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Planning for Resilient Early Care and Education: Addressing Climate Vulnerabilities

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When a child born today has their 78th birthday in the year 2100, the Earth will look and feel dramatically different. Climate scientists and researchers generally agree that, without current action to mitigate greenhouse gas emissions, the planet could experience a global warming of about 3.2 degrees Celsius over the lifetimes of today's infants and toddlers. The Intergovernmental Panel on Climate Change says emissions must stay significantly below the current status quo to prevent irreversible damage. Even with a warming of 1.5 degrees Celsius – the peak temperature many suggest would stave off the most significant harm – newborns of 2022 are expected to experience a nearly four-fold increase in extreme weather- and climate-related events over the next 78 years.

Children will bear the brunt of the climate burden despite having the least responsibility for causing it

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Children will bear the brunt of the climate burden despite having the least responsibility for causing it, leading many to position climate change as a child's rights crisis. The physical and mental health impacts of a warming planet on young children are well-documented. Children experience rapid brain development before age five that is highly susceptible to environmental stressors, and high temperatures, poor air quality, or stress associated with living through a natural disaster can harm working memory, reduce stamina, and slow cognitive performance during the most important developmental years in a person's life. The ways children interact with a warming planet today also serve to worsen outcomes over time, all while weather-related disasters grow more common.^[1]

Many homes and early care and education facilities are largely unequipped to withstand the impacts of a worsening climate

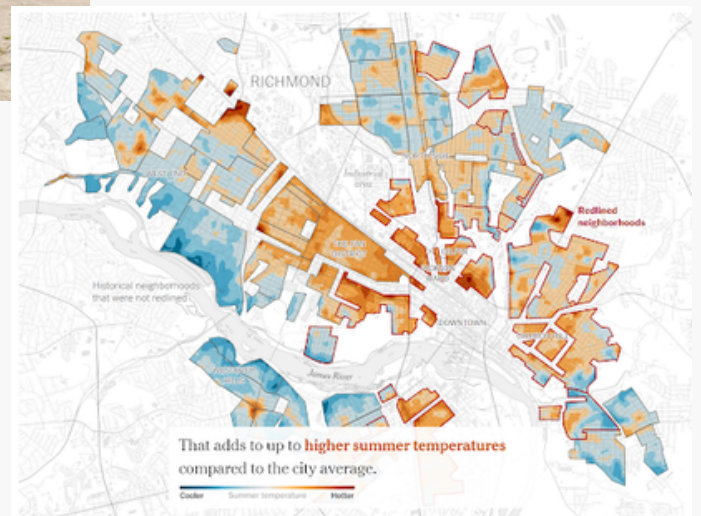
Physical space plays an outsized role in every child's development. But the homes and early care and education (ECE) facilities where children under age 5 spend most of their time are largely unequipped to withstand the impacts of a worsening climate. Fixing all deficiencies in American homes would cost more than \$126 billion, and a national audit of child care programs using federal child care subsidies found that 96% had one or more hazardous conditions or health and safety violations.

Centering child health and well-being in climate policy – specifically through the lens of space, facilities, and the built environment – is a critical piece of building resilient communities and ensuring all children are able to live healthy and fulfilling lives.

[1] The seven years with the warmest average temperatures have all occurred since 2015, and the percentage of Americans living in places with at least three consecutive days of 100-plus degree heat per year is expected to rise from 46% in 2022 to 63% in 2052. These trends pose particular immediate and long-term threats to child health and wellbeing. Young children are often not aware when they are experiencing symptoms of overheating and dehydration. Infants are especially vulnerable to heat because they lack agency to regulate their body temperatures and control surrounding environments.

But steep challenges facing the ECE sector too often make facilities and physical spaces an afterthought for providers and policymakers alike. The ECE sector is underfunded, the workforce is undercompensated, and many facilities are old, poorly constructed, and entangled in long-standing community inequities.

These challenges drive the many hidden inequities of climate change. Children of color and those living in communities of poverty often suffer from the urban heat island effect, which can make certain neighborhoods up to 20 degrees warmer than nearby areas. Urban heat islands are connected to non-human manufactured landscapes, such as buildings and roads, which absorb sunlight's heat more than natural landscapes like forests and farmland. Lack of historical investment in predominantly Black neighborhoods means the places where many Black children live and play today lack the trees, parks, and green spaces that can help mitigate periods of extreme heat.



