COMMENTS OF THE ATTORNEYS GENERAL OF MASSACHUSETTS, ILLINOIS, MARYLAND, MINNESOTA, OREGON, NEW JERSEY, AND VERMONT

February 19, 2025

By Electronic Submission to www.regulations.gov

U.S. Environmental Protection Agency
William J. Clinton Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Comments on the United States Environmental Protection Agency's *Interim Framework for Advancing Consideration of Cumulative Impacts*
Docket ID No. EPA-HQ-OLEM-2024-0360

The Attorneys General of Massachusetts, Illinois, Maryland, Minnesota, Oregon, New Jersey, and Vermont (States) submit these comments in support of the United States Environmental Protection Agency's (EPA) *Interim Framework for Advancing Consideration of Cumulative Impacts*, 89 FR 92125 (November 21, 2024).

Our States share EPA's commitment, stated in the *Interim Framework for Advancing Consideration of Cumulative Impacts* (the *Framework*), to "address the problem of cumulative impacts that federal advisory councils, EPA Tribal Partnership Groups, and communities have brought to its attention for decades."[1] As EPA acknowledged with the release of the *Framework* in December 2024, deliberate efforts are needed to address adverse cumulative impacts and "improve protection of human health."[2] We appreciate EPA's leadership as demonstrated by the release of the *Framework* and welcome the opportunity to comment. Establishing common goals and principles and providing clear models for implementing cumulative impacts analysis will result in

[1] EPA, INTERIM FRAMEWORK FOR ADVANCING CONSIDERATION OF CUMULATIVE IMPACTS 9 (Nov. 2024) [hereinafter INTERIM FRAMEWORK] (citing EPA, PAPER ON TRIBAL ISSUES RELATED TO TRIBAL TRADITIONAL LIFEWAYS, RISK ASSESSMENT, AND HEALTH AND WELL BEING: DOCUMENTING WHAT WE'VE HEARD (2006), https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1006LIF.txt; EPA, THEMATIC SUMMARY: CUMULATIVE IMPACTS RESEARCH INPUT LISTENING SESSIONS WITH TRIBES AND STATE AND LOCAL AGENCIES (2021), https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=354029&Lab=OSAPE; Nat'l Env't Just. Advisory Council (NEJAC), ENSURING RISK REDUCTION IN COMMUNITIES WITH MULTIPLE STRESSORS: ENVIRONMENTAL JUSTICE AND CUMULATIVE RISKS/IMPACTS, EPA (2004), https://www.epa.gov/sites/default/files/2015-02/documents/nejac-cum-risk-rpt-122104.pdf; NEJAC, RECOMMENDATIONS FOR INTEGRATING ENVIRONMENTAL JUSTICE INTO THE EPA'S RESEARCH ENTERPRISE, EPA (2014), https://www.epa.gov/environmentaljustice/recommendations-integrating-environmental-justice-epas-research-enterprise; WHITE HOUSE ENV'T JUST. ADVISORY COUNCIL, FINAL RECOMMENDATIONS: JUSTICE40, CLIMATE AND ECONOMIC JUSTICE SCREENING TOOL, AND EXECUTIVE ORDER 12898 REVISIONS (2021), https://www.epa.gov/sites/default/files/2021-05/documents/whiteh2.pdf).
[2] INTERIM FRAMEWORK, *supra* note 1, at 6.

more effective, transparent, and consistent implementation across EPA and the federal government. Moreover, it will encourage stronger collaboration with State, local, and Tribal governments; communities; and regulated entities, and support more robust State, local, and Tribal policymaking.

The undersigned States remain steadfast in the commitment to comprehensive evaluation of and response to health, environmental, and socioeconomic burdens faced by communities in our jurisdictions and nationwide. We therefore urge EPA to keep the *Framework* in place to promote consistency, accuracy, fairness, and transparency in environmental decision-making. We further urge ongoing federal action to strengthen cumulative impacts analysis and further the goal of health, safety, and prosperity for all.

I. States Have a Strong and Vested Interest in Advancing Cumulative Impacts Analysis in Environmental Decision-making.

Cumulative impacts analysis fills a critical gap in understanding population vulnerability and assisting decision-makers to mitigate and prevent disproportionate environmental and climate harms, by identifying and measuring "all chemical and non-chemical 'stressors' that affect a community's health, well-being, and quality of life."[3] Understanding cumulative impacts provides insight into critical social determinants of health that affect individual and community responses to stressors. Cumulative impacts analysis also captures challenges to climate adaption that are inextricably linked to both past and present land use decisions and patterns and their underlying inequities. And the cumulative impacts analysis process makes visible people and places who could most benefit from investments in health, environment, and infrastructure—including to correct for ongoing disinvestment and prepare for and recover from escalating environmental and climate disasters.

Our States are committed to continued innovation as we integrate cumulative impacts analysis into environmental, climate, and public health policy. To date, twenty-two states have developed or are currently advancing approaches for incorporating cumulative impacts analysis into decision-making.[4] Our States have been on the leading edge of these efforts, through the development of mapping and screening tools; advancement of legislation, regulations, and policies; and robust engagement of stakeholders—in both the policy development and implementation stages. We will continue to invest in these processes to restore and protect a healthy environment—wherever people live, play, work, learn, grow, and worship. The costs of inaction to our States and our residents are too high.

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[3] UNION OF CONCERNED SCIENTISTS & COMING CLEAN, THE COMMUNITY GUIDE TO CUMULATIVE IMPACTS 5 (Oct. 2024), https://www.ucsusa.org/sites/default/files/2024-10/Cumulative%20Impacts%20Guide_Eng.pdf.

[4] Vermont Law School Environmental Justice Clinic, *Environmental Justice State by State Directory*, https://ejstatebystate.org/directory (last visited Feb. 7, 2025); Tishman Environment and Design Center, *Understanding the Evolution of Cumulative Impacts*, https://tinyurl.com/5da74fbv (last visited Feb. 7, 2025).

But federal action and guidance on cumulative impacts also remains vital to inform our efforts to implement and enforce federal environmental statutes. Consistency across EPA and all federal agencies is necessary as we, alongside local and Tribal governments, businesses, and communities collaborate with EPA and other federal agencies on projects that trigger environmental review. Federal leadership, including clarity on terms, methodology, and implementation, assists us, as well, in developing our own State- and context-specific approaches to understanding and addressing cumulative impacts in our communities.

Our States are each at different stages of designing, adopting, and implementing our respective cumulative impacts approaches. Some of our States are considering pending legislation. Others are working through public processes to identify indicators, datasets, criteria, and key terms, in anticipation of rulemaking. Still others are implementing existing cumulative impacts approaches to mapping and screening, siting and permitting, and the distribution of resources, informed by community and stakeholder engagement. As we each advance our respective approaches, we can learn from one another, and we look to EPA to serve as a centralized hub to support continued innovation at the state and local level. Thus, we support the release of the *Framework* and urge its implementation and continued efforts to move the needle to support healthy, resilient, and thriving communities.

II. Understanding Cumulative Impacts is Crucial to Ensuring a Healthy Environment for All.

The 2023 Cumulative Impacts Research Recommendations report issued by EPA's Office of Research and Development defines cumulative impacts as "the totality of exposures to combinations of chemical and non-chemical stressors and their effects on health, well-being, and quality of life outcomes."[5] The report further clarifies that

> "[c]umulative impacts include contemporary exposures to multiple stressors as well as exposures throughout a person's lifetime. They are influenced by the distribution of stressors and encompass both direct and indirect effects to people through impacts on resources and the environment. Cumulative impacts can be considered in the context of individuals, geographically defined communities, or definable population groups.

