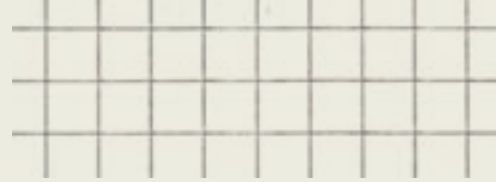


# FLOURISHING CHILDREN, HEALTHY COMMUNITIES, AND A STRONGER NATION

THE U.S.  
EARLY YEARS  
CLIMATE  
ACTION PLAN



**EARLY  
YEARS**  
CLIMATE ACTION  
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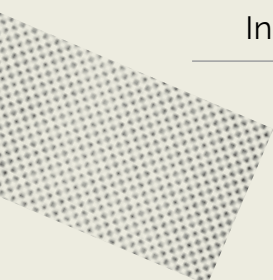
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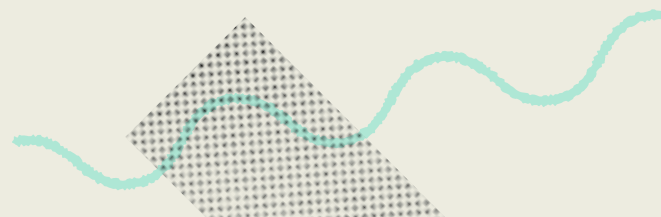
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## Letter from the Co-Chairs

*Flourishing Children, Healthy Communities, and a Stronger Nation: The U.S. Early Years Climate Action Plan* asks a critical question: How can the United States ensure the success and health of our young children, their families and caregivers, and our communities in the context of climate change?

To answer this question, members of the Early Years Climate Action Task Force, convened by Capita and This is Planet Ed at the Aspen Institute, have spent the last 18 months learning about the impacts of climate change on young children. We heard from providers, families, and community leaders. We also studied “bright spots” that can be scaled and inspire action across the country. We then generated the recommendations for supporting young children and their families that you’ll see in the action plan.

Climate change is one of the greatest threats to security and stability that humanity has ever faced. The threats are multiplied for infants and young children. Collaboration is urgently needed to reverse these threats—across sectors, geographies, and parties.

In all 6 of our listening sessions, the message was clear: smart policies supporting the well-being of children and families, and of child- and family-serving programs, are critical to helping them flourish amid climate impacts. Providers and programs are helping them prepare for the future of our changed climate by building resilience and strengthening community networks. We learned how high-quality early care and learning programs protect our children, families, and communities. And we saw their commitment to supporting children and families as they grow and develop in a changing world.

We all have a role to play in supporting our nation’s youngest children amid the challenges of climate disruption—from caregivers partnering with policymakers on climate resiliency planning efforts, to employers changing the way they invest in families, to philanthropists rethinking what communities will need in the years ahead.

We encourage leaders across the United States, representing this country’s full diversity and expertise, to join us in advancing new ideas and policies that build a healthier present and protect our children’s potential in the decades to come.

**Diana Rauner**

President, Start Early  
Co-Chair, U.S. Early Years Climate Action Task Force

**Antwanye Ford**

President & CEO, Enlightened, Inc.  
Chair, District of Columbia Workforce Investment Council  
Co-Chair, U.S. Early Years Climate Action Task Force

October 12, 2023



# Part One: Introduction

# THE INTERSECTION OF THE EARLY YEARS AND CLIMATE






# We Must Align Our Efforts on Early Years and Climate Change

In the earliest stages of life—from before birth through age 8—children develop rapidly and have a distinct biology that makes them uniquely sensitive to their environments and exposures.<sup>1</sup> As the effects of climate change intensify, so do the risks to children. It is hard to overestimate the potential impacts on children's health, well-being, and opportunities. In turn, it is hard to overestimate the potential impacts on the trajectories of their families and the nation.

To fulfill our responsibility to ensure that all children can flourish, we must reckon with the reality that our climate system has been disrupted by the emission of heat-

trapping gases into our atmosphere and oceans.<sup>2</sup> Recent years have dramatically demonstrated this disruption, and few areas of the country have been spared. Wildfire smoke and excessive heat have driven children indoors, for example, while historic flooding has damaged homes, child care programs, and pediatric health clinics.<sup>3</sup> Our systems and infrastructure are designed for how our planet once was, not how it is now, and not how it will be if we fail to act.

Individuals and groups working to support children in their earliest years are committed to safeguarding the well-being of children and families. Individuals and



groups working to take action on climate change are committed to protecting the health of all people and the environment we depend on. Although caring for the future of our people and caring for our planet are inextricably linked, connections between the two areas are rarely present in policy or practice. What possibilities are we missing as a result?

**We are a group of early years leaders, climate leaders, researchers, medical professionals, parents, philanthropists, and others who came together to learn about the intersection of early childhood and climate change. We found a profound opportunity to align efforts on climate change and the early years and developed a plan for change. The recommendations in this action plan are intended to help policymakers at all levels of government and other key stakeholders ensure that young children—and all of us—can thrive in a changing climate.**

Our changing climate increases the frequency and intensity of storms, flooding, extreme heat, drought, wildfires, and more. This will expose nearly all children across the globe to at least one major climate hazard.<sup>4</sup> Yet, while every child and child-serving system will be impacted by climate change, not all will be affected equally.

The same children and families who have unequal access to early childhood services and support are also the children and families who will be disproportionately harmed by climate change: Black, Latino, Indigenous, and other communities of color, low-income urban and rural families, and other historically disenfranchised populations.<sup>5</sup>

If we take appropriate actions, however, we will do more than fulfill our responsibilities to future generations. We will also vastly improve our nation's prosperity and advance the ideals of equality and justice. Investments in young children and families are investments in resilience, community cohesion, positive relationships, and the emotional and cognitive skills we need to prepare for an uncertain future. **Healthy, resilient children and families are the foundation of healthy, resilient communities.**<sup>6</sup> Ensuring child-centered action on climate change will create cleaner air and water, more green space and shade, healthier buildings, communities better prepared for extreme weather events, and much more: all benefits that ripple out far beyond the individual child and family.<sup>7</sup>

To advance an equitable America that works for all and builds a more sustainable and resilient tomorrow, we cannot continue

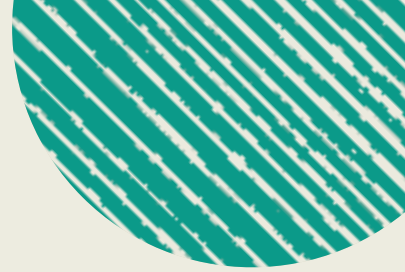
to address climate and the early years separately. **Climate change is not simply another issue to consider alongside early childhood development; it is the surrounding context for all aspects of childhood and every child- and family-serving system.** We can't afford to indulge in zero-sum thinking. Supporting the early years requires us to prepare for climate change, and addressing climate change requires us to support children in their earliest years.

Our choices today will shape families across the country who are already living with the effects of climate change. Our choices will also lay the foundation for millions of young children and future generations who will participate in and lead our democracy, economy, and civil society and carry forward the efforts to curb climate change and respond to its effects.

## The Early Years Ecosystem

In this action plan, we broadly consider the needs, supports, services, and programs for children and their families in the earliest years of life.

More than 33 million children across the country are aged 8 and younger.<sup>8</sup> The early years ecosystem that serves them is an enormously important contributor to child and family health, education, and overall well-being. Yet it is also vast, complex, and fragmented. It can include, at minimum, child care centers, family child care homes, home visiting programs, and the pediatric and maternal health care system. For readability, we at times refer in this report to the totality of these practitioners as early years providers.





## What Are the Early Years?

In this report, we define the early years as the earliest stages of development, from before birth to age 8, when young children go through predictable stages of rapid, tremendous growth and are physiologically distinct from older youth.

A vast set of programs and systems are designed to support the health and development of these young children and their families. Child- and family-facing programs may be provided through public agencies, community organizations, or faith-based institutions and may be delivered in homes, schools, or other settings. Such programs include but are not limited to family child care, center-based child care, pediatric primary care clinics, federally qualified health centers, home visiting services, early intervention services, and early learning programs such as Head Start, preschool, prekindergarten, and the early elementary grades.

Investments in young children and families are investments in resilience, community cohesion, positive relationships, and the emotional and cognitive skills we need to prepare for an uncertain future.

Early years systems also commonly have unique characteristics compared to systems serving older youth, such as the K-12 education system. For instance, early years systems are generally marked by high levels of parental choice and many different delivery options, meaning that services are delivered in a wide variety of settings and by a wide variety of providers, including public and private providers.



In addition, early years systems in the U.S. tend to be underfunded. For instance, the U.S. puts the third-lowest percentage of gross domestic product (GDP) into early care and education of any high-income nation.<sup>9</sup> This low level of public funding leads to generally low worker wages, limited yet expensive access for families, and difficulties maintaining high-quality programs.<sup>10</sup> Even in health care, pediatrics is one of the lowest-paying medical specialties.<sup>11</sup>

“Equity and justice are part of the early childhood mission. We don't have to be experts on climate. We do have to help build awareness of what's at stake for children. We do need to understand the impact of not acting. We do need to be seen as part of the solution in partnership with others. This is not someone else's issue. It's our issue because it's a child's rights issue.”

**JOAN LOMBARDI**

VISITING SCHOLAR AND CO-CHAIR OF THE LEADERSHIP COUNCIL, STANFORD CENTER ON EARLY CHILDHOOD

## Key climate terms

### Climate resilience

Climate resilience is the capability to anticipate, prepare for, respond to, and recover from significant multihazard climate threats with minimum damage to social well-being, the economy, and the environment.

*(U.S. Environmental Protection Agency)*

### Climate adaptation

Climate adaptation includes actions taken at the individual, local, regional, and national levels to reduce risks from today's changed climate conditions and to prepare for impacts from additional changes projected for the future.

*(U.S. Global Change Research Program)*

### Climate mitigation

Climate mitigation refers to measures to reduce the amount and speed of future climate change by reducing emissions of greenhouse gases or by increasing their removal from the atmosphere.

*(U.S. Environmental Protection Agency)*





## The three categories of the early years ecosystem

Given the complexity of programs and services for the early years, we have organized this action plan around three categories of the early years ecosystem: children and families, child- and family-facing programs, and communities where children and families live (neighborhoods, towns, cities, and counties). Considering needs within these three categories will help ensure that children from the prenatal phase to age 8 develop the foundation for thriving in a changing climate.

Climate change will increasingly impact children's health and development. Yet promoting healthy, resilient development for children can better enable our society to tackle climate challenges into the future. Young children do not develop in a vacuum; their well-being is inextricably linked to their family's well-being, which is linked to decisions made at every level of government. Similarly,

young children's early learning experiences and experiences with nature contribute to their development and their beliefs and behaviors regarding the environment.

**In this action plan, we outline how children will be impacted by climate change and how we can support both children and their families to ensure healthy, resilient childhoods in a changing climate.**

These settings, where children spend a significant amount of time, are increasingly impacted by climate change. Yet they have the potential to be healthy, sustainable spaces where children are supported in building resilience and fostering an appreciation for our connection to the environment.

**In this action plan, we outline how child- and family-facing programs will be impacted by climate change and how these programs can both adapt and support families in the face of increasing challenges.**



Although there are many settings in which young children spend their time, all children are nested within communities: towns, cities, counties, and more. Many of these communities are preparing for climate impacts and implementing adaptation measures and mitigation

strategies. These solutions have the potential to benefit children and families. **In this action plan, we outline the ways communities are acting on climate change and the opportunity to ensure that those actions consider and benefit children.**




## The Task Force's Work and Call to Action

Over a year, we hosted public listening sessions to learn more about the needs of young children growing up in a changing climate. We heard from many parents, child care providers, government officials, scientists, doctors, nonprofit representatives, and others. They told harrowing stories of health clinics and child care centers shutting down when their heating, ventilation, and air conditioning (HVAC) systems were overwhelmed; of child care providers organizing disaster response despite hurricane damage to their facilities; of young children who have asthma after wildfires and heat stroke from record-breaking heat waves.

We also heard stories of inspiration: cities around the world monitoring air quality where children congregate and reimagining outdoor spaces at child care programs; parents rallying to fight for a healthier and more sustainable planet for their children.

### Task Force Listening Sessions

- **Session 1:** Why Should the Early Years Sector Move Towards Climate Action?  
October 14, 2022
- **Session 2:** How Can Our Health Systems Adapt to Help Children Build Resilience?  
November 4, 2022
- **Session 3:** How Will Climate Change Impact Early Care and Education Systems?  
December 12, 2022
- **Session 4:** How Can Investments in Early Childhood Help Communities Build Resilience to Climate Change?  
January 9, 2023
- **Session 5:** How do Existing Local, State, and National Plans to Address Climate Change Include Children?  
February 10, 2023
- **Session 6:** How Can We Support Parents and Early Years Providers in Advocating for a Sustainable Future?  
March 20, 2023



Ensuring healthy development that builds resilience in children is work that cannot be done in isolation. Instead, it is an opportunity for collaboration across families, child- and family-facing programs, policymakers at all levels of government, businesses, researchers, nonprofits, faith communities, philanthropy, and advocacy. In this action plan, we identify opportunities for multiple groups to participate in the solution.

This conversation is both overdue and urgent. As a country, we are making progress in advancing climate solutions. Yet too often, children—the population with the most to lose—are not given appropriate space in the conversation.

**Climate change does not merely color the future today's children will inherit; it is a problem and an opportunity here and now. We must choose whether to act on our collective responsibility to children and families and ensure a healthy, sustainable climate.**

“Policies and programs focused on early childhood development provide a cost-effective, comprehensive, immediate, and enduring path to achieving climate resilience, climate adaptation, and the sustainable development agenda. In doing so, we promote mitigation for climate change in the long term.”

**ADRIÁN CEREZO**

UNIVERSITY OF MAINE PORTLAND  
GATEWAY AND SENIOR FELLOW,  
CAPITA



# 1. Children and Families

## The Impact of Climate Change on Healthy Early Childhood Development

Children's bodies and brains develop cumulatively; metaphorically, they are a house built from the foundation up. Both environmental factors and the social environment—especially the relationships between caregivers and children—make up the building materials of this intense, important, and interactive construction project.<sup>12</sup> External influences from the natural and built environments, such as air quality, affect how biological systems inside the body develop and interact with the more personal influences of adult-child relationships. In turn, systemic influences like laws and resource allocations shape the natural and built environments.

### Two Types of Environment

#### Natural environment

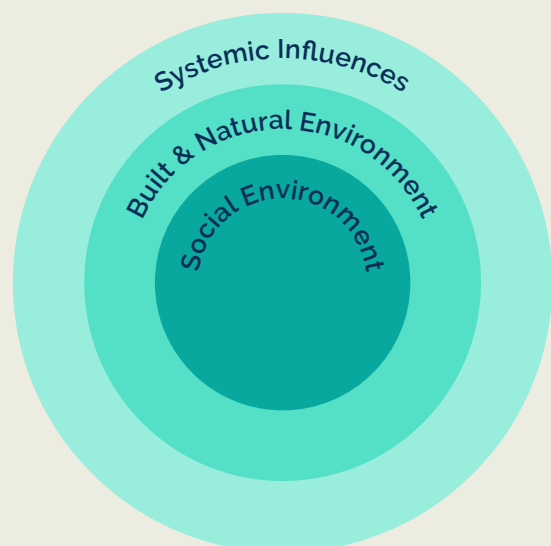
The natural environment comprises all living and nonliving things naturally existing in a given environment. This encompasses elements including natural resources, air, water, land, ecosystems, and biodiversity. (U.S. Environmental Protection Agency)

#### Built environment

The built environment refers to the human-made or modified structures that provide people with living, working, and recreational spaces. The term encompasses the buildings people live in, the distribution systems that provide them with water and electricity, and the roads, bridges, and transportation systems used to get from place to place.