PHOTOS FROM: HOW DECADES OF RACIST HOUSING POLICY LEFT NEIGHBORHOODS SWELTERING,
BRAD PLUMER AND NADJA POPOVICH, 2020

Extreme heat is by far the biggest weather-related risk to most children and communities, but the worsening climate also extends traditional seasons when natural disasters like wildfires and hurricanes are likely to occur. Smoke created by wildfires and poor air quality is especially harmful to young children because their lungs and immune systems are still developing. Their respiratory airways are smaller than adult airways and can be more prone to infections or blockages produced by exposure to bad air. Children also breathe twice as fast as adults, taking in more air per unit of body weight. An increase in wildfires in the U.S. has caused polluted air to penetrate the lungs of many more young children because smoke has the ability to travel hundreds or thousands of miles from where the spark of the fire started.





Impact of air pollution at different life stages			
prenatal	birth	early childhood	lifelong impacts
			
Reduced growth	Pre-term birth and low birthweight	Decreased lung growth, reduced lung function, lower respiratory infections, including pneumonia, and developmental effects	Chronic respiratory and cardiovascular disease

FIGURE SOURCE: VITAL STRATEGIES. EARLY CHILDHOOD MATTERS. NOVEMBER 25, 2021

Hurricanes and flooding, other extreme weather phenomena, have been linked to higher rates of preterm birth. According to UNICEF, approximately 415 million children are living in areas of high or extremely high water vulnerability, and millions of children across the United States attend school or child care in flood risk areas. Heavy rains and hurricanes threaten day to day operations and long-term viability of ECE programs, especially those in older buildings or basements of residential homes.

Settings where young children spend their time – notably their homes, child care settings, and neighborhoods – need to protect them from the risk of developing lifelong health complications as a result of toxins or traumas in childhood.

Settings where young children spend their time – notably their homes, child care settings, and neighborhoods – need to protect them from the risk of developing lifelong health complications as a result of toxins or traumas in childhood. To achieve this, policymakers, financial institutions, funders, and communities should prioritize the health and well-being of the youngest children in tandem with efforts to respond to the climate emergency. We can improve child health and climate resiliency simultaneously through building practices, small business supports, and efforts to co-locate and embed child care facilities within affordable housing and broader planning priorities.

Policymakers and public officials at all levels should focus on the following priorities to ensure children and the spaces they live and play in are at the forefront of the battle for climate resilience and preparedness:

1. Ensure all existing and planned ECE facilities are renovated or built with resilient, high-quality, and sustainable materials.

Building or renovating ECE facilities to be more resilient to climate change is crucial to mitigating future harm. Approaching climate risks from a systems perspective – that recognizes the multitude of agencies and populations that play a role in response – can help ensure that state and regional action on climate change includes often overlooked but essential care and education infrastructure. The most pressing projects ensure structural integrity of homes and centers, respond to disaster-induced damages, and mitigate potential health and safety violations. Such projects typically seek to preserve existing child care spaces by ensuring that providers can maintain operations. For example, child care providers need permanent shade structures in areas with high winds, or roof replacement after heavy rains.

Although there is currently no dedicated federal funding stream for modernizing or constructing child care facilities, states and cities have increasingly moved to respond to the sector's infrastructure needs with American Rescue Plan Act and Inflation Reduction Act dollars. In California, the Child Care Infrastructure Grant Program prioritizes providers proposing projects that use climate resilient materials and retrofit their facilities for disaster mitigation, and a new \$100 million appropriation for the state's Urban Forestry Act will set aside nearly \$30 million for outdoor improvements and greening initiatives at child care facilities to cool play spaces and mitigate fire damage and extreme heat. Such initiatives can serve as a model for other places seeking to embed climate goals in existing early care and education initiatives.