[5] EPA, CUMULATIVE IMPACTS RESEARCH: RECOMMENDATIONS FOR EPA'S OFFICE OF RESEARCH AND DEVELOPMENT, EPA/600/R-2214a vii (Sep. 30, 2022), https://www.epa.gov/system/files/documents/2023-05/CUMULATIVE%20IMPACTS%20RESEARCH-FINAL%20REPORT-EPA%20600-R-22-014A%20%2812%29.PDF. [hereinafter CUMULATIVE IMPACTS RESEARCH].

Cumulative impacts characterize the potential state of vulnerability or resilience of a community."[67]

People experience the cumulative impacts of environmental and climate stressors every day, from home to work to school.[8] Individuals bear an "allostatic load" or the "cumulative biological risk due to wear and tear on the human body from multiple and repeated stresses over time."[9] Cumulative biological impacts originating from "being chronically exposed to, and having to cope with, socially structured stressors" is called "weathering."[10]

Vulnerability to such stressors increases "due to intrinsic factors, such as age, existing health or genetic conditions, or extrinsic factors, such as socioeconomic vulnerability and structural drivers of inequality[,]"[11] among the many social and political determinants of health.[12] Geographically- based communities, notably communities of color; Indigenous Peoples and Tribal Nations; low-income, rural, and unincorporated communities; and communities with low educational attainment,[13] "may be both positively and negatively influenced by common forces."[14] These can include environmental, infrastructural, economic, public health, and climate burdens, as well as a lack of corresponding benefits, "clustered spatially in recurrent, persistent, and systematic

[6] *Id*.; *see also* UNION OF CONCERNED SCIENTISTS, *supra* note 3, at 5.
[7] For other definitions, including examples of state statutory definitions, *see* NAT'L ACADS. OF SCIS., ENG'G, AND MED., CONSTRUCTING VALID GEOSPATIAL TOOLS FOR ENVIRONMENTAL JUSTICE 41-45, Table 2.1 (2024), https://nap.nationalacademies.org/catalog/27317/constructing-valid-geospatial-tools-for-environmental-justice [hereinafter NAT'L ACADS.].
[8] Nicolle S. Tulve*, et. al, Challenges and opportunities for research supporting cumulative impact assessments at the United States environmental protection agency's office of research and development,* 30 The Lancet Reg'l Health (2024), https://www.thelancet.com/journals/lanam/article/PIIS2667-193X(23)00240-5/fulltext.
[9] NAT'L ACADS., *supra* note 7, at 46.
[10] Arline T. Geronimus et al., *Race/Ethnicity, Poverty, Urban Stressors and Telomere Length in a Detroit Community-Based Sample,* 56 J. HEALTH SOC. BEHAV. 2 (Apr. 2015), https://pmc.ncbi.nlm.nih.gov/articles/PMC4621968/. *See also* INTERIM FRAMEWORK, *supra* note 1, at 9.
[11] INTERIM FRAMEWORK, *supra* note 1, at 22 (citing Cliona M. McHale et al., *Assessing Health Risks from Multiple Environmental Stressors: Moving from G×E to I×E*, 775 MUTATION RESEARCH - REVIEWS IN MUTATION RESEARCH 11 (2018), https://doi.org/10.1016/j.mrrev.2017.11.003; Zinzi D. Bailey et al., *Structural Racism and Health Inequities in the USA: Evidence and Interventions*, 389 LANCET 1453 (2017); Devon C. Payne-Sturges et al., *Confronting Racism in Environmental Health Sciences: Moving the Science Forward for Eliminating Racial Inequities*, 129 Env't Health Perspectives 5 (2021), https://doi.org/10.1289/ehp8186; Gina M. Solomon et al., *Cumulative Environmental Impacts: Science and Policy to Protect Communities*, 37 ANN. REV. PUB. HEALTH 83 (2016), https://doi.org/10.1146/annurev-publhealth-032315-021807).
[12] NAT'L ACADS., *supra* note 7, at 25.
[13] *Id.* at 24-25.
[14] *Id*. at 25.

patterns"[15] and occurring "over generations."[16] Health disparities tied to "longstanding place-based inequalities in exposures to environmental hazards"[17] and exacerbated by intrinsic and extrinsic vulnerabilities "can result in heightened cumulative health risks across a population."[18] Non-spatially defined populations, including based on race, class, age, disability, gender, and sexuality, as well as immigration, employment, and housing status, may also experience distinct vulnerabilities to individual and compounding stressors.[19] Environmental burdens and social stressors interact over time with very real effects on health, quality of life, and life span.[20]

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[15] INTERIM FRAMEWORK, *supra* note 1, at 8 (citing Robert D. Bullard et al., *Toxic Wastes and Race at Twenty: Why Race Still Matters After All of These Years*, 38 ENV'T L. 371 (2008), https://www.jstor.org/stable/43267204; Jayajit Chakraborty, *Acute Exposure to Extremely Hazardous Substances: An Analysis of Environmental Equity*, 21 RISK ANALYSIS 883 (2001), https://doi.org/10.1111/0272-4332.215159; Jayajit Chakraborty & Juliana A. Maantay, *Proximity Analysis for Exposure Assessment in Environmental Health Justice Research*, in GEOSPATIAL ANALYSIS OF ENV'T HEALTH 111 (Juliana A. Maantay & Sara McLafferty, eds., 2011); Jayajit Chakraborty, Juliana A. Maantay & Jean D. Brender, *Disproportionate Proximity to Environmental Health Hazards: Methods, Models, and Measurement*, 101(Suppl. 1) AM. J. PUB. HEALTH S27 (2011); STEVE LERNER, SACRIFICE ZONES: THE FRONT LINES OF TOXIC CHEMICAL EXPOSURE IN THE UNITED STATES (2012), https://doi.org/10.7551/mitpress/8157.001.0001; Rachel Morello-Frosch & Bill M. Jesdale, *Separate and Unequal: Residential Segregation and Estimated Cancer Risks Associated with Ambient Air Toxics in U.S. Metropolitan Areas*, 114 ENV'T HEALTH PERSPECTIVES 386 (2006), https://doi.org/10.1289/ehp.8500; Rachel Morello-Frosch et al., *Understanding the Cumulative Impacts of Inequalities in Environmental Health: Implications for Policy*, 30 HEALTH AFFAIRS 879 (2011), https://doi.org/10.1377/hlthaff.2011.0153; Marie S. O'Neill et al., *Health, Wealth, and Air Pollution: Advancing Theory and Methods*, 111 ENV'T HEALTH PERSPECTIVES 1861 (2003), https://doi.org/10.1289/ehp.6334; Cal. Off. Env't Health Hazard Assessment, CUMULATIVE IMPACTS: BUILDING A SCIENTIFIC FOUNDATION, Cal. EPA (2010), https://oehha.ca.gov/calenviroscreen/report/cumulative-impacts-building-scientific-foundation-report; United CHURCH OF CHRIST COMMISSION FOR RACIAL JUSTICE, TOXIC WASTES AND RACE IN THE UNITED STATES: A NATIONAL REPORT ON THE RACIAL AND SOCIO-ECONOMIC CHARACTERISTICS OF COMMUNITIES WITH HAZARDOUS WASTE SITES (1987), https://www.ucc.org/wp-content/uploads/2020/12/ToxicWastesRace.pdf).

[16] INTERIM FRAMEWORK, *supra* note 1, at 8.

