



# **Environmental Impacts on African American Mental Health**

**Karriem L. Salaam, MD  
and  
Delane Casiano, MD**

**February 23, 2024  
9am to 1:30pm**

# DISCLOSURES

- ✓ No conflicts of interest to report
- ✓ No financial disclosures to report

# INSTRUCTORS



**Karriem L. Salaam, MD**  
**Adult, Child & Adolescent Psychiatrist Founding Member**  
**Global Health Psychiatry, LLC**

- Trenton State College, 1993
- Robert Wood Johnson Medical School, 2000
- Temple University, 2004
- Thomas Jefferson University, 2006



**Delane Casiano, MD**  
**Adult, Child & Adolescent Psychiatrist Founding Member**  
**Global Health Psychiatry, LLC**

- Brown University, 1998
- Morehouse School of Medicine, 2003
- Hospital of the University of Pennsylvania, 2007
- Center for Psychotherapy Research, 2007

# Educational Goals

The goal of this course is to enhance overall professional growth and improve knowledge of the adverse mental health effects of environmental exposures and climate change on the mental health and well being of African-American and other communities of color and evidence-based interventions to mitigate these effects

# Objectives

- Review how neighborhood and environmental factors as social determinants of mental health affect African American and other communities of color
- Identify three historical examples of neurotoxic environmental exposures disproportionately affecting African American communities
- Name three recommendations to limit adverse mental health effects of climate-related extreme weather events on BIPOC (Black Indigenous People of Color) communities
- Describe how systemic racism mediated by government policies, historic redlining, limited biodiversity and genetic diversity in BIPOC communities

# Agenda

- **TOPIC A:** History of Environmental Injustices Faced by African Americans and Other Communities of Color
  - Historic Examples and the legacy of Environmental Racism
  - How Exposure to Lead, Heavy Metals, and other Neurotoxins Effect the Brain and Behavior
  - What Can Be Done to Protect and Preserve the Brain
- **TOPIC B:** Mental Health Impact of Environmental Injustice and Climate Change on African American and Other Communities of Color
  - Climate Change and Extreme Weather Events
  - Disproportionate Climate Impacts on Mental Health and Well Being in BIPOC Communities
  - What Can Be Done to Mitigate Risk of Climate Impacts on Mental Health and Well Being in BIPOC Communities
- **TOPIC C:** Implicit Bias



# TOPIC A

History of  
Environmental  
Injustices Faced  
by African  
Americans and  
Other  
Communities of  
Color

# Environmental Racism

- AKA Ecological Racism, Ecological Apartheid
- Originally coined by Dr. Benjamin Chavis Jr., previous Executive Director of the United Church of Christ (UCC) Commission for Racial Justice, in 1982
- “Racial discrimination in environmental policy making, the enforcement of regulations and laws, the deliberate targeting of communities of color for toxic waste facilities, the official sanctioning of the life-threatening presence poisons and pollutants in our communities, and the history of excluding people of color from leadership of the ecology movements.” (UCC Commission for Racial Justice 1982)
- Alternate definition also attributed to Chavis, The intentional siting of polluting and waste facilities in communities primarily populated by African Americans, Latinos, Indigenous People, Asian Americans and Pacific Islanders, migrant farm workers and low-income workers (NRDC 5/2023)



# Settler Colonialism

## (The Origins Of Environmental Racism)

- The establishment of private property on lands taken from Native peoples who did not view land as a commodity
- Deforestation by colonial settlers led to warmer weather and displacement of Native peoples and enrichment of the settlers (Keeler 2020)
- Anthropogenic (human-caused) climate change part of a continuum of environmental change imposed on indigenous peoples by colonialism (Whyte 2017)

# Environmental Justice

- As defined by the US Environmental Protection Agency (EPA 2014), the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
- Key elements include:
  - Equal protection from environmental and health hazards
  - Same access to the decision-making process to have a healthy environment in which to live, learn, work and play (Martinez-Alier 2002)

# Environmental Racism

## (Villarosa 2022)

- African Americans are 75 percent more likely than the average American to live in fence-line communities
- Fence-line communities are defined as areas near facilities that emit hazardous waste
- Breathing air poisoned by emissions is the most direct, unavoidable consequence of life in a fence-line community, depriving residents of the right to breathe
- Black Americans exposed to 1.54X more sooty pollution from burning fossil fuels than the population at large contributing to heart and lung disease



***“[T]he association between socioeconomic status and race in the United States has its origins in discrete historical events but persists because of contemporary structural factors that perpetuate those historical injustices.***

***In other words, it is because of institutionalized racism that there is an association between socioeconomic status and race in this country.”***

**-Camara P. Jones, MD, MPH, PhD**

# Structural Racism, Poverty, and Pediatric Health (Heard-Garris, et. Al. 2021)

## Pediatric Health

- Encompasses the health of infants, children, adolescents, and families
- Addressing poverty has been a priority
- However, this approach neglects the role of structural racism or the “broader structural drivers that impoverish individuals, neighborhoods, and populations”

# Structural Racism, Poverty, and Pediatric Health

(Heard-Garris, et. Al. 2021)

- These authors use the terms
  - White supremacy to refer to the control of social, cultural, economic, and political power/resources to support the interest of the dominant group
  - Racial Capitalism refers to the racial subjugation of Black people to generate and accumulate wealth through structural advantages of social power, rights, and privileges