2. Invest in small businesses and ECE providers who need assistance to adopt climate mitigation strategies.

The vast majority of child care programs in the US are small, for-profit businesses run by women, a disproportionate share of whom are people of color. Unfortunately, the business model is rarely profitable for individual providers, making expensive facilities projects focused on mitigating climate impacts or disaster recovery an afterthought. Providers are also often underinsured and struggle to access federal and private recovery funds. Federal Emergency Management Agency resources tend to primarily be reserved for local governments and nonprofit organizations, and many child care businesses lack hazard insurance all together. After Hurricane Harvey hit Texas, a survey of child care centers in Houston found that nearly 40 percent lacked flood insurance altogether, prompting 52 providers with capacity to serve more than 5,000 children to permanently close. Local governments and financial institutions can help preserve child care slots with relatively small grants or forgivable loans to for-profit and nonprofit providers – both to prepare their facilities in advance of a climate emergency as well as to address any issues resulting from a disaster.

3. Include ECE facilities in local planning processes to reduce household carbon emissions and improve quality of life for parents and children.

Well-planned urban spaces focused on mixed-use development can aid efforts to reduce carbon footprints and increase the supply of high-quality ECE facilities and other community amenities. Areas of low-density sprawl tend to increase reliance on cars and private vehicles, often leading to higher household carbon emissions than those in areas of greater density. Carbon and energy emissions can be lowered through developing walkable and bikeable cities focused on reduced commute times, often referred to as 15 minute cities.

Such planning efforts should focus deliberately on young children and families through strategies to co-locate affordable housing and other community amenities with early care and education facilities.

Casa Adelante in the San Francisco Mission District, for example, provides 143 homes that are affordable to families earning between 30-60 percent of area median income. The affordable housing complex was financed using Low Income Housing Tax Credits (LIHTC) and is co-located with the Solmar Learning Center serving 42 low-income children from birth to age five. Co-location bolsters ECE supply while also helping to cut carbon emissions by centrally locating child care close to home and eliminating time spent driving to ECE facilities.



PHOTO SOURCE: SOLMAR LEARNING CENTER AT CASA ADELANTE



4. Make families a priority in community and economic development strategies through emphasis on reliable ECE and climate resilience.

Parents and caregivers need access to affordable and accessible child care so children can learn and grow and parents can work, go to school and pursue dreams for their family. However, disturbances from climate change can alter the child care arrangements that many families rely on. Unlike K-12 schools, ECE facilities are often unable to close or delay operations for “extreme heat days,” or if they do, parents will be forced to stay home with young children and miss work.

Areas prone to disaster are also on the brink of significant economic disruption to families, in particular. After the [Tubbs Fire of 2017](#) in Santa Rosa, California, many homeowners and renters were underinsured and displaced from their homes after they were unable to cover required costs of repairs. Rent prices [increased](#) by nearly 44%, a challenge most significant for low-income families who often have the least economic flexibility of any other demographic group. Support for families, parents, and caregivers is crucial for ensuring young families have the means to provide quality, appropriate, and resilient living and child care environments for their children.

5. Design public programs so that communities with the largest child care gaps and greatest climate risks receive the most support.

As states and localities consider ways to support physical environments where young children are served, they should focus explicitly on climate risks present in varying communities. [New data](#) from the First Street Foundation provides relative climate risk levels for 150 million residential and commercial properties in the United States to issues like extreme heat days, wildfire, and flooding. Governments should incorporate these data into grant programs to prioritize the types of building practices most important by geography. For instance, a child care provider in a coastal area prone to flooding might need support weatherizing a roof or basement to avoid damage from heavy rains, while those living in communities of high wildfire risk might need support with greening and vegetation.

6. Analyze the ways racial, geographic, and socioeconomic disparities intersect with climate policy.

Combined with prioritizing resources for providers in areas of most risk, resources should also be prioritized for traditionally disadvantaged communities and providers. Oftentimes, these characteristics overlap: communities with the most disadvantage are also facing the most intense climate risks. With respect to child care, this leads to the compounding nature of poverty, climate, and access to high-quality early care and education. Metrics and analytic tools are needed to understand which communities have the most severe climate and ECE needs to fully assess child and family wellbeing.

Young children have their whole lives ahead of them – any climate and environmental degradation at an early age can result in a lifetime of lost opportunity. As climate change becomes more visceral in our daily lives, now is the time to prioritize young children as we plan for the future of public infrastructure and the environment.