[17] *Id.* at 4 (citing Spencer Banzhaf, Lala Ma & Christopher Timmins, *Environmental Justice: The Economics of Race, Place, and Pollution*, 33 J. ECON. PERSPECTIVES 185 (2019), https://www.jstor.org/stable/26566983; EPA, *Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts*, EPA 430-R-21-003 (2021), https://www.epa.gov/cira/social-vulnerability-report; Paul D. Juarez et al., *The Public Health Exposome: A Population-Based Exposure Science Approach to Health Disparities Research*, 11 INT. J. ENV'T RES. PUB. HEALTH 12866 (2014), https://doi.org/10.3390/ijerph111212866; Charles Lee, *Confronting Disproportionate Impacts and Systemic Racism in Environmental Policy*, 51 ENV'T L. REP. 10207 (2021); Paul Mohai, David Pellow & J. Timmons Roberts, *Environmental Justice*, ANN. R. ENV'T & RES. 405 (2009), https://doi.org/10.1146/annurev-environ-082508-094348; Morello-Frosch et al., *supra* note 15; Gina M. Solomon et al., *supra* note 11.

[18] Solomon et al., *supra* note 11, at 84.

[19] NAT'L ACADS., *supra* note 7, at 38-39, 43.

[20] Laura A. Bakkensen et al., *Cumulative Impacts in Environmental Justice: Insights from Economics and Policy*, 107 REG'L SCI. & URB. ECONS. 103993, 103993 (2024); Rachel Morello-Frosch et al., *supra* note 15, at 880-82; Jamie Ducharme and Elijah Wolfson, *Your ZIP Code Might Determine How Long You Live—and the Difference Could Be Decades,* TIME (June 17, 2019), https://time.com/5608268/zip-code-health/.

A. Discriminatory Policies Have Led to Environmental Disparities.

As many of our States have described in previous comment letters to EPA,[21,22] the environmental health disparities referenced above are rooted in interlocking systems of oppression that created, maintained, and now perpetuate disparities. These disparities stem from the enslavement of African and Indigenous people across this hemisphere, the coerced indentured labor of Asians and Latino/a/é immigrants, and the forced removal and displacement of Indigenous Peoples and Tribal Nations.[23] More proximately, Chinese Exclusion, Japanese internment camps, Spanish castas, and caste systems, Jim Crow, redlining, and housing covenants, among others, set the stage for the racist views of the early 20th century to become subsumed into policy and land use decisions.[24]

Today, most Americans live in racially segregated neighborhoods.[25] *De jure* and *de facto* segregation guided the development of communities and cemented inequities in place throughout this country. Legally based segregation, whether explicitly through Jim Crow laws and racially restrictive covenants or implicitly through zoning and federal housing policy, helped to ensure Black, Brown, and low-income communities were kept separate from their White or wealthier counterparts. This segregation remains in place today.

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[21] Comments of the Attorneys General of New York, Maryland, Massachusetts, North Carolina, Oregon, Vermont, and the District of Columbia (May 25, 2022), https://stateimpactcenter.org/files/NY-AG-Multi-State-Comments-on-CEJST.pdf.

[22] Comments of the Attorneys General of New York, California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Massachusetts, Maryland, Minnesota, New Jersey, Oregon, Pennsylvania, Vermont, Washington, and the District of Columbia (Sept. 05, 2024), https://stateimpactcenter.org/files/AG_Actions_NY_Response_FL_Rulemaking_Petition_9.5.24.pdf.

[23] *See, e.g.*, Slave Voyages Consortium, *Slave Voyages*, https://www.slavevoyages.org/.

[24] Miao Gregory et al., *A Health Justice Agenda for Local Governments to Address Environmental Health Inequities*, 50 J. L. MED. & ETHICS 758, 759 (2023) (citing Rachel Morello-Frosch & Russ Lopez, *The Riskscape and the Color Line: Examining the Role of Segregation in Environmental Health Disparities*, 102 ENV'T RSCH. 181 (2006), https://doi.org/10.1016/j.envres.2006.05.007; Gilbert C. Gee & Devon C. Payne-Sturges, *Environmental Health Disparities: A Framework Integrating Psychosocial and Environmental Concepts*, 112 ENV'T HEALTH PERSPECTIVES 1645-53 (2004), https://doi.org/10.1289%2Fehp.7074; Douglas S. Massey, *Residential Segregation and Neighborhood Conditions in US Metropolitan Areas*, *in* NAT'L RES. COUNCIL, AMERICA BECOMING: RACIAL TRENDS AND THEIR CONSEQUENCES Vol. 1 391-434 (2001), https://nap.nationalacademies.org/read/9599/chapter/14; Manual Pastor, Jim Sadd & John Hipp, *Which Came First? Toxic Facilities, Minority Move-In, and Environmental Justice*, J. URB. AFF. 1-21 (2001), https://doi.org/10.1111/0735- 2166.00072)).

[25] Tracy Hadden Loh, Christopher Coes & Becca Buthe, *Separate and Unequal: Persistent Residential Segregation is Sustaining Racial and Economic Injustice in the U.S.*, BROOKINGS INST.: THE GREAT REAL ESTATE RESET (Dec. 2020) ("Today, well over half of a century since the civil rights movement fought for the principle that separate is inherently unequal, real estate industry practices and local public policies have not been held accountable for making very little progress on integrating our neighborhoods"), https://www.brookings.edu/articles/trend-1-separate-and-unequal-neighborhoods-are-sustaining-racial-and-economic-injustice-in-the-us/; Stephen Menendian, *U.S. Neighborhoods are More Segregated than a Generation Ago, Perpetuating Racial Inequality*, NBC: THINK (Aug. 16, 2021, 7:04 PM) ("There's an adage among housing justice advocates: "Tell me your zip code and I'll tell you how long you'll live."), https://www.nbcnews.com/think/opinion/u-s-neighborhoodsare-more-segregated-generation-ago-perpetuating-racial-ncna1276372. *See generally* RICHARD ROTHSTEIN, THE COLOR OF LAW: A FORGOTTEN HISTORY OF HOW OUR GOVERNMENT SEGREGATED AMERICA (2017); DOUGLAS MASSEY & NANCY DENTON, AMERICAN APARTHEID: SEGREGATION AND THE MAKING OF THE UNDERCLASS (1993).

Zoning laws have been a common source of racial segregation resulting in the disproportionate distribution of environmental burdens and benefits.[26] While zoning laws were often justified as protecting public health, safety, and welfare, that protection, in practice, was not felt equally across all communities and was often weaponized to exclude certain communities from specific areas.[27] Such weaponization occurred both expressly, such as a 1916 ordinance in Kentucky that prohibited the sale of land to Black persons,[28] and by using race-neutral language that had the effect of racial segregation, such as placing restrictions on multi-family housing.[29] Racial segregation from zoning laws became further entrenched by the use of restrictions in property deeds that legally prohibited the sale of homes and land to people of color, known as racial covenants.[30]

In addition to segregating communities, zoning decisions have directly and intentionally perpetuated environmental disparities in many areas of the country by restricting the use of white neighborhoods to single-family homes and small businesses, while allowing polluting industries to proliferate in communities of color.[31] Furthermore, decisions to permit polluting facilities in communities of color are often made to avoid adverse health and environmental impacts in white neighborhoods as well as protect property values in those neighborhoods.[32] Permitting polluting facilities in communities of color may also be less costly for operators and face less opposition due to those communities' lack of political power.[33]

Federal housing policies have also contributed to disproportionate distribution of environmental burdens.[34] Under the practice of "redlining," the federally-created Home Owners' Loan Corporation (HOLC) denied Black people and immigrants access to home ownership by

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[26] Miao *et al.*, *supra* note 24, at 761; Marianne Engelmann-Lado, *No More Excuses: Building a New Vision of Civil Rights Enforcement in the Context of Environmental Justice,* 22 U. PA. J.L. & SOC. CHANGE 281, 283 (2019); Julia Mizutani, *In the Backyard of Segregated Neighborhoods: An Environmental Justice Case Study of Louisiana*, 31 GEO. ENV'T. L. REV. 363, 369 (2005).

