

Resource-poor communities in US, across globe at high risk

Climate change increasingly harming mental health

ON AUG. 29, Jackson, Mississippi, prepared for the worst as rainfall of historic proportions caused the Pearl River to overflow its banks. Fearing a repeat of the city's devastating spring 2020 flood, the city's mayor called on residents to evacuate.

Fortunately, the floodwaters rolled in at lower levels than expected. But the record rainfall exacerbated decades-old problems at the city's aging water treatment facility, leaving more than 100,000 people without safe drinking water.

Though the floodwaters have since receded in Jackson, feelings of powerlessness, stress and anxiety are rising in the city, where more than 82% of residents are Black and 1 in 4 live in poverty. When the flooding occurred, Jackson had already been under a boil water advisory from the state health department for at least a month. Decades of disinvestment in the city's crumbling water infrastructure has left it ill-equipped to

handle the more intense and frequent flooding that is linked to climate change.

Around Jackson, the contaminated water and low or no water pressure caused taps to run dry, rendered toilets and show-

ers unusable and crippled air conditioning systems. Residents waited in line for hours for bottled water. The impact was felt especially hard at Jackson State University, where 7,000 students at the historically Black college had just started the fall semester. The water crisis hit students' pocketbooks hard, leading some to rent hotel

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Photo by Seth Herald, courtesy AFP/Getty Images

People distribute water in Jackson, Mississippi, on Sept. 3. Flooding from the city's Pearl River left Jackson, where 82% of the population is Black, without drinkable water. Many people of color in the U.S. are anxious about the impacts of climate change, recent polls find.



Photo by Michael Hayman, courtesy TreesLouisville

TreesLouisville volunteers plant a tree in a park in April. City leaders are using urban forestry — planting thousands of trees — to address rising heat. A 2021 study found that Louisville was warming faster than any other city in the nation.

Smart surfaces, urban forestry increase US cities launch equity, resilience programs in face of growing heat

EXTREME HEAT has claimed more lives in the U.S. than any other weather-related climate risk. Yet unlike climate-driven sea level rise, wildfires or drought, strategies for addressing rising temperatures lag. Only 4% of city climate assessment plans take on extreme heat, a study in *Environmental Science & Policy* finds.

But there are exceptions. Some cities have created programs and passed progressive policies. And increasingly, actions by city leaders are addressing inequities in heat risks.

"Extreme heat is the deadliest climate-related weather impact in the U.S.," Katherine Catalano, MS,

deputy director of APHA's Center for Climate, Health and Equity, told *The Nation's Health*. "Cities need to invest in every solution possible to reduce

illnesses, according to Ladd Keith, PhD, an assistant professor in the School of Landscape Architecture and Planning at the University of Arizona. "You really can't even start to understand how to address heat without cooperation from the public health sector," Keith told

deputy director of APHA's Center for Climate, Health and Equity, told *The Nation's Health*. "Cities need to invest in every solution possible to reduce temperatures, particularly in communities of color that are suffering the worst of this crisis."

Public health has an important role to play in bringing about heat equity and preventing heat-related



Photo by Ralph Fresco, courtesy Getty Images

The Nation's Health.

"Every project I've worked on so far for heat planning has had a public health component, which has been interesting and makes extreme heat different than other climate risks."

As temperatures rise, some city areas become lit

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Center, a construction worker drinks water during a Phoenix heat wave in 2017. Leaders are working to address urban heat.

States not waiting on Congress to take action on climate change

EVEN AS the federal government struggles to come to agreement on how to address climate change, states are charging forward, taking steps to protect the health and lives of residents.

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EDITORIAL

Building support for advocacy on climate can boost community health

CLIMATE CHANGE is arguably the greatest threat to public health facing our world.

The International Panel on Climate Change and others have detailed the many pathways in which our health — indeed, our very existence on this planet — are already being affected. Those include but are not limited to increases in extreme heat, severe weather events, vector-borne and respiratory diseases, disruptions in food production, and flooding.

These impacts are not being experienced equally. They are falling disproportionately upon low-income communities and communities of color, exacerbating already profound health inequities.

Given the global scale of the climate crisis, it's easy to get overwhelmed and wonder what we can reasonably achieve in our own communities. Yet

tremendous opportunity exists to take meaningful action and the local and regional levels. One such effort is the Fairmount Indigo Community Development Corporation Collaborative, which serves predominantly low- and middle-income communities in Boston.

Collaborative member groups are advocating for local and state policies that will reduce greenhouse gas emissions, improve air quality and increase access to affordable housing. The groups are backing a Boston Conservation Corps program that aims to accelerate climate-focused projects with a dedicated workforce. They're also calling for monitoring of a 2021 Massachusetts climate policy that charts a path toward zero emissions by 2050, and they're supporting increased funding for climate adaptation and

affordable housing projects.

The collaborative members, their partners and resident activists realize that a good solution solves multiple problems. For example, one of their policy goals is to double the excise tax rate for real estate transactions, which would raise an estimated \$600 million per year for both affordable housing development and climate resilience projects in frontline communities.

The collaborative is one of 14 community-based partners supported by the Kresge Foundation's Climate Change, Health and Equity initiative. Many of the organizations supported through the five-year, \$22 million initiative are achieving important victories, including expanding transit access, establishing a clean energy standard and supporting urban resilience.

Despite encouraging signs of progress, health funders have yet to support climate advocacy led by affected communities at sufficient scale. A field assessment found a total



Photo by Nikola Stojadinovic, courtesy iStockphoto

Local and regional groups can do a lot to create healthy, resilient communities.


of just \$84 million in grants from 100 funders in health and equity initiatives related to climate, with very few coming from health foundations. A more recent study conducted by the Center for Effective Philanthropy found that while 90% of foundation leaders believe that climate change is an urgent problem, only about 2% of foundation giving goes toward climate mitigation and adaptation.