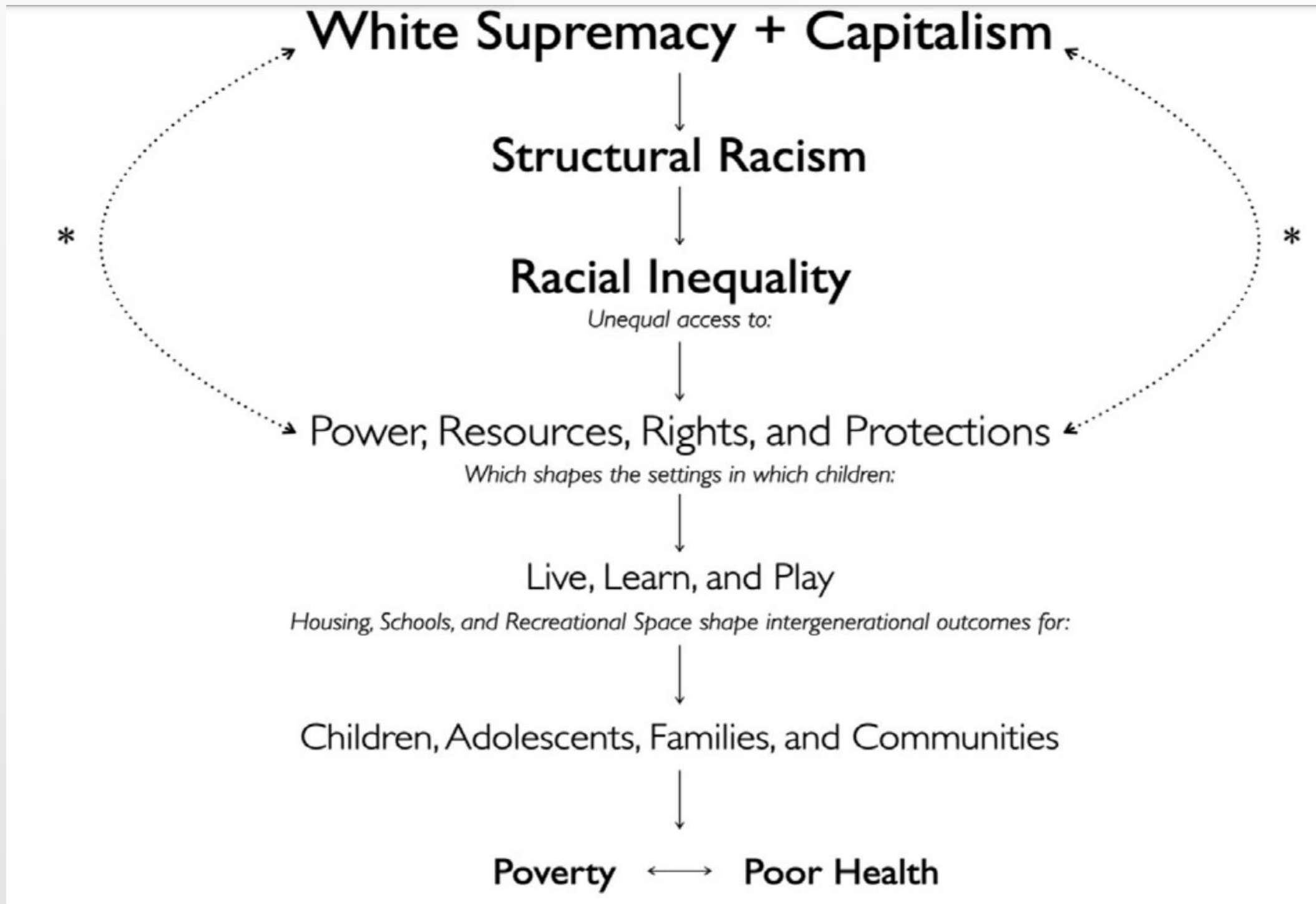
# Structural Racism, Poverty, and Pediatric Health

(Heard-Garris, et. Al. 2021)

- Structural Racism
  - Defined as “differential access to societal goods, services, and opportunities by race”
  - Manifests in unequal access to power, resources, rights, and protections
- Racial Inequality
  - Shapes the settings in which children live, learn, and play
  - In turn, shapes intergenerational health outcomes at the individual, family, and community level

# Structural Racism, Poverty, and Pediatric Health

(Heard-Garris, et.AL. 2021)



# Structural Racism, Poverty, and Pediatric Health (Heard-Garris, 2021)

## Box 2. Legislation Passed Adjacent to Economic Opportunity Act by Domain and Purpose

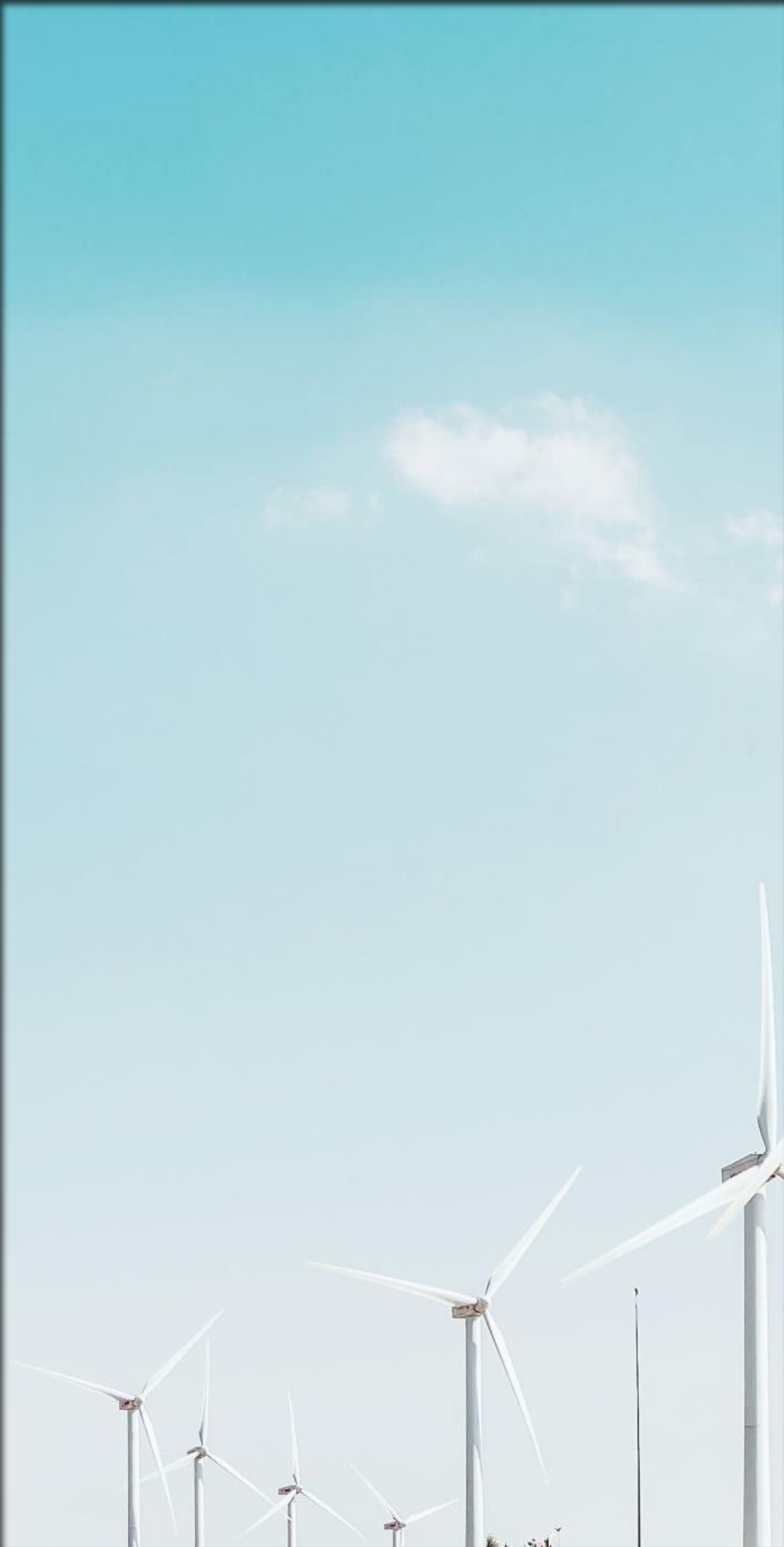
Legislation	Domain	Purpose
Civil Rights Act (1964)*	Civil Rights	Expand access and opportunities for Black Americans (eg, Desegregated schools; Enhanced Voting Rights Act protections; and Prohibited discrimination based on race, color, religion, sex, or nationality)
Food Stamp Act (1964) <sup>†</sup>	Food	Improve nutrition among low-income households
Amendments to the Social Security Act (1965) <sup>‡</sup>	General Health & Welfare	Established Medicare and Medicaid
Housing and Urban Development Act (1965) <sup>§</sup>	Housing	Created the US Department of Housing and Urban Development (HUD), as a cabinet agency and made privately owned housing available to low-income families
Elementary and Secondary Education Act, Higher Education Act (1965) <sup>  </sup>	Education	Funded primary and secondary education,