[27] Juliana Maantay, *Zoning, Equity, and Public Health*, AM. J. PUB. HEALTH 1033, 1037 (July 2001), https://doi.org/10.2105%2Fajph.91.7.1033.

[28] Sara Zeimer, *Exclusionary Zoning, School Segregation, and Housing Segregation: An Investigation into a Modern Desegregation Case and Solutions to Housing Segregation*, 48 HASTINGS CONST. L.Q. 205, 206 (2020).

[29] Noah Kazis, *Ending Exclusionary Zoning in New York City's Suburbs*, NYU FURMAN CENTER 12 (Nov. 9, 2020), https://furmancenter.org/files/Ending_Exclusionary_Zoning_in_New_York_Citys_Suburbs.pdf

[30] Sara Zeimer, *Exclusionary Zoning, School Segregation, and Housing Segregation*, 48 HASTINGS CONST. L.Q. 205, 209 (2020); University of Minnesota Libraries, *Mapping Prejudice: What is a Covenant*?, https://mappingprejudice.umn.edu/racial-covenants/what-is-a-covenant (last visited Feb. 15, 2025).

[31] Mariya Denisenko, *The Impact of Government Sponsored Segregation on Health Inequities*, 80 WASH. & LEE L. REV. 1687, 1726 (Fall 2023).

[32] ROTHSTEIN, *supra* note 25, at 55.

[33] Julia Mizutani, *In the Backyard of Segregated Neighborhoods*, 31 GEO. ENV'T L. REV. 363, 365 (2019).

[34] April Johnson, *Fair Housing Issues: A Call for Mandated Housing Integration*, 50 U. TOL. L. REV. 107, 113 (2018); Deborah Kenn, *Paradise Unfound: The American Dream of Housing Justice for All*, 5 B.U. PUB. INT. L. J. 69, 84 (1995).

rating their neighborhoods as too risky to merit granting them mortgage loans.[35] Historically redlined neighborhoods today have poorer environmental conditions, including higher levels of pollution and noise, less green spaces, and higher temperatures, than neighborhoods given higher grades.[36]

Environmental harm from multiple sources assails communities of color as a result of the legacy of discriminatory policies.[37] Numerous studies show that hazardous waste sites, industrial facilities, sewage treatment plants, and other pollution sources continue to be sited today in communities of color,[38] which also experience greater exposure to pollutants from industry, transportation, and occupational sources.[39] Communities of color and low-income communities are also significantly more likely to live near sources of air pollution and breathe fine particulate air pollution.[40]

Environmental disparities experienced by Indigenous Peoples and Tribal Nations are "intimately bound up in the complex matter of tribal sovereignty[.]"[41] Legacies of territorial dispossession, along with laws incentivizing siting of extractive and polluting facilities—"from industry to mining to military bases"—on or near tribal lands, have created heightened exposure to environmental contaminants for Indigenous Peoples and Tribal Nations, presenting a

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[35] Abas Shkembi et al., *Linking Environmental Injustices in Detroit, MI to Institutional Racial Segregation through Historical Federal Redlining*, J. EXPOSURE SCI. & ENV'T EPIDEMIOLOGY 389, 389-90 (2022), https://doi.org/10.1038/s41370-022-00512-y.

[36] *See, e.g.,* Haley M. Lane et al., *Historical Redlining Is Associated with Present-Day Air Pollution Disparities in U.S. Cities*, 9 ENV'T SCI. TECH. LETTERS 345 (2022); Cesar O. Estien et al., *Historical Redlining Is Associated with Disparities in Environmental Quality across California*, 11 ENV'T SCI. TECH. LETTERS 54 (2024); Bev Wilson, *Urban Heat Management and the Legacy of Redlining*, 86 J. AM. PLANNING ASS'N 443 (2020).

[37] *See generally* Comments of the Attorneys General of New York, California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Massachusetts, Maryland, Minnesota, New Jersey, Oregon, Pennsylvania, Vermont, Washington, and the District of Columbia (Sept. 05, 2024), supra note 22.

[38] Morello-Frosch *et al.*, *supra* note 15, at 881 (citations omitted).

[39] *Id.* at 881 (discussing disproportionate exposure to pollutants); *Environmental Equity: Reducing Risk for All Communities*, *in* WORKGROUP REPORT TO THE EPA ADMINISTRATOR VOL. 2 at 1, 3 (1992) ("Racial minority and low-income populations experience higher than average exposures to selected air pollutants, hazardous waste facilities, contaminated fish and agricultural pesticides in the workplace."), https://www.epa.gov/sites/default/files/2015-02/documents/reducing_risk_com_vol2.pdf.

[40] Christopher W. Tessum et al., *PM2.5 Polluters Disproportionately and Systemically Affect People of Color in the United States*, 7 SCI. ADVANCES (Apr. 28, 2021), https://www.science.org/doi/10.1126/sciadv.abf4491; *see also* Kaya Bramble *et al.*, *Exposure Disparities by Income, Race and Ethnicity, and Historic Redlining Grade in the Greater Seattle Area for Ultrafine Particles and Other Air Pollutants*, 131 ENV'T HEALTH PERSPECTIVES 077004-1 (July 2023), https://doi.org/10.1289/EHP11662; John K. Kodros, *Unequal Airborne Exposure to Toxic Metals Associated with Race, Ethnicity, and Segregation in the USA*, NATURE COMMC'NS (Nov. 2022), https://doi.org/10.1038/s41467-022-33372-z; *see also* Katrina Miller, *Air Quality Mirrors the Racial Segregation of US Neighborhoods*, WIRED (Nov. 22, 2022), https://www.wired.com/story/air-quality-mirrors-the-racial-segregation-of-us-neighborhoods/; Bongki Woo *et al., Residential Segregation and Racial/Ethnic Disparities in Ambient Air Pollution*, RACE & SOC. PROBS. (Oct. 15, 2018), https://doi.org/10.1007%2Fs12552-018-9254-0.

[41] Ryan Holifield, *Environmental Justice as Recognition and Participation in Risk Assessment: Negotiating and Translating Health Risk at a Superfund Site in Indian Country*, 102(3) ANNALS ASS'N AM. GEOGRAPHERS 593 (2012).

disproportionate risk of adverse health impacts, including on reproductive health.[42] Owing to this regulatory environment, in 2023 there were 141 Superfund sites on or within 10 miles of Tribal land,[43] the remediation of which has significantly lagged behind that of sites in non-Indigenous communities.[44] Despite government-to-government consultation requirements, Native communities additionally experience disproportionate barriers to participation in environmental decision-making processes, not only through failures to meet access needs, but pervasively in the form of lack of mutual respect, status inequalities, or skepticism of Indigenous lifeways, science, and knowledge.[45]

B. Exposure to Multiple Intersecting Burdens Results in Disproportionate Harms to Disadvantaged Communities.

The cumulative impact of exposure to multiple sources of pollution has significant health impacts. These impacts include higher rates of a long list of health conditions, including but not limited to hypertension, heart disease, stroke, asthma, obesity, diabetes, and lung cancer.[46] Rural Black, Native American, and Alaska Native communities are exposed to greater carcinogenic risk and experience worse outcomes from cancer treatment[47] Native American communities located near extractive industry and Superfund sites experience sharply increased cancer mortality rates due to exposure to heavy metals and chemical waste through unregulated drinking water, contaminated soil, and direct contact.[48] These risks are exacerbated by barriers to accessing

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[42] Elizabeth Hoover et al., *Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice*, 120(12) ENV'T HEALTH PERSPECTIVES 1645, 1647 (Dec. 2012). For an example of disproportionate risk of adverse health impacts, *see* Raoul S. Liévanos, *Air-Toxic Clusters Revisited: Intersectional Environmental Inequalities and Indigenous Deprivation in the U.S. Environmental Protection Agency Regions*, 11 RACE & SOC. PROBS. 161 (2019) (finding that spatial concentrations of multiply marginalized Indigenous peoples in the U.S. were a significant predictor of area exposure to airborne carcinogenic pollution in the Mid-Atlantic EPA region).