(U.S. Environmental Protection Agency)

The visual below, adapted from Harvard's Center on the Developing Child, is a way to display these influences.



In particular, the timing of environmental exposures matters. The brain and other biological systems in the body—including the gut biome and the immune, metabolic, and respiratory systems—each have periods when they are most sensitive to environmental influences. The prenatal period and early childhood are times when these systems are most sensitive and responsive to the exposures in their environment.

Where children are born, live, play, and learn affects what they are exposed to. Those exposures shape their developing brain and biological systems—potentially affecting both childhood and adulthood. Climate change is modifying these environments in several key ways, which can put healthy development at risk.<sup>13</sup> In 2023, the U.S. Environmental Protection Agency described these impacts in its report *Climate Change and Children's Health and Well-Being in the United States*, noting that:

- **Extreme heat poses serious health risks.** The excess heat trapped in our atmosphere has caused persistently higher average temperatures across the globe. These changes have led to more frequent and intense extreme heat events. Extreme heat events can be dangerous to health—even fatal—and young children are at exceptionally high risk. Dehydration is a particular risk. Young children have more body surface area relative to their mass than adults, and they rely on adults to provide adequate water, protective clothing, and shade.
- **Climate change decreases the quality of the air we breathe.** Higher temperatures increase harmful air pollutants, including ground-level ozone and particles from wildfire smoke. Children are particularly vulnerable to poor air quality because their lungs are still developing and they take in more air relative to their size. This can harm lung function and worsen asthma, increasing visits to pediatric emergency departments nationwide. Air quality can also influence brain development. Inflammation from air pollution in early childhood has been linked to impacts on early cognitive development and increases in mental illness in teens and adults.
- **Warmer temperatures fuel heavier downpours, increasing flooding and associated health risks.** Floods bring with them multiple threats to health and well-being. During floods, hazards include injury and drowning. When floods displace families from their homes and communities, children not only experience severe stress, but may also lose access to supportive relationships, programs, and resources

that could buffer the impact of stress. Floods can overwhelm a region's wastewater treatment systems, increasing exposure to bacteria, parasites, and other pollutants. In the United States, 14.6 million homes face a substantial flood risk, which is projected to rise steadily in the coming decades.

- **Climate change increases the number and range of disease-carrying insects, ticks, viruses, and bacteria.** Warmer average temperatures increase the habitats, ranges, and density of disease-carrying organisms. At the same time, longer warm seasons and shorter and milder winters mean that children spend more time outdoors, increasing exposure to ticks, mosquitos, and other vectors of serious diseases. As children's immune systems are still developing, they are not fully prepared to resist vector-borne diseases and can have more severe symptoms. For instance, pediatric Lyme disease cases in the eastern U.S. are projected to rise between 31% and 272% in the coming years, depending on the extent of global warming.
- **Longer warm seasons mean more severe seasonal allergies.** Longer warm seasons extend the periods when pollen is in the air, while higher average temperatures trap allergens and pollutants near ground level.

Longer allergy seasons can increase the severity of allergic reactions and asthma episodes. Children are more vulnerable than adults to seasonal allergies because their immune and respiratory systems are still developing. Researchers predict that if temperatures increase, children will miss more school and have more medical emergencies due to respiratory illnesses. At 2°C warming over baseline, the U.S. is projected to see 5,800 more annual emergency department visits related to respiratory diseases.

Many of these threats can combine and compound and have impacts that last over a lifetime. For instance, most harmful air pollutants trapped by extreme heat contribute to pregnancy complications, such as medical emergencies, premature births, and babies born at lower weights. In turn, these adverse birth outcomes increase the risk of long-term medical complications for the child, including behavioral and neurological challenges. These threats are further compounded in communities already facing health inequities. As one example, maternal and infant deaths are highest among Black and Indigenous women due to legacies of structural racism.<sup>14</sup>



## The Need for Ongoing Research on Young Children and Climate Change

Understanding the impacts of climate change on children's well-being, as well as the efficacy of potential interventions, is a nascent field of research, policy, and practice. As the U.S. Environmental Protection Agency has noted, "It is difficult to conduct epidemiological and qualitative studies to understand the effects of climate change events on birth and health outcomes during the periods of pre-conception through early childhood. However, the more data of these types that are available, the better future assessments can be of how children are impacted by climate stressors."<sup>15</sup> Much more investment is needed to develop a research agenda. We will suggest concrete areas for future research throughout the action plan.

Thus, climate change can undermine children's healthy development through multiple mechanisms. These adverse effects have been extensively documented by the American Academy of Pediatrics,<sup>16</sup> the U.S. Environmental Protection Agency,<sup>17</sup> and UNICEF<sup>18</sup> and in research published in peer-reviewed journals, including the *Lancet*.<sup>19</sup>

### What We Heard

*"Adverse events are always part of childhood," according to Aaron Bernstein, Interim Director of Harvard's Center for Climate, Health, and the Global Environment. "All of our brains are vulnerable to mental health disorders and addictions, and these adverse childhood events shape the developing brain in ways that make these tendencies come out. Decades after children are exposed to these events, we see unbelievable disparities in health outcomes—and not just in things like substance abuse, STDs, and mental health disorders, but also in cancers and heart disease. So we need to be clear that we can't talk about healthy child development without talking about the risks of climate change."*



Some climate-related risks, like hurricanes, vary from place to place, and some receive more attention than others, but climate change creates risks for us all. For instance, single-day extreme precipitation events—periods of exceptionally heavy rains that can cause destructive flash flooding—are on the rise.<sup>20</sup> In recent years, communities from Detroit to rural Montana to Miami to the Pine Ridge Indian Reservation have experienced historic rains.<sup>21</sup>

Nor does the climate event have to be nearby: in the summer of 2023, unhealthy wildfire smoke from Canada regularly blanketed the U.S. East Coast and Midwest, hundreds of miles from the fires themselves.<sup>22</sup> These “everyday” extreme events are increasingly common.

The stress that accompanies climate disruptions is a further threat to children’s healthy development. Elevated stress levels during early childhood—especially in the absence of buffering relationships—can cause undue cascades of cortisol and other hormones and are associated with adverse physiological and psychological effects.<sup>23</sup> Children may be exposed to stress through:

- trauma from experiencing climate-enhanced natural disasters, whose effects are generally more severe and long-lasting in young children than in adults;<sup>24</sup>

- temporary or permanent loss of home or possessions or other displacement;
- loss of parents’ income as a result of displacement, damage to their place of employment, disruptions in child care; or
- loss of nonparental caregivers (e.g., extended family or child care providers).

These stress-inducing climate disruptions can also have a severe impact on the mental health of caregivers as well as families’ financial security. Even parents who do not directly experience climate disasters may feel rising anxiety about raising children in a changing climate.<sup>25</sup> These impacts disproportionately affect women, who are more likely to be primary caregivers.

The experiences of the adults in their lives deeply influence young children—especially infants and toddlers. Warm, responsive caregiving is necessary for healthy development. When caregivers experience high stress levels, providing warm, responsive caregiving becomes more challenging.<sup>26</sup>

## Equity, Climate Change, and Child Development

Children of color and from low-income backgrounds are more likely to experience negative impacts from climate change. They are more likely to live near oil and gas facilities, coal-fired power plants, and incinerators that produce a high base level of air pollution, are more likely to live in flood plains and areas experiencing extreme heat, and are more likely to experience food and housing insecurity.<sup>27</sup> Black people are 40% more likely than other groups to live in places where extreme temperatures driven by climate change will raise mortality rates.<sup>28</sup> Similarly, Native Americans have been forced to live in areas that are, on average, more exposed to climate hazards than other communities.<sup>29</sup>

These inequities result from many intentionally discriminatory decisions made by policymakers, including segregation and redlining. Geography plays a role as well: more than half of Latinos in America live in three states—California, Texas, and Florida—that are already experiencing severe effects related to climate change, ranging from hurricanes to drought.<sup>30</sup> These populations are also at higher risk of

becoming climate migrants or otherwise displaced from their homes.<sup>31</sup>

Climate change is a multiplier of these effects for children already experiencing potentially harmful exposures like higher amounts of air pollution and a lack of green space. These facts help explain why, while most parents report a concern about climate change, parents of color report the highest concern.<sup>32</sup> Many communities of color, including those of Indigenous nations, have long displayed important leadership on these issues.

## The Connection Between Healthy Early Childhood Development and Resilience to a Changing Climate

Resilience, adaptive capacity, and relational health help build a foundation in the early years that will determine how the 8-year-old, 18-year-old, or 48-year-old can handle climate-related uncertainty and recover from negative climate impacts.<sup>33</sup> In turn, on a society-wide scale, these

factors will influence how communities, states, and the entire nation move through this new era.

Resilience is an individual's ability to overcome severe hardship—or to reach a good outcome in the face of adversity. One way to understand the development of resilience is to visualize a balance scale or seesaw. Protective experiences and coping skills on one side counterbalance significant adversity on the other. Resilience is evident when a child's health and development tip toward positive outcomes—even when a heavy load of factors is stacked on the side with adverse outcomes.

Beyond resilience, healthy childhood development is connected to adaptive capacity and early relational health.<sup>34</sup> Adaptive capacity is an essential factor of an individual's ability to cope with disasters and proactively prepare by making positive changes. This capacity rolls up to the community level.<sup>35</sup> Early relational health refers to the nurturing relationships that children form from the earliest days and months of life that are the foundation for healthy growth and development. This emotional well-being plays out throughout life, leading to emotionally mature adults equipped to contribute positively to society even amid chaotic events.

### Resilience

Resilience (distinct from climate resilience) refers to the ability to overcome serious hardship. Children's resilience is the result of a combination of protective factors. Neither individual characteristics nor social environments alone are likely to ensure positive outcomes for children who experience prolonged periods of toxic stress. Children build resilience via an interaction between biology and the environments in which they live. *(Harvard Center on the Developing Child)*

### What We Heard

*Corey Zimmerman, Chief Program Officer of Harvard's Center on the Developing Child, noted that, "Once we recognize how place matters to children's development, the connection between climate change and early childhood emerges. Climate change is modifying the balance of positive and negative influences in places. Fortunately, many of the solutions that promote early childhood development are also climate-promoting policies."*

All of these aspects—resilience, adaptive capacity, and relational health—play into the stability and well-being of families alongside systemic policies. Strong, stable families are one of the core elements of a societal response to climate change. Therefore, every positive influence on young children and their families ripples out far beyond the individual household.



## The Outdoor Learning Opportunity

Humans respond biologically to being in nature.<sup>36</sup> Regular access to nature—and the outdoors more broadly—is linked with healthy child development and children's later beliefs about the environment. Benefits include improvements in concentration, academic learning, motor skills, stress, aggression levels, and overall health.<sup>37</sup> Access to the outdoors also promotes autonomy and free play, which are similarly correlated with positive outcomes, including feelings of agency and self-assurance.<sup>38</sup>

Significantly, access to nature deepens children's appreciation of and connection

to the land. It makes children significantly more likely to engage in environmentally friendly behaviors and support measures to protect the environment as they age.<sup>39</sup> Positive experiences with nature can reduce children's anxiety about climate change.<sup>40</sup>

These are not new findings. Indigenous communities have long understood the vitally important relationship of people to the land. This understanding is part of what is referred to as Indigenous knowledge systems, holistic, observational, and systematic ways of understanding the environment and its connection to culture



and society.<sup>41</sup> Such knowledge is part of the reason Indigenous peoples protect 80% of the world's remaining biodiversity.<sup>42</sup>

Outdoor learning experiences also benefit adults working in child- and family-facing programs, increasing their enjoyment of their jobs.<sup>43</sup> High-quality outdoor learning environments can be an affordable strategy for improving the quality of child care and the well-being of the child care workforce.

Unfortunately, the connection between children and nature has declined in recent decades.<sup>44</sup> By one measure, children today spend half the time outdoors that their parent's generation did. There are also deep disparities in access to nature along racial and socioeconomic lines: for instance, 74% of people of color live in a "nature-deprived area," defined as a census tract with a higher-than-average proportion of area devoted to buildings, roads, and the like. By comparison, the same is true of only 23% of people who are white. Similarly, 27 million children, predominantly children of color, lack access to a high-quality park within reasonable walking distance.<sup>45</sup>

Extreme heat, extreme precipitation, and unhealthy air quality further reduce access to nature and the outdoors. Early years outdoor infrastructure is frequently unprepared for these climate events: for instance, plastic or metal playground equipment can reach temperatures above 140°F on hot days.<sup>46</sup> However, as we explore in the recommendations section, policymakers, communities, and early years providers can create safe and healthy spaces for children to learn and play.





## 2. Child- and Family-Facing Programs

### The Impacts of Climate Change on Child- and Family-Facing Programs

There are over 230,000 licensed child care programs in the United States and over 60,000 active pediatricians.<sup>47,48</sup> These numbers do not include informal child care providers or pediatric and obstetric health care provided via hospitals, family medicine clinics, federally qualified health centers, urgent care centers, and other clinics. For the purposes of this action plan, we collectively refer to these as early years facilities. Nearly every family interacts with them regularly.

Young children need these environments to be safe, healthy, sustainable, resilient, and reliable. Yet climate change reduces the ability of early years providers to offer positive environments. At a minimum, staff may need to divert attention from

their core duties to cope with climate impacts. Climate-related events can also cause extreme stress among these professionals. Just as an overload of stress can strain families, it can also make service providers less able to offer the high-quality interactions children and families need and deserve.<sup>49</sup>

Of course, the effects of climate change directly impact early years facilities. These impacts can be thought of as a continuum ranging from straining to disruptive to destructive:

**Straining Effects:** climate-related events that do not require early years facilities to close:

- extreme weather causing costly damage (broken windows, loss of trees, minor flooding);
- wildfire smoke and other air pollutants reducing the amount of time children can be outside and impacting the respiratory health of children and adults; or

- loss of perishable items such as refrigerated medicines due to extended power outages.

**Disruptive Effects:** climate-related events that require early years facilities to close temporarily:

- extreme heat overloading HVAC systems, making sites temporarily unusable during high-heat days;
- moderate flooding causing rooms, wings, or other parts of buildings to close; or
- damage to roads from falling trees, downed electrical wires, or flooding, making sites temporarily unreachable.

**Destructive Effects:** climate-related events that require early years facilities to close permanently:

- wildfires burning down buildings;
- extreme hurricane damage; or
- extreme flooding requiring abandonment of buildings.

Given the underfunding of early years facilities in the U.S., programs rarely have the resources to minimize these adverse effects.<sup>50</sup> Climate change is, in short,

poised to exacerbate weaknesses in child- and family-facing facilities. For instance, much of the country faces a substantial increase in days above 90° or 100°F, which will impact programs with inadequate air conditioning, potentially forcing them to close.<sup>51</sup> Similarly, poor air filtration and ventilation become more dangerous when wildfire seasons are longer and more intense and when faraway states can receive vast plumes of smoke.

## Equity, Climate Change, and Child- and Family-Facing Programs

Climate-related impacts on child- and family-facing programs disproportionately affect programs serving children of color, intersecting with the country's history and continuing legacy of structural racism. As noted above, air quality is already, on average, far worse in areas where high proportions of children of color live: this population is far more likely than their counterparts to live—and therefore visit or attend programs—within a mile of a source of industrial pollution.<sup>52</sup>

In addition, programs in communities of color generally need more access to shade and outdoor space.<sup>53</sup> They are more likely to be in heat islands, where a lack of shade and an abundance of heat-absorbing building materials combine to spike temperatures. Similarly, on average, parks in communities of color are half the size for five times the number of people than in neighborhoods with predominantly white residents.