Clearly, more climate

action is necessary. We invite you to join us at APHA's 2022 Annual Meeting and Expo at 10:30 a.m. ET on Nov. 7 at session 947857 to learn how communities are organizing to create a more equitable and climate resilient future. ■

— Chris Kabel, MPH,
Kimberly Lyle, MPP

Kabel is a senior fellow with the Kresge Foundation and Lyle is CEO of the Dorchester Bay Economic Development Corporation, which is a member of the Fairmount Indigo Community Development Corporation Collaborative.



The APHA Center for Climate, Health and Equity is partnering with the Union of Concerned Scientists and the Moving Forward Network to launch

The Science and Community Action Network

An online platform connecting frontline communities to one another and to technical experts nationwide so that resources, experiences, and connections can be shared to strengthen the environmental justice movement.

Go to SciCAN.org to sign up today!

These are your peer reviewers too
Connect with local communities to measure the real impact of your work.

Photo: Yvette Arellano/TEJAS © Union of Concerned Scientists 2020

Mental health impacts of climate change expected to grow

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rooms or to drive or fly home. Students living off-campus and graduate students with families worried about unexpected food costs due to the inability to cook at home. Some students lost their cars in the flood, said Fran'cee Brown-McClure, PhD, vice president for student affairs.

“All of this is sitting very heavy on our students, faculty and staff,” Brown-McClure told *The Nation's Health*. “But in the midst of the crisis and in the midst of these negative situations that impact communities of color and that have impacted JSU, there is still great resiliency.”

The world's climate is changing at an alarming and unprecedented rate, and numerous studies show that the mental health impacts caused by heavier rains, flooding, hurricanes, wildfires, poor air quality and extreme heat and cold are not experienced equally. According to a 2021 report from the Amer-



Photo by Joe Raedle, courtesy Getty Images

Humberto Sanchez salvages items from his Fort Myers, Florida, apartment Sept. 30 after Hurricane Ian passed through the area. Climate change is causing hurricanes to become more intense, leading to greater damage and stress for those in their paths.

ican Psychological Association and ecoAmerica, the destructive impacts of climate change will be felt by everyone, but the impact will fall hardest on low-income people and communities of color. Climate change can increase stress, anxiety, depression, mood disorders, PTSD, cognitive decline, poor academic performance and higher exposure to violence and crime,

research shows.

“Climate change exacerbates every existing stressor that communities face and individuals experience,” said Jasmine Davenport, MSc, executive director of Our Climate. “From housing insecurity, gender inequality, job uncertainty, health care accessibility, people are overburdened, feel left behind, are tired of their communities being ‘sacrifice zones,’ and are burned out from advocating, hearing empty promises and, quite frankly, hitting a point of not knowing what to do.”

An April Healthy Minds poll from the American Psychiatric Association found that climate change is impacting the mental health of adults. But not all people are being affected equally: 65% of Black adults reported climate anxiety, as did 62% of Hispanic adults. White people were least likely to report climate anxiety, at 52%. The poll also found younger adults are more likely to be concerned about climate change's impacts on mental health, with more than half of respondents ages 18-34 expressing anxiety about climate change and its impact on their mental health.

While many leaders around the world are pursuing and pushing for action to mitigate climate change, only 1 in 3 U.S. adults feels optimistic, a spring poll from ecoAmerica and APHA found. People ages 18-29 were much more likely than people over 60 to feel angry or

fearful about climate change.

“It is vital that we provide people, especially young people, with the necessary tools and supportive spaces to build their resilience, as we are in the fight of our lives,” Davenport told *The Nation's Health*.

A warming planet will also bring increases in suicide and substance use as climate change factors contribute to or exacerbate anxiety and depression, said Caitlin Gould, MPPA, of the Climate Science and Impacts Branch at the U.S. Environmental Protection Agency. Gould co-authored an April study in *GeoHealth* that found that regions in the U.S. with declining rain and increasing temperatures between 1999 and 2019 had increasing suicide rates. At-risk regions include the Northwest, North Central region and the South.

Despite the science, many Americans still do not realize just how profound and common the effects of climate change will be on mental health.

“Leaders need to have community trust and knowledge of cultural practices and language fluency,” Gould told *The Nation's Health*. “They also should be equipping health care professionals with the training and tools to identify mental health issues driven by the effects of climate change.”

Some states are stepping up and joining the fight. In Oregon, Gov. Kate Brown directed the Oregon Health Authority to study the harms from climate change on the mental health of young Oregonians. A June report, “Climate Change and Youth Mental Health” shared data from focus groups conducted with 15- to 25-year-olds representing a range of cultures and races, including American Indian youth and youth with disabilities. According to the report, the weight of climate change can seem overwhelming and unfair to young people who see their future lives and well-being at stake, yet are not able to represent themselves at decisionmaking tables where climate change

decisions are debated.

“They feel that their anger and frustration is being dismissed both by the adults in their lives and adults in power,” said Julie Early Sifuentes, MS, the report's lead author. “There is this feeling that the responsibility of addressing climate change is being shifted to them.”

The study also amplified the voices of tribal youth for whom the capacity to adapt to environmental change is often based on their connection to the land. Multiple studies show that chronic climate stressors such as drought, wildfires and extreme heat interfere with the ability to gather traditional foods and impact the cultural practices that are important for resilience and well-being among American Indian youth and their communities. Culturally appropriate training for mental health workers could help mitigate these issues, Sifuentes said, such as supporting more people of color to become therapists and counselors.

“There is a real need for some non-traditional cross-sector collaborations,” Sifuentes said. “Typically in public health, we haven't seen a strong connection or recognized a strong connection between mental health and environmental health. Climate change is really bringing to the surface how important our relationship with nature and with our physical environment is to our overall well-being.”

The World Health Organization underscored that connection this summer in a new issue brief, calling for nations around the world to include mental health and psychosocial support in their national health and climate change plans.

“By ramping up mental health and psychosocial support within disaster risk reduction and climate action, countries can do more to help protect those most at risk,” said Dévora Kestel, MSc, WHO's director of the Department of Mental Health and Substance Abuse, in a news release.