# Structural Racism, Poverty, and Pediatric Health (Heard-Garris, 2021)

## Box 1. Intersections Between Structural Racism and Poverty by Social Determinant of Health Domain

Domain	Summary
Live	<p>A child's physical residence and household may be impacted by the structural forces of racism through:</p> <ul style="list-style-type: none"><li>• Lower homeownership, predatory lending, and land devaluation</li><li>• Mass incarceration</li><li>• Redlining and gentrification</li><li>• Wealth gap</li></ul>
Learn	<p>An educational "home" is comprised of the physical or built environment, the social environment, and the disposable resources. Schools attended by REM are more likely to have:</p> <ul style="list-style-type: none"><li>• Environmental risks (eg, air, water, and noise pollution)</li><li>• Lower school funding due to the inequitable allocation (eg, use of local income tax base)</li></ul>
Play	<p>Appropriate play and recreational spaces are critical for children and may promote resilience. However, REM may not experience the health and psychosocial benefits of green spaces due to:</p> <ul style="list-style-type: none"><li>• Underexposure to park spaces due to historical atrocities</li><li>• Poor park quality</li></ul>





***“Our policies have not fundamentally valued human life or the ecological systems in which we live. Instead, it has prioritized private, corporate and financial interests over our precious natural resources...we have a fundamental right to clean water, air and a healthy environment and public resources to monitor, penalize and reverse the polluting impacts fossil fuel industries.”***

**-Reverend Dr. William Barber, MacArthur Genius, Civil Rights Activist and Director of the Poor People’s Campaign**

# Warren County (Afton, North Carolina)

## (Washington 2019)

- Protesting the dumping of PCB's (polychlorinated biphenyls) into a landfill in their neighborhood in 1982
- PCB's cause birth defects, liver and skin disorders, endocrine disruption, brain damage and deficits in attention and intellectual impairment in the young
- 550 arrested in largest Southern civil disobedience since MLK marched through Alabama
- Gave rise to global environmental justice movement demanding access to clean land, food, air and water via lawsuits, political action and civil disobedience, according to the Washington Post "the marriage of environmentalism with civil rights"



# Warren County (Afton, North Carolina) (Washington 2019)

- Inspired not only activism but research documenting the link between race and these deadly exposures
- United Church of Christ Commission for Racial Justice demonstrated nationwide hazardous waste facilities more likely located in minority communities
- According to the EPA's *Environmental Equity Draft* (1994) the Afton PCB protests were “the watershed event that led to the environmental equity movement of the 1980’s”

# Anniston, Alabama

## (Washington 2019)

- Millions of pounds of PCBs from Fort McClellan (US Army closed in 1999) and Monsanto (1935-1971) dumped into creeks and buried in and around predominately black neighborhoods in Anniston
- According to *60 Minutes* investigation in 2002, Anniston deemed one of the most toxic cities in the nation
- Blood of Anniston's residents had the highest recorded levels of PCBs in the nation, the average American has PCB blood levels of 2 parts per billion (ppb), most Anniston residents know their PCB levels, some exceeded 340 ppb
- \$300M class-action settlement, largest in the US at the time, procured by Johnnie Cochran, including \$50M for a health clinic to address medical problems in the wake of the poisoning

# Houston, Texas

## (Washington 2019)

- According to a 1979 study by Robert Bullard, “The Father of The Environmental Justice Movement” all 5 city-owned landfills located in black neighborhoods
- 6 of 8 city-owned incinerators were in black neighborhoods
- >80% of garbage dumped in the city from 1930s thru 1978 dumped in black neighborhoods at the time blacks made up 25% of Houston’s population
- Dr. Bullard’s research uncovered evidence of hazardous waste sites in predominantly minority communities in Dallas, TX, Alsen, LA, Institute, WV and Emelle, AL
- Revealed widespread selective environmental poisoning in neighborhoods of color

# Representation Among Environmental Justice Leadership Matters



- Dr. Robert Bullard's research was conducted when he was a professor at Texas Southern University



- Mary Ann Nelson, Esq., Executive of the Greater Boston Sierra Club



- Dr. Aaron Mair, Executive Director of The Sierra Club

# Other Examples of Environmental Injustice On BIPOC Communities (Villarosa 2022)

- Walnut Cove, NC (Coal Ash from Duke Energy)
- Cancer Alley in Louisiana (Major Petrochemical Corridor)
- Compiled in a wide-ranging 2017 report “Fumes Across the Fence-Line” published by the NAACP and the Clean Air Task Force

# Lead Exposure, How It Effects the Brain, Body and Behavior (Washington 2019)

- 2003-2015, 37,500 children in Baltimore suffered lead poisoning, nearly all were African American
- Commonly caused by tainted water, industrial emissions pre-1978 housing with flaking lead paint and dust
- Causes the following: chronic ID in young children, anemia, slowed growth, lowered IQ, learning and behavioral difficulties, reproductive problems, reduced heart and kidney function
- **According to the CDC, there is no safe level of lead exposure!**



# Sources Of Lead Exposure

## (Washington 2019)

- Paint (lead carbonate pigments brighten colors and make paint more durable and washable)
- Pipes (for water into homes)
- Gasoline (from tetraethyl lead {TEL} to ethanol)
- Crime rates plummet ~20 years after drop in lead exposure, which is time necessary for data collection in the unpoisoned generation
- Paint, chemical and oil companies knew from the beginning of lead's toxicity

# Lead

## (Washington 2019)

- 1974 EPA required oil companies to stop putting lead in gasoline
- 1978 lead paint banned in new home construction, not in older or existing housing
- Blood lead levels decreased and IQ's increased after lead removed from gasoline
- Doubt, industry's tool to scrutinize and discredit, science highlighting human harm from exposures to lead, and tobacco, and climate change from greenhouse gas emissions
- Precautionary principle, determining safety of potentially toxic substances **BEFORE** using them (EU's approach) vs studying substances only after allegations of harm (US approach)

