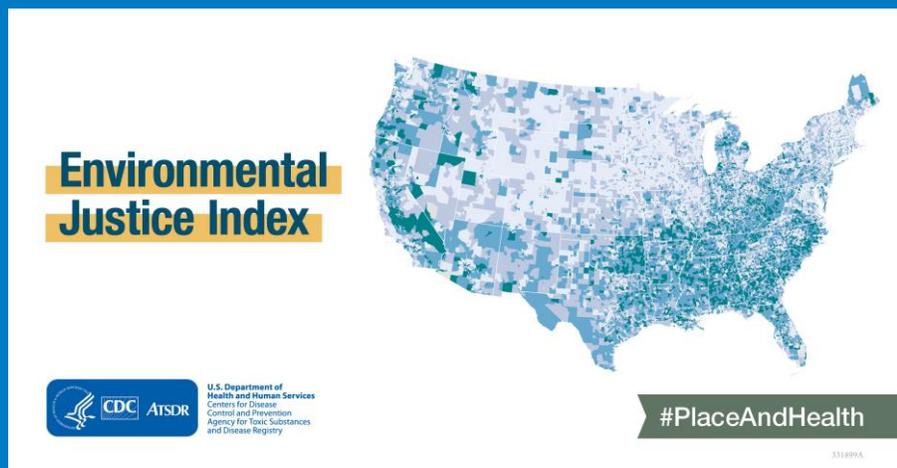


The Environmental Justice Index



A Tool for Ranking Cumulative Health Impacts

October 12, 2:00 – 3:00 PM ET

Closed Captioning is available.



MODERATOR



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PRESENTERS



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The Environmental Justice Index

Ranking Cumulative Health Impacts

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The places of our lives affect the quality of our health.



National Center for Environmental Health
Agency for Toxic Substances and Disease Registry



Presentation Objectives

- **Bring attention** to the intersection of health equity and environmental justice
- **Highlight** social and physical (environmental) factors that serve as underlying determinants of health (DOH).
- **Demonstrate** the utility of the Environmental Justice Index (EJI) as it addresses determinants of health (DOH) in pursuit of environmental justice and health equity

Terminology

- **Health Equity:** Striving for the highest possible standard of health for all people and giving special attention to the needs of those at greatest risk of poor health based on social conditions.
- **Health Disparities:** Differences in health outcomes and their determinants among segments of the population as defined by social, demographic, environmental, or geographic category.
- **Social Determinants of Health** – Conditions in the **places** where people live, learn, work, and play that affect a wide range of health and quality-of-life-risks and outcomes.
- **Environmental Justice:** Advancing health equity and eliminating environmental health disparities through the fair treatment and meaningful involvement of all people in environmental health policies, research, and programs and ensuring equal access to a healthy environment.

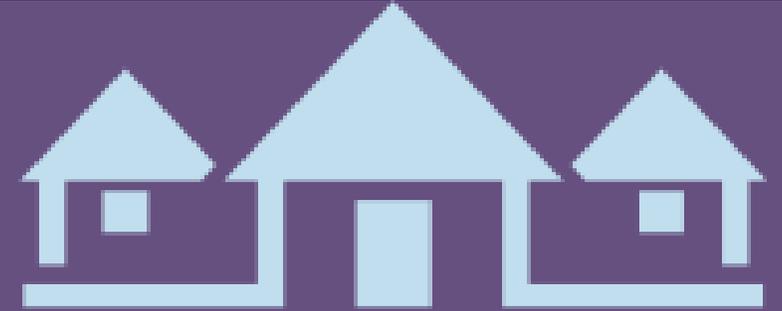
Rationale for Environmental Justice

- People of color, disadvantaged, vulnerable, low-income, marginalized, and indigenous peoples, are disproportionately burdened by environmental hazards.
- These populations and communities are exposed to environmental threats that drive health disparities, underserved, and surrounded by social inequities.
- The combination of environmental risks and social inequities create a cumulative, disproportionate impact that hinders optimal health and environmental justice for these populations.

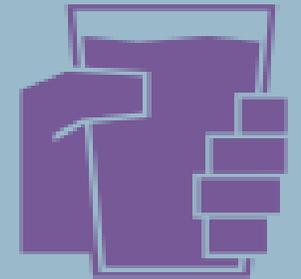
Environmental Justice Linked to Health Equity

42 million

American homes suffer from energy poverty, making them vulnerable to intense heat and cold.¹



More than **2,000,000** Americans live without basic access to safe drinking water and sanitation.²



11.9 million

Americans, disproportionately people of color, are exposed to unhealthy air pollution levels.³

Executive Order 12898

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority, low-income, and indigenous populations (1994).

Challenge: Environmental health disparities--some intransigent--persist more than 25 years after Executive Order 12898

Equity and Justice-Related Presidential Executive Orders

1. **EO 14008:** Tackling the Climate Crisis at Home and Abroad
2. **EO 13985:** Advancing Racial Equity and Support for Underserved Communities Through the Federal Government
3. **EO 14035:** Executive Order on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce

“Because advancing equity requires a ***systematic approach*** to **embedding fairness in decision-making processes**, executive departments and agencies must **recognize and work to redress inequities** in their policies and programs that serve as barriers to equal opportunity.”