For more on climate change and human health, visit www.apha.org/climate-change. ■

— Teddi Nicolaus



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Wanted: Advocates who speak up for climate justice, vulnerable people

AS THE BIDEN administration gets ready to spend billions to combat climate change, now is a critical time to engage policymakers on the importance of climate justice, health advocates say.

In August, President Joe Biden signed legislation hailed by many as the most aggressive U.S. climate investment to date. The law, the Inflation Reduction Act, authorizes \$369 billion to promote clean energy and cut carbon emissions. Katherine Catalano, MS, deputy director of APHA's Center for Climate, Equity and Health, said the new law could be a game-changer, though there are legislative trade-offs that will bolster new fossil fuel infrastructure and put front-line communities at risk.

The goal now is to make sure climate justice is baked into the law's implementation, Catalano said, from how the new money is distributed to where actual emissions are cut. And it will be crucial to continue pushing for stronger regulations to minimize damage from any new fossil fuel infrastructure.

"The urgency of this moment cannot be overstated," Catalano told *The Nation's Health*. "We need to make sure this money is spent in a way that addresses justice."

"Climate justice" generally recognizes that groups already at a systemic disadvantage and who contribute least to climate change also bear a disparate burden of harmful climate change effects. Climate justice focuses on solutions directed toward marginalized and overburdened communities.

There are many resources available to help advocates engage policymakers at all levels of government on the issue. One tool is storytelling, which helps people draw on their personal climate change

experiences to create engaging stories. Bineshi Albert, co-executive director of the Climate Justice Alliance, said storytelling that focuses on "communities and everyday people" often resonates best.

"We've known the data for decades, but the human impact is typically what moves people," she told *The Nation's Health*. "This is especially true when it comes to the climate crisis, as science is up against a powerful fossil fuel lobbying effort to discredit it every day."

Albert said policymakers may be unaware of the many community-driven climate solutions already unfolding on the ground.

"Without climate and environmental justice and the inclusion of the communities who brought those movements to life, the climate crisis cannot adequately be addressed," Albert said.

To advance climate justice, policymakers must hear directly from those most harmed, both their stories and their solutions, said Osprey Orielle Lake, founder and executive director of Women's Earth and Climate Action Network. The network hosts a storytelling database, "Women Speak," that features thousands of stories by and about women fighting for climate justice.

"Personal stories are vital to humanizing the climate crisis," she told *The Nation's Health*. "At the same time, it's also important to have the data and research to show that a different world is possible."

Anyone can be a messenger for climate justice, Lake urged.

"As we find a way forward, we must make sure there are no more sacrificed people or lands or disposable communities," she said.

For more, visit www.apha.org/climate. ■

— Kim Krisberg



Photo by Jacoblund, courtesy iStockphoto

Anyone can be a messenger for climate justice. Youth around the world are calling for action.

In their own words: Advice from and for youth climate activists

WHEN IT COMES TO advocating for climate justice, what do youth need to know? To answer that question, APHA's Center for Climate, Health and Equity asked youth themselves. In July, the center hosted a roundtable with youth leaders in the climate movement. The leaders shared insights on their work and the role that young people can play in achieving equitable health outcomes and fighting climate change.

"We hope their words will help guide and inspire other young people to learn more and take action in their communities," Katherine Catalano, MS, APHA's deputy director of climate, health and equity told *The Nation's Health*.



Mead

"It wasn't until I saw Latina activists speaking out that I realized my voice is valid. Representation is crucial. There is a place for everyone in the movement. You don't have to be an expert to get involved. Finding a group in your community is the best thing you can do to get started. There are lots of great organizations out there."

— Magnolia Mead, Zero Hour policy organizer

"Activism can be whatever you want it to be, as long as you are doing good and making your community a better place. Some people go on-the-ground or attend rallies, but activism can also look like reposting a post, educating yourself about issues in your community or talking to community members. Reaching out to mentors is really helpful, because they know so much and can help build your confidence."

— Rhea Goswami, co-founder and executive director, Environmental Justice Coalition

"Just because you are young doesn't mean that your perspective isn't important or needed. Just make sure to avoid overdoing it. Making time for all the things that are important to you is a good way to balance day to day life and activism work."

— Natasha Matta, co-founder and director of content, Environmental Justice Coalition



Goswami

"Even if you're not old enough to vote yet, there are so many ways to get involved: help people register to vote, canvass on environmental issues, talk to decisionmakers about climate action, help educate other youth and get them engaged, use social media to amplify the work that others are doing."

— Iris Zhan, co-founder, Fridays for Future Digital

"If you're interested in getting involved in policy, it can be helpful to get to know your town councilors, find allies within the town board or whomever composes your local government. I turned to the town board and got involved with my local environmental committee."

— Cade Cole, member, Student Climate Coalition



Restum

"Use social media to document your journey, show the actions you're taking so your audience feels like they're part of the same mission. Make the content interesting and remind the public that as much as this issue is broad and scary, there is so much we can do at the local level."

— Alexander Restum, student researcher, Wayne State University

"When you want to engage with marginalized populations in your work, it's important to be flexible. Communities are dealing with so much already they might not have the capacity to add to your platform. There should be an open invitation without expectation."

— Tiffany Canate, MPH, project lead for workgroup on climate change and health, APHA Environment Section



Canate

"Anyone's feelings around this crisis are valid. Lots of young people are experiencing anxiety and fear about the future, and this can be more intense for activists. We have agency to make change, but the climate crisis is so much bigger than any of us and it doesn't have to rest on our shoulders. All we can do is try to keep going and do what we can do."

— Evelyn Bigini, MSc, representative, Earth Uprising's Global Youth Leadership Council

People of color, low incomes are disproportionately harmed

Freight routes harm health of nearby residents

SEVENTY-TWO MILLION people in the U.S. live in neighborhoods near ports, rail yards and freight routes. Fossil-fueled transportation of the goods creates dangerous levels of air pollution in nearby neighborhoods. In March, the U.S. Environmental Protection Agency proposed a rule that would set stronger standards to reduce pollution from heavy vehicles used in the freight sector. But more needs to be done, according to Candice Kim, MPH, project director at Moving Forward Network, a member organization that advocates for communities impacted by the freight transportation system.