[43] National Indian Health Board, *Superfund Sites & Tribal Land* (Sep. 6, 2023), https://storymaps.arcgis.com/stories/6dd33a110f354f61bd920fef6722eda5.

[44] EPA, *Tribal Superfund Program Needs Clear Direction and Actions to Improve Effectiveness*, Report no. 2004-P-00035 (2004), https://www.epa.gov/sites/default/files/2015-12/documents/20040930-2004-p-00035.pdf.

[45] *See* L.W. COLE & S.R. FOSTER, FROM THE GROUND UP: ENVIRONMENTAL RACISM AND THE RISE OF THE ENVIRONMENTAL JUSTICE MOVEMENT 123–125 (2001); *see, e.g.*, *Lyng v. Northwest Indian Cemetary Protective Association*, 485 U.S. 439, 466–467 (1988) (J. Brennan, dissenting).

[46] Morello-Frosch et al., supra note 15, at 880; Philip J. Landrigan, *Environmental Justice and the Health of Children,* 77 MT. SINAI J. MED. 178, 180 (2010), https://doi.org/10.1002/msj.20173; Eun -hye Yoo & John E. Roberts, *Differential Effects of Air Pollution Exposure on Mental Health: Historical Redlining in New York State*, 948 SCI. TOTAL ENV'T 174516 (2024), https://doi.org/10.1016/j.scitotenv.2024.174516.

[47] Whitney E. Zahnd et al., *The Intersection of Rural Residence and Minority Race/Ethnicity in Cancer Disparities in the United States*, 18(4) INT. J. ENV'T RES. & PUB. HEALTH 1384 (2021).

[48] Johnnye Lewis, *Disparate Exposures of Native Americans to Metal Mixtures in Abandoned Mine Waste in the West: Implications for Cancer Risk [Abstract]*, 27(7) PROCEEDINGS: TENTH AACR CONFERENCE ON THE SCIENCE OF CANCER HEALTH DISPARITIES IN RACIAL/ETHNIC MINORITIES AND THE MEDICALLY UNDERSERVED (Sep. 2017); *see also* Brian Mayer, Lorencita Joshweseoma & Gregory Sehongva, *Environmental Risk Perceptions and Community Health: Arsenic, Air Pollution, and Threats to Traditional Values of the Hopi Tribe*, 44 J. COMMUNITY HEALTH 896 (2019) (discussing arsenic contamination in drinking water and indoor air quality impacts of reliance on coal and wood stoves).

treatment options.[49] Children are especially vulnerable to the health impacts of environmental pollution.[50] People of color also bore the brunt of the COVID-19 pandemic's health impacts,[51] with Native communities subject to some of the highest per capita rates of COVID-19 and the highest mortality rate nationwide during the height of the pandemic.[52]

At the same time, the environmental benefits that support health disproportionately accrue to white communities.[53] These disparities exist for infrastructure, such as clean drinking water and sanitation,[54] affordable energy,[55] and transportation.[56] Communities of color, low-income communities, and Indigenous Peoples and Tribal Nations also have less access to trees, parks, and

[49] Sarah Dewees & Benjamin Marks, *Twice Invisible: Understanding Rural Native America*, FIRST NATIONS DEV. INST. 6 (Apr. 2017) (indicating that 54% of Native American and Alaska Native people live in rural or small-town areas on or near reservations, areas which lack reliable access to healthcare and experience other economic and social disparities).

[50] *See generally* Landrigan, *supra* note 50.

[51] Min Li & Faxi Yuan, *Historical Redlining and Resident Exposure to COVID-19: A Study of New York City*, 14 RACE & SOC. PROBS. 85, 99 (2022) (finding that "disparities and segregation resulting from historical redlining policies impose the minorities disproportionally to higher toll of COVID-19"), https://doi.org/10.1007/s12552-021-09338-z; Tseming Yang, *Old and New Environmental Racism*, 2024 UTAH L. REV. 109, 143 ("The COVID-19 pandemic has also concretely illustrated the effect of enhanced health vulnerability from prior pollution exposures, including disparate air pollution exposure of people of color." (Citations omitted.)); *see also* OFFICE OF MASSACHUSETTS ATTORNEY GENERAL MAURA HEALEY, COVID-19'S UNEQUAL EFFECTS IN MASSACHUSETTS: REMEDYING THE LEGACY OF ENVIRONMENTAL INJUSTICE & BUILDING CLIMATE RESILIENCE (2020), https://www.mass.gov/doc/covid-19s-unequal-effects-in-massachusetts/download.

[52] Richard Oppel et al., *The Fullest Look Yet at the Racial Inequity of Coronavirus*, N.Y. TIMES (July 5, 2020) (citing CDC data), https://www.nytimes.com/interactive/2020/07/05/us/coronavirus-latinos-african-americans-cdc-data.html; APM RESEARCH LAB, THE COLOR OF CORONAVIRUS: COVID-19 DEATHS BY RACE AND ETHNICITY IN THE U.S. (Mar. 5, 2021), https://www.apmresearchlab.org/covid/ deaths-by-race.

[53] Rebecca H. Walker et al., *The Impacts of Racially Discriminatory Housing Policies on the Distribution of Intra-Urban Heat and Tree Canopy: A Comparison of Racial Covenants and Redlining in Minneapolis, MN*, LANDSCAPE & URB. PLAN. (2024) (concluding that "[w]hile the Fair Housing Act of 1968 made both racial covenants and discriminatory lending illegal, the geographies of privilege and inequality they helped to produce and perpetuate continue to shape outcomes for wealth, health, and well-being" and that "housing policies that produced exclusive white neighborhoods continue to be associated with environmental benefits today, including cooler temperatures, more tree canopy cover, and reduced impervious surface cover"), https://doi.org/10.1016/j.landurbplan.2024.105019.

[54] Leila M. Harris et al., *Revisiting the Human Right to Water From an Environmental Justice Lens*, 3 POL. GRPS., & IDENTITIES 660 (2015); Brian Mayer, Lorencita Joshweseoma & Gregory Sehongva, *Environmental Risk Perceptions and Community Health: Arsenic, Air Pollution, and Threats to Traditional Values of the Hopi Tribe*, 44 J. CMTY. HEALTH 896 (2019), https://rdcu.be/d8uJz.

[55] Diana Hernández, *Understanding 'Energy Insecurity' and Why it Matters to Health*, 167 SOC. SCI. & MED. 1 (2016), https://doi.org/10.1016/j.socscimed.2016.08.029.

