning to different communities, considering needs around language, ability, technology access, and more.
- Allocate funding for equitable relocation during storms so that necessary evacuations do not lead to homelessness or long-term involuntary displacement.

Commit to making streets and public spaces accessible to all. Design streets and public spaces to allow for greater autonomy and mobility for older people and people with disabilities by identifying and implementing age-, dementia- and disability-friendly design principles. Local resolutions, updates to zoning and subdivision codes, and other policies can include increased provision of shade, rest spots, and other key amenities, which can make or break the ability of older people to spend extended time in public space. Such policies often also benefit families with children.

Communities can:
- Adopt an Age-Friendly Community commitment.
- Revise zoning and subdivision codes to require age- and ability-friendly design elements such as more street trees, benches, easily legible signage and accessible public restrooms.
- Create mechanisms (like a 311 service hotline) for community members to report problems related to accessibility challenges of routes and destinations around their neighborhoods.

Invest in cooler communities while providing social benefits.
Prioritize urban heat reduction investments in communities of color and environmental justice communities, where older adults are at most risk. Such investments will help undo some of the impacts of decades of harmful, racially discriminatory planning practice. Parks and greening create cooler communities and places to socialize, while also providing the mental health benefits of increased green space. Public libraries, resilience hubs, and other indoor community spaces are also essential. They are important social spaces and can also serve as cooling and heating centers during extreme temperature events. Libraries host important public amenities beyond books, like broadband connections and technology assistance, household tools and gardening supplies, and mobility devices.

Communities can:

- Invest in age-friendly and intergenerational parks and playgrounds, which allow isolated older adults to engage more with community while also creating important "sponges" and cooling spaces during disasters and heat events respectively.
- Invest in public libraries and intergenerational programming for people to access resources and form important social bonds.
- Ensure resilience hubs and community resources are readily available for older adults and others to access during heat events or disasters.
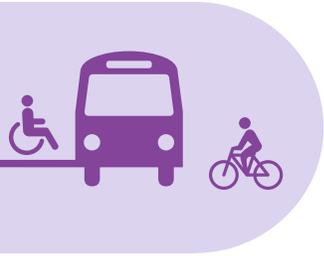
Invest in improved walking, bicycling, transit, and other mobility options. As people age, driving a personal vehicle can become challenging or dangerous. Because of the US's highly car-dependent culture, when older adults stop driving, they can experience depression and lose the ability to engage in errands and access social activities.[65] Communities can support older adults and reduce emissions by improving access to reliable public transit and safe walking and bicycling networks. Expanding and electrifying bus and transit systems reduces carbon emissions and air pollution, while improving the functionality of transportation options for people who cannot or do not drive. Investing in clean, reliable and affordable mobility options helps ensure access to food, healthcare, employment, parks, and other everyday destinations.

Measures to encourage more walking and biking and less reliance on cars will help decarbonize mobility while improving safety and comfort for people walking or bicycling. Moreover, such efforts enable older adults to remain active, support social connections, and have key benefits for healthy aging. Robust walking and bicycling infrastructure also bolster disaster resilience, enabling mobility even when personal vehicles may be water-logged, out of gas, or unable to function due to road blockages.

Communities can:
- Adopt a Complete Streets policy and require all projects to comply with a Complete Streets approach, ensuring that the needs of older adults, people with disabilities, and communities of color are integrated into streets.
- Update zoning ordinances to remove or reduce parking minimums. This can create more space and funds for building housing, public amenities, or bicycle parking.
- Encourage the addition of more bike parking on private and public property.
- Fund frequent and reliable public transit that connects people to their everyday destinations, even in the days and weeks after a storm.

Remove barriers to affordable, age-friendly housing. Increasing housing density and the supply of affordable housing stock through measures such as allowing accessory dwelling units, banning single family zoning, and developing smaller, disability-friendly housing, allows older people to downsize from larger homes that no longer meet their needs while remaining in their community.

Communities can:
- Prohibit restriction on and incentivize the construction of accessory dwelling units.
- Update zoning ordinances and planning priorities to create greater infill development and boost density.

Ensure housing is safe, climate resilient, and affordable. Many areas are experiencing overlapping housing crises, in which there is not enough housing, housing is unaffordable, housing is energy inefficient, and older adults have insufficient supportive housing. Communities can increase access to housing that meets the combined community needs for affordability, safety, resilience, and aging in community.