How bad is carbon pollution near U.S. ports of entry?

Our freight transportation system relies upon legions of fossil-fueled ships, trucks, trains and heavy-duty equipment to move huge volumes of cargo through seaports, rail yards, highway freight corridors and warehouses. Roughly a third of harmful smog-forming emissions from vehicles in the U.S. are contributed by heavy duty trucks.

What are the communities located near these sites like?

Communities living in the shadow of freight operations are often working-class, low-income communities of color that are caught at the dangerous intersection of toxic pollution, systemic racism, long-term disinvestment, poverty, political imbalance and climate disaster.

What other challenges do these communities face?

Environmental justice communities also experience impacts beyond health disparities, such as public safety concerns from truck and rail traffic, impacts to safe routes to schools, highways and rail lines that create barriers between residents and vital resources, and a pattern of land use decisions that prioritize industry over community well-being.

What is the Moving Forward Network doing?

The network has launched a Zero Emission in Freight campaign where advocates and allies can join in by holding decisionmakers and industries accountable. This is through advocacy and organizing to change the laws and policies that will protect us from harms caused by the freight sector.

Moving Forward Network supports front-line-led solutions to achieve a zero

emission future for our freight system, and ensure that solutions incorporate a holistic approach that prioritizes environmental justice. Voices of environmental justice communities and front-line workers must not only be included, they must be centered in order to advance a just transition to zero emissions.

What can public health advocates do?

Advocates can support community-led organizing strategies, and demand accountability and regulations from the (Biden) administration and EPA. For decades, communities across the country have been fighting for one of the most basic rights that everyone should have — the right to breathe clean air.

What are the human health risks for communities near freight lines?

Serious health impacts associated with diesel exhaust exposure include increased risk of premature mortality, lung cancer and cardiovascular, cardiopulmonary and respiratory diseases.

Although everyone is susceptible to diesel pollution impacts, children, the elderly and individuals with preexisting respiratory conditions are the most vulnerable.

Children are vulnerable because their lungs are still developing and they tend to spend more time outdoors. The University of California's Children's Health Study, one of the most detailed studies on this, found that living in communities with higher roadway pollution levels causes increased risk for asthma and measurable lung damage. ■

— Mark Barna

For more on EPA's "Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards," visit www.epa.gov/regulations-emissions-vehicles-and-engines. For more on the Moving Forward Network, visit www.movingforwardnetwork.com.

This interview was edited for style, clarity and length.



Photo by Wendell and Carolyn, iStockphoto

EPA has proposed stronger emission standards for heavy trucks carrying freight.



Photo by Teppakorn tongboonto, courtesy iStockphoto

Rail yards are considered heavy pollution areas in part because of the fossil-fueled freight trucks frequenting the sites. One-third of smog-forming emissions comes from heavy duty trucks.

JEDI principles offer playbook to improve climate readiness

AS PUBLIC HEALTH professionals work to build climate resilience, they are keeping justice, diversity, equity and inclusion in mind.

Earlier this year, APHA, in partnership with the Centers for Disease Control and Prevention, released a new playbook to help public health agencies embed those four principles — also known as JEDI — into their climate readiness and resilience plans. The goal is to ensure such plans reach and engage those most vulnerable and with the fewest resources to prepare for and recover from climate-related threats.

Research has shown that the most severe climate change hazards fall disproportionately on underserved communities, with communities of color particularly vulnerable.

"JEDI is an important tool because while climate change can affect anyone, not everyone is equally at risk," said Evelyn Maldonado, program

manager at APHA's Center for Climate, Health and Equity. "We need to make sure we're developing climate adaptation plans in partnership with those most affected. That's the only way to achieve plans with an equity lens."

The playbook was specifically designed to complement CDC's Building Resilience Against Climate Effects framework, which aids local health officials in readying their communities for climate change. The APHA playbook offers a practical, step-by-step guide for integrating the BRACE and JEDI frameworks.

Many agencies have long been working to center equity in their climate activities. For example, the San Francisco Department of Public Health released a climate and adaptation framework in 2017 that listed equity as one of its

top guiding principles. In Oregon, officials released a Climate Equity Blueprint in 2021 to help state agencies "center equity at the forefront of their climate adaptation work, not as an afterthought."

"We use JEDI principles as both our lens and compass," Alyssa McClean, MPH, climate and health program coordinator at the Oregon Health Authority, told *The Nation's Health*.

A recent example is investing in community-based organizations — trusted entities already embedded locally — to boost climate resiliency among vulnerable residents. With the help of a community advisory council, the state health agency funded about 30 such organizations starting last year to do climate-related work, from tree planting projects to creating environmental



Photo courtesy FG Trade, iStockphoto

JEDI principles help people build equitable climate resilience into local planning.

justice curricula for urban youth to forums where leaders from communities of color can collaborate on climate action.

"If we don't apply JEDI principles, the people in our communities with the fewest resources to protect themselves from the increasing severity and frequency of climate events will continue to suffer the consequences," McClean said.

While the new APHA playbook was created to help users easily couple it with CDC's BRACE framework, Maldonado said any agency can use it to help navigate the climate adaptation process in a more equitable way.

"We need to ensure all voices are included," she said. "That's at the core of it all."

To learn more about the "Climate Change and Health Playbook: Adaptation Planning for Justice, Equity, Diversity and Inclusion," visit www.apha.org/climate. ■

— Kim Krisberg

SciCAN offers collaboration, resources for justice advocates

Environmental justice hub creates connections

PUBLIC HEALTH workers have a new platform for sharing resources on environmental justice.

The Science and Community Action Network offers opportunities for research, discussion and collaboration between scientists, advocates and frontline community members to help bring about health equity in historically marginalized communities across the U.S. Launched in September, SciCAN.org provides a place to build connections that protect vulnerable communities and address environmental, economic and social injustices.