## What We Heard

*Parinda Khatri described how a heat wave led to cascading consequences for a clinic operated by Cherokee Health Centers in Tennessee, where she is the Chief Clinical Officer. After the air conditioning systems failed due to overexertion, the clinic had to close for 10 days. "This was absolutely devastating to communities and our staff. In that one clinic, we see 100 children per day. They could not come in for their appointments. We are also the only resource regionally for autism and development assessments. The building was not safe for staff or patients. We brought in tons of fans, but still we lost about \$20,000 worth of vaccines and additional expensive in-stock medications."*



## How Child- and Family-Facing Programs Contribute to Thriving Amid Climate Change

Child- and family-facing programs play a key role in ensuring healthy human development and strong families. As discussed in the previous sections, this development is intensely linked with communities' resilience and adaptive capacity. Ensuring provider support, including improved infrastructure, allows programs to maximize their potential as protective factors for children and families.

In addition to providing safe, healthy, sustainable, resilient, and reliable environments where children can thrive, these programs should also be considered hubs and assets for climate adaptation and resilience. Climate adaptation and emergency preparedness plans also need to include early years programs; currently, many do not.

Early years programs can become a valuable resource for affiliated families and provide them with information, resources, and supplies in the event of extreme weather. Surveys show that next to family members, healthcare providers are, on average, the most trusted source of information for parents, with child care providers not far behind.<sup>54,55</sup> Access to trusted services, particularly during stressful periods such as disaster response, can maintain social connectivity and has been shown to build resilience at individual and community levels.<sup>56</sup> Early years programs are already contributing and, given their trusted connection to the community, could increase their support to families. Specifically:

- **Pediatric health care:** The American Academy of Pediatrics has issued official guidance on climate change policy. This guidance encourages pediatric clinicians to use their clinical encounters to counsel families and promote environmentally sustainable behaviors, to educate both families and the community about emergency and disaster preparedness, and to raise awareness of the impacts of climate change on maternal and child health.<sup>57,58</sup>

- **Home visiting programs:** Home visiting programs—in which trained professionals visit parents in the early months and years of a child's life to provide support and guidance—offer significant opportunities to help families where they spend the most time. Home visitors can help families understand climate change and its impact on young children, identify vulnerabilities to climate hazards, and encourage families to create climate-responsive emergency plans.
- **Child care programs:** Child care providers can also help families and children understand climate change and its effects and help them be prepared to navigate emergency plans. They can be critical parts of first-line response to extreme weather that affects their communities, children, and families. Providers can call families and check in. Furthermore, they are or could easily be stocked with essential supplies for very young children, such as diapers and infant formula.

## What We Heard

*Susan Gilmore runs North Bay Children's Center, a California child care network with 13 locations. Her network contended with wildfires and their effects. She and her staff tracked children and families: who was evacuated, who lost their homes, and who needed resources. They set up a command center and created a spreadsheet to track every family—a difficult feat since many of the families they serve don't own their home, or had evacuated, or were staying with relatives. Many families lacked power and food. Staff linked them to food banks and, when it was safe, brought resources to them.*

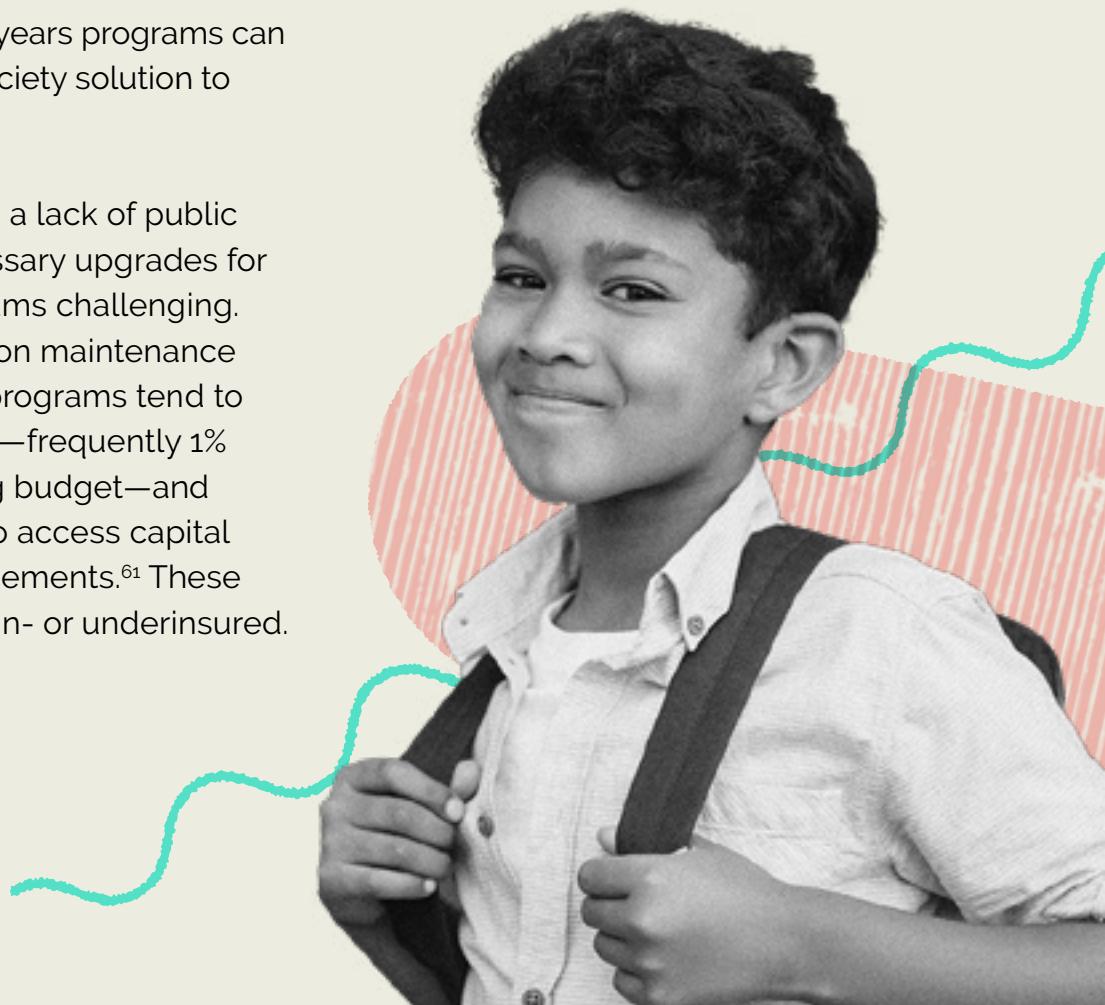
*Gilmore added that such actions must often be done ad hoc. "During the climate-related disasters that we've experienced over the past several years, the infrastructure that provides support for children and families completely collapses. Everything just closes down. The child care industry needs to be seen as essential, and like school districts, child care representatives should be included in the organizational structure of each county's emergency operations center."*



Child- and family-facing programs can mitigate their impact on the environment and reduce carbon pollution. To serve children and families, early years programs rely on energy and gas to keep the lights on and keep buildings warm or cool. Programs also produce thousands of tons of waste in the natural course of their operations.<sup>59</sup> Many programs, including nearly all family child care providers, have kitchens and regularly run washers and dryers. Some operate buses. These practices release carbon emissions, which trap heat and contribute to climate change. In the K-12 sector, many schools are adopting sustainable practices (through such solutions as solar panels and electric buses).<sup>60</sup> Similarly, early years programs can be part of a whole-of-society solution to reduce carbon pollution.

Financial limitations and a lack of public funding make the necessary upgrades for many early years programs challenging. Many need to catch up on maintenance and repairs. Child care programs tend to operate on thin margins—frequently 1% or less of their operating budget—and have little to no ability to access capital or finance major enhancements.<sup>61</sup> These programs may also be un- or underinsured.

Governmental opportunities, such as federal tax credits, grants, and financing mechanisms in the Inflation Reduction Act and Bipartisan Infrastructure Law, can help providers offset the cost of these more sustainable practices.<sup>62</sup> These practices also benefit child care programs by reducing their annual operating costs for energy bills and maintenance. Investing more to support early years providers in essential adaptations can enhance these programs as assets for climate preparedness and response.





# 3. Communities

## The Impact of Communities on Healthy Development

Just as child development cannot be understood outside the context of the family, families cannot be understood outside the context of their communities: their neighborhoods, towns, and cities.

While communities themselves certainly exist within the context of state, national, and even international policies, local communities are a uniquely powerful site of influence.

Communities are where the day-to-day experience of childhood occurs, from the services children access to the parks where they play. Their geography will determine the climate risks to which young children are exposed and where immediate responses to emergencies are organized. They are where climate-related factors that undermine health—from pollution to pollen to mold—build up and wield their influence.

Communities can also be sources of enormous social cohesion and bonding.<sup>63,64,65</sup> Social connectivity builds and reinforces resilience and adaptive capacity. Mutual aid networks, where community members directly support one another, can be lifesavers amid climate-enhanced disasters. And when communities put children at the center of a shared vision, they can transform in amazing ways.

Communities are also where decision-making intersects with histories of discrimination in ways that acutely impact children and families. The nation has seen glaring examples of this in recent years, such as in Jackson, Mississippi, where heavy rainfall and freezing temperatures broke neglected water infrastructure, leading to an unresolved water crisis in 2023.<sup>66</sup> Permitting and planning decisions may occur at the state level. Still, the presence of an oil and gas refinery near redlined neighborhoods is a community issue. Communities may not have decided to create heat islands that prevent children from going outside on many days of the year, but communities must reckon with the effects.

## What We Heard

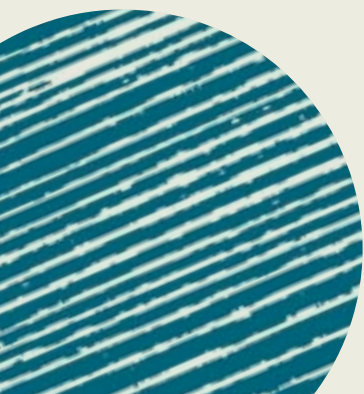
*Heather McTeer Toney, Vice President of Community Engagement at the Environmental Defense Fund and former Mayor of Greenville, Mississippi, told the Task Force, “When it comes to children, to the health of those children, and to the impacts of pollution to those children, communities are the subject matter experts. Parents, guardians, families as that community describes them—all of those community members are the ones that we should start with because the community members know what those children need.*

*In communities of color, the issues cannot be siloed. So we can't talk about the impacts of climate change without addressing coinciding justice concerns like housing, health care, education, and violence.”*

Similarly, child- and family-serving systems are situated within communities and impacted by community-level factors. The presence or absence of public transportation nearby shapes the population a pediatric health clinic can serve. Whether or not a child care program floods during heavy rains is at least partly determined by how stormwater infrastructure has been designed and maintained.

Joel Moffett, Director of Environmental and Special Projects at Native Americans in Philanthropy, described the difficulties tribes face in planning for and adapting to climate change. He noted that the federal government is not giving tribes the resources they need, despite tribes having “prepaid” when they signed treaties giving up their land.

Communities are critical to securing our young children’s healthy, sustainable, and happy future. Too often, however, communities have insufficient support from state and federal policymakers to engage with these challenges. This leads to a cycle where localities must backfill urgent physical, natural, and human infrastructure needs and face barriers to proactively building climate resilience.<sup>67</sup>



## Including Young Children in Community Climate Action

Despite being under-resourced, many communities across the country have developed climate action plans to guide their efforts to reduce carbon pollution and adapt and build resilience to climate impacts. In developing these plans, communities can consider young children and families. Unfortunately, few communities are doing so. A study by This is Planet Ed in consultation with Harvard's Center for the Developing Child examined climate action plans from the 40 most populous U.S. cities.<sup>68</sup> It found that only 11 of the 35 plans explicitly mentioned the health and well-being of young children, and only four noted young children as a population with distinct needs from other age groups. Similarly, small numbers integrated the early years sector into their action strategies or sought out early years input in the planning process.

One major obstacle to communities considering young children in their climate responses is the need for more information about them and where they are served. Many communities are indeed taking an increasingly data-driven approach to mitigation and resilience. For instance, monitoring systems such as networks of air and temperature sensors are providing valuable new data on climate impacts. This data can be cross-referenced with places where children live and receive services. But there are still substantial gaps in information gathering.

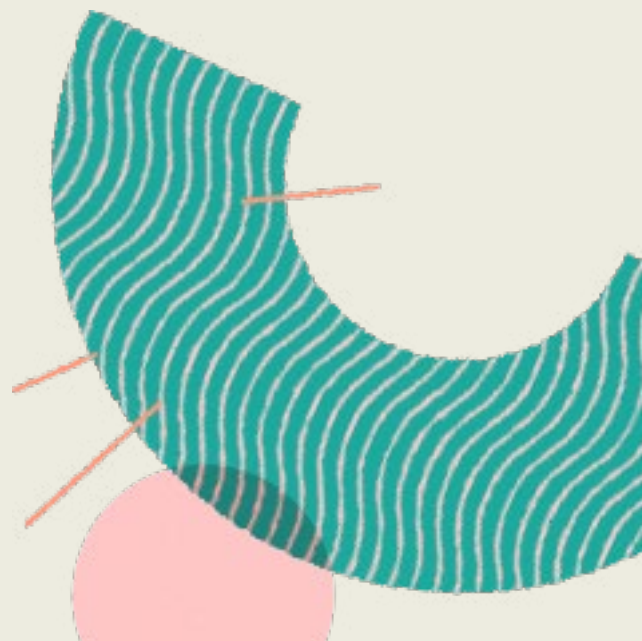
Moreover, early years data is far more fragmented and scattered than data for arguably any other age band. Early years sectors have no equivalent of K-12 school district central offices for access to and dissemination of centralized information. The agencies that administer early years programs vary across communities and states.

The quasi-official nature of many early childhood systems and programs poses additional challenges. For instance, authorities often need to be made aware of all the early childhood facilities in their jurisdictions, because many operate out of homes or are unlicensed. Adam Freed of Bloomberg Associates, and formerly of the Nature Conservancy, told the Task Force: “It is a spotty system in terms of how available and thorough the data is.” Similarly, family child care programs may lack business banking accounts, a challenge that prevented many from receiving COVID-19 pandemic relief funds. This can also limit access for early years providers to federal funds related to climate mitigation, adaptation, and resilience.<sup>69</sup>

The Task Force also heard testimony about how the experience of early childhood varies according to the lived experience of people from diverse backgrounds. For instance, one in three Black Americans reports having experienced discrimination in medical care and may avoid seeking medical care.<sup>70</sup> In many Black communities, distrust of hospitals runs high; some Black women have avoided giving birth in hospitals. Hospitals would not be a natural entry point for collecting data in such communities.

Relying on trusted relationships and comprehensive community involvement can thus help ensure effective partnerships with children, families, and early years providers. That partnership will be vital as communities reckon with the need for climate action.

Ultimately, communities have a crucial and outsized role to play—backed up by other public and private stakeholders—in supporting the healthy development of young children and families in the era of climate change. The first step in that role involves intentionally including the early years in local climate action. Building on that inclusion, communities can advance solutions to help us make good on our promises to the next generation and ensure healthy, sustainable, and thriving communities in the decades to come.



## Part Two: Recommendations

# HOW TO SUPPORT YOUNG CHILDREN IN THE ERA OF CLIMATE CHANGE





# Actions at the Intersection of the Early Years and Climate

This section lays out actionable opportunities to support the more than 33 million young children in America and the children being born every day in the era of climate change.