-- Executive Order 13985,
January 20, 2021

Social Determinants of Health

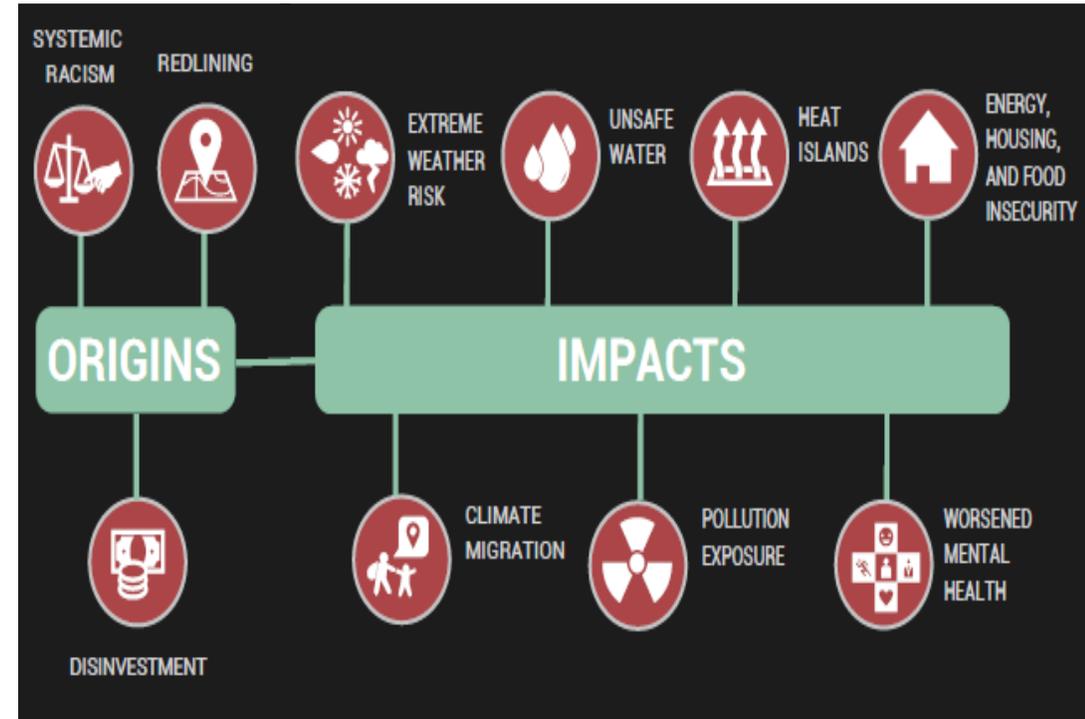
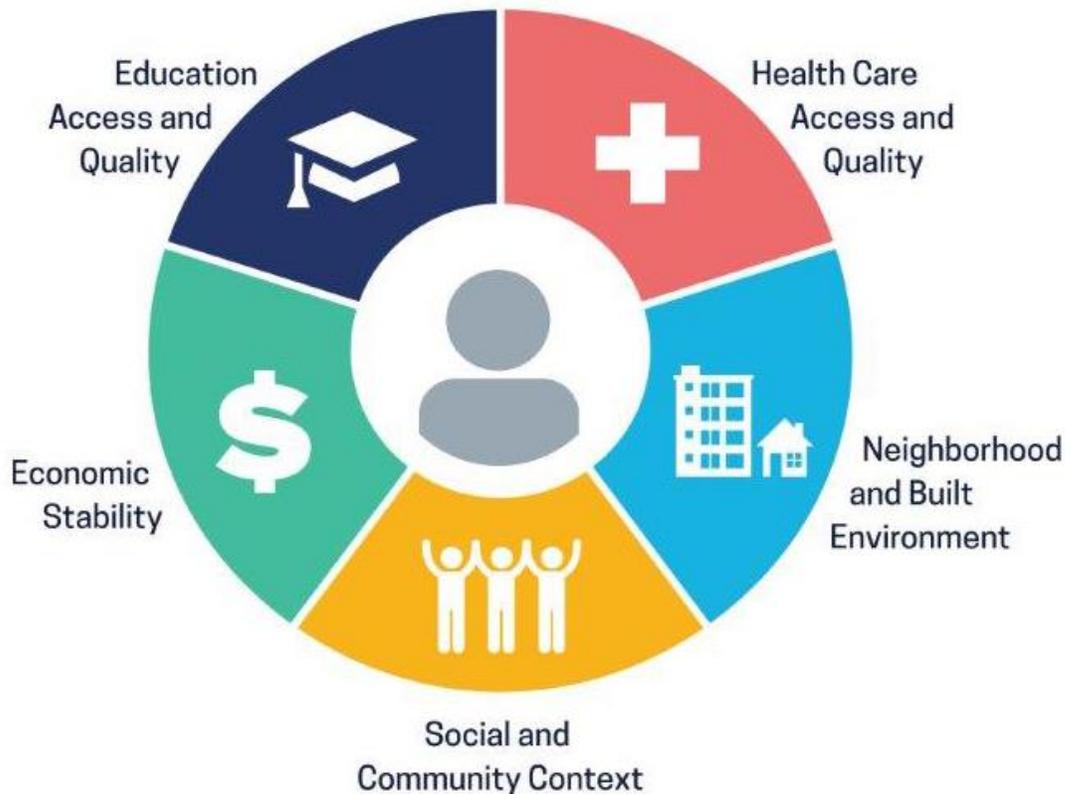
- **Healthy People 2030 uses a place-based framework that outlines five key areas of SDOH:**
 - Health care access and quality
 - Neighborhood and built environment
 - Social and community context
 - Economic stability
 - Education access and quality