SciCAN fosters open and inclusive communication, including opportunities to share research, essays and other resources, according to organizers.

"The resource library is intended to not only contain academic journals, but information from a lot of our allies and col-

leagues across the country in the environmental justice movement," Beto Lugo-Martinez, administrator and co-founder of SciCAN, told *The Nation's Health*. "The information can be used to advance policies at all levels."

A stand-out offering of SciCAN is that it gives voice not only to scientists writing peer-reviewed papers, but also to non-academic researchers and community leaders on the ground. This openness strives to cross a divide that sometimes exists between academia and the community, organizers said.

"A lot of community-led solutions come from the ground up because the community members

know exactly what they're facing, what the challenges are, day to day," Lugo-Martinez said.

Among the resources is a nonacademic study by CleanAirNow, an environmental group in Kansas City. The group examined a neighborhood burdened by toxins from scrap metal shops and air pollutants from delivery trucks and heavy machinery. Conditions were so bad that

sometimes a chemical forms on outdoor plants.

The residents are mostly people of color who are low income. They have a life expectancy 20 years shorter than people in other neighborhoods in Wyandotte County, Kansas, the study said.



Photo courtesy Nortonrsxe, iStockphoto

Studies on environmental justice topics by grassroots groups are available on SciCAN.org.

Research was gathered by neighborhood social workers, who interviewed residents about problems and solution strategies.

In May 2021, CleanAirNow submitted the work with comments to Wyandotte County officials working on a general plan to aid the neighborhood. Emphasis was placed on including residents in the conversation.

"Academia really needs to embrace community-led solutions and community-led data gathering," said Lugo-Martinez, executive director of CleanAirNow. "They have not put themselves in a place of humility in the community."

Among journal studies available on SciCAN is one conducted in a Houston, Texas, neighborhood that is on the fence line of transportation and industry infrastructure.

Researchers used particulate wipes to collect dust from randomly selected homes. They found toxins known to cause cancers and chronic diseases. The researchers are doing more work to

assess the source of the toxins and better understand neighborhood exposure.

Also available on the SciCAN website is "find-an-expert," which enables users to connect on an issue. The feature could be used to find a local expert for a public hearing on an environmental topic or a land-use decision, Lugo-Martinez said.

The website follows the U.S. Environmental Protection Agencies' working definition of environmental justice. EPA states that no group, regardless of race, ethnicity or socioeconomic status, should bear a disproportionate share of health-harming environmental consequences from industrial, governmental or commercial operations or policies.

More is planned this year for SciCAN, including workshops, videos and information on how researchers can build trust and collaboratively engage with communities in a way that benefits them.

For more information, visit www.scican.org.

— Mark Barna

FEATURED SESSION

MONDAY, NOV. 7

2:30 PM

Environmental Justice: Voices from the Frontlines



P. Qasimah Boston, DrPH, MPH

President, Tallahassee Food Network
Co-Director, Tallahassee Youth for Change Project
Adjunct Professor, Institute of Public Health, FAMU



Monique Harden, Esq

Assistant Director of Law and Policy
Deep South Center for
Environmental Justice



Beto Lugo-Martinez

Executive Director, CleanAirNow
Advisory Board, Moving Forward Network
Co-Founder, SciCAN



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Urban heat more likely to affect people of color, those with low incomes

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furnaces, especially during the summer. Urban infrastructure absorbs and re-emits heat into the atmosphere, pushing up temperatures in cities. The hottest areas typically are low-income neighborhoods populated by people of color.

Systemic racism, unfair city zoning laws, low socioeconomic status and exclusion from city political processes have meant that underserved neighborhoods often receive meager funds for development, including for green parks and tree canopies, which produce shade and lower temperatures through evaporative cooling and are a key heat-reduction strategy in cities.

“Historic practices such as segregation and redlining, which led to underinvestment in neighborhoods of color, led to communities of color and low-income populations living in neighborhoods with less green space and higher

concentrations of large building complexes made of dense, heat-absorbing materials,” according to a February report from the Urban Institute. In another study from 2020 of 108 U.S. urban areas, 94% of redlined communities had higher surface temperatures — sometimes as much as 13 degrees higher — than non-redlined communities.

Meanwhile, low-income residents many times do not have home air conditioning or other ways to cool down on the hottest days, noted the Urban Institute report, “Centering Equity to Address Extreme Heat: Preparing Communities for Hotter Days.”

Treeless streets, seas of pavement and lack of green spaces are major contributors to what is known as “heat islands” — urbanized areas that experience higher temperatures than outlying areas. Leafy trees and green spaces cool the atmosphere and lower temperatures through a process called evapotranspiration, and trees also provide shade, reducing direct sun-

light onto heat-absorbing paved roads and parking lots.

But bringing urban forestry and other heat resiliency strategies to underserved neighborhoods can be challenging. Residents may lack internet connections, missing out on heat alerts and information on cooling centers, as well as surveys where they can report their needs. Language barriers sometimes also exist.

The Urban Institute report recommends that city officials and environmental advocates visit neighborhoods at risk for high heat in person, have conversations with residents and include them in interventions. Having local voices in the decisionmaking process is paramount.

“At the core of environmental justice organizing is the belief that those who directly experience injustice are best suited to develop meaningful, relevant and transformative solutions,” Candice Kim, MPH, project director of Moving Forward Network, an environmental advocacy group, told *The Nation’s Health*.

City leaders leading toward change

Over the last 10 years, Boston has experienced its hottest days on record. In August, the city hit 97 degrees, its highest temperature since 1928. Redlined neighborhoods bear the brunt of extreme heat, with temperatures 7.5 degrees hotter during the day compared to greener neighborhoods, according to the Boston Heat Resilience Plan published in April. Redlined communities have 20% less green space and 40% less tree cover.