# Lead

## (Washington 2019)

- White flight to lead-free suburbs 1960's and 70's
- Segregation in housing, red-lining, denial of credit conspired to trap Black and Hispanic families in lead-tainted inner-city slum housing
- High income families of color also affected
- Masking lead exposure, absolves manufacturers of responsibility, led to victim blaming of Blacks, Hispanics (race) and poverty, not lead exposure for lower IQ's
- Focus on “personal responsibility”

# Flint, MI

## (Washington 2019)

- Lead levels so high fell into the EPA's classification of hazardous waste
- GM was so concerned about Flint's corrosive water it stopped using it at its engine plants out of fear of damage to its equipment
- In 2014 Flint's water supply was switched from Lake Huron to the Flint River, tainted from decades of industrial dumping for GM and other industries. Corrosive protection for Flint's lead pipes deemed too expensive
- In children causing IQ loss, hearing loss, attention deficits and death
- "If you were going to put something in a population to keep them down for generations to come, it would be lead."

(Mona Hanna-Attisha, MD, whistleblowing pediatrician who went public about Flint's toxic water crisis, New York Times)

# Lead and Other Substances

## (Washington 2019)

- Lead exposure leads to increases in ADHD, Autism and Conduct Disorder
- According to a Philadelphia study childhood blood lead was single most predictive factor for disciplinary problems and juvenile crime and fourth largest predictor of adult crime (Denno)
- Reduction in gasoline lead was responsible for most of the decline in US violent crime during the 1990s (Reyes 2015)
- Environmental poisons like mercury, manganese and pesticides have behavioral consequences like impulsivity and criminality
- Uranium and radioactive contamination in tap water in Navajo community in Sanders, AZ, from spill in Church Rock, NM (Gardner 2016)

# What Can Be Done to Protect and Preserve the Brain

- Pre-K enrichment Programs like Head Start
- Food and Nutrition
- Fight Contaminants in Schools enlist other parents, engage with the EPA
- [www.epa.gov/ejscreen](http://www.epa.gov/ejscreen)
- Air Quality Control
- Water Filters
- Seek partnerships with other environmental organizations eg, Environmental Justice Health Alliance
- Seek Accountability through Legal Action, [earthjustice.org](http://earthjustice.org)

“The nation’s original and largest nonprofit environmental law organization...The Earth needs a good lawyer”



# Climate Change and Extreme Weather Events

- Climate change refers to long-term shifts in temperatures and weather patterns. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions.
- But since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas. ([epa.gov](https://www.epa.gov))

# Climate Change & Gender

(CNN, 11/30/2023)

- Climate Change acts as a “threat multiplier, finding existing injustices and amplifying them”
- Gender inequality affects women and girls around the world
- Inequalities worsen in the setting of extreme weather
  - Girls are taken out of school and daughters are married early
  - Food insecurity rises as crops are destroyed and jobs are reduced
  - Migration increases as people look for work
  - Higher risk of IPV, sexual exploitation, and trafficking
  - Pregnant and postpartum women are especially vulnerable e.g. extreme heat can be linked to premature births, stillbirths, low birthweight, breastfeeding problems

# Climate Change & Gender

## (CNN, 11/30/2023)

- Nigeria: Flash floods and landslides are becoming more frequent and intense
  - Schools are inaccessible and/or unsafe
  - Children are forced to work to earn money to support the family
  - 10+ million children ages 5-14 are absent from school
  - For girls, <50% are in school
- The Center for Girls' Education:
  - Program example to address climate change social effects
  - Purpose: Help girls to remain in school and offer multidisciplinary strategies to cope with extreme weather

# Climate Change & Gender

(CNN, 11/30/2023)

*“I feel when we give the girls education on climate change, how to mitigate it, it will go a long way in helping the girls in how to support themselves in times of difficulties, and even help them prepare for it.”*

(Habiba Mohammed, director of the Center for Girls' Education)

# Climate Change & Gender

(CNN, 11/30/2023)

## Center for Girls' Education

- Help to improve academic performance and transitions to secondary education
- Teach life skills e.g. problem-solving, building trusting relationships, reproductive health
- Provide vocational training and practicums
- Support health infrastructure including increasing the number of female health workers
- Advocacy through media campaigns to improve instruction
- Serves to provide support in the same language and culture

# Climate Change & Gender

(CNN, 11/30/2023)

## Adolescent Girl Initiative (AGI) :

- afterschool educational enrichment program
- goal - improve core academic performance and provide opportunities to build trusting relationships and acquire critical life skills
- mentored girls' clubs (safe spaces) are led by female teachers from the girls' own schools.



# Climate Change & Gender

## (CNN, 11/30/2023)

### Transitions: Bridge School and Vocational Education :

Target demographic: Out-of-school girls—girls who have never attended school or who have dropped out after just a few years of schooling

Why? Out-of-school girls are often the most vulnerable girls in a community. They often marry at a younger age, suffer from higher rates maternal mortality, and spend more time selling goods for their mothers outside the home and thus are more at risk for sexual harassment and abuse

Goal - *delay marriage and thus increase the time available to:*

- 1) gain the basic academic skills needed to gain admission to a formal government school; and/or
- 2) greatly enhance livelihoods related skills.

# Climate Change & Gender

(CNN, 11/30/2023)

## Girls Campaign for Quality Education:

- Mentors each trained as they conduct a *direct advocacy and media campaign* for the elimination of senior secondary school fees and the improvement of literacy instruction in government primary schools
- The training offers workshops in advocacy, radio production, media, and leadership skills, applied in planning and implementing the Girls Campaign for Quality Education.
- The mentors put their learned skills into practice by leading the Girls for Quality Education media and advocacy campaign in Kaduna State with key local and state-level stakeholders as they work to improve educational access and quality for girls.

# Climate Change & Gender

## (CNN, 11/30/2023)

### Girls for Health (G4H):

- a bridge program offering accelerated academic instruction in science, math and English;
- vocational counseling and practicums at local health facilities;
- safe spaces to enhance critical life skills;
- four-month science immersion courses for girls accepted for admission to a health training institution; and
- HTI capacity building to cultivate a rural female-friendly learning environment.

G4H works towards sustainability from the start by using existing secondary school and health infrastructure, and feeding into government rural health worker employment schemes, addressing the acute shortage of female health workers in rural Northern Nigeria

# Climate Change & Gender

## (CNN, 11/30/2023)

### Pathways to Choice: Delaying Age of Marriage Through Educational and Vocational Training for Out of School Girls:

- Girls who are interested/able to enter/re-enter government schooling are offered an additional year of academic support.
- Those who do not enroll in school are offered vocational training and apprenticeships in repairing gas-run generators or electronics, animal husbandry, micro businesses, etc.
- The curriculum and non-formal nature of the learning spaces greatly facilitates the student-centered teaching methods, including problem-solving, role-playing, singing, and games.
- Parental and community engagement and collaboration with Local Education Authorities and the headmasters are also key components of the program.
- Learning Hub for the project that is responsible for training, monitoring and evaluation, and facilitating a collective learning process with consortium partners, program beneficiaries, state and local government and the Ford Foundation to reflect on program successes and challenges and to adapt implementation design.