<https://health.gov/healthypeople/priority-areas/social-determinants-health>

Intersection of Social Determinants of Health, Environmental Health Disparities, and Health Equity

Social Determinants of Health

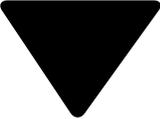


<https://aspe.hhs.gov/reports/ej-human-services>

Health Equity is when everyone has the opportunity to be as healthy as possible.

Social, Cultural, and Neighborhood/Built Environment

Racial Residential Segregation



Education
Poverty
Spatial Mismatch

Urban Sprawl



Noise, Mental Health,
Over Crowding, Indoor/
Outdoor Air Pollution

Inaccessible Resources



Jobs
Transportation
Fresh Food
Healthcare

Dilapidated Housing



Lead Poisoning
Asthma
Injury
Poor Nutrition

Community Design

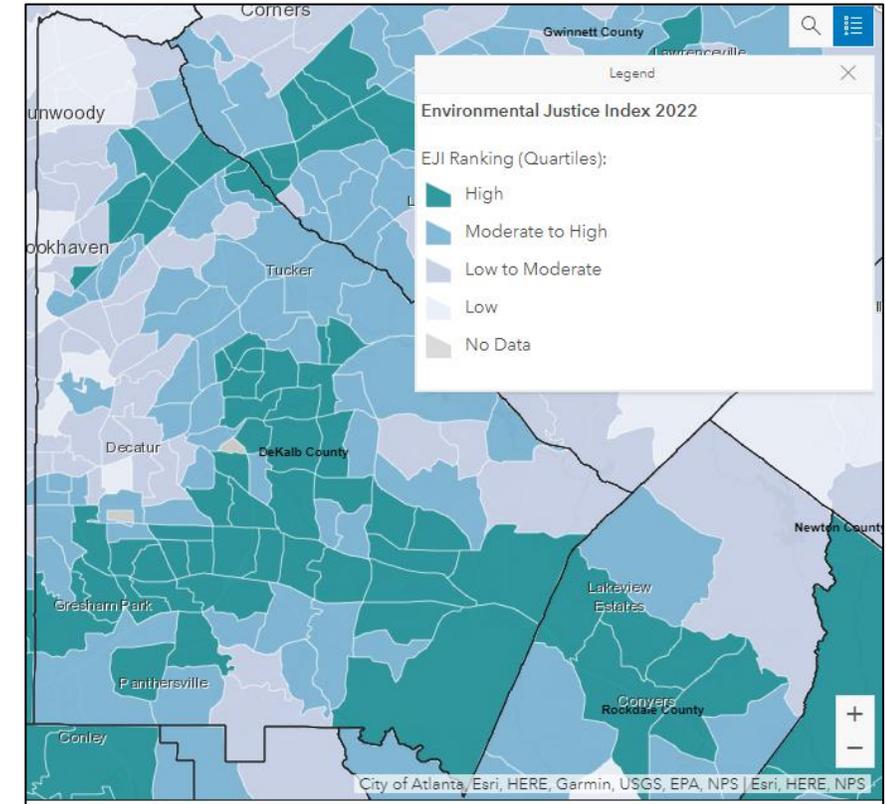


Obesity
Lack of Parks/Rec
Public Spaces



Environmental Justice Index 2022

- First national, geographic-driven tool designed to measure the cumulative impacts of environmental burden through the lenses of human health and health equity
- Delivers a single, cumulative impacts score for each census tract in the U.S.
- Developed by CDC/ATSDR in partnership with the Department of Health and Human Services (HHS) Office of Environmental Justice
- Builds on existing environmental screening tools and methods



EJI scores for DeKalb County, GA. A high EJI score indicates that at least 75% of tracts in the U.S. experience less severe cumulative impacts than the tract in question.