[56] *See, e.g.*, Robert Bullard, *Addressing Urban Transportation Equity in the United States*, 31 FORDHAM U. L. J. 1183 (2004); Stephanie Pollack et al., *The Toll of Transportation*, NE. UNIV. DUKAKIS CTR. FOR URB. & REG'L POL'Y (Nov. 2013), https://1vmdesign.com/wp-content/uploads/2015/03/DUK_TOLL_N2N_Report.pdf; Brian S. McKenzie, *Neighborhood Access to Transit by Race, Ethnicity, and Poverty in Portland, OR*, 12 CITY & CMTY. 134–155 (2013).

open green spaces.[57] And persistent disinvestment impacts access to healthy, affordable, and culturally appropriate food[58] and health care.[59]

C. Climate Change Exacerbates the Effects of Other Cumulative Environmental Harms.

Climate-related impacts disproportionately affect vulnerable populations facing existing environmental burdens,[60] functioning as a threat multiplier to exacerbate both environmental risk[61] and economic inequality.[62] The escalating heatwaves, flooding, sea-level rise, extreme storms, and infectious diseases brought on by climate change have greater impacts on "[r]acially and socioeconomically marginalized communities," including communities of color, low-income communities, and Indigenous Peoples and Tribal Nations, as well as people with disabilities and unhoused people.[63] Across the United States, Native American adults experience the highest mortality rate from natural hazards (such as heat, cold, and storms) among all racial and ethnic groups.[64] Climate change also threatens the cultural traditions and foodways of Indigenous

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[57] Dylan Bugden, *Environmental Inequality in the American Mind: The Problem of Color-Blind Environmental Racism*, 71 SOC. PROBS. 106, 107 (Feb. 2024), https://doi.org/10.1093/socpro/spac005; David J. Novak et al., *The Disparity in Tree Cover and Ecosystem Service Values Among Redlining Classes in the United States*, 221 LANDSCAPE & URB. PLAN. 104370, 104375 (2022), https://doi.org/10.1016/j.landurbplan.2022.104370; Anthony Nardone et al., *Redlines and Greenspace: The Relationship Between Historic Redlining and 2010 Greenspace Across the United States*, 129 ENV'T HEALTH PERSP. 017006-1, 017006-1 (2022), https://doi.org/10.1289/EHP7495; Eun Kyung Lee et al., *Health Outcomes in Redlined Versus Non-Redline Neighborhoods: A Systemic Review and Metal-Analysis*, 294 SOC. SCI. & MED. 114696, 11474 (Feb. 2022), https://doi.org/10.1016/j.socscimed.2021.114696; Dexter H. Locke et al., *Residential Housing Segregation and Urban Tree Canopy in 37 US Cities*, 1 NPJ URB. SUSTAINABILITY 15 (2021), https://doi.org/10.1038/s42949-021-00022-0; Morello-Frosch et al., *supra* note 15, at 881.

[58] *See, e.g.*, Kimberly Morland et al., *Neighborhood Characteristics Associated with the Location of Food Stores and Food Service Places*, 22 PREVENTATIVE MED. 23 (Jan. 2002); Lisa Powell et al., *Food Store Availability and Neighborhood Characteristics in the United States*, 44 PREVENTATIVE MED. 189 (2007); Thomas A. LaVeist, Darrel J. Gaskin & Antonio J. Trujillo, *Segregated Spaces, Risky Places: The Effects of Racial Segregation on Health Inequalities*, JOINT CTR. FOR POL. & ECON. STUD. (2011). *See also* Alison Hope Alkon & Julian Agyeman, CULTIVATING FOOD JUST.: RACE, CLASS, AND SUSTAINABILITY 89, 93 (2011).

[59] *See* Dewees & Marks, *supra* note 58, at 6 (indicating that 54% of Native American and Alaska Native people live in areas which lack reliable access to healthcare and experience other barriers, including distance, to accessing treatment.).

[60] Alique Berberian et al., *Racial Disparities in Climate Change-Related Health Effects in the United States,* CURRENT ENVIRONMENTAL HEALTH REP. 451, 451-52 (May 28, 2022), https://doi.org/10.1007/s40572-022-00360-w.

[61] H. Orru et al., *The Interplay of Climate Change and Air Pollution on Health*, 4 CURRENT ENVTL. HEALTH REPORT 504, 504 (2017).

[62] Avery Ellfeldt & E&E NEWS, *Climate Disasters Threaten to Widen U.S. Wealth Gap,* SCIENTIFIC AMERICAN (Oct. 2, 2023), https://www.scientificamerican.com/article/climate-disasters-threaten-to-widen-u-s-wealth-gap/.

[63] Berberian, Gonzalez & Cushing, *supra* note 60, at 451, 454 (2022); *see also* M. H. Hayden *et al.*, Ch. 15 Human health. In: A. R. Crimmines et al., FIFTH NATIONAL CLIMATE ASSESSMENT (2023), https://nca2023.globalchange.gov/chapter/15/.

[64] *Id.* at 454.

communities.[65] Cumulative impacts analysis provides a particularly important lens through which to understand the compounding harms of the current moment.

For example, decades of disinvestment in historically redlined communities can result in both greater flood risk and fewer federal and local funds allocated for flood protection.[66] A New York study found that the creation of Significant Maritime and Industrial Areas (SMIAs) in New York City in 1992 resulted in the further concentration of environmental hazards in low-income and communities of color.[67] All six SMIAs are located within hurricane storm surge zones, increasing flood risks to vulnerable populations due to climate disasters.[68] These densely populated areas are directly adjacent to heavy industrial facilities and polluting infrastructure[69] and experience higher incidences of air pollution and the urban heat island effect, exacerbated by climate change.[70] Following Hurricane Sandy in 2012, community groups in Sunset Park, Red Hook, and Greenpoint expressed heightened concerns about the potential spread of toxic chemicals from Superfund sites via floodwaters.[71] Cumulative impacts analysis was essential to understanding the impacts of Hurricane Sandy and future storm events for these communities.[72]

Recent scholarship further demonstrates that repeated exposure to climate change-related extreme heat has a cumulative effect, which is greater for low-income communities and communities or color.[73] The risk of dying from higher temperatures and extreme heat events was elevated among Black, Latino/a/é, and Indigenous people compared to White people, with even higher risk among non-U.S. citizens, in studies across the United States.[74] Climate researchers have identified that surface temperatures in formerly redlined communities across the country are

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[65] *See, e.g.*, Carson Viles, *Traditional Knowledge: First Foods and Climate Change*, N. ARIZ. UNIV.: TRIBES & CLIMATE CHANGE PROGRAM (Dec. 2011) ("Because of the vital role that first foods play in the physical, mental, and spiritual health of native communities, impacts from climate change on first foods may negatively affect tribal culture and livelihood."), https://www7.nau.edu/itep/main/tcc/docs/tribes/tribes_FirstFoodsCC.pdf; Amy Chang et al., *Impact of Climate Change on Alaska Natives*, 86 J. ENV'T HEALTH 36 (2023).

[66] See Sheila Foster et al., *NPCC4: Advancing Climate Justice in Climate Adaptation Strategies for New York City,* THE NEW YORK ACADEMY OF SCIENCES 94 (Aug. 19, 2025), https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.15148.

[67] *Id*.

[68] *Id*.

[69] Albert Huang, *Hurricane Sandy's Disproportionate Impact on NYC's Most Vulnerable Communities*, NAT. RES. DEF. COUNCIL: EXPERT BLOG (Nov. 15, 2012), https://www.nrdc.org/bio/albert-huang/hurricane-sandys-disproportionate-impact-nycs-most-vulnerable-communities.

[70] *Id*.

[71] *Id.*

[72] Foster, *et al*., *supra* note 66, at 95.

[73] Thomas Matte et al., *NPCC4: Climate Change and New York City's Health Risk*, 1539 ANNALS N. Y. ACAD. SCIS. 185, 192-93 (Sep. 2024), https://nyaspubs.onlinelibrary.wiley.com/doi/epdf/10.1111/nyas.15115; *see also* Zhiwei Xu et al., *Impact of Heatwave on Mortality Under Different Heatwave Definitions: A Systematic Review and Meta-aAnalysis* 89-90 ANNALS ENV'T. INT'L 193 (2016), https://pubmed.ncbi.nlm.nih.gov/26878285/. https://doi.org/10.1016/j.envint.2016.02.007.