# Climate Change & Gender

(CNN, 11/30/2023)

## Hilin Mu- Our Space

- This program focuses on the transition from primary to junior secondary school as it is a critical time for school withdrawal and early marriage.
- Recruits' girls in the last year of a primary school and organize safe spaces for them over the next two years.
- Overall goal is to promote the delay of marriage, nurture the agency and voice of rural adolescent girls, and help them realize their fundamental human and reproductive rights.

# Climate Change & Gender

## (CNN, 11/30/2023)

### CI GABA (Moving Ahead) Preschool Spaces:

- The curriculum is based on the Montessori method, found to be ideal for girls facing the challenges these young girls are encountering.
- The method uses mixed age learning circles and encourages discovery as students learn concepts from working with materials made out of natural, aesthetic materials in Nigeria rather than by direct instruction.
- Research strongly suggest that if these girls can learn to read by the time they are ready for primary school, most parents will be willing to let their daughters enroll.
- CGE's former graduates serve as the pre-kindergarten mentors in their communities



# Climate Change & Gender

(CNN, 11/30/2023)

*“For every additional year the average girl attends school, her country’s resilience to climate disasters can be expected to improve by 3.2 points on an index that measures vulnerability to climate-related disasters, according to estimates from the Brookings Institution.”*

# Climate Change & Gender



# Black Women & the Social Impact of Hurricane Katrina (Ransby, 2006)

- National discourse on poverty, race, and gender was pre-existing
- Black women are more vulnerable during natural disasters because they are the primary caretakers of elderly and children
- But they have the least resources- poverty was higher than other parts of the country
  - 40% poverty rate among single mothers, median income approx. \$20k
  - Among the lowest rates of health insurance
  - 13% of children lived in extreme poverty, less than \$10k
  - Most lived in the Ninth ward
  - Less money and less mobility led to increase impact of the hurricane and difficulty recovering

# Black Women & The Social Impact Of Hurricane Katrina

(Ransby, 2006)

Pre-existing discourse led to:

- Victim-blaming
  - Absence of Black men
  - Negative beliefs about people living in poverty
- Neglect of poor Black women and children
  - Another “Reconstruction” that limited the visibility and rights of Black women e.g. land rights, voting rights, military control, accountability, jobs



# Black Women & the Social Impact of Hurricane Katrina

## (Ransby, 2006)

- Reality: Black women were instrumental in recovery efforts
  - “Soul Patrol” - informal group that collected food and delivered to others after the storm
  - A Safe Way Back Home - professor led project to educate NOLA residents about toxins and provide equipment to remove toxins/replace with healthy soil; enlisted professional organizations and college students
  - People’s Hurricane Relief Fund and Oversight Coalition (PHRFOC) - women’s caucus to highlight the efforts of women

# Black Women & the Social Impact of Hurricane Katrina

(Enarson, 2006)

- “Behind the scenes”: Black women were instrumental in recovery efforts
  - Clean-up
  - Moving throughout the country
  - Taking care of physical and emotional needs of children
  - Supporting each other



# Black Women & the Social Impact of Hurricane Katrina (Enarson, 2006)

## Increase in sexual violence

- Superdome
- Closure of shelters
- Tent cities
- Double shifts and long commutes

## Housing challenges

- Public Housing
- Mobile Homes
- Lack of insurance

## Destruction of social support networks

- Romantic relationships
- Extended family

# Black Women & the Social Impact of Hurricane Katrina

(Enarson, 2006)

- Job loss
  - Childcare workers
  - Beauticians
  - Home health aides
  - Servers
  - Temp office workers
  - Loss of primary breadwinners such as oysterman, shrimp farmers, oil riggers
- Indirect losses
  - Employers who lost homes
  - Infrastructure loss such as transit systems, schools, stores, health clinics, childcare

# Black Women & the Social Impact of Hurricane Katrina (Enarson, 2006)

## And now?

- Hurricanes and flooding continue but now in the context of the COVID-19 pandemic
- The same people continue to be harmed
- Example: Hurricane Ida resulted in home destruction, power outages, uncollected garbage
- Federal and state help continues to lag
- Results of efforts to reduce inequalities are mixed
- Grassroots efforts are often led by Black women



# Social And Mental Health Impact of Hurricane Katrina on Black Populations



## HEALING FROM TRAUMA IN NEW ORLEANS

**'These Intergenerational Wounds Continue': How Trauma From Hurricane Katrina and COVID-19 Are Affecting Black New Orleanians**

# TOPIC B

Mental Health  
Impact of  
Environmental  
Injustice and  
Climate Change on  
African Americans  
and Other  
Communities of  
Color

# Climate Change and Extreme Weather Events

- ▶ Climate change refers to long-term shifts in temperatures and weather patterns. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions. But since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas. ([epa.gov](http://epa.gov))
- ▶ Burning fossil fuels generates greenhouse gas emissions that act like a blanket wrapped around the Earth, trapping the sun's heat and raising temperatures. (The United Nations)



# How Climate Change Impacts Your Mental Health



Every day we get news about



# Majority of Us Adults Believe Climate Change is the Most Important Issue Today



▶ <https://youtu.be/RUgPSBwZvoM>

# Climate Change and Extreme Weather Events

Extreme weather events are occurrences of unusually severe weather or climate conditions that can cause devastating impacts on communities and agricultural and natural ecosystems. Weather-related extreme events are often short-lived and include heat waves, freezes, heavy downpours, tornadoes, tropical cyclones and floods. (USDA)

# Extreme Weather Events

According to the 5th US National Climate Assessment released 11/14/23, in the 1980's on average \$1B (adjusted for inflation) extreme weather events occurred every 4 months, now they occur every 3 weeks.