The systems serving children, families, and communities must work together to maximize benefits. Local communities have a long history of organizing to create healthy, sustainable environments for young children. Adequate support at the local, state, and federal levels can amplify the impact of those efforts. We designed our recommendations to work through partnerships with communities, especially those most impacted by climate change or leading the way toward change. Decision-makers should always seek to do *with*, not merely do *for*.

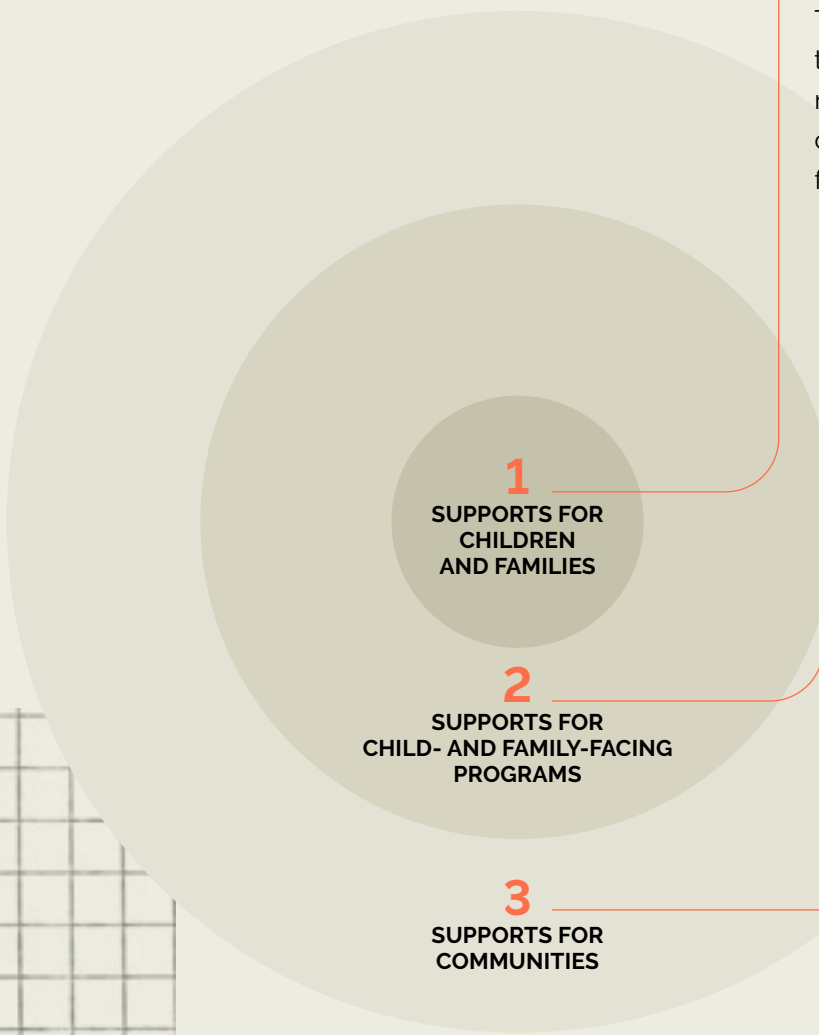
Robust funding of child- and family-facing systems is a prerequisite for fully implementing our recommendations. For

instance, child care programs focused on survival—recruiting and retaining staff, making payroll, paying rent—are unlikely to take an expansive view of climate adaptation and resilience, even if those efforts would improve their stability. Although many of our recommendations can be followed even without well-funded systems, service providers can never implement them fully unless policymakers provide enough operational funding. Only then will all early years programs be what children and families need them to be.

Similarly, robust action on climate mitigation and adaptation, beyond the recommendations below, is needed. Mitigation and adaptation will help ensure that young children have a clean and healthy environment for decades to come.

Our recommendations focus on actions that can be taken at the intersection of early years and climate—the central focus of

the Task Force's work. As noted above, we break down the early childhood ecosystem into three categories: children and families, child- and family-facing programs, and communities. Broadly, this is how we define supports for these categories:

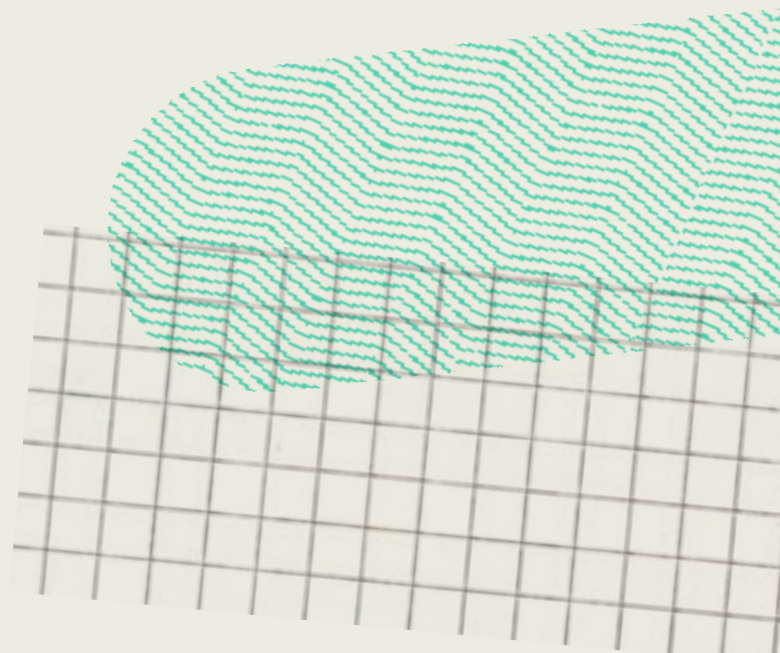


These are actions that directly connect to the well-being and climate resilience of children aged 0-8 and their primary caregivers. Our recommendations include mechanisms for helping families plan in collaboration with providers, other trusted community partners, and government stakeholders. They also include methods to ensure that governments respond to the unique climate-related needs of families with young children.

These are actions that impact the programs and systems that serve young children and their families. Examples include child care programs, pediatric health care providers, home visiting, maternal health, and birth support programs.

These are actions that impact neighborhoods, towns, cities, and counties. They include steps to address the conditions, policies, and funding that ensure connections and synergies among child- and family-facing services within communities. Since both children and families and child- and family-facing programs are deeply influenced by their local community, strengthening communities will help maximize the potential of all other strategies recommended in this report.

We have organized our recommendations into 7 stakeholder groups: federal, state, and local governments; early years providers; the business community; philanthropy; and researchers. Implementing these recommendations will require widespread engagement with constituencies of all types, including groups not specified here.



# What the Federal Government Can Do

The federal government should leverage its many powers—leadership, policies and programs, funding, and technical assistance—to support children and families, child- and family-facing programs, and communities in a changing climate. The federal government should ensure that all climate-related policies and

programs, funding, technical assistance, and research are designed, adapted, and implemented to consider the needs of young children, families, and the programs that serve them. Federal agencies should also produce and disseminate data, research, and best practices. We recommend the following actions:

**RECOMMENDATION 1****Utilize leadership and leverage platforms to help children and families thrive in our changing climate.**

Congress and the executive branch should use their platforms and convening power to build awareness about supporting children and families in a changing climate. While the White House, the Department of Health and Human Services, the Environmental Protection Agency, and the Department of Education may have especially vital roles to play, we recommend a government-wide approach. This would elevate the needs of young children as federal agencies advance climate solutions, foster environmental justice, and support the transition to a clean economy.

**1.1: Analyze climate policies and programs to promote positive health, well-being, and learning outcomes for children and families.** To increase accountability and transparency, federal agencies should identify, analyze, and address the potential impacts of climate policies and programs on the health, well-being, learning, and opportunities for young children and future generations, including any disproportionate effects by race, income, disability, national origin, and gender. Outcomes for children should figure into any cost-benefit analyses. Agencies should

make public all information and analysis about the impact of climate policies, regulations, and programs on young children and future generations. This includes any explanation about how the policies can avoid or reduce impacts on young children and future generations.

**1.2: Build cross-agency collaboration to support children and families in a changing climate.** Cross-agency collaboration can help advance a comprehensive approach to supporting children and families. The White House should establish an interagency advisory council and lead office to coordinate efforts to prepare children, families, and the systems that serve them for a changing climate. Additionally, the Environmental Protection Agency's Office of Children's Health Protection and the Department of Health and Human Services' Administration for Children and Families, as well as its Health Resources and Services Administration, should collaborate on climate-related efforts. For instance, they might each assign a high-level point person to lead on these issues. Agencies should also



work to coordinate on compiling and effectively disseminating relevant data, research, and best practices.

**1.3: Include the perspectives of children and their caregivers in climate-related policy decisions.**

Federal agencies make smarter, more sensitive policy decisions when they engage and partner with people affected by a problem or issue—including young children. Federal climate-related efforts should consistently engage parents,

caregivers, early childhood providers, maternal health providers, and, where appropriate, young children themselves. Each group has a unique, relevant perspective and expertise. The White House or agencies can ensure that representatives with these perspectives are included in existing advisory councils or establish new advisory councils, like the EPA National Youth Advisory Council, specifically for young children and their caregivers.

**RECOMMENDATION 2**

**Ensure that support for young children and families keeps pace with increasing needs and rising costs spurred by climate disruption.**

New climate and weather patterns increase the need for some types of support (such as health care) and reduce access to other essential resources (such as food). The federal government needs to recognize how climate change will affect crucial family services and maintain sufficient support.

**2.1: Increase access to mental health support for young children and caregivers to help families cope with the effects of climate change.**

Our disrupted climate can increase anxiety for children and families.

It also increases the demands on parents and other caregivers to serve as emotional buffers for children. The federal government should address high costs, limited supply, and insurance reimbursement policies that limit access to mental health services. It should work with state and local governments, mental health providers, and other constituencies to increase access to mental health services that support children's emotional well-being, including professional services and peer support groups. These



efforts should prioritize infant and early childhood mental health services integrated with the patient-centered medical home. They should also consider increasing support for local mutual and community-led aid efforts to help communities and families affected by extreme weather.

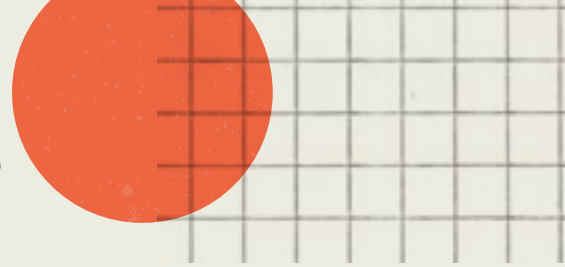
**2.2: Increase access to telehealth services so that families can communicate with care providers during extreme weather.** Extreme heat, poor air quality, severe storms, and other climate-related weather events can increase health and safety risks when families travel to providers. The federal government should enact enabling policies, strengthen broadband infrastructure, and devote additional resources to give families continuous access to telehealth for medical advice, mental health services, and other supports.

**2.3: Ensure that families understand how the Inflation Reduction Act can help cover the costs of climate-related home repairs and improvements.** The Inflation Reduction Act provides resources that dramatically reduce the costs of making homes more resistant to extreme weather and switching to modern, energy-efficient electric technology for heating, cooling, cooking, and transportation.

Communicating with families—for example, through public service announcements or partnering with early years providers—can help create safe homes where young children can thrive by ensuring that families understand these opportunities and the corresponding benefits to children's health.

**2.4: Ensure that benefits from federal nutrition programs keep pace with climate-related changes in the cost and availability of food.** As the weather becomes more unpredictable and extreme, challenges in farming, food distribution, refrigeration, and other aspects of our food system will increase. So will costs. The federal government should consider projected climate impacts to determine if gradual increases in benefits and





increased flexibility in nutrition programs can support families in accessing food amid shortages or delays. Programs to consider include the Supplemental Nutrition Assistance Program (SNAP), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Child and Adult Care Food Program, the National School Lunch Program, and the School Breakfast Program.

**2.5: Ensure that benefits from the Low Income Home Energy Assistance Program (LIHEAP) keep pace with climate-related increases in the costs of cooling, heating, and weatherization.** As warmer climates drive extreme temperatures and storms, the costs of cooling, heating, and weatherization will increase. The federal government could adjust LIHEAP's energy assistance benefits to help ensure safe, healthy living environments for young children.

### RECOMMENDATION 3

## Ensure that maternal and pediatric health care providers are equipped to support pregnant patients and young children in a changing climate.

Doulas, midwives, OB/GYNs, pediatricians, family medicine physicians, and home visitors are trusted resources for expecting parents and infants. Many of these providers can also provide guidance through the early years of a child's life. The federal government should help these professionals understand how climate change affects pregnancy, birth, and healthy development and how to support parents before, during, and after pregnancy.

**3.1 Equip clinicians to inform patients about the effects of climate change on early development.** The Department of Health and Human Services (HHS), in collaboration with other agencies, can ensure that doulas, OB/GYNs, pediatricians, family physicians, and home visitors have access to information on how climate change impacts early development, as well as strategies and tools to support expecting parents and infants. Specifically, HHS can identify and publicize state and local bright spots and best practices.

**3.2: Ensure that Medicaid pays providers for the time they spend discussing the impacts of climate change on early development.** The Centers for Medicare & Medicaid Services should collaborate with states to adjust Medicaid rules to allow reimbursement for the time providers spend with families discussing the climate's effects on children's and parent's health, along with prevention and treatment. Eligible services should include home visiting, doula care, OB/GYN, and primary care.

**3.3: Ensure that home visiting programs support caregivers in a changing climate.** The federal government should provide additional funding to home visiting programs to help home visitors communicate to caregivers about healthy child development and climate change, as well as increase the number of families eligible to receive home visiting services. The Department of Health and Human Services (HHS) should also continue federal funding for virtual and hybrid home visiting. It should ensure that home visiting funds can be used for telehealth and communications equipment for home visitors and clients. This funding should be directed to the Maternal, Infant, and Early Childhood Home Visiting



#### DOULAS RESPONDING TO CLIMATE CHANGE

Birthmark Doulas is a birth justice organization dedicated to supporting, informing, and advocating for pregnant and parenting people and their families in New Orleans, Louisiana. The group provides services including childbirth education, birth doula and postpartum doula services, and lactation support.

Malaika Ludman, Program Coordinator at Birthmark Doulas, joined the Task Force to discuss Infant Ready. This emergency preparedness program was co-founded by nurses and lactation consultants who worked in shelters after disasters and saw a lack of tools and information for families about safe infant feeding. The program includes emergency feeding kits and an emergency parent/infant hotline staffed by doulas and lactation counselors, with Spanish interpretation available. Over the last four years, the program has:

- delivered 800+ emergency feeding kits;
- provided guidance to close to 500 emergency preparedness response stakeholders and perinatal health professionals on the emergency hotline;
- supported over 100 pregnant and parenting families;
- distributed donations of clothing, diapers, wipes, and menstrual hygiene products to more than 200 families after Hurricane Laura; and
- conducted 70 rapid feeding assessments of families with young children after Hurricanes Laura and Delta.

(MIECHV) Program and Tribal MIECHV, among others. In addition, HHS could also support research on integrating climate adaptation into home

visiting models under its evaluation initiative, Home Visiting Evidence of Effectiveness.

**RECOMMENDATION 4**

**Ensure that key federal early childhood programs and policies, and associated guidance and technical assistance, directly address climate mitigation, adaptation, and resilience.**

The federal government's major early childhood programs and extensive technical assistance offer powerful opportunities to increase support for young children and their families in our changing climate.

their State Plan applications for funding, HHS should ask how they support child care efforts to advance climate mitigation, adaptation, and resilience. HHS should also offer examples of initiatives and opportunities that address climate impacts on children.