Environmental Justice Index Purpose

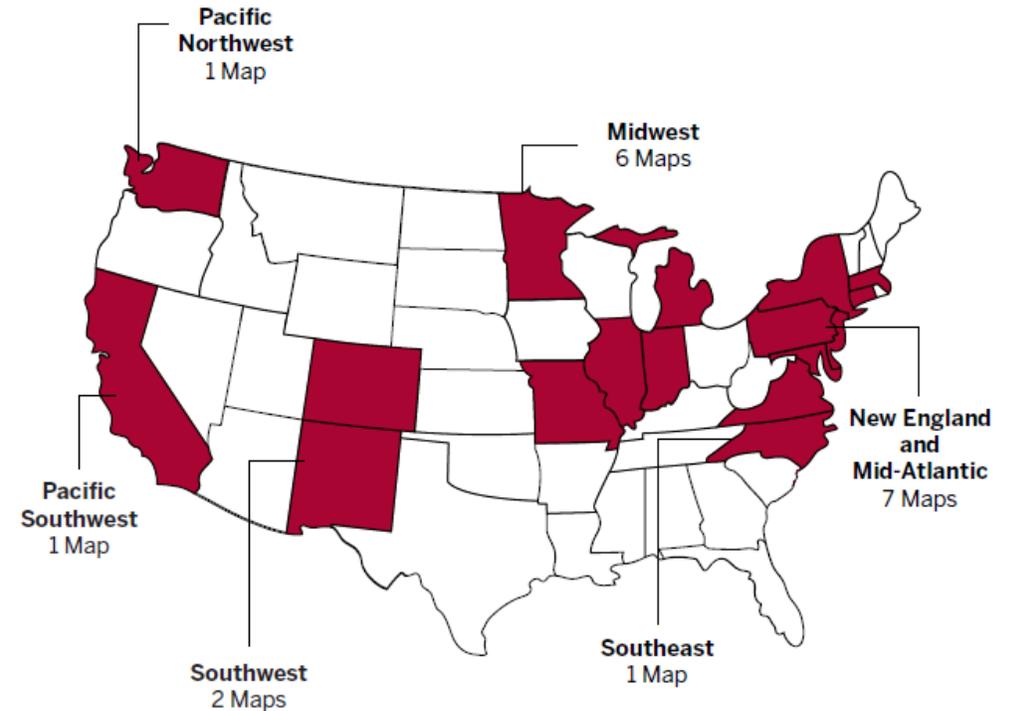
- Advance HHS and CDC environmental justice and health equity goals by empowering the public health community to identify U.S. communities experiencing adverse health effects associated with environmental injustice to
 - **Focus** on communities most in need
 - **Shape** public health interventions of all types
 - **Guide** hypothesis development supporting research
 - **Track** change through time against meaningful goals

- 
- Focus
 - Shape
 - Guide
 - Track



Environmental Justice Mapping and Screening Tools

- These tools provide data on demographic and environmental factors – often with the aim of characterizing the most vulnerable, most burdened communities
- Used to contextualize communities and to inform prioritization of actions aimed at alleviating environmental injustice – environmental remediation, public health interventions, etc.



*States with EJ mapping/ screening tools.
Figure from Konisky et al. 2021.
<https://eri.iu.edu/documents/ej-mapping-tools-report.pdf>*

EJSCREEN 2.0

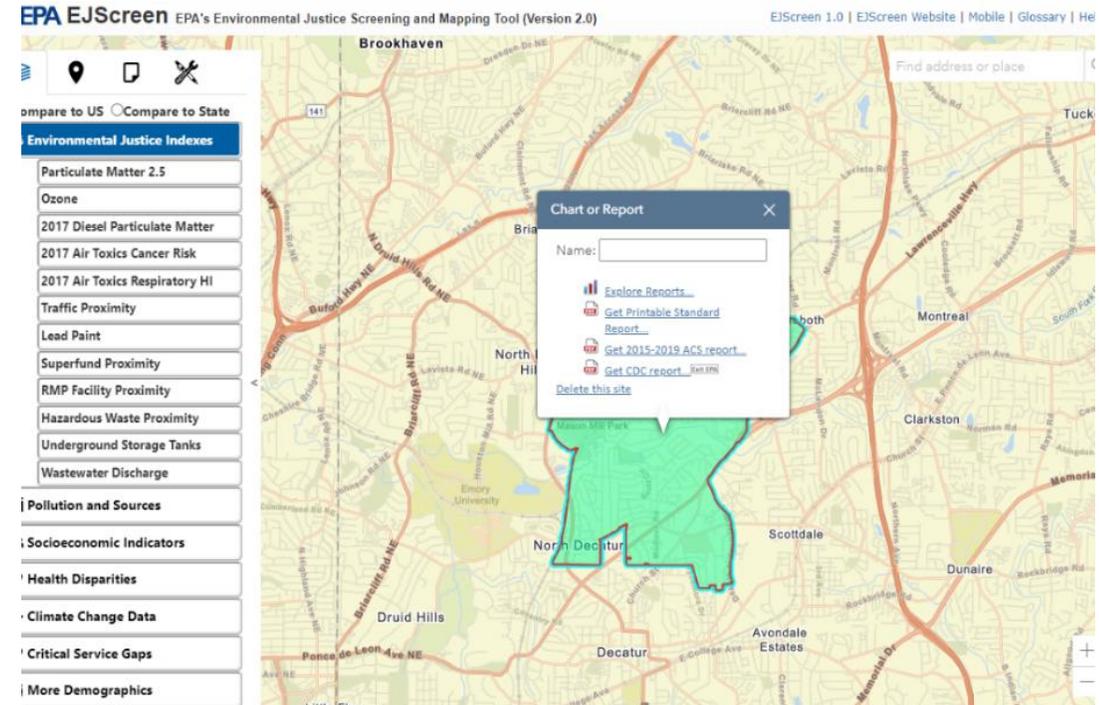
Developed by the U.S. Environmental Protection Agency. Provides 11 different indices measuring disproportionate exposure to environmental pollution. Indices include 4 measures from the National Air Toxics Assessment as well as ozone, Particulate Matter 2.5, lead paint, wastewater discharge, and proximity to various industrial sites.