# Impact Of Climate Change On Mental Health

## AACAP Climate Change Resource Center (10/2023)

- Children and adolescents are more susceptible to the mental health consequences of climate change
- By the end of the century, it is predicted that one billion youth <18-years-old (nearly half of all children and adolescents worldwide) will be at “extremely high risk” of climate change-related health effects, particularly in communities of color...”
- Direct harm from heat and air pollution contributes to increased violence, self-harm, impaired sleep and learning difficulties
- Air pollution has been linked to anxiety, depression, dementia and increased risk of neurodevelopment problems like childhood ADHD and autistic traits secondary to in utero exposure to air pollution

# Impact of Climate Change on Mental Health

## AACAP Climate Change Resource Center (10/2023)

- Living through climate-related disasters can increase risk of anxiety, depression, PTSD and substance use disorders
- Droughts, expanding deserts, land loss due to sea-level rise, all slow-moving disasters caused by climate change cause chronic stress among individuals and communities
- Climate anxiety, Eco-anxiety, and Climate distress are normal emotional responses to the climate crisis, when the distress becomes severe enough to interfere with function, causes sleep difficulty, hopelessness, and inability to find enjoyment, these are all signs to consider treatment



# Threat of NTDs as Climate Changes in the U.S. (Washington 2019)

- NTDs = Neglected Tropical Diseases eg, Chagas disease, Toxocariasis, Cysticercosis, Trichomoniasis, Zika, Dengue, Yellow Fever, and Chikungunya
- Transmitted by mosquitoes or pathogens that thrive in warm, humid climates where most BIPOC live in the US, unlike other western industrialized nations with cooler climates
- Many of these disorders infect the CNS thus affecting the brain and behavior

# Disproportionate Climate Impacts on Mental Health and Well Being in BIPOC Communities

*“Differentials of power between and within nations are probably greater today than they have ever been. Those differentials are, in turn closely related to carbon emissions. The distribution of power in the world therefore lies at the core of the climate crisis.”*

(Ghosh 2016)

# Climate Injustice through Policies that Disproportionately affect BIPOC Communities

(Gutschow et al 2021)

- Harmful exposures from industrial plants, heavy vehicular traffic, and flooding waterways
- Harm from degraded civic infrastructure like leaking water lines and unsafe bridges

# Flooding The Unheralded Villain of Climate Change in Bipoc Communities

(Gutschow et al, 2021)

- In addition to heat risks climate change increases flood risks
- Flooding worse in communities of color esp. in low lying areas
- Flood risks have been systematically underestimated by the Federal Emergency Management Agency (FEMA)
- Flooding, subsequent displacement, disruption of children and family's routines eg, child-care, school, primary care for management of chronic diseases, are examples of climate change disrupting mental health and well being of children and families leading to eco-trauma and eco-anxiety think Hurricane Katrina

# What can be Done to Limit Adverse Mental Health Effects of Climate Change (Gutschow et al 2021)

- Monitor Media Exposure avoid “Doom Scrolling” which could lead to feelings of helplessness, feeling overwhelmed and climate paralysis
- Listen Without Minimizing Concerns
- Collective Action, increased engagement on environmental issues

# Recommendations for Fighting Climate-related Health (Mental) Injustices (Gutschow 2021)

## Individual Action

- Learn about the role of the past in creating the climate crisis and persistent disparities, those in power contributed the most to climate change and suffered the least from it
- Make a personal pledge to reduce carbon emissions by reconsidering choices in diet (plant-based), transportation (Public and EV's), use of renewable energy sources (solar, wind)
- Educate about the climate crisis AND health equity, develop educational activities with a focus on climate and health justice
- Support trainees, colleagues, and those affected by climate change and its toll on mental health, by providing resources



# Recommendations for Fighting Climate-related Health (Mental) Injustices

(Gutschow 2021)

## Clinical Practice Based Interventions

- Validate and support children and families who have experienced climate-related trauma. Listen to their concerns, augment their strengths and make appropriate referrals to address their needs
- Pledge to reduce carbon emissions in healthcare settings and divest from fossil fuels. Discourage medical institutions from investing in fossil fuels, promote sustainability efforts in your clinical practice

# Recommendations for Fighting Climate-related Health (Mental) Injustices

(Gutschow 2021)

## Community and advocacy action

- Center and elevate voices of youth and community partners, especially those in BIPOC Communities. Learn from activists, and leaders advocating for environmental and climate justice, join efforts of local faith-based organizations working in these spaces
- Engage and advocate climate-friendly policies that foster systemic change in health equity at the local, state and federal levels

# Ecological And Evolutionary Consequences Of Systemic Racism In Urban Environments (Schell Et Al 2020)

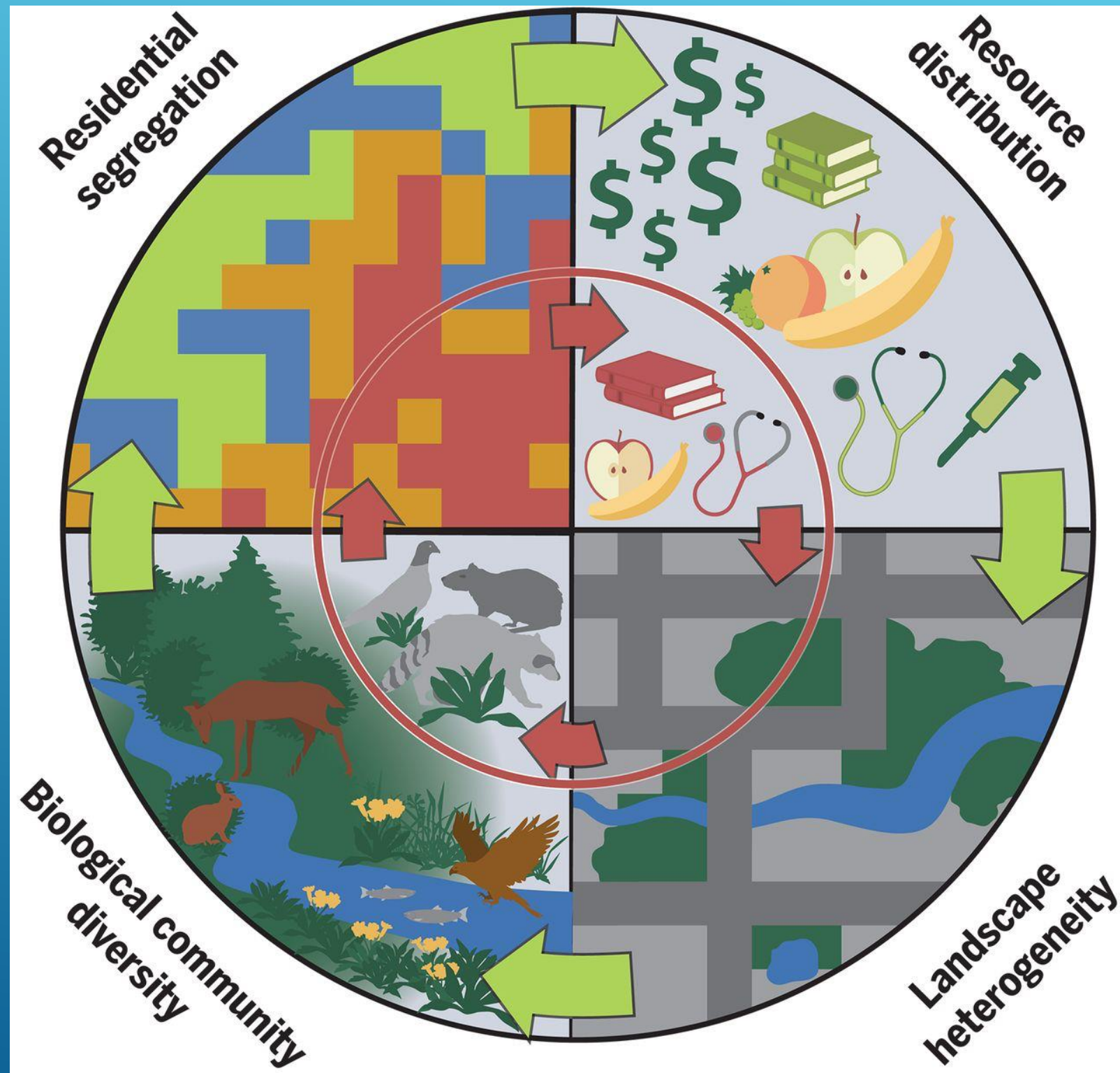
Patterns of bigotry and inequality  
affect how other species experience  
life in cities.