In preparing the heat resiliency plan, city organizers met with residents, using translators when needed. They asked practical questions: How often do you use your air conditioner? Where do you go to keep cool? How do you receive weather updates?

Solutions in the Boston plan are comprehensive, involving infrastructure, land planning, smart growth and policy. Plans for redlined neighborhoods include pop-up heat relief stands, expansion of city-



Photo by Jason Armond, courtesy The Los Angeles Times/Getty Images

Princess Smith and her brother King cool off at a splash playground in Los Angeles in August. Rising temperatures are driving urban leaders to make changes to protect resident health.

run cooling centers, expansion of emergency heat alerts, zoning revisions and development of green space and tree cover.

Throughout the plan’s 350 pages, equity is a constant theme.

“By centering people and personal experiences alongside policies focused on infrastructure and buildings, we can deliver a wider range of strategies that can better address individual and systemic injustice and inequity,” the report said.

Further south, Louisville, Kentucky, sits in the Ohio Valley, which in summer holds in heat like a blanket. In 2012, the city got a wakeup call that drove it to action. An influential study out of Georgia Tech University found that Louisville was warming faster than any other city in the nation. Compared to its suburbs, city center temperatures were rising 1.67 degrees each decade, nearly twice that of Phoenix, the second hottest U.S. city, according to the study. Nearly 40 residents die annually from heat-related causes.

Following the study’s publication, Louisville hired its first director of sustainability, its first urban forester and a tree commissioner. The city has transformed heat-absorbing parking lots into green areas; embraced cool pavement and cool roofs, which

apply a lighter coat to dark surfaces to reduce heat absorption; and planted tens of thousands of trees.

Attention is placed on equity. A recent local study found that Louisville neighborhoods redlined in the

1930s have 22% tree cover, compared with 49% for wealthier, predominately white neighborhoods.

TreesLouisville, a local environmental group, has

planted 18,000 trees, focusing on marginalized communities. The environmental group has also replaced paved parking lots with green spaces and community gardens.

An important strategy is to include residents when planting on easements, said Cindi Sullivan, executive director of TreesLouisville. Residents are given choices of tree species and plant locations, and all conversations are in person. Planting trees on easements near homes without discussing it with residents can be perceived negatively.

TreesLouisville is also involved in policy advocacy, calling on elected leaders to prioritize and fund city forestry work.

“If we don’t have good strong public policy to protect and preserve our trees and enhance our canopy, we’re never going to get where we need to be,” Sullivan told *The Nation’s Health*.

“If we don’t have good strong public policy to protect and preserve our trees and enhance our canopy, we’re never going to get where we need to be.”

— Cindi Sullivan



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Kansas City made the top 10 of hottest urban heat islands in a 2014 report from Climate Central, a nonprofit news group. The report found that the city's urban center was on average 4.6 degrees hotter than outlying areas during the decade analyzed.

Kansas City is struggling to stay at 31% tree coverage, about 10% below the optimum recommended for the city by the American Forest Association. Disease, invasive pests, and climate-driven floods and drought stress trees and shorten life, adding to the difficulty of building an urban forest there.

The hottest Kansas City neighborhoods are low-canopy communities on the East Side with majority Black populations, a 2021 report by the Mid-America Regional Council found. Since 2016, Bridging the Gap, a local environmental group, has planted 3,800 trees in the neighborhoods. It also provides energy and water efficiency devices to reduce monthly utility bills, which can be especially high during hot summers.

With COVID-19 cases receding, organizers have been able to return to going door-to-door in East Side communities to talk about trees, utility bills and climate resilience.

"It's amazing the difference we get when we actually knock on the door and speak to a person," Sarah Crowder, senior program manager at Heartland Tree Alliance and Green Stewards, a Bridging the Gap partner, told *The Nation's Health*.

In August, a draft of Kansas City's Climate Protection and Resiliency Plan

was sent to its City Council. It offers a section on climate justice for vulnerable communities. Several climate action sections cover emissions reduction, energy, food security, climate-ready buildings and natural systems — the latter addressing the importance of urban forestry in low-canopy communities.

One such low-canopy community is Phoenix, Arizona, which in summer can soar to more than 115 degrees — so simmering that airplanes at the inter-



national airport cannot achieve lift. Everyone is at risk when temperatures are so high, but people in underserved neighborhoods are most in danger.

"Those communities face systematic inequities, including lack of access to indoor cooling, poor housing quality and lack of access to health care," Keith said. "And so the systematic inequities make the heat severity much worse when both of those things are compounded together."

Phoenix's desert weather does not support lush, leafy trees, and the city only has 15% canopy cover. Moreover, a years-long drought makes it tough for officials to adequately water the city's existing greenery.

Both factors make urban forestry a nominal part of the city's climate plan.

Even so, Phoenix is considered a leader in heat management. Zoning ordinances mandate at least 50% shade in downtown public spaces, most of which are art-style shade structures. It also has a Heat Relief Network, created in 2005, that offers real-time maps of cooling centers, water stations and heat-related medical information. Cool roofs have been installed for decades.

Last year, Phoenix opened the Office of Heat Response and Mitigation, the first publicly funded office addressing heat in a U.S. city. Equity is a strong focus through its public health arm.

"The office will do heat mitigation, which has traditionally been on the urban planning and architecture side. But they'll also look at heat management, which has traditionally been public health and emergency management," said Keith, an advisor to the agency. "The office brings together those traditionally siloed areas."

Phoenix is also piloting cool pavement — a reflective road surface that can help keep heat down — and continues to pursue its goal of covering a quarter of Phoenix with trees. Both are examples of Smart Surfaces, or reflective, porous, green or other surfaces that help reduce urban temperatures and aid with stormwater management.

"Extreme urban heat is awakening everyone to the reality of the climate crisis and the need to protect our communities and planet," said Greg Kats, CEO and founder of the APHA-supported Smart Surfaces Coalition, in an August news release announcing a new guidebook on heat reduction strategies.