EJ Index =

(The Environmental Indicator)

X (Demographic Index for Block Group – Demographic Index for U.S.)

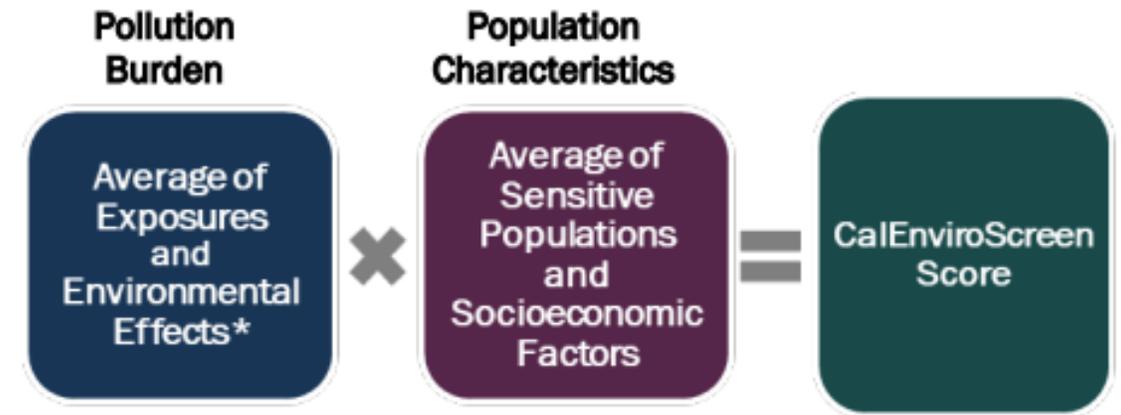
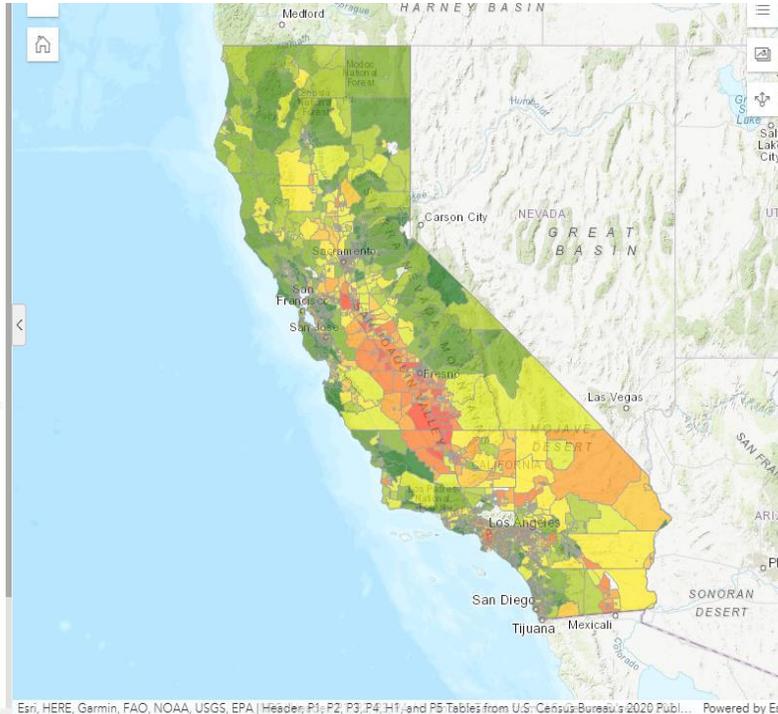
X (Population count for Block Group)



CalEPA's CalEnviroScreen 4.0

How to use this map

- Use your mouse or touchpad to pan around.
- Zoom in/out with a mouse wheel or the +/- icons.
- Search by location or census tract number with the search icon.
- Click on a census tract to view additional information in the pop-up window.
- Dock the pop-up window to the side of the screen by clicking the dock icon.
- Learn more about a particular indicator by clicking on its name in the pop-up window.
- Export a map view that includes the legend and popup using the screenshot widget.
- Learn more about CalEnviroScreen 4.0 and how this map was created here.
- Click the links in the header to view additional maps related to CalEnviroScreen 4.0.



Developed by the California Environmental Protection Agency. Provides a composite index comprised of 21 indicators related to pollution burden and population characteristics.