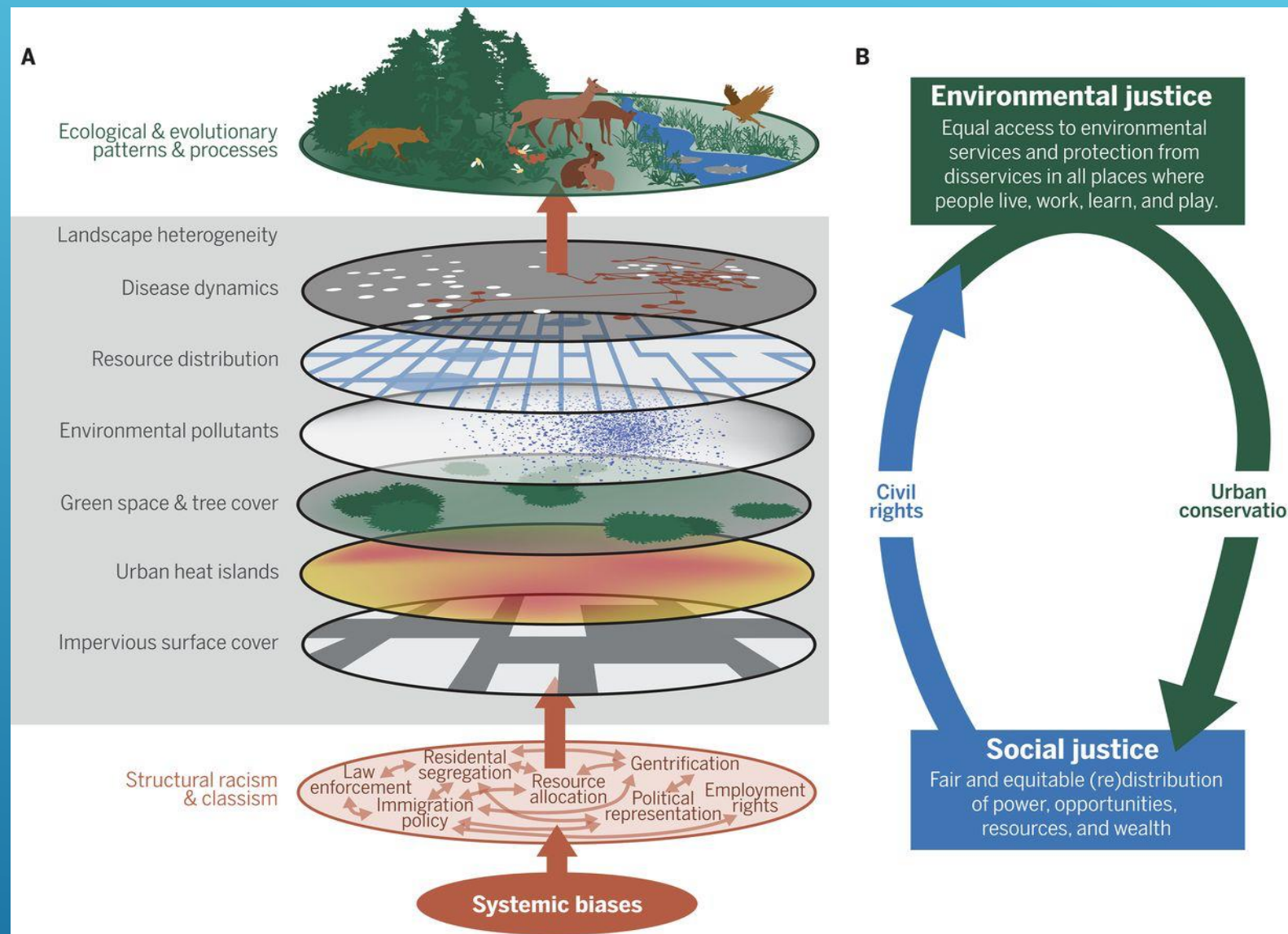
# Ecological and Evolutionary Consequences of Systemic Racism in Urban Environments

(Schell et al 2020)



# Ecological and Evolutionary Consequences of Systemic Racism in Urban Environments

(Schell et al 2020)



## C Definitions

**Inequality:** Unequal distribution of wealth and resources across social groups.

**Inequity:** Unjust allocation of resources driven by power dynamics, discrimination, stereotypes, and systemic biases.

**Racism:** Stereotypical norms that disadvantage communities of color (typically Black, Asian, Latinx, and Indigenous groups), including the interdependent forces of "prejudice plus power" that dictate how racial inequalities persist even after elimination of racist actors or policies.

**Classism:** Discriminatory actions based on wealth, income, or social class, usually directed at barring people from working class backgrounds from accessing benefits and social spaces dominated by middle or upper classes.

**Intersectionality:** The intersection, interaction, and compounding of marginalized identities, causing individuals and communities at such intersections to experience greater social inequities.