**4.1: Ensure that the Child Care and Development Block Grant Act (CCDBG) supports climate mitigation, adaptation, and resilience.** CCDBG funding is the primary way that the federal government sends child care funds to states. A portion of these funds can be used to support quality improvements in child care. The Department of Health and Human Services (HHS) should specify that these funds can be used to support activities ensuring the health and safety of young children in a changing climate. Additionally, as states renew

**4.2: Ensure that Head Start and Early Head Start support climate mitigation, adaptation, and resilience.** Head Start is the largest federally funded early care and education program, serving nearly one million children and families annually across thousands of sites in all 50 states. It includes the Early Head Start program, which targets infants, toddlers, and pregnant women. The federal Office of Head Start should establish a climate plan

to determine how the program can best support grantees in climate mitigation, adaptation, and resilience. Some steps to consider: allowing grantees to use funding to increase the sustainability and resilience of their facilities and transportation; reviewing the Head Start Program Performance Standards through the perspective of climate and environmental health to ensure that they anticipate challenges and support children in the changing climate; giving grantees information about climate risks in their communities and resources for adaptation; and providing guidance tailored to Early Head Start grantees, in particular on prenatal risks and mitigation factors to support pregnant women and their infants.

**4.3: Ensure that the Individuals with Disabilities Act (IDEA), Part C and Section 619, supports young children with disabilities in a changing climate.** IDEA Part C and Section 619 provide early intervention support for children aged 0-5 with disabilities. Early intervention specialists, special educators, and related service providers who engage with these programs should be offered information and tools to understand the impacts of climate on children's development, learning, and health. This includes how they can help



### USEFUL RESOURCES

**The Climate Action KC Equity Committee** in Kansas City, Missouri, recognizes nuanced understandings of equity and vulnerability. As a result, it developed a glossary to detail the unique needs of different sensitive populations. This glossary is part of its [equity guide](#), designed to help businesses, organizations, and municipalities protect these populations in their climate action strategies.

The glossary explicitly defines “children” and “pregnant people,” acknowledging their distinct sensitivities. For instance, it highlights children’s sensitivity due to their developing bodies, unique interactions with their environment, and their dependence on caregivers. The glossary also notes the health impacts of pregnancy and pregnant people’s increased susceptibility to factors such as heat intolerance. Such specificity in identifying sensitivities can guide more targeted, effective action.

**The Environmental Protection Agency’s Climate Change and Children’s Health and Well-Being in the United States** report shows how federal agencies can bring attention to the impacts of climate change on young children and their families. Released in 2023, this comprehensive report details how children are uniquely vulnerable to health impacts caused by climate change. The report includes resources for parents and clinicians, provided in multiple languages.



families navigate climate-related challenges to effectively support young children with disabilities.

**4.4: Ensure that technical assistance and workforce training help providers understand the impacts of climate change on young children and how to support their evolving needs.**

Providers must understand how climate change will impact young children's health, well-being, and learning and how they can improve outcomes for young children and their families. The Department of Health and Human Services and the Department of Education should ensure that technical assistance (including the Child Care Technical Assistance Network) and workforce training include information about how to anticipate climate challenges and risks in their communities, how to increase the sustainability and resilience of their programs, and how to support young children and their families in a changing climate.

**4.5: Ensure that preschool education programming funded by Title I of the Elementary and Secondary Education Act supports climate mitigation, adaptation, and resilience.**

Title I, Part A of the Elementary and Secondary Education Act allocates funds through states to local education agencies (LEAs) via a formula based on the percentage of low-income students. Many LEAs use a portion of these funds to operate preschool education programs. Federal guidance directs schools operating preschool education programs with Title I funds to follow the Head Start education performance standards and to coordinate with other early learning providers in the community. The Department of Health and Human Services and the Department of Education (ED) should ensure that climate action plans and guidance for early care and education are consistent across Head Start and Title I and facilitate local partnerships so resources and funding can be leveraged locally. Finally, ED should consider technical assistance to school leaders to integrate the needs of young children and families into schools' current climate work.

## RECOMMENDATION 5

# Ensure that child- and family-facing programs have resources to maintain and upgrade their facilities to provide healthy and sustainable environments.

Child- and family-facing programs can improve children's health, well-being, and learning by improving their infrastructure. Examples of climate-related upgrades include more powerful HVAC systems or new shade structures. Improved infrastructure can also reduce operating costs for these providers. However, the initial cost of these upgrades is a barrier for many programs; even maintaining existing infrastructure is often a challenge. The federal government should help: it can leverage existing federal investments

and create new funding opportunities to ensure that child- and family-facing programs have the resources to maintain and improve their buildings and grounds.

### **5.1: Ensure that early years programs understand how to access funding in the Infrastructure Investment and Jobs Act, Inflation Reduction Act, and other climate-related sources.**

The Infrastructure Investment and Jobs Act and Inflation Reduction Act are the federal government's most significant investments in climate mitigation and adaptation. Implementing agencies, including the Internal Revenue Service, Department of Energy, and Environmental Protection Agency, should issue regulations and guidance to ensure that early years programs (publicly and privately funded) understand how they can use these funding opportunities to invest in climate-related infrastructure improvements. These agencies can



collaborate with the Department of Health and Human Services to ensure that this guidance reaches early years programs and providers.

**5.2: Establish dedicated infrastructure funding for maintenance and upgrades to child- and family-facing programs.** The federal government can dedicate funding to help child care programs and health care facilities switch to clean energy, improve air and water quality, create sustainable outdoor and indoor play spaces, and undertake other climate-related facility upgrades. Funding, such as grants, should prioritize under-resourced communities, including Tribal communities, that face the most barriers to affording infrastructure improvements.



**CHILD CARE PROGRAM ADAPTATION**

**The Community Day Center for Children**

(CDCC) in Seattle, Washington, “offers a whole environment specially tailored to help little people grow into healthy, happy, bigger people.” During the summer of 2021, in the face of extreme heat waves reaching up to 108°F, the center was forced to close because it lacked proper cooling infrastructure. This impacted not only the young children served by the center but also their working parents.

As a result, Lois Martin, director of the CDCC, secured funding to upgrade her HVAC system and ensure that her center could stay open. However, the process took work in addition to her regular duties. Martin told the Task Force about the need for more specific funding for facility improvements, which would have made her experience much easier.

**RECOMMENDATION 6**

**Ensure that existing federal climate change programs and new opportunities consider the needs of young children and their families.**

Communities across the country are addressing climate change. The federal government should increase opportunities for community leadership and partnership with child- and family-facing programs to explore climate solutions.

**6.1: Require set-asides and priorities for the early years in all federal programs related to climate change and the environment.** The federal government should create set-asides focused on young children and

families, including in climate research funding, to ensure that the needs of young children and their families are considered in all climate mitigation, adaptation, and resilience efforts. Additionally, in federal climate-related grants, agencies should prioritize projects that support young children and families.

**6.2: Help communities address the needs of young children and families facing migration or displacement due to climate change.**

As climate change intensifies, more young children and their families will move or be displaced due to storms, floods, and other climate-related disasters. Communities face barriers to receiving and integrating these migrants. The federal government can equip communities to anticipate and address the distinct health, safety, and nutrition needs of infants, toddlers, and expecting parents who have been displaced. In coordination with states, the federal government could establish grant programs that help communities welcome and support displaced families with young children, whether from another nation or a neighboring region.

**6.3: Promote policies across federal agencies to strengthen communities' capacity to support young children**

**in a changing climate.** Several federal agencies are critical in supporting communities' work on climate change. Sometimes they offer direct help to communities through funding or other resources, and sometimes they work in partnerships with states. We recommend the following actions for these agencies:

*6.3a: The Department of Housing and Urban Development (HUD) should continue to promote co-location (locating sustainable and climate-resilient early years programs and affordable housing near each other). Along with agencies supporting young children, HUD should consider climate resilience in its work with families receiving housing support and with children and families experiencing homelessness.*

*6.3b: The Occupational Safety and Health Administration (OSHA) should incorporate climate mitigation, adaptation, and resilience into workplace standards for facilities that serve high proportions of young children.*

*6.3c: The Federal Emergency Management Agency (FEMA) should include early years programs in disaster plans, disaster response, and funding related to recovery and rebuilding.*

This includes preparing for the needs of infants, toddlers, expecting parents, children with disabilities, and children with special health care needs.

*6.3d: The Small Business Administration (SBA) should help child- and family-facing businesses access financing for climate mitigation, adaptation, and resilience.*

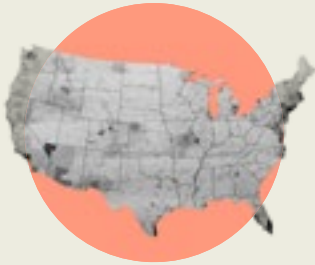
*6.3e: The National Oceanic and Atmospheric Administration (NOAA) should include the early years in community resilience initiatives, including the Climate Adaptation Partnerships Program, the National Integrated Heat Health Information System, and the Resilience Toolkit.*

*6.3f: The Environmental Protection Agency (EPA) should help communities understand the impacts of climate change on young children and during pregnancy. This includes incorporating the number of pregnant women and live births, along with the number of early learning programs per census tract, in its Environmental Justice Screening Tool. EPA should also update*

its Air Quality Index guidance and materials to clearly state the level (level orange) at which caregivers and child care providers should limit infants' and toddlers' outdoor activity.







# What State Governments Can Do

Climate change presents state governments with an opportunity to demonstrate leadership on behalf of their youngest residents and the systems that serve them. States can promote young children's health and well-being, including through choices about how to distribute

federal and state funds and decisions on planning and guidance. States can consider the diverse needs of their residents, collect data, and ensure that policies are enacted and implemented fairly and thoughtfully. We recommend the following actions:

## **RECOMMENDATION 1**

### **Create leadership roles and collaborative structures to support young children and families in a changing climate.**

States should foster collaboration between people and departments primarily responsible for young children and climate change. Doing so will help break down silos that often prevent funding streams and decision-making in these areas from intersecting. States should also encourage collaboration with other agencies and staff connected to these issues, such as housing and transportation.

Governors can appoint a lead person at the cabinet level, such as a chief childhood climate officer, to help represent the interests of young children, families, and those who support them. States can also promote collaboration via strong children's cabinets, legislative caucuses, or new groups designed to advance climate-related legislation impacting young children. States should permanently establish such groups and grant them decision-making authority to ensure continuity.

**RECOMMENDATION 2****Ensure that families, child- and family-facing programs, and communities have resources to create healthy, sustainable environments for young children.**

State investments can improve health, well-being, and learning outcomes, enabling young children to thrive in a changing climate. States can leverage existing investments and further expand opportunities to ensure that families, child- and family-facing programs, and communities have the resources to create healthy sustainable environments.

**2.1: Consider the places where children live, learn, and receive services when setting priorities and devoting resources to climate change.** As states allocate and distribute funding for climate mitigation, adaptation, or resilience, or for infrastructure, they should consider—at a granular level—the geographic locations where children are concentrated. States should also consider demographic factors, including the percentage of children living in low-income households in an area, and risk assessments, including the projected risk to settings where young children spend their time and receive essential services.

**STATE LEGISLATION AND FUNDING****California's Child Care and Development Infrastructure Grant Program and**

**Urban Forestry Act** offer opportunities to proactively aid child care providers facing a changing climate. The child care infrastructure grant program is a forward-thinking \$350 million investment by California in improving child care facilities across the state. Recipients of this funding are being supported to prioritize climate resilience through such steps as installing energy-efficient electric appliances and shade structures and retrofitting for disaster mitigation. The state's Urban Forestry Act similarly invests \$30 million to address extreme heat by funding tree planting, asphalt removal, and the addition of native plants. These programs can work together to support the climate adaptation of child care facilities.

**2.2: Assess and update resources and tools to determine climate vulnerability and risk.** States should update such tools as heat maps and flood projections to better identify vulnerable areas and services, particularly in areas with high concentrations of young children. Resources including the federal government's resilience maps and the Environmental Defense Fund's Climate Vulnerability Index can support these efforts. In distributing funding for climate adaptation and resilience, states should prioritize areas with high levels of vulnerability and risk.

**2.3: Provide financial support and information to help families with young children make their homes healthy, sustainable, and climate resilient.** Tax credits, rebates, grants, and other financial support, as well as information, can help families increase the sustainability and resilience of their homes. Making technologies like heat pumps and induction stoves more affordable can improve indoor air quality and sustainability; so can increasing the affordability of energy-efficient HVAC systems, water heaters, and air filtration systems. Support for weatherization can build resilience to flooding. To ensure access for all families, including low-income families, states should collaborate with landlords and public housing. States can also inform families, particularly in under-resourced communities, about how healthier, more resilient homes help young children. Further, states should help families learn about available financial support to help with home improvements, including through the federal Inflation Reduction Act.



**2.4: Provide infrastructure funding specifically for early years providers to support climate mitigation, adaptation, and resilience.**

States should develop or enhance infrastructure funding to maintain and upgrade child care facilities to support climate mitigation, adaptation, and resilience. Doing so may require tapping into distinct funding streams for each type of facility (center-based and home-based programs, early learning, and pediatric health care facilities). Funding can help facilities install or upgrade air filtration systems, heat pumps, HVAC systems, and renewable energy (such as solar panels). Helping providers make these infrastructure improvements will help reduce annual operating costs for programs, allowing them to dedicate more resources to their mission of helping children. In allocating funding, states should conduct needs assessments of early years facilities, particularly in areas with high climate vulnerability and risk.

*2.4a: Designate funding for outdoor learning environments* – Part of the physical infrastructure funding should be designated for creating or maintaining climate-resilient outdoor learning environments, particularly for child care programs. Examples include gardens, natural and artificial shade structures, heat-resistant play equipment, and cooling materials.

**2.5: Provide resources for communities to support young children and families in a changing climate.**

Additional state-level resources prioritizing the needs of young children and families can assist communities in making climate mitigation, adaptation, and resilience improvements at scale.

*2.5a: Help communities electrify transportation networks that carry children* – States should work with communities to accelerate existing efforts to electrify school bus fleets and other mass transportation used by young children. This includes buses owned by child care programs, as well as city buses that operate lines where high numbers of children live. In addition to state tax credits, states should consider ways to support families in switching to electric-powered personal vehicles. For instance, states could encourage communities to install electric vehicle charging stations at parks, educational facilities, and libraries.

*2.5b: Help communities provide more shade in areas with high concentrations of children* – Outdoor play is essential to healthy child development—and shade is essential to healthy outdoor play. States should increase resources to support existing efforts to reduce heat islands and collaborate with communities to increase shade

structures in locations where children congregate, such as playgrounds or bus stops near family-filled residential areas.

*2.5c: Provide grants to support communities in addressing climate migration and displacement and the needs of young children and families –* Climate migration and displacement includes people entering the United States from other nations, as well as people moving within and across states (for instance, leaving coastal areas after major disasters).

In coordination with the federal government, states should set up programs to help communities receive and integrate growing numbers of families seeking housing, child care, physical and mental health care, food, and other basic needs. To help meet the needs of displaced families who have young children, the grant programs should include professional development for local government staff, including how to deliver culturally resonant programs and translation.

### RECOMMENDATION 3

**Ensure that programs supporting expecting parents and caregivers have the resources and tools to promote healthy child development in a changing climate.**

OB/GYNs, pediatricians, family physicians, nurse practitioners, home visitors, and doulas and other birth support providers are all trusted resources for information about how to support children in their earliest years of life. States should work with the federal government to ensure that these practitioners have information on how climate change impacts early development and strategies for supporting expecting parents and infants.