Communities can:
- Develop local programs that encourage landlords to upgrade and weatherize their properties. Such programs can decrease cost burden for renters, save energy, reduce health risks, keep older people in their homes and communities longer, and prepare local housing stock for increasingly volatile temperatures and storms.
- Consider proactive rental inspection policies to ensure that rental homes are up to code and that residents are safe from mold, pests, and other forms of contamination.
- Create incentive programs that help people safely age in place through subsidies for solar systems with battery backup, support for housing retrofits for disability access, etc.
- Adopt policies to stop utility shut-offs and provide utility cost assistance to low-income residents, helping ensure that people will be safe from extreme heat and cold.
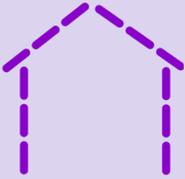
Protect unhoused individuals from climate threats. Communities must also invest in supportive and emergency housing for these residents experiencing chronic homelessness. Approximately half of single individuals experiencing homelessness in the US are over the age of 50. Especially in the winter and during extreme weather events, it is imperative that municipalities have strategies to provide shelter and care to those neighbors who are the most vulnerable within an already vulnerable population.

Communities can:
- Ensure outreach programs and safe spaces are available to shelter unhoused individuals from climate threats.
- Develop more supportive, transitional, and emergency housing.
- Subsidize the creation of affordable, income-restricted housing and take steps to preserve existing and naturally occurring affordable housing to decrease financial pressures on rent-burdened community members at higher risk for homelessness.

Invest in care infrastructure. Climate instability underscores the challenges that older adults, people with disabilities, and care workers face from inadequate, underfunded care infrastructure. Both paid and unpaid care workers are disproportionately women of color and immigrants.[66] Additionally, many care workers are themselves older adults. They deserve living wages, opportunities for job growth, and dignified labor standards for their essential work. Further, the social loss of undervaluing care workers and infrastructure has been made clear through the COVID-19 pandemic, which left older adults, people with disabilities, and people of color acutely at risk for illness and death. Likewise, the economic costs of underinvestment in care outpace the costs of necessary investment.[67]

Communities can:
- Invest in universal paid family and medical leave programs.
- Provide support for universal long-term support services, home- and community-based support services, care worker training programs, and raising minimum wages and workplace protections, approaches that are crucial to recognizing older adults' and care workers' rights and dignity.

Increase efforts to mitigate climate change. While bolstering resilience to the effects of climate change is vital, it is also imperative that communities do all they can to reduce greenhouse gas emissions. The only effective way to do this is by putting an end to the burning of fossil fuels. Communities must stop building more fossil fuel-oriented infrastructure and transition existing infrastructure to electrification.

Changing land use patterns to encourage walking, biking and public transit use, supporting electric vehicle uptake to replace fossil fuel emitting vehicles, and ending fossil fuel subsidies are important steps. Increasing building efficiency, repurposing existing development when possible rather than undertaking new construction, halting the development and expansion of coal-fired power plants and oil and gas fields, and investing in renewable energy sources like wind, solar, and hydropower, are also imperative. Ending fossil fuel dependency by electrifying energy sources is not only necessary to mitigate climate change, but is also better for public health, especially for environmental justice communities that have faced the brunt of polluting fossil fuel industries for decades. Transitioning away from coal, oil and gas will mean better air quality, safer water and soil, healthier communities, and a healthier planet.

Communities can:
- Enact a natural gas ban for new building construction.
- Ban new fossil fuel infrastructure such as gas stations altogether, as communities are increasingly doing in California.[68]
- Implement any of the policies described above that achieve both climate adaptation and mitigation goals, such as weatherization, home solar/battery subsidization, adaptive reuse of existing building stock, tree planting and urban greening, etc.

6

6 Conclusion

The climate crisis presents a host of dangers to older adults. Yet this group is sometimes lambasted for their generation's contribution to the climate crisis and for their perceived lack of urgency around the climate crisis, compared to younger generations. This framing misses the assets older people can bring to the movement and the importance of ensuring their safety. We need people of all ages in the fight against climate change.

Older people are valuable members of society with knowledge, time, and other resources to share. They often play the role of caregiver for younger generations, and many extend this role as stewards for our planet. Many older people were active in the civil rights movement, the anti-war movement, and the countless environmental justice battles of the preceding decades. Older adults have experience and strategy to share. If we are to make the progress we urgently need to make in time, we need everybody to share their leadership and knowledge.

Finally, actions that communities take for the welfare of their older population have larger benefits for the whole community: supporting the most vulnerable community members through reducing pollution, building more affordable, accessible housing, creating safer streets, and bolstering social support systems will make our communities more livable for everyone. Older people must be involved in planning how we get to a more hopeful future.

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