[74] Berberian, Gonzalez & Cushing, *supra* note 60, at 454.

an average of 2.6 degrees Celsius (4.7 degrees Fahrenheit) warmer than in non-redlined areas due to less tree canopy and more impervious surfaces.[75]

In addition to compounding socioeconomic factors due to residential location, occupational exposures to extreme heat place workers of color, particularly Latino/a/é people—who are overrepresented in industries with high heat-mortality risk such as agriculture and construction—at greater risk of extreme heat exposure.[76] A recent study in Washington state found that Latino/a/é people were disproportionately impacted by heat-related illness across industries based on workers' compensation claims from 2006-2017.[77] Recent studies have also found elevated risk for heat-related illness among Black soldiers in the U.S. and Latino/a/é farmworkers in Florida and Iowa.[78]

In addition to these many burdens, low-income households that experience energy insecurity and lack access to air conditioning during hot weather are at greater risk of heat-related illness or death.[79] As climate change contributes to hotter summers, the cost of cooling energy will rise and continue to overburden low-income households.[80] Greater usage rates of air conditioning and cooling units further strain the electric grid and leave marginalized communities more vulnerable to outages and brownouts.[81] These cumulative effects leave low-income and communities of color at the greatest risk of heat-related illness and death.[82]

D. Compounding Stressors Impose Significant Costs on Affected Communities and States.

Compounding social, environmental, and climate stressors in combination with health vulnerabilities impose significant public health and economic burdens on both communities and State, local, and Tribal governments. Examples include, but are not limited to, costs of health care, damage to infrastructure and natural resources, housing and job instability, and lives lost from environmental pollutants, extreme storms, heatwaves, and wildfires.[83]

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[75] Matte et al., *supra* note 73, at 193.
[76] Berberian, Gonzalez & Cushing, *supra* note 60, at 455.
[77] *Id.* at 455-56.
[78] *Id*.
[79] *Id*.
[80] *Id*.
[81] *Id*.
[82] Berberian, Gonzalez & Cushing, *supra* note 60, at 456.
[83] *See e.g.* Comments of the Attorneys General of Minnesota, Arizona, California, Colorado, Connecticut, the District of Columbia, Delaware, Illinois, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Vermont, Washington, and Wisconsin Appendix A at 14 (Dec. 14, 2023) (in support of consideration of Environmental, Social, and Governance (ESG) factors in investment decision-making, particularly as related to "climate change-related risks and opportunities"),

Indoor and outdoor air pollutants are significant contributors to respiratory illness, cancer, and heart disease, resulting in astronomical increases in medical expenses and other costs.[84] Asthma alone results in "approximately 1.8 million annual emergency department visits in the United States[85] and accounts for $50.3 billion in health care costs and $3 billion in missed school and work days per year.[86] Asthma is also the most common chronic disease experienced by children and one of the main causes of child hospitalization,[87] as well as accruing significant costs from physician and outpatient visits and medications.[88] And environmental pollution also hinders economic stability.[89] For example, children who grow up in areas with higher levels of traffic-related air pollution and lead in their homes experience lower adult incomes on average relative to their parents.[90]

The health costs related to six climate-related events and disasters in the United States between 2000 and 2009 have been estimated at $740 million in actual healthcare expenses and over $14 billion when premature mortality is factored in, a staggering sum even before contemplating other related costs, such as infrastructure damage.[91] The intensification of climate change over time has increased and will continue to increase these financial burdens; climate-related events in 2012 alone are estimated to have cost the country $10 billion in 2018 dollars.[92]

Heat-related or heat-adjacent illness in 2023 has been estimated to lead to ~235,000 emergency department visits and 56,000 hospital admissions annually, adding ~$1 billion in health care expenses.[93] Heat exacerbates the impacts of already degraded air quality as "pollutants like ozone and particular matter are difficult to control in high temperatures, resulting in increased costs to meet federal air quality standards and higher health care costs associated with increased rates of

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[84] Xu-Qin Jiang et al., *Air pollution and chronic airway diseases: what should people know and do?*, J. OF THORACIC DISEASE (Jan. 8, 2016).
[85] Evan Lemire, *Unequal Housing Conditions And Code Enforcement Contribute To Asthma Disparities In Boston, Massachusetts*, HEALTH AFFAIRS (April 2022), https://www.healthaffairs.org/doi/10.1377/hlthaff.2021.01403.
[86] American Lung Association, *Asthma Trends and Burden* (last updated July 15, 2024) https://www.lung.org/research/trends-in-lung-disease/asthma-trends-brief/trends-and-burden.
[87] Giuliana Ferrante and Stefania La Grutta, *The Burden of Pediatric Asthma*, FRONTIERS IN PEDIATRICS (2018).
[88] *Id. See also* Richard Perry et al., *The Economic Burden of Pediatric Asthma in the United States: Literature Review of Current Evidence*, PHARMACOECONOMICS (Oct. 13, 2018), https://pmc.ncbi.nlm.nih.gov/articles/PMC6386052/.
[89] *See, e.g.,* Robert Manduca & Robert J. Sampson, *Childhood Exposure to Polluted Neighborhood Environments and Intergenerational Income Mobility, Teenage Birth, and Incarceration in the USA*, POPULATION AND ENVIRONMENT (2021), https://doi.org/10.1007/s11111-020-00371-5; Stephen Farber, *Undesirable Facilities and Property Values: Summary of Empirical Studies*, ECOLOGICAL ECONOMICS (1998), https://doi.org/10.1016/S0921-8009(97)00038-4
[90] *See, e.g.*, Manduca & Sampson, *supra* note 89.
[91] Kim Knowlton et al., *Six Climate Change-Related Events in the United States Accounted for About $14 Billion in Lost Lives and Health Costs*, 30 HEALTH AFFAIRS 2167, 2170 (Nov. 2011).
[92] Vijay S. Limaye et al., *Estimating the Health-Related Costs of 10 Climate-Sensitive U.S. Events During 2012*, 3 GEOHEALTH 245, 245 (Sep. 2019), https://doi.org/10.1029/2019GH000202.
[93] Steven Woolf et al., *The Health Care Costs of Extreme Heat*, CENTER FOR AMERICAN PROGRESS (2023), https://www.americanprogress.org/article/the-health-care-costs-of-extreme-heat/.

respiratory disease."[94] Heat also creates labor productivity declines at approximately $100 billion annually, and that figure is only rising. Farmworkers are particularly vulnerable and experience underlying cumulative inequities, including higher poverty rates, barriers to health care access, and immigration issues.[95]

The cost of wildfires includes not only immediate damage to property, damage to industry (especially timber), mortality, morbidity, and costs of firefighting; it extends to longer-term impacts on human health from air pollution, business losses due to supply and demand shifts, and displaced recreation and tourism.[96] Climate-exacerbated wildfires have been estimated to cause economic costs and damages of $394 to $893 billion annually, with the majority of costs attributable to real estate value loss, smoke exposure, income loss, and watershed costs.[97]

Overall, the increasing and compounding risks, burdens, and costs associated with the climate crisis speak to the need for using cumulative impacts analysis to fully grasp community needs and develop meaningful solutions.

III. The History and Development of Cumulative Impacts Analysis in the United States

Efforts to understand and mitigate compounding harms to disadvantaged communities and vulnerable populations fueled the development of cumulative impacts analysis.[98] Gaps in knowledge due to reliance on risk assessment and associated limits in protections from compounding harms provided by environmental regulations demonstrated the need for the more holistic cumulative impacts approach.