**3.1. Provide resources for health care practitioners and ensure that time spent discussing the impacts of climate change on early development is payable under Medicaid.** States should work with professional medical associations' state and local affiliates to ensure that practitioners—including pediatricians, family physicians, nurse practitioners, physician's assistants, and OB/GYNs—know how climate change



impacts early development and how to support expecting parents and infants. This effort could include partnering with residency programs to embed this information during residencies.

States should also work with the federal government to ensure that Medicaid fully pays providers for the time they spend with families discussing climate change and healthy child development and to incorporate routine screening for climate change health impacts.

**3.2: Provide additional support and reimbursement for doulas and other birth support professionals to help expecting parents in a changing climate.** Given the role that doulas can play in helping guide and educate expecting parents on the effects of climate change, states should ensure that doula care is reimbursable by Medicaid and that reimbursement rates are reasonable. This will provide more access to doula services. States should also offer professional development for doula and midwife organizations to build their capacity to support pregnant women amid climate change. States can also provide professional development for doula and midwife organizations to build their capacity to support pregnant women in a changing climate.

**RECOMMENDATION 4**

**Advance policies and guidance to ensure child care programs prepare for and can respond to extreme weather events.**

As climate change drives more intense extreme weather, child care programs need plans to adapt and build resilience. States can support early years programs in implementing protective strategies by integrating requirements into relevant

state plans, policies, and licensure systems. In addition, state agencies should help programs assess their vulnerability to climate change. They should also provide resources where needed.

**4.1: Strengthen air quality and extreme heat standards, recommendations, and alerts.** States should embed federal guidance on outdoor air quality standards and extreme heat standards into their child care licensing regulations and communicate with providers about these standards as air quality events occur. When federal guidance does not include enough information on the needs of young children, states should issue supplementary guidance or standards. In particular, states should assess whether existing air quality standards and extreme heat standards, recommendations, and public alerts align with medical recommendations on air quality and young children, and heat and young children. If they do not align, states should modify them or create communications specific to young children. States should consider working on these new communications with the National Weather Service and media channels within the state.

**4.2: Create contingency plans that allow for temporarily relaxing regulations that hamper child care programs' ability to operate during or after disasters.** States should create or update plans for temporarily relaxing certain regulations for early years programs in the face of natural



#### HEALTH SYSTEM ADAPTATIONS

**Cherokee Health Systems (CHS)**, which operates 20 rural and urban health centers in Tennessee, is a strong advocate for the integration of human health, equity, and climate action. As Parinda Khatri, Chief Clinical Officer, told the Task Force, CHS has suffered major challenges from climate events such as extreme heat waves. The organization has now made plans for climate resiliency by installing backup generators, training staff, and educating patients on climate issues and the overall impact of the environment on health. Additionally, CHS has made significant reductions in carbon emissions; every aspect of its operations, from construction to the selection of everyday supplies, considers carbon reduction and energy efficiency.

disasters. For instance, the plans could provide more flexibility on the settings where child care may be provided or allow providers to temporarily shift locations. The state could also issue waivers to ensure that programs do not lose grants or contracts due to disrupted operations. To put together these contingency plans, states should seek input from early years providers as well as other states about what changes would have been helpful in previous disasters. States should also

proactively partner with nonprofits, philanthropy, and other stakeholders to help early years providers access disaster relief and rebuilding resources.

**4.3: Broaden Quality Rating and Improvement Systems (QRIS) to include climate mitigation, adaptation, and resilience.** Most states use a Quality Rating and Improvement System (QRIS) for their early care and education programs to evaluate services and offer support. States should add climate mitigation, adaptation, and resilience as categories within the QRIS. In addition, they should broaden the QRIS to collect more data on facilities, including access to adequate HVAC, air filtration systems, and shade. To accomplish this, states should increase funding for QRIS administration and offer payments to child care programs to implement needed changes.

**4.4: Update licensing regulations to include climate mitigation, adaptation, and resilience.**

States should update licensing regulations for child care programs so that regulations devote more attention to climate mitigation, adaptation, and resilience. They should review existing regulations to identify opportunities for including issues such as indoor air quality, energy efficiency, and extreme weather plans.



# What Local Governments Can Do

Although federal and state governments help create enabling conditions, local governments drive implementation and climate action within communities. Local governments can show leadership on integrating the perspectives of young children, their families, and those who support them. Local governments should support these groups in planning and taking action on climate mitigation, adaptation, and resilience.



## NETWORK OF MAYORS

**Climate Mayors**, established in 2014, is a network of over 750 U.S. mayors committed to advancing climate progress in their communities. Representing nearly 60 million Americans across 48 states, the coalition encourages tangible local initiatives and political momentum for federal and global climate action. By advocating for green and equitable economic recovery and upholding the Paris Agreement, Climate Mayors amplifies the collective voice of city leaders. With hundreds of member cities embracing emissions reduction and transformative climate policies, Climate Mayors is a beacon of bipartisan collaboration for a sustainable future.





## City action

### CITY CLIMATE ACTION PLAN

**Austin, Texas** is among the U.S. cities that have developed climate action plans to address the impacts of climate change and to prepare for future challenges. These plans are frameworks that detail climate mitigation, adaptation, and resilience strategies and targets. They typically function as nonbinding decision-making tools to inform policies and programs.

Austin included a range of representatives in the planning process to develop strategies that center young children and their families. The city established a panel of [Community Climate Ambassadors](#), a group that included high school students, community organizers, nonprofit leaders, educators, and representatives from [Mama Sana Vibrant Woman \(MSVM\)](#), a grassroots organization that promotes access to prenatal and postnatal care for people of color. This paid, six-month program focused on people who are often overlooked in discussions of climate change, particularly people in low-income communities and communities of color.

During their tenure, the MSVM-affiliated ambassadors identified the most pressing climate equity issues in their neighborhoods, ensuring their inclusion in the city's [climate action plan](#). They also provided educational programming on topics such as the role of in-home air quality during the prenatal period. Austin's approach demonstrates how cities can construct more responsive and equitable climate action plans by engaging communities directly.\*

### EMERGENCY PREPAREDNESS STRATEGY AND CLIMATE ACTION PLAN

Following the devastation of Hurricane Harvey in 2017, the city of **Houston, Texas** engaged partners to identify and fortify critical facilities, including child care centers. The partners recommended strategies to mitigate flooding and the loss of power and to harvest rainwater. They also developed other measures to allow these facilities to continue operations during extreme weather events.

Moreover, [Houston's Climate Action Plan](#) outlines a strategy to provide child care professionals with trauma-informed training from the [National Child Traumatic Stress Network](#). This train-the-trainer model equips professionals to provide social-emotional support to young children after extreme weather events, and to further train parents and early childhood caregivers in vulnerable Houston communities.

### AIR QUALITY MONITORING

In **London, United Kingdom**, extensive street-level air quality monitoring networks have played a pivotal role in assessing pollution levels and informing policy decisions. Recognizing that around 4,000 Londoners die prematurely each year from polluted air, and the disproportionate impact on children and older people, the mayor implemented an [Ultra-Low Emission Zone \(ULEZ\)](#) in central London to target and reduce the effects of polluting vehicles on air quality. This initiative reduced



roadside pollution levels by 44% in central London and 20% in inner London. Building upon the success of the ULEZ, London has taken the bold step of expanding this zone citywide, aiming to bring clean air to an additional five million people.

In **Oakland, California**, the Environmental Defense Fund and Google Earth Outreach are partnering on a pioneering approach to monitor air quality at a granular level, block by block. By using new, lower-cost air quality sensors, the initiative has uncovered vital insights to drive advocacy for healthier communities. Traditional regional air quality assessments often overlook the intricate variations within small urban spaces. However, Oakland's hyperlocal approach has revealed startling data. The study shows that while regional statistics suggest that one in five children suffer from asthma due to tailpipe exhaust, this ratio soars to three in five within lower-income communities of color. This pattern is only visible through block-by-block measurement, highlighting the urgency of addressing air quality disparities in areas most impacted by traffic-related emissions.

## **GREEN SCHOOLYARDS**

**New York, New York**, has converted 240 dormant schoolyards into vibrant playgrounds through the Schoolyards to Playgrounds program. These spaces now offer four million New Yorkers—adults and children—the benefits of a revamped schoolyard within a 10-minute walk from their homes. The program is a collaboration between the New York City Department of Parks & Recreation, New York City Department of Education, and Trust for Public Land. Playgrounds include play equipment, painted sports surfaces, trees, and benches. Other cities, such as Paris, France, have engaged in similar efforts. Such strategies could also be applied to child care programs.

## **USING DATA TO ENSURE EQUITABLE PLAYSPACE ACCESS**

In **Philadelphia, Pennsylvania**, the nonprofit KABOOM! recently partnered with Vanguard Strong Start for Kids and Childcare Aware of America on a project to map play spaces for children aged 0-6 (such as public playgrounds and parks) against where children live and where child care programs are located. They found deep inequities in access across lines of race and class. Nearly one-third of the census tracts—disproportionately lower-income and home to large populations of color—lack a play space, while nearly 40% of child care programs lack a nearby play area. The study also found challenges in the quality and maintenance of play spaces. This data is being used to push for targeted improvements to play spaces where the need is greatest.

## **CLIMATE EMERGENCY MOBILIZATION OFFICE**

In **Los Angeles, California**, the Climate Emergency Mobilization Office has implemented an innovative governance model focused on engagement, representation, and collaboration. The office recognizes the need to empower underrepresented communities and address environmental injustice. To achieve these goals, it engages with youth, children, and Black, Brown, Indigenous, and other marginalized communities disproportionately burdened by pollution. The office uses such tools as focus groups, surveys, polls, workshops, and research to ensure that the insights and perspectives of these diverse stakeholders are incorporated into reports presented to the city council. The office also hosts an innovative and inclusive Climate Emergency Mobilization Commission, whose 7 members represent communities most affected by pollution in Los Angeles, including labor, youth, and the Native American community, as well as climate experts.

**RECOMMENDATION 1**

**Incorporate the early years into climate planning and action by building authentic connections with young children and their families, especially those who have been historically marginalized.**

Local governments should integrate the perspectives of young children, their families, and the programs that serve them, including the perspectives of people most impacted by climate change, in community-level plans for climate action, climate adaptation, resilience, emergency preparedness, and other local climate community planning. By integrating these perspectives, local governments can create child-inclusive policies and healthy, sustainable communities.

**1.1: Ensure that outreach efforts are inclusive and family centered.** To include young children's families and representatives from organizations that work closely with them, outreach and engagement should focus on increasing diversity. That means including people of different races, ethnicities, incomes, languages, and geography and families with children with disabilities. Doing so will require thoughtful consideration of when and where to hold events and whether translation or child care should be provided.



**INDIGENOUS COMMUNITY SUPPORT**

**Spirit of the Sun** is an Indigenous women-led nonprofit based in Denver, Colorado, that partners with Native American communities nationwide to build resilience and empower communities through farming, education, and "rematriation" (a way of life based on reverence for nature, or Mother Earth). Founded in 2002, it offers mentorship programs, food assistance, and community workshops and strives to dismantle systems of oppression and inequity within Indigenous communities.

Spirit of the Sun hosts an Indigenous Toddler and Teachings Program that aims to strengthen cultural connections and give young Native children confidence in fine and gross motor skills. Through its outdoor programming, children build respect for insects, plants, each other, and Mother Earth, while becoming familiar with the idea of kinship. The program, which is designed for children aged 2-6, also emphasizes sensory play, ecology, mathematics, science, history, and Tribal languages.

**1.2: Include early years providers and organizations in climate planning decisions.** Climate action plans and other climate planning processes should include early years providers in their development, framing, and

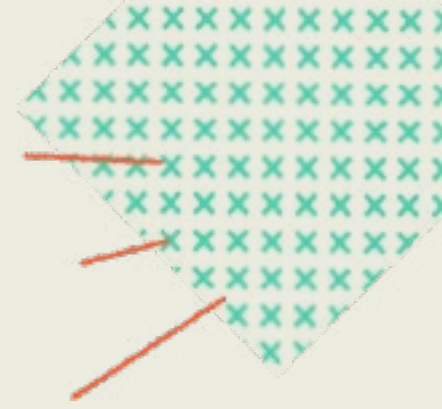
substance. At least one representative from the major early years subsectors—early care and education, pediatric health care, home visiting, and maternal health—should be included in the planning process.

## RECOMMENDATION 2

### Support collaboration between the early years and climate in local governmental agencies.

Local governments should encourage collaboration between the early years and climate sectors. For instance, they might create cross-sectoral governance or advisory structures (such as interagency working groups) or roles that cross departmental boundaries (such as chief heat officers). Some communities have existing structures, such as children's cabinets or environmental commissions, whose charges could be modified to include the early years and climate change. To ensure effective collaboration and authority, local governments should grant such bodies decision-making authority wherever possible and include early childhood service providers, parents, and, where appropriate, young children themselves.





### RECOMMENDATION 3

## Increase access to family-focused and climate-resilient outdoor spaces.

Local governments should ensure access to healthy, sustainable, and adaptable green space to connect children to nature in a changing climate. By auditing existing green spaces, local governments can determine whether such spaces provide equitable access to all families and include sufficient shade and durable building materials to limit overheating. This information should then be used to develop plans and direct relevant

local funding streams, also taking into consideration which neighborhoods have historically been under-resourced and discriminated against (e.g., redlined neighborhoods or those systematically cut off from access to the tree canopy). Steps to increase access to the outdoors can reduce community heat and flooding, particularly in areas experiencing heat island effects or with poor stormwater infrastructure.

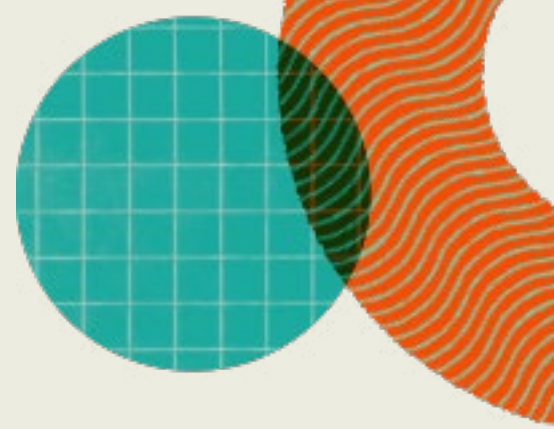
### RECOMMENDATION 4

## Advance strategies to support early years providers in ensuring safe, healthy, reliable, and high-quality services to children and families in a changing climate.

While local governments are not primary funders of early years providers, they have authority over critical decisions, including zoning and air quality monitoring, that influence providers' ability to function effectively. Local governments should consider opportunities to enhance these policies to support early years providers in a changing climate.

### **4.1: Locate early years facilities near each other, affordable housing, and sustainable transportation options.**

Co-location increases access to early years options for families and has the potential to decrease carbon pollution linked to transportation. Local barriers such as zoning, expressways, or lack of space prevent co-location. Local governments should ensure that



zoning regulations and other planning decisions support co-location and that co-located facilities are accessible by sustainable transportation options like walking, public transit, and protected bike routes. Where feasible, co-located facilities should be within reasonable proximity of affordable housing units.

**4.2: Establish local air quality monitoring infrastructure.** To promote healthy development in a changing climate, local governments should monitor air quality outside and inside buildings with high proportions of children. Local governments should ensure that real-time data is publicly accessible to help caregivers and providers make informed decisions about young children's daily activities and

exposures. They should also use such infrastructure to alert families to any dangerous chemical releases that occur as a result of natural disasters damaging chemical facilities.