The CalEnviroScreen index assesses cumulative impacts at the census tract level by multiplying a tract's average scores for pollution burden by its average scores for population characteristics.

The Call for Cumulative Impacts

- Implementing cumulative impacts screening has been a priority for many EJ advocates in recent years
- Cumulative impacts screening is being implemented as part of EJ policies in several states such as California, New Jersey, and Washington
- U.S. EPA also committed to developing and implementing a cumulative impacts framework to advance EJ in their FY 22-26 Strategic Plan
<https://www.epa.gov/system/files/documents/2022-03/fy-2022-2026-epa-strategic-plan.pdf>

About the EJI

■ What is the EJI?

- A comprehensive place-based index that identifies and characterizes the cumulative impacts of environmental, social, and chronic health conditions facing communities across the U.S.

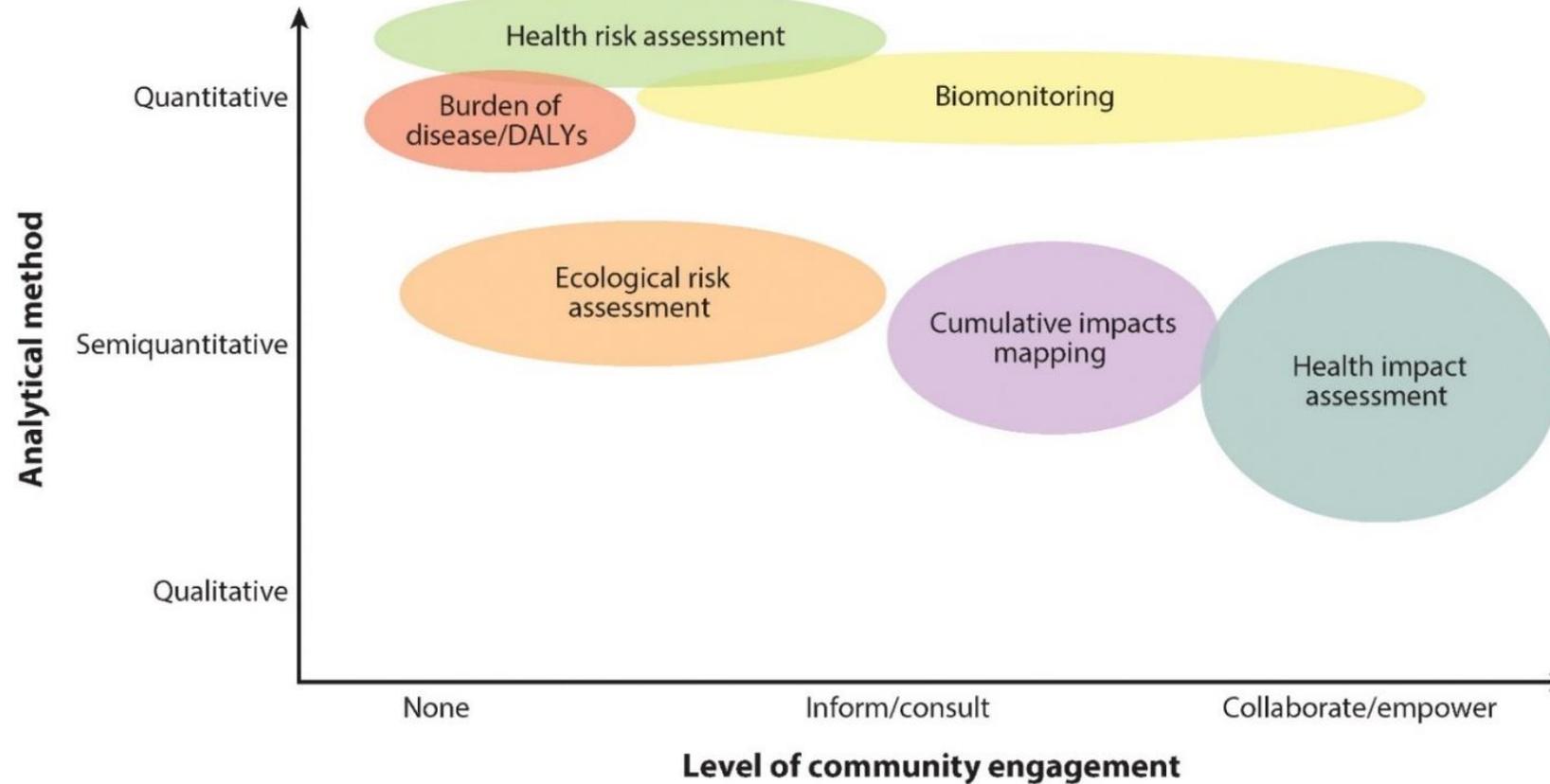
■ What are cumulative impacts?