# Environmental Effects of Redlining

(New York Times 11/21/23)

- In 1933 Home Owners Loan Corporation (Federal) was created to help Americans recover from the Depression by issuing loans or refinancing mortgages to prevent default
- >200 US Cities mapped, neighborhoods graded A to D, based on race, ethnicity, income of residents. A grade neighborhoods had newer homes, with more US born white residents and were outlined on the maps in green, D grade neighborhoods had older homes, more immigrants and people of color, deemed “hazardous” to invest in and were outlined in red.
- 90 years later 3/4 of redlined neighborhoods are struggling financially, ~2/3 are “majority minority”
- Legacy of redlining: poverty, unemployment, health problems (including mental health problems), decades of lost wealth and opportunities



# Environmental Effects of Redlining

(New York Time 11/21/23)

- Formerly redlined neighborhoods have been disproportionately disrupted by new highways, large buildings, landfills, and industrial complexes (Archer 2020)
- Overhead satellite images of Atlanta reveal heat-absorbing, impervious surfaces (concrete and asphalt) and lack of tree canopy in these neighborhoods (Servadio et al 2019)
- Exposure to more vehicular traffic and higher surface temperatures from structures that absorb and radiate heat (New York Times 08/14/19)
- Climate change increases heat exposure which worsens ground-level pollution which exacerbates ED visits due to asthma on hot days (Nardone et al 2020)

# Environmental Effects Of Redlining

(New York Times 11/21/23)

- Environmental variability based on neighborhoods' socioeconomic status
- Predominately White neighborhoods which were often greenlined on HOLC maps hosted a greater abundance of birds that generally live in forests eg, warblers, wrens and bluebirds
- Contrasted with previously redlined neighborhoods had fewer forest birds and more “synanthropic” species, like pigeons, sparrows, ravens and crows et al more often found in dense urban areas
- These patterns observed in LA neighborhoods Beverly Hills (predominately White) and Boyle Heights (predominately Latino)

# Environmental Effects of Redlining

(New York Times 11/21/23)

- The birds were an indicator of broader conditions that were bad for people
- Similar studies on urban locations throughout the US showed wildlife in neighborhoods with greater proportions of white residents had more genetic diversity which is essential for wildlife populations to survive catastrophic events like pandemics or wildfires
- Redlining is an example of how systemic racism created a barrier to wildlife movement
- In 108 urban areas nationwide, formerly redlined neighborhoods were hotter than others, by as much as 13 degrees, due to lack of trees and green spaces

# The Next Green Wave

## (Heard-Garris, 2022)

- Greta Thunberg
  - **UN Climate Action Summit:** *“This is all wrong. I shouldn’t be up here. I should be in school on the other side of the ocean. Yet you come to us young people for hope. How dare you. You have stolen my dreams and my childhood with your empty words.”*
- Rue Mapp
  - Founder of **Outdoor Afro**, an Oakland based organization, which offers a network of resources for Black women and non-binary individuals to connect with nature including camping, fishing, and kayaking
- Jamie Margolin, Nadia Nazar, Madelaine Tew, and Zanagee Artis
  - Founders of **This is Zero Hour**, an organization that engage youth in community action efforts to fight against climate change







## ZERO HOUR FOUNDERS





TOPIC C

IMPLICIT BIAS

# Implicit Bias And Maternal Health

## (New York Times 12/12/23)

- Black women die of pregnancy related complications 2-3X the rate of white women
- In studies of taped conversations between physicians and patients, doctors dominate the conversation more with black patients, don't ask as many questions as they do of white patients.
- In medical notes doctors more likely to express skepticism about symptoms black pts report
- Black women have worse pregnancy outcomes, lose more infants the first year of life, and have higher rates of preterm birth and stillbirth compared to white women

# Implicit Bias And Maternal Health

## (New York Times 12/12/23)

- Unconscious or implicit bias mediated by internalized cultural stereotypes even in those who reject overt racism could influence medical careened bedside manner
- Repeatedly asked about marital status (despite wearing a wedding band or having a hyphenated name), or their insurance status
- Asked “Where is your baby daddy?”
- More likely than white women to be tested for illicit substances though less likely than white women to test positive

# Implicit Bias And Maternal Health

## (New York Times 12/12/23)

- Black patients say health providers often disregard and overrule their wishes
- Pregnant black women more likely than white women to say they were pressured into C-sections, epidurals, labor induction and other childbirth interventions even when they sought to avoid them
- A lack of empathy in medical settings can put pregnant women at risk
- Researchers concluded low birth weights among African American women have more to do with the experience of racism than with race

# Scale To Assess Everyday Race-related Insults

(Williams et al 1995)

- You are treated with less courtesy than other people are
- You are treated with less respect than other people are
- You receive poorer service than other people at restaurants or stores
- People act as if they think you are not smart
- People act as if they are afraid of you
- People act as if they think you are dishonest
- People act as if they're better than you are
- You are called names or insulted
- You are threatened or harassed
- Have you ever been treated unfairly due to your race, at work, in housing, or by the police



# Implicit Bias And Maternal Health

## (New York Times 12/12/23)

- JUST Birth Network matches pregnant women of color with doulas who help them navigate the health care system
- TeamBirth, a framework for open communication between patients and providers
- Initiative in Washington State, health providers give pregnant women with high blood pressure blue wristbands to ensure doctors and nurses do not overlook this condition
- New York State Law requiring hospitals to care for women in preterm labor instead of turning them away even if the fetus is unlikely to survive, mitigating risk of maternal mortality from infection and hemorrhaging in the setting of at home delivery


# Health Effects of Racism (Villarosa 2022)

- “The lived experience of being Black in America, regardless of income and education, also affects health.”
- Black women’s health study (BWHS) showed higher levels of diabetes, obesity, asthma and pre-term birth among women who reported the greatest experiences of racism

# Test Questions



**There is evidence that the following diagnosis can be impacted by extreme weather events.**

- a) Post Traumatic Stress Disorder (PTSD)
  - b) Schizophrenia
  - c) Major Depressive Disorder (MDD)
  - d) A & C
  - e) All of the above
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted upwards from left to right, located in the bottom right corner of the slide.

**D.) A and C**






**Based on ED visits and self-reported symptoms associated with temperature (heat and cold), African Americans and Latin communities as compared to Caucasians have been shown to experience higher rates of**

- a) Anxiety
- b) Psychosis
- c) Substance Use Disorders
- d) None of the above
- e) All of the above

**E.) All of the above**

The image features a solid blue background with a gradient from light to dark. In the bottom right corner, there are several white, parallel diagonal lines of varying lengths, creating a sense of motion or a modern design element.

# Consequences of lead exposure include

- a) Diminished intelligence
  - b) Reading problems
  - c) Delinquency and criminal behavior
  - d) Attention-deficit hyperactivity disorder
  - e) all of the above
- 

**E). All of the above**

The image features a solid blue background. In the bottom right corner, there are several white, parallel diagonal lines that create a sense of motion or a modern design element.

**The negative effects of climate change induced natural disasters are disproportionately felt by minority communities and it is more difficult for these communities to recover after crisis.**

**(True or False)**

A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, located in the lower right corner of the slide.



**A.) TRUE**



**According to the Centers for Disease Control & Prevention (CDC) a safe level of lead exposure is**

- a) There is no safe level of lead exposure
- b)  $<5\text{ug/dl}$
- c)  $<10\text{ug/dl}$
- d)  $<15\text{ug/dl}$
- e)  $<20\text{ug/dl}$

**A.) There is no safe level of lead exposure**



**THANK YOU!**