**4.3: Implement low-emission zones near early years facilities to promote better air quality.** Where feasible, local governments should protect young children by implementing low-emission zones and other pollution-reduction measures around early years facilities. These zones limit harmful emissions by restricting the use of polluting vehicles, rerouting industrial trucks, limiting idling, and shutting streets to car traffic altogether during certain hours. These strategies also reduce noise and improve pedestrian safety.

## RECOMMENDATION 5

**Build the ability of neighborhoods to support young children and families by expanding access to climate resilience hubs, community aid, and social connectivity.**

Local governments should promote and support social connections and access to centralized resources to build communities' capacity to handle climate change. Climate resilience hubs help inform residents about climate change,

distribute supplies, and prepare for and respond to disasters. In creating these hubs—which can be run by and housed within existing entities such as nonprofits or faith communities—local governments should prioritize neighborhoods that are



most vulnerable to climate disruptions and that have the highest concentration of young children and families.

To enhance climate resilience, local governments can also consider developing or leveraging existing community emergency response teams, creating early childhood co-operatives (e.g., child care co-ops), and promoting communal climate activities ranging from grief circles to planting trees. Resilience Coordinating Networks (RCNs), grassroots coalitions comprising neighborhood, civic, nonprofit, private, and public sector leaders, can help design, implement, and improve age- and culturally appropriate strategies to enhance people’s mental wellness and resilience during adversity.



**COMMUNITY ACTION**

**The North Carolina Healthy & Resilient Communities Initiative (HRCI)** is driven by the North Carolina Partnership for Children’s Smart Start Network. Launched in 2019, HRCI brings together over 50 community collaboratives under the Smart Start umbrella to promote resilience across North Carolina. It works with individuals, organizations, and communities to create positive childhood experiences for children, families, and communities. The initiative aims to proactively tackle toxic stress and trauma through collaborations across sectors and fortified community infrastructure—critical elements for responding to climate change.

HRCI also hosts the [Resilient NC](#) website, a central resource for member communities.





# What Early Years Providers Can Do

As we've noted, early years providers have key roles in helping develop and implement governmental policies regarding climate and young children. Providers should also ensure that their fields of practice are fully engaged and taking action to integrate best practices into their sectors. We recommend the following actions:

## **RECOMMENDATION 1**

### **Upgrade early years facilities to advance climate mitigation, adaptation, and resilience.**

Early years providers should leverage available sources of federal, state, and local funding to undertake required maintenance and upgrades. These will improve health, safety, and sustainability and minimize the chances that climate risks will strain, disrupt, or destroy providers' ability to offer services. Early years providers can seek partnerships with the business community, volunteers, and others with the capacity to assist with these improvements. Providers should assess their context, such as the threats they face (e.g., extreme heat, wildfires, or flooding) and the type of setting (a family

child care provider operating out of a basement, a pediatric clinic operating as part of a larger medical complex) to determine what improvements are needed. All early years programs should also have an updated disaster readiness plan and disaster preparedness supplies.

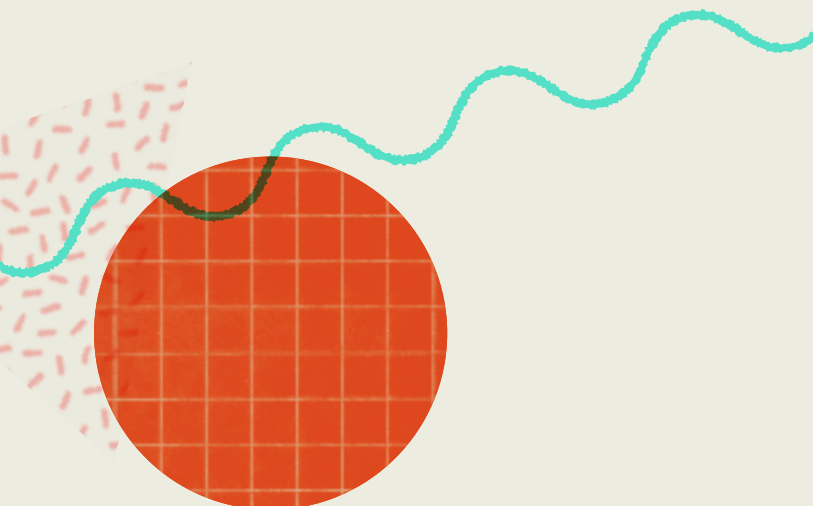


**RECOMMENDATION 2****Conduct and incorporate climate risk screenings and share information with families.**

Pediatric and maternal health providers should screen their patients for vulnerability to climate risks. During prenatal and well-child visits, they should also counsel their patients on responding to climate hazards (e.g., signing up for local emergency alerts or navigating extreme heat and air pollution). To accomplish this, providers should use evidence-based resources, such as screening checklists, which should be incorporated into electronic medical record systems. Similarly, child care providers should distribute climate guidance to families as part of their regular communications.

**GREEN BUILDING DESIGN**

**The North Bay Children's Center** in Novato, California, is creating an innovative and sustainable child development facility that exceeds California's green building standards. The center has incorporated new infrastructure elements to address challenges posed by wildfires and communicable diseases, ensuring uninterrupted and healthy environments for children. The facility features advanced HVAC systems that grant individual classroom control to reduce indoor air mixing and high-filtration capabilities for enhanced indoor air quality. The outdoor play areas and landscape plans align with a nature-based curriculum. They also help manage drought challenges and provide a protective shield against heat for the safety and comfort of children and educators.



**RECOMMENDATION 3**

**Distribute electronic and phone warnings and guidance during extreme climate-related events to expecting parents and families with young children.**

Health systems, child care programs, and home visiting programs should provide early warnings and guidance through electronic media (email, social channels) and by phone (calls or text messages). These messages should be available in multiple languages. They should go out before climate-related events such as heat waves or wildfires.

**RECOMMENDATION 4**

**Integrate training and anticipatory guidance on the impacts of climate change on young children into professional associations and degree and certification programs.**

Professional associations, institutions of higher education, and other training and certification programs should amend their curriculums to include information about the effects of climate change on young children. They should also cover strategies for climate adaptation and for building resilience. The training should not merely provide information: it should also describe interventions and guide practitioners in how to speak with their

patients about climate change. In a similar vein, medical specialty boards should work to include modules on climate change that can help meet maintenance of certification requirements.



**RECOMMENDATION 5**

**Build climate resilience into child care providers' outdoor learning spaces.**

Child care providers should leverage available sources of federal, state, and local funding to adapt and enhance their outdoor learning spaces. Early years providers can seek partnerships with the business community, volunteers, and others with the capacity to assist with these improvements. Such adaptations should focus on ensuring adequate shade and including natural and cooling materials.







# What the Business Community Can Do

The business community plays an important supporting role in addressing the impacts of climate change on young children and families. Employers should provide material assistance and flexibility to employees with children. They should step fully into their role as members of the broader community. We recommend the following actions:

## **RECOMMENDATION 1**

### **Create climate-aware policies and programs for employees with young children.**

Employers already offer benefits that are at least partially dedicated to employees with children, such as child care stipends or dependent care leave. They should enhance these benefits in ways that help families thrive in a changing climate. Doing so will likely increase employee productivity, loyalty, and retention. Employers can consider offering employees partial or complete reimbursements for climate-related home upgrades or pre- and postnatal coaching and support (e.g., doulas or home visitors). After extreme weather, businesses

might offer family mental health support, additional time off, or remote work options. Businesses can also help employees prepare for disasters.



## RECOMMENDATION 2

### Foster partnerships between businesses and early years facilities to fund essential upgrades.

Many climate mitigation and adaptation upgrades, whether to buildings or outdoor spaces, require one-off sources of capital funding or staff capacity that early years facilities do not have. Businesses can work with local facilities to determine needs and then provide both in-kind assistance (e.g., financial planning) and funding.

## RECOMMENDATION 3

### Partner with local communities to build climate-resilient green space and community infrastructure.

The business community should work with community leaders to identify opportunities to build or adapt green space and other community infrastructure, such as parks or squares, for the climate change era. This may include businesses helping to fund or providing volunteers for projects that improve shade, bike or pedestrian access, or flood resistance.



#### BUSINESS COALITION

**The Greater Seattle Child Care Business Coalition (GSCCBC)** supports the business needs of child care programs by creating opportunities for providers to learn from experts on employment law, grants management, and social-emotional support. Composed of business owners and directors who identify as Black, Indigenous, and people of color, this coalition works to strengthen the child care sector by seeking greater investments from government and business. Climate change is on GSCCBC's radar: leadership across the coalition has stressed the obstacles to keeping child care centers open due to insufficient protections against extreme heat.



# What Philanthropy Can Do

Philanthropy plays a pivotal role in supporting a wide range of early years and climate change issues, but rarely at their intersection. In addition to individual philanthropists, philanthropic organizations across the country range from large private foundations to community foundations and small family foundations. Philanthropy can help communities that are most impacted by climate change—primarily low-income communities and communities of

color—access the resources they need to support young children and their families. Philanthropy can also be a catalyst to help communities leverage additional resources, support intergenerational organizing and collaboration, enable innovation, and develop best practices for families, child- and family-facing programs, and communities. We recommend the following actions:

## **RECOMMENDATION 1**

### **Support work that connects early years and climate change.**

Working at the intersection of early years and climate has benefits across a range of priorities including health, education, and economic development. Philanthropies can assess how work at this intersection can benefit their existing communities and priorities and support work with wide-ranging benefits. Philanthropies can also consider supporting grantees in understanding how climate change will

impact their work and their communities and support their existing grantees in advancing climate mitigation, adaptation, and resilience.

**RECOMMENDATION 2**

## Develop a regular national scorecard on the state of young children and climate change.

Philanthropies should consider funding a national nonprofit or collaborative to create an accessible national scorecard on the state of young children in the era of climate change. In addition, the well-being of young children in the context of the climate could be integrated into existing data sets. The scorecard might include indicators like the number of children living

in climate-threatened areas or impacted by climate-enhanced weather, climate action plans that include young children, etc. As with the annual *KIDS COUNT Data Book* underwritten by the Annie E. Casey Foundation, issuing this data regularly from a trusted source will reveal trends and guide media reporting.

**RECOMMENDATION 3**

## Support and recognize communities in efforts that promote healthy development for young children in a changing climate.

Philanthropies might work with researchers, nonprofits, or other partners to issue grants, an award or designation to communities that are leading the way in addressing climate change and the early years, akin to the Child Friendly Cities Initiative led by UNICEF. Such recognition can continue to elevate the issue and promote best practices.





## DISASTER RECOVERY

**In Louisiana**, the nonprofit [Agenda for Children](#) helps child care providers recover from disasters. After Hurricane Katrina, federal aid for child care centers moved at an extremely slow pace, so Agenda partnered with a number of local nonprofits to launch the Rebuild Child Care Collaborative. This collaborative pooled private funding to provide direct rebuilding assistance, overseen by a single trusted rebuilding contractor, to child care centers. After Hurricane Ida in 2021, Agenda undertook a similar project, partnering with the [Louisiana Policy Institute for Children](#) to raise funds to regrant to centers to compensate them for their losses. In total, the organizations distributed over \$720,000 to 382 centers and family child care programs damaged by Ida.

Agenda has also learned that after disasters, providers struggle with navigating the bureaucratic processes needed to secure Small Business Administration loans, FEMA funding, insurance claims, and so on. During the COVID-19 pandemic, Agenda partnered with the United Way and Loyola University New Orleans College of Law to provide case management and legal advice to help child care centers understand, apply for, and comply with Paycheck Protection Program loans. Through this popular initiative, Agenda's coaches served as trusted contacts who made center owners comfortable with sharing their financial information with the legal team at Loyola.







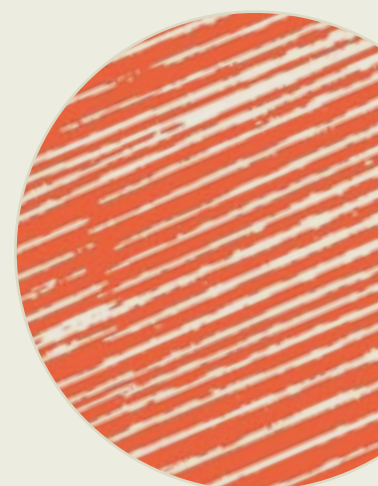
# What Researchers Can Do

Research at the nexus of the early years and climate change is still in its early stages. Researchers of all types, and the stakeholder groups that support them, should advance knowledge in this area to inform policy and practice. We recommend the following actions:

## **RECOMMENDATION 1**

**Investigate which interventions are most effective in improving climate resilience at early years facilities.**

While a great deal of research has been conducted on how to improve the climate resilience of buildings generally, more needs to focus on early years facilities specifically. This is important because early years facilities have idiosyncratic characteristics. In addition to serving a unique population, these facilities may have limited maintenance capacity, be located within a larger building (e.g., a church), and include homes. Researchers should target early years facilities to inform decisions on the best interventions for this sector.



**RECOMMENDATION 2**

**Research best practices in communicating with young children and their parents about climate change.**

Research on communicating with families about climate change is still nascent. More research could be done in this area to establish recommendations for making this communication culturally responsive, engaging, and empowering (rather than exacerbating family anxiety) and for encouraging families to adopt climate-adaptive attitudes and behaviors.

**RECOMMENDATION 3**

**Determine and share best practices for outdoor learning environments via demonstration sites and other mechanisms.**

Some communities and early years sites have established climate-resilient outdoor learning environments that are useful models. Researchers should study these sites to learn more about best practices. They should work with philanthropy, government, and other actors to formalize and fund demonstration sites and share what they learn.

**RECOMMENDATION 4**

**Convene the National Academies to report about climate change impacts on pregnant women and young children and to recommend interventions.**

While organizations such as the Environmental Protection Agency have issued reports on climate change and children's health, there has been little research specifically on pregnant women and young children or on interventions that promote climate resiliency and safety for these populations. Congress should

request that the National Academies of Sciences, Engineering, and Medicine take on such a project, leveraging their access to interdisciplinary experts. The report could lay out the current state of knowledge and outline areas for future research.

**RECOMMENDATION 5**

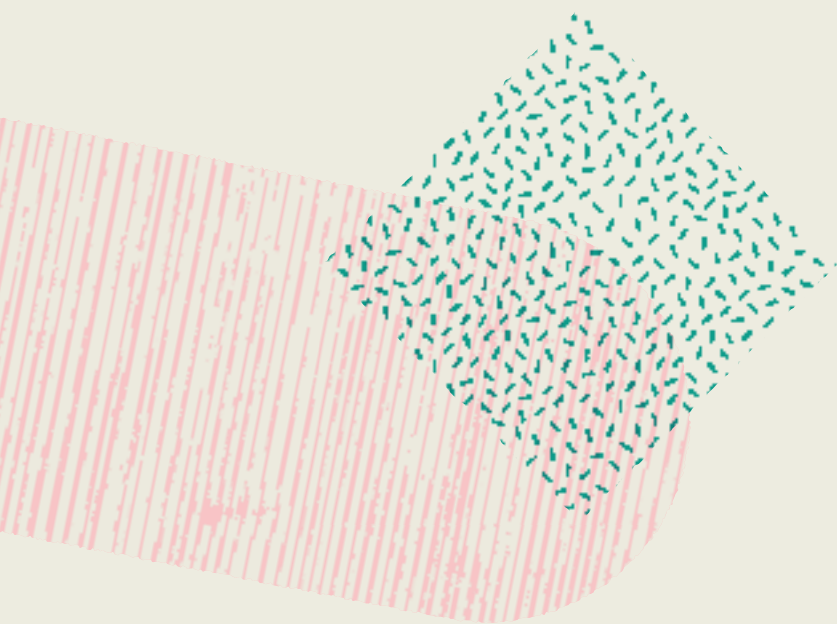
**Disaggregate climate-related data on children by age, race, ethnicity, and other demographic indicators.**

Many studies and reports on climate change collate children and youth as one large age group encompassing ages 0-18 or 0-24. Researchers should disaggregate data into more and smaller ranges. They should distinguish the early childhood years (0-3, 0-5, or 0-8) from preteens or adolescents. The data should be disaggregated further by other key demographic indicators, such as race, ethnicity, and income. Pregnant women and infants in the perinatal period should similarly receive targeted research on interventions.