- Cumulative impacts are a measure of the total harm to human health of environmental burdens, chronic health conditions, and social stressors
- Not a detailed assessment of exposure or risk



Cumulative Impacts and Risk Assessment

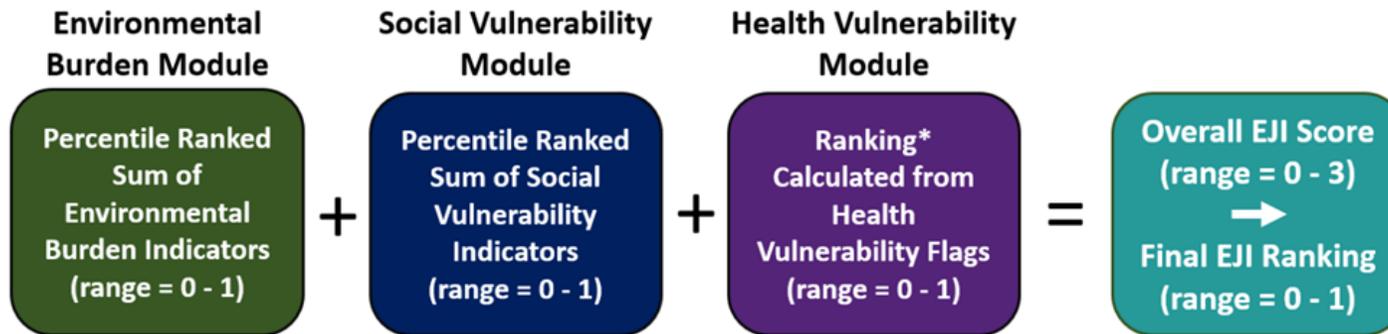
DALYs = Disability-Adjusted Life Years



 Solomon GM, et al. 2016.
Annu. Rev. Public Health 37:83–96

EJI Model Methods

- Unit of analysis – U.S. census tract
- Percentile ranking methods:
 - Peer-reviewed and tested
 - Simple and effective
 - Easy to communicate and adapt to meet stakeholder needs
- **EJI = SVM + EBM + HVM**



**Ranking calculated by multiplying the sum of health vulnerability flags ($n = 5$) by 0.2 to produce a number between 0 - 1.*



Environmental Burden Module (EBM)

PM = Particulate Matter

Indicators & Status

- Indicators (n = 17) evaluated based on data quality/ availability
- Some data not currently available in a way that can be integrated at the national level – such as drinking water quality and agricultural pesticide use

Environmental Burden	Air Pollution	Ozone
		PM2.5
		Diesel Particulate Matter
		Air Toxics Cancer Risk
	Potentially Hazardous & Toxic Sites	National Priority List Sites
		Toxic Release Inventory Sites
		Treatment, Storage, and Disposal Sites
		Risk Management Plan Sites
		Coal Mines
		Lead Mines
		Built Environment
	Houses Built Pre-1980	
	Walkability	
	Transportation Infrastructure	High-Volume Roads
		Railways
		Airports
	Water Pollution	Impaired Surface Water

Social Vulnerability Module (SVM)

Indicators & Status

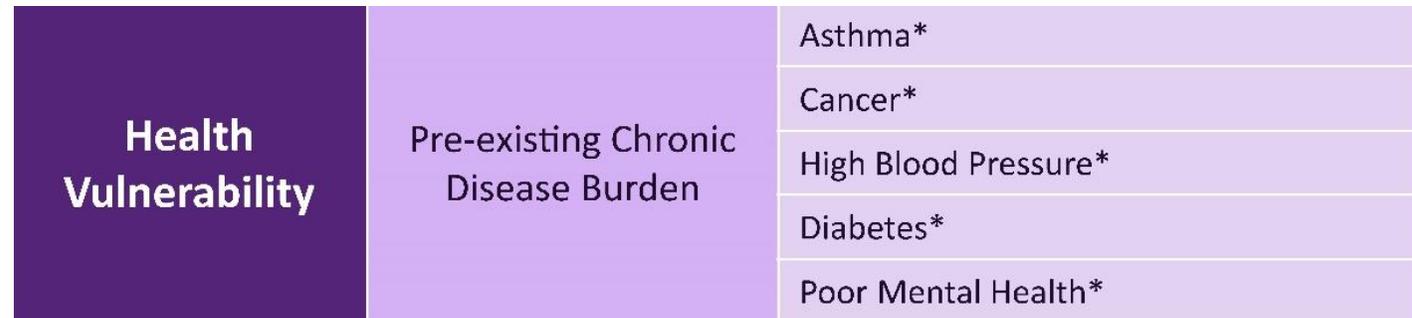
- Closely resembles the CDC/ ATSDR Social Vulnerability Index, but altered to reflect Environmental Justice -specific concerns
- Final list of indicators (n = 14) chosen based on literature review and expert consultation

Social Vulnerability	Racial/ Ethnic Minority Status	Minority Status
	Socioeconomic Status	Poverty
		No High School Diploma
		Unemployment
		Housing Tenure
		Housing Burdened Lower-Income Households
		Lack of Health Insurance
		Lack of Broadband Access
	Household Characteristics	Age 65 and Older
		Age 17 and Younger
		Civilian with a Disability
		Speaks English “Less than Well”
	Housing Type	Group Quarters
		Mobile Homes

Health Vulnerability Module (HVM)

Indicators & Status

- All indicators (n = 5) integrated in a single measure of high chronic disease burden
- Indicators limited by an overall lack of data available at the sub-national level for the U.S.