The guide shows how smart surfaces "can reshape urban surfaces to make them cooler, less likely to flood, healthier, more equitable and more livable" — a strategy Arizona leaders are endorsing.

Arizona is also part of Building Resilience Against Climate Effects, funded by the Centers for Disease Control and Prevention. BRACE provides a framework for guiding



Photo courtesy Los Angeles Bureau of Street Services

Workers apply a cooling paint on roads in Los Angeles' Pacoima neighborhood as part of a strategy to combat climate change.

16 states and two cities on strategies and programs to reduce climate-caused health harms.

Keith, who is part of Arizona BRACE, said the program is bringing heat strategies used in Maricopa County to underserved communities across the state, using heat emergency messaging, cool pavements and cooling centers. But he is realistic about the progress so far: Heat-related deaths in Phoenix increased by 62% over one year, from almost 200 in 2019 to 323 in 2020,

according to the Maricopa County Department of Public Health.

"We have more work to do not just to mitigate the heat in the built environment, but also to manage heat and improve public health outcomes," he said.

For the Urban Institute report, visit www.urban.org. For the new "Smart Surfaces Guide," visit www.smartsurfacescoalition.org. Learn more about climate change and environmental justice at www.apha.org/climate. ■

— Mark Barna



Photo by Ralph Fresco, courtesy Getty Images

Eric Maurice Clark sells cold bottled drinks to drivers at a Phoenix intersection in 2017 as heat soared over 120 degrees.

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Climate-friendly policies, programs gaining traction with state leaders

CLIMATE STATES,
Continued from Page 1

The U.S. Supreme Court's June 30 decision to limit authority of the U.S. Environmental Protection Agency to regulate carbon emissions from existing power plants will further chip away at the federal government's ability to fight climate change. But the authority of states to reduce emissions will not change, according to the U.S. Climate Alliance, comprising 24 states and Puerto Rico, all of which have vowed to lower greenhouse gas emissions.

"We will continue moving forward with bold climate action in the states to protect the health and pocketbooks of the American people," California, New York and Washington state governors said in a joint statement after the court decision.

Polls show most Americans favor reducing greenhouse gases, and data suggest a majority of states are on board to some degree. Even Indiana, Oklahoma and Texas, which as "red" states are typically seen as less open to environmental measures, have embraced renewable energy with electricity-generating wind turbines.

"One of the reasons we're seeing renewables deployment like we are in places where previously you might not have expected it is because they've just gotten so cheap," Julie McNamara, MS, deputy policy director

for climate energy at the Union of Concerned Scientists, told *The Nation's Health*. "And they present opportunities for good jobs, local investment, cleaner air, local resilience."

The top states with climate-friendly policies and programs are California, Colorado, Illinois, New Jersey, New York and Washington, according to an analysis released in June by RMI, a clean energy advocacy organization. Among the most important policies are investing in clean electricity infrastructure, developing carbon-free buildings and embracing electric vehicles.

"A lot of attention gets focused on what is the federal government doing to act on climate," Kyle Clark-Sutton, MS, MPA, manager of RMI's analysis team for the U.S. program, told *The Nation's Health*. "But what we really need to embrace is that state governments are incredibly powerful and are really critical. State governments have really broad authority over how they generate electricity, how they build and plan our infrastructure, and how they build and maintain buildings, which has a lot of impact on emissions."

In May, the California Air Resources Board announced its Climate Change Scoping Plan, now in its third iteration since 2008. When final, the plan will guide California's continuing transition to a clean energy economy over the next two decades. It includes phasing out the

use of fossil fuels to heat homes and buildings, and provides blueprints for walkable, bike-friendly communities with accessible public transit.

California also has rules to phase out sales of gas- and diesel-fueled cars by 2035 and trucks by 2045. Eighteen other states have similar standards to get fossil fuel-polluting vehicles off the roads.

Clark-Sutton said that states have the advantage of being able to make decisions quickly and take action. For example, states can create monetary incentives through rebates and tax credits to encourage residents to buy electric vehicles and use clean energy to power homes.

Colorado is a fast-growing state that in recent years has endured escalation of climate-driven wildfires, drought, floods and heat waves. In 2021, Colorado released its

Greenhouse Gas Pollution Roadmap, which offers a strategy to reduce emissions, and recently passed S.B. 260, a \$5.4-billion transportation funding bill to encourage electric vehicle use, increase biking and walking, and improve mass transit.

A notable Colorado success has been Bustang, a regional bus system started

in 2015 by the Colorado Department of Transportation. Bustang offers improved customer features, such as roomy seats, internet access and an in-bus bathroom. By 2019, the system boasted 250,000 customers, more than double from its first year of operation. The number of customers using the bus route on Interstate 70, which connects major cities on Colorado's Front Range, was up 36% this spring compared to March 2019.

Bustang has taken 100,000 vehicles off Colorado roads, protecting the state environment from over 460,000 metric tons of carbon annually. In May, the state announced a three-year pilot expansion of the system.

Climate justice work gains momentum

COVID-19 intensified health inequities for people of color and those with low incomes. Climate change due to human-caused carbon emissions is doing likewise, harming the health especially of vulnerable communities near factories, power plants and busy roadways.

"When you look at any individual climate impact, there are environmental

justice and inequity elements to that, where you see disproportionate burdens being distributed,"

Katherine Catalano, MS, deputy director of APHA's

Center for Climate, Health and Equity, told *The Nation's Health*.

Some states are addressing these environmental injustices. This year, the California Air Resources Board awarded three grants totaling \$25 million to bring clean transportation to vulnerable neighborhoods in Los Angeles, Oakland and San Francisco. Improvements include a shuttle service, electric car-share and bike-share services, and enhancements to walking and biking infrastructure.

"This pioneering project is boosting transportation equity in communities that historically have faced higher levels of pollution," Liane Randolph, chair of the California board, said in a news release.

Rhode Island recently passed a climate law mandating the state create a plan to reduce emissions to net zero by 2050. Written into the plan were ways to address environmental injustices and health inequities. New Jersey has become the first state to require that companies file

an environmental justice analysis with their permit application to build or modify a site.