**RECOMMENDATION 6**

**Work with partners to establish a best practices clearinghouse.**

To help communities learn from one another, researchers should work with philanthropy or governments to create a best practices clearinghouse. It could gather and share best practices being undertaken at the community level, both in the U.S. and globally, to respond to climate change through an early years lens.



# Acknowledgments

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**Joe Waters**

Co-Founder + CEO  
Capita

**Laura Schifter**

Senior Fellow  
This Is Planet Ed, The Aspen Institute

# Early Years Climate Action Task Force Members

## Affiliations at time of service on the Task Force

**Antwanye Ford** (co-chair), President & CEO, Enlightened, Inc. and Chair, District of Columbia Workforce Investment Council

**Diana Rauner** (co-chair), President, Start Early

**Leah Austin**, President & CEO, National Black Child Development Institute

**Elizabeth Bechard**, Senior Policy Analyst, Moms Clean Air Force and Author, Parenting in a Changing Climate

**Claudia Benitez-Nelson**, Distinguished Professor and Senior Associate Dean for College Initiatives and Interdisciplinary Programs, University of South Carolina and Leader, Science Moms

**Miriam Calderón**, Chief Policy Officer, ZERO TO THREE

**Felicia DeHaney**, Director of Program and Strategy, W.K. Kellogg Foundation

**Louis Finney, Jr.**, Board President, National Association of Family Child Care, and President and CEO, Smart Start of Forsyth County (NC)

**Barry Ford**, President and CEO, Council for a Strong America

**Lynette Fraga**, Former CEO, Child Care Aware of America

**Angie Garling**, Vice President, Early Care and Education, Low Income Investment Fund

**Andrew Garner**, Professor of Pediatrics, Schubert Center for Child Studies, Case Western Reserve University

**Walter Gilliam**, Executive Director and Richard D. Holland Presidential Chair in Early Childhood Development, Buffett Early Childhood Institute, University of Nebraska

**Michelle Kang**, CEO, National Association for the Education of Young Children

**Jennifer McClellan**, Member, United States House of Representatives

**Shantel Meek**, Executive Director and Professor of Practice, Children's Equity Project, Arizona State University

**Alicia Mousseau**, Vice President, Oglala Sioux Tribe

**Melissa Rooker**, Executive Director, Kansas Children's Cabinet and Trust Fund

**Patricia Sullivan-Steward**, Parent Leader, Darlington County (SC) First Steps

**Derek Walker**, Vice President, U.S. Region, Environmental Defense Fund

# Public Listening Session Speakers

## Affiliations at time of presentations to the Task Force

**Rupa Basu**, Chief, Air and Climate Epidemiology Section, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency

**Aaron Bernstein**, Interim Director, Center for Climate, Health, and the Global Environment, Harvard T.H. Chan School of Public Health (Harvard Chan C-CHANGE)

**Mario Cardona**, Senior Advisor for Education, Domestic Policy Council, the White House

**Adrián Cerezo**, Senior Fellow, Capita; Senior Research Fellow, University of Maine; Advisor, UNICEF Pacific and Asia Regional Early Childhood Network

**Laurence Chandy**, Director, Office of Global Insight and Policy, UNICEF

**Victoria Chávez Barriga**, Urbang5 Officer, Bernard van Leer Foundation

**Chelsea Clinton**, Vice Chair, Clinton Foundation

**Luz Drada**, Program Coordinator, Moms Clean Air Force

**Adam Freed**, Principal, Bloomberg Associates

**Joe Fretwell**, Manager of Advisory Services, Low Income Investment Fund

**Susan Gilmore**, President and CEO, North Bay Children's Center

**Anya Kamenetz**, Advisor, This is Planet Ed

**Lois Kedrick**, President, Florida Family Child Care Home State Association

**Parinda Khatri**, Chief Clinical Officer, Cherokee Health Systems

**K. Ron-Li Liaw**, Mental Health In-Chief; Cannon Y. & Lyndia Harvey Chair in Child and Adolescent Psychiatry; and Chair, Pediatric Mental Health Institute, Children's Hospital Colorado

**Joan Lombardi**, Visiting Scholar and Co-Chair, Leadership Council, Stanford Center on Early Childhood

**Malaika Ludman**, Program Administrator, Infant Ready, Birthmark Doula Collective

**Lois Martin**, Director, Community Day Center for Children

**Heather McTeer Toney**, Vice President, Community Engagement, Environmental Defense Fund

**Sara Mickelson**, Director of Early Childhood Initiatives, Harris County, Texas

**Joel Moffett**, Director of Environmental and Special Projects for Native Americans in Philanthropy

**Shaina Oliver**, Colorado Field Organizer, Mom's Clean Air Force

**Jacqueline Patterson**, Founder and Executive Director, Chisholm Legacy Project

**Marta Segura**, Chief Heat Officer and Director of Climate Emergency Mobilization, City of Los Angeles

**Yasmina Vinci**, Executive Director, National Head Start Association

**Corey Zimmerman**, Chief Program Officer, Center on the Developing Child, Harvard University



# Early Years Climate Action Task Force Principles, Mission, and Vision

We have a moral responsibility to ensure that all young children grow and thrive in a changing climate. Doing so will help advance a more sustainable, resilient, prosperous, and equitable society for children, families, and all Americans now and into the future.

## Task Force principles

Our work is grounded in a set of foundational principles that run through every recommendation:

- All children have inherent value and dignity, not owing to their status as future workers or voters, but because they are vital members of society in their own right today.
- Young children offer a unique perspective on the world and are also uniquely in need of adult protection.

- Since climate disruptions disproportionately harm communities facing structural racism and other forms of systemic marginalization, achieving our vision involves dismantling these inequitable systems.
- Our climate future is not yet written. Centering children and families in our policy decisions will give us tremendous reasons for hope.

## Task Force mission

Our mission is to accelerate child- and family-centered action on climate change to ensure healthy, sustainable, adaptable, and resilient communities where young children and their families thrive. To do so, we seek to link climate change, early childhood policy and practice, and the science of healthy human development in the earliest years of life.

## Task Force vision

### WE ENVISION A FUTURE WHERE:

- **all children...**
  - live with supportive adults in healthy, safe, and climate-resilient environments, enabling them to thrive developmentally, emotionally, physically, and spiritually;
  - are represented and prioritized in all policy decisions that impact their well-being and future outcomes, including how resources are allocated; and
  - feel hopeful about the future and are included in creating that future.
- **all child- and family-serving programs and systems...**
  - receive resources that sufficiently support them to provide high-quality services in healthy, sustainable spaces prepared for the effects of climate change;
  - support children and families in their understanding of climate change impacts and mitigation strategies; and
  - serve as community assets in response to climate-related extreme weather events.
- **all communities...**
  - have clean air, clean water, and sustainable spaces that promote healthy child development;
  - create the conditions for nurturing care by ensuring support for children, families, and related programs and systems, including preparation for climate-related emergencies; and
  - embrace a child-centered, intergenerational approach to decision-making related to climate change grounded in an understanding of our responsibility to every child within the community.

### FOR THIS VISION TO OCCUR, IN 10 YEARS, WE WILL SEE:

- governments at every level promoting the health, development, and well-being of young children and families in actions on climate change; active collaboration across agencies that support children and climate action; and the implementation of child-centered climate goals and policies;
- a full ecosystem of advocates connecting the well-being of children and families to the well-being of the Earth, and those advocates holding policymakers accountable for change;

- child- and family-serving systems universally accessible, affordable, and high-quality, as well as safe, healthy, sustainable, and resilient; running on clean renewable energy and relying on modern electrified building systems; and fully integrated into climate adaptation and disaster response plans;
- children and families having the resources and tools to build healthy nurturing connections and maximize their physical and mental health; and
- children having access to nature (which includes safe spaces to play), the ability to move around their communities freely, clean air, and widespread shade.

**IN FIVE YEARS, WE WILL SEE:**

- dedicated financial resources supporting work at the intersection of early childhood and climate change;
- child-centered climate goals being established, along with precise policy mechanisms, at all levels of government;
- across the country, child- and family-serving programs and systems supported to transition to clean, renewable energy and electrified building systems and adapted to build resilience to climate impacts;
- widespread availability of observational data demonstrating the impact of climate hazards on young children and the systems that impact them; and
- the private sector, including the business community, joining children's advocates, researchers, and program leaders to advance action to support children and families in a changing climate.

# Glossary

TERM	DEFINITION
<b>Adaptive capacity</b>	Adaptive capacity is the general ability of institutions, systems, and individuals to adjust to potential damage, to take advantage of opportunities, or to cope with the consequences from stress triggers. The term is most commonly used in the context of climate change. <i>(Intergovernmental Panel on Climate Change)</i>
<b>Adverse childhood experiences</b>	Adverse childhood experiences (ACEs) are potentially traumatic events that occur before a child reaches the age of 18. Such experiences can interfere with a person's health, opportunities and stability throughout his or her lifetime—and can even affect future generations. <i>(National Conference of State Legislatures)</i>
<b>Buffering relationships</b>	Buffering relationships are stable and committed relationships between children and supportive parents, caregivers, or other adults. These relationships offer personalized responsiveness and support, as well as protection against adverse experiences. They also build key capacities—such as the ability to plan, monitor, and regulate behavior—that enable children to respond adaptively to adversity and thrive. <i>(Harvard Center on the Developing Child)</i>

TERM	DEFINITION
<b>Built environment</b>	The built environment refers to the human-made or modified structures that provide people with living, working, and recreational spaces. The term encompasses the buildings people live in, the distribution systems that provide them with water and electricity, and the roads, bridges, and transportation systems used to get from place to place. <i>(U.S. Environmental Protection Agency)</i>
<b>Climate action plans</b>	Climate action plans (CAPs) are a comprehensive policy tool outlining actions that a community will undertake to reduce greenhouse gas emissions or adaptation strategies the community will implement to counter the negative effects of climate change. CAPs can cover a single municipality or be regional in scope. <i>(Municipal Research and Services Center)</i>
<b>Climate adaptation</b>	Climate adaptation includes actions taken at the individual, local, regional, and national levels to reduce risks from today's changed climate conditions and to prepare for impacts from additional changes projected for the future. <i>(U.S. Global Change Research Program)</i>
<b>Climate change</b>	Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil, and gas. Burning fossil fuels generates greenhouse gas emissions that act like a blanket wrapped around the Earth, trapping the sun's heat and raising temperatures. <i>(United Nations)</i>

<b>TERM</b>	<b>DEFINITION</b>
<b>Climate literacy</b>	Climate literacy—also known as climate education—is an understanding of people’s influence on climate and climate’s influence on people and society. In the late 2000s, scientists and educators collaborated to define climate literacy, identify principles and concepts that should be taught, and justify the teaching of climate science. Climate literacy is one component of broader environmental education. <i>(National Oceanic and Atmospheric Administration)</i>
<b>Climate mitigation</b>	Climate mitigation refers to measures to reduce the amount and speed of future climate change by reducing emissions of greenhouse gases or by increasing their removal from the atmosphere. <i>(U.S. Environmental Protection Agency)</i>
<b>Climate resilience</b>	Climate resilience is the capability to anticipate, prepare for, respond to, and recover from significant multihazard climate threats with minimum damage to social well-being, the economy, and the environment. <i>(U.S. Environmental Protection Agency)</i>
<b>Early relational health</b>	Early relational health is the state of emotional well-being that grows from the positive emotional connection between babies and toddlers and their parents and caregivers when they experience strong, positive, and nurturing relationships with each other. <i>(Center for the Study of Social Policy)</i>



**TERM**

**DEFINITION**

**Environmental education**

Environmental education is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions on environmental matters. Climate literacy is one aspect of environmental education. *(U.S. Environmental Protection Agency)*

**Heat islands**

Heat islands are urbanized areas that experience higher temperatures than outlying areas. Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies. Urban areas, where these structures are highly concentrated and greenery is limited, become "islands" of higher temperatures relative to outlying areas.

There are also neighborhood-level hotspots called intra-urban heat islands that reflect differences in temperatures within a city, as opposed to between a city and surrounding rural and suburban areas. Intra-urban heat islands are caused by the uneven, inequitable spread of landcovers such as trees in the urban landscape, leading to more heat-absorbing buildings and pavements and fewer cool spaces with trees and greenery. *(U.S. Environmental Protection Agency)*

TERM	DEFINITION
<b>Home visitation programs</b>	<p>Early childhood home visiting matches expectant parents and caregivers of young children with a designated support person—typically a trained nurse, social worker, or early childhood specialist—who guides them through the early stages of raising a family. Services are voluntary, may include caregiver coaching or connecting families to needed services, and are provided in the family’s home or another location of the family’s choice. Home visitation programs are funded at the federal level via the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program. <i>(National Home Visiting Resource Center)</i></p>
<b>Indigenous knowledge systems</b>	<p>Indigenous knowledge is a body of observations, oral and written knowledge, innovations, practices, and beliefs that promote sustainability and the responsible stewardship of cultural and natural resources through relationships between humans and their landscapes. It applies to phenomena across biological, physical, social, cultural, and spiritual systems. Indigenous peoples have developed their knowledge systems over millennia, and continue to do so. <i>(White House Office of Science and Technology Policy)</i></p>
<b>Natural environment</b>	<p>The natural environment comprises all living and nonliving things naturally existing in a given environment. This encompasses elements including natural resources, air, water, land, ecosystems, and biodiversity. <i>(U.S. Environmental Protection Agency)</i></p>

TERM	DEFINITION
<b>Outdoor learning environment</b>	Outdoor learning environments refer to outdoor areas where children can play and learn. The term is most commonly associated with child care programs. Outdoor learning environments can consist of a mixture of natural and artificial features. They are used to encourage children to be active, support their learning, and to teach children about and give them positive experiences in nature. <i>(U.S. Department of Education)</i>
<b>Resilience</b>	Resilience (distinct from climate resilience) refers to the ability to overcome serious hardship. Children's resilience is the result of a combination of protective factors. Neither individual characteristics nor social environments alone are likely to ensure positive outcomes for children who experience prolonged periods of toxic stress. Children build resilience via an interaction between biology and the holistic environments in which they live. <i>(Harvard Center on the Developing Child)</i>
<b>Toxic stress</b>	Toxic stress response can occur when a child experiences strong, frequent, or prolonged adversity—such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, or the accumulated burdens of family economic hardship—without adequate adult support. This kind of prolonged activation of the stress response systems can disrupt the development of brain architecture and other organ systems and increase the risk for stress-related disease and cognitive impairment, well into the adult years. <i>(Harvard Center on the Developing Child)</i>

**TERM**

**DEFINITION**

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**Tribal sovereignty**

In the United States, Tribal sovereignty is the concept that Indigenous tribes are nations that govern themselves. Their interactions with state or federal governments are considered nation-to-nation relationships. *(National Conference of State Legislatures)*

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**Vulnerability**

Vulnerability is the tendency or predisposition to be adversely affected by an event or events; it encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt. *(Intergovernmental Panel on Climate Change)*

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