*These indicators represent high estimated prevalence of each chronic disease – with high estimated prevalence defined here as higher prevalence than 66% of all US census tracts for a given measure.

EJI Online

- EJI landing page available at eji.cdc.gov
- EJI data is accessible through the National Environmental Public Health Tracking Program's EJ Dashboard at <https://ephtracking.cdc.gov/Applications/ejdashboard/>

Environmental Justice Index

Environmental Justice Index (EJI)

Environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, to develop, implement, and enforce environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys the same degree of protection from environmental and health hazards, and equal access to the decision-making process to live, learn, and work in a healthy environment.

The **Environmental Justice Index** uses data from the U.S. Census Bureau, the U.S. Environmental Protection Agency, the U.S. Mine Safety and Health Administration, and the U.S. Centers for Disease Control and Prevention to rank the cumulative impacts of environmental injustice on health for every census tract. Census tracts are subdivisions of counties for which the Census collects statistical data. The EJI ranks each tract on 36 environmental, social, and health factors and groups them into three overarching modules and ten different domains.



Fact Sheet



FAQs



Technical Documentation



EJI Indicators

EJI News

[Environmental Burden Index Methods Paper Now Available](#)



Explore the
Environmental
Justice Index

[Accessible Version of the Environmental Justice Index](#)

[Contact the EJI Coordinator](#)

[Media Inquiries](#)

EJI and Community Engagement

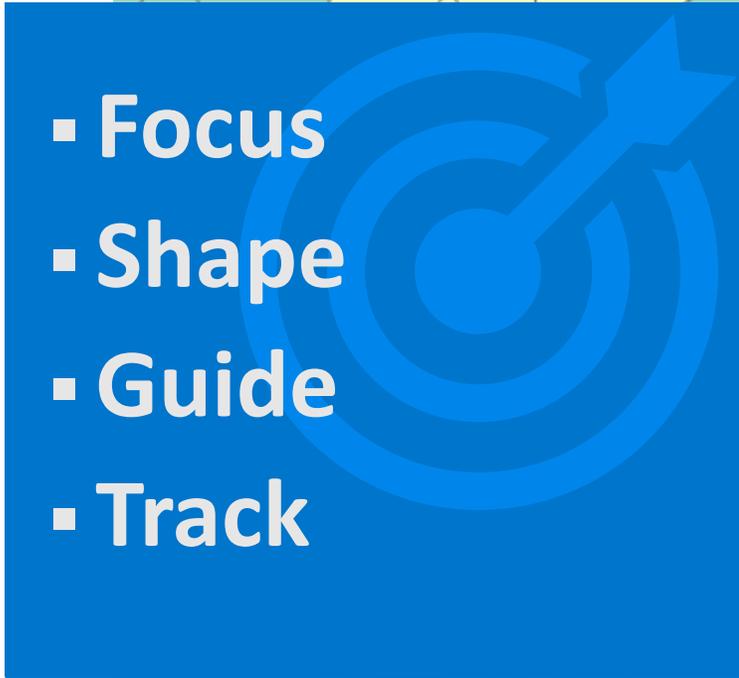
- CDC/ATSDR, in partnership with HHS, is committed to engaging with communities, EJ advocates, public health partners, and academic subject matter experts as part of the development and improvement of this tool
- CDC/ATSDR will host live demos, webinars, and provide other opportunities for users and community members to provide structured feedback



Photo credit: Adam Sarvana

Environmental Justice Index Purpose (Revisited)

- **Advance HHS and CDC environmental justice and health equity goals by empowering the public health community to identify US communities experiencing adverse health effects associated with environmental injustice to**
 - **Focus** on communities most in need
 - **Shape** public health interventions of all types
 - **Guide** hypothesis development supporting research
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- 
- **Focus**
 - **Shape**
 - **Guide**
 - **Track**



Many Thanks to the EJI Team and Collaborators!

**NCEH National Environmental
Public Health Tracking Program**

**NCEH Office of Priority Projects,
Innovation, and Environmental
Justice**

**HHS Office of Environmental
Justice**

National Center for Chronic
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Questions?

Visit us at eji.cdc.gov OR

Contact us at eji_coordinator@cdc.gov

The findings and conclusions in this presentation have not been formally disseminated by the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry and should not be construed to represent any agency determination or policy.



National Center for Environmental Health
Agency for Toxic Substances and Disease Registry





Please submit your questions for the presenters using the Q & A function.

Thank you!



ADDITIONAL ENVIRONMENTAL JUSTICE RESOURCES

- [Environmental Justice Factsheet](#)
- [Addressing Environmental Justice to Achieve Health Equity](#)
- [Webinars: Build Your Story & Amplify Your Story](#)
- [CDC National Environmental Public Health Tracking Network](#)
- [CDC Environmental Justice Dashboard](#)



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