Change is also happening at the local level. In Boston in May, officials announced a new renewable energy pilot program in East Boston that will help residents install solar panels. In Los Angeles, leaders have proposed a plan that will require new residential and commercial construction to have zero emissions by 2030.

But even with state and local leadership, substantial federal involvement is needed for the U.S. to meet its carbon-reduction goals, McNamara said. As part of the 2015 Paris agreement, through which nations around the world pledged to take action to lower greenhouse gas emissions, the U.S. set a goal of reducing emissions by at least 26% by 2025. President Joe Biden has vowed that the U.S. will achieve net-zero emissions by 2050.

Roadblocks continue at the federal level, however. In July, Biden's climate agenda took a hit when an ambitious House clean energy bill offering hundreds of billions of dollars in tax incentives for solar and wind power and provisions to reduce electricity costs was scuttled. Undeterred, Biden said July 20 he would use "appropriate proclamations, executive orders and regulatory powers that the president possesses" to take action on climate change.

And although the Supreme Court decision on power plant regulations was a setback for EPA, the agency has other options. EPA has the authority to write new rules that support emissions reductions, which APHA and the American Lung Association encouraged it to do quickly.

"We need a committed effort," McNamara told *The Nation's Health*. "This can't be something that's achieved just in fits and starts. These clean-energy leadership states can help point the way, but they cannot go it alone."

For more information on climate change, visit www.apha.org/climate. ■

— Mark Barna



Photo by Daniel Slim, courtesy AFP/Getty Images

Solar panels are shown on the roof of a building in Los Angeles in June. California is one of the states leading the way in taking action to reduce the impacts of climate change and protect residents.

EDITORIAL

Climate change affects us all, but it doesn't impact us equally

WITH conversations on climate change so focused on congressional gridlock, rulemaking technicalities, CO2 emission numbers and Paris agreement goals, it's important that we remember what all of our work in the climate and health space is really about: people. It's you, your family, friends and neighbors who are already experiencing the harmful impacts of climate change across this nation, whether that's food insecurity from drought, aggravated asthma symptoms from worsening air quality or a concern for your safety in the wake of severe storms, wildfires and heat waves.



Catalano

These dangers are all too real and getting worse year after year, particularly for people and communities who are more vulnerable to climate impacts, such as children, older adults and those with pre-existing conditions. Also at risk are those whose resilience has been hampered by decades of disinvestment and exclusion from policy decisions, such as low-income people, those from tribal nations and other people of color. That's why APHA's Center for Climate, Health and Equity, thanks to the support of the Kresge Foundation, is bringing you news and information on climate justice right here in *The Nation's Health*.

Climate justice recognizes that while climate change affects us all, it does not affect us all equally. It recognizes that those most impacted, both in the U.S. and globally, are usually those that are least responsible for the problem and have benefited the least from industrialization and the burning of fossil fuels.

According to Mary Robinson, former U.N. high commissioner for human rights, climate justice shifts the focus from "green-

house gases and melting ice caps into a civil rights movement with the people and communities most vulnerable to climate impacts at its heart."

Over the next three issues of *The Nation's Health*, you'll read about problems, solutions and actions of acute importance to environmental justice communities across this nation. Hopefully you'll emerge with not only a better understanding of the urgency and magnitude of this climate crisis, but also greater comfort in talking about issues of climate justice as they relate to public health and health impacts.

I hope that you'll be able to look at solutions and climate policies critically and

ask questions, such as "Does this emissions reduction strategy reroute pollution into vulnerable communities?" "Will this disaster relief effort leave anyone out?" and "Were low-income people and communities of color meaningfully engaged in the development and evaluation of this solution?"

We're going to need to make a lot of changes in this country's policies, and fast, if we're going to avoid climate catastrophe. It's going to take solutions at every level of government, across all sectors of the economy. From policies that support new technologies and solutions, to those that support the emerging green economy, to regulations that keep emissions in check, to adaptation and resilience efforts that work to address health harms.

As we keep working to push this movement forward, it is important to remember that there is no place for climate action that does not also address structural inequities and human rights, and it's up to all of us to continue fighting for a just and livable world. ■

— Katherine Catalano

Catalano, MS, is APHA's deputy director of climate, health and equity

Supporting equitable, climate-resilient communities Vote for climate justice: Questions to ask candidates for office this election season



Photo by SDI Productions, courtesy iStockphoto

Town halls and other forums provide an opportunity for community residents to ask questions of candidates running for office. APHA is providing sample questions on climate justice.

WITH ELECTION SEASON HERE, knowing where candidates stand on key issues of importance for public health, such as climate justice, is vital. One of the best ways to find out is to ask directly.

APHA's Center for Climate, Health and Equity is sharing questions health advocates can pose to candidates, whether they are at the local or congressional level.

The center recommends asking questions at a town hall meeting, by phone, on social media, via email or in other interactions with any candidates to find out where they stand on climate justice and equitable health outcomes.

After a candidate answers a question, Katherine Catalano, MS, APHA's deputy director of climate, health and equity, recommends following up with "Why is that important?" or "How can we help?"

"Share the answers you receive with your family, friends and local leaders so they can be informed as well," Catalano says. "You'll be raising awareness of needs in your community they may not be aware of."

Public health supporters can also raise awareness about climate justice issues that matter to them by meeting with their leaders, sharing messages on social media or writing an op-ed. APHA has resources and tips at www.apha.org/speak-for-health. For more information on climate justice and tools from APHA, visit www.apha.org/climate. ■

Climate justice questions for candidates

- How will you protect our community from the health impacts of climate change?
- Will you support climate change policies that are backed by science?
- How will you work to reduce greenhouse gas emissions in a way that also reduces the outsized burdens of climate change experienced by communities of color and low-income communities?
- How will you work to help build equitable, climate-resilient communities?
- Will you ensure that communities have a leading voice in decisions that impact their health, their environment, and their quality of life?