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[94] *See e.g.* Comments of the Attorneys General of Minnesota, Arizona, California, Colorado, Connecticut, the District of Columbia, Delaware, Illinois, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Vermont, Washington, and Wisconsin, *supra* note83, at 14.

[95] Jill Rosenthal, Rosa Barrientos-Ferrer, and Kate Petosa, *Extreme Heat Is More Dangerous for Workers Every Year*, CENTER FOR AMERICAN PROGRESS (Jun 13, 2024), https://www.americanprogress.org/article/extreme-heat-is-more-dangerous-for-workers-every-year/.

[96] David L. Peterson, Sarah M. McCaffrey & Toral Patel-Weynand, *Wildland Fire Smoke in the United States*, SPRINGER NATURE 219-220 (2022), https://library.oapen.org/handle/20.500.12657/57899.

[97] JEC DEMOCRATIC MAJORITY, CLIMATE-EXACERBATED WILDFIRES COST THE U.S. BETWEEN $394 TO $893 BILLION EACH YEAR IN ECONOMIC COSTS AND DAMAGES 1 (Oct. 2023), https://www.jec.senate.gov/public/_cache/files/9220abde-7b60-4d05-ba0a-8cc20df44c7d/jec-report-on-total-costs-of-wildfires.pdf.

[98] Lara Cushing, Rache Morello-Frosch, Madeline Wander, & Manuel Pastor, *The haves, the have-nots, and the health of everyone: the relationship between social inequality and environmental quality,* 36 ANN. REV. OF PUB. HEALTH (2015), https://pubmed.ncbi.nlm.nih.gov/25785890/.

A. History of Cumulative Impacts Analysis

Enforcement of laws to protect human health and the environment has necessitated tools to identify and measure "substances that cause or pose risks of causing such harms."[99] During the 1980s, health, environmental, and safety agencies increasingly adopted risk assessment methodologies to set human health-based standards.[100] Risk assessment involves a range of scientific methods "to define the health effects of exposure of individuals or populations to hazardous materials and situations."[101] Risk assessments "have traditionally focused almost exclusively on single chemicals, specific health endpoints, individual sources or source categories, a particular environmental medium (e.g., air, water, food, soil), and a single exposure pathway and route[.]"[102] Most environmental decision-making now involves some form of risk assessment.[103]

However, even as risk assessment grew in prominence within regulatory regimes, "citizen groups, the National Academy of Sciences, and ultimately the regulatory agencies recognized that some citizens and some groups were not well protected by environmental health laws[,]"[104] including associated methods for measuring risk. As early as 1992, the EPA raised concerns about "a risk-based approach to environmental management" due to "the relative risk borne by low-income and racial minority communities [including] higher than average exposures to selected air pollutants, hazardous waste facilities, contaminated fish, and agricultural pesticides in the workplace."[105]

Members of "[o]verburdened communities first raised concerns about addressing cumulative impacts in order to adequately account for the total burden or 'lived reality'"[106] faced by residents in their neighborhoods. Specifically, advocates began to bring to light the failure of chemical-by-chemical and source-specific assessments of health risks of environmental hazards to account for and protect from cumulative impacts of multiple environmental and social stressors

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[99] Carl F. Cranor, *Risk Assessment, Susceptible Subpopulations, and Environmental Justice, in* THE LAW OF ENVIRONMENTAL JUSTICE: THEORIES AND PROCEDURES TO ADDRESS DISPROPORTIONATE RISKS 341 (Michael B. Gerrard and Sheila F. Roster eds., 2d ed. 2008).
[100] Clifford Villa *et al.*, ENVIRONMENTAL JUSTICE: LAW, POLICY & REGULATION, at 87 (3d ed. 2020).
[101] Cranor, supra note 99, at 341 (quoting NATIONAL RESEARCH COUNCIL, RISK ASSESSMENT IN THE FEDERAL GOVERNMENT: MANAGING THE PROCESS 3 (1983))
[102] Ken Sexton *et al.*, *The Role of Cumulative Risk Assessment in Decisions about Environmental Justice, International Journal of Environmental Research and Public Health*, 7(11) INT. J. ENV'T RES. PUBLIC HEALTH 4037, 4038 (2010), https://doi.org/10.3390/ijerph7114037.
[103] Cranor, *supra* note 99, at 341.
[104] *Id.* at 341-42.
[105] Robert R. Kuehn, *The Environmental Justice Implications of Quantitative Risk Assessment*, 1996 U. ILL. L. REV. 103, 105 (1996) (citation omitted).
[106] Nat'l. Env't. Just. Advisory Council Workgroups, *Cumulative Impacts Workgroup Charge* (May 2024) https://www.epa.gov/system/files/documents/2024-05/nejac-current-workgroups-updated-may-2024.pdf.

faced by vulnerable communities.[107] Environmental and public health research revealed "a fragmented approach of considering chemicals in isolation an insufficient framework for understanding the interaction of multiple burdens and stressors and informing environmental decision-making—thus, requiring the more comprehensive and holistic consideration provided by cumulative impacts analysis."[108]

B. Community Engagement as Foundational Tenet of Cumulative Impacts Analysis

Community engagement has long been central to cumulative impacts analysis and, in fact, the concept of cumulative impacts analysis itself is product of community-based participatory research conducted to fill the scientific and regulatory gap identified above.[109] Community engagement enables the integration of a community's unique insight into environmental exposures over time into research on environmental risk, bolstering the credibility of the research and associated policy making efforts.[110] Meanwhile, meaningful engagement is essential to ensuring community perspectives shape environmental and public health solutions, including "in planning, advocating for, and implementing the strategies to reduce exposures."[111] In essence—addressing cumulative impacts is a process, not just a result.

In New York City, throughout the 1980s and 1990s, community groups like the South Bronx Clean Air Coalition and West Harlem Environmental Action (WE ACT) were both situated in neighborhoods with high hospitalization rates for asthma[112] and facing the siting of facilities that would have added to existing burdens. The corporate and municipal representatives in favor

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[107] Carolina L Balazs and Rachel Morello-Frosch, *The Three R's: How Community Based Participatory Research Strengthens the Rigor, Relevance, and Reach of Science,* ENV'T JUST. 10 (Nov. 18, 2013), https://doi.org/10.1089/env.2012.0017; *see also* Kristie M. Ellickson *et al.*, *Mixed Methods Approaches: Structures and Methodologies for Cumulative Impact Assessment Development*, ENV'T JUST. (2024), https://doi.org/10.1089/env.2023.0045; Nicky Sheats*, Understanding the Evolution of Cumulative Impacts Definitions and Policies in the U.S.,* THE NEW SCHOOL: TISHMAN ENVIRONMENT AND DESIGN CENTER 3 (Aug. 2022), https://static1.squarespace.com/static/5d14dab43967cc000179f3d2/t/630637a79481bf24cac9f19e/1661351847644/CumulativeImpacts_REPORT_FINAL_Aug2022.pdf.

[108] Laura A. Bakksen *et al.*, *Cumulative Impacts in Environmental Justice: Insights from Economics and Policy*, REG'L SCI. & URB. ECON., 2 (Feb. 2024), https://doi.org/10.1016/j.regsciurbeco.2024.103993; *see also* Just Green Partnership, *New York State Environmental Health & Justice Advocates and Bill Sponsors Call on Governor Hochul to Get Deadly Toxics Out of Their Communities* (Dec. 8, 2022), https://www.weact.org/2022/12/new-york-state-environmental-health-justice-advocates-and-bill-sponsors-call-on-governor-hochul-to-get-deadly-toxics-out-of-their-communities/.

[109] Charles Lee, *Another Game Changer in the Making? Lessons from States Advancing Environmental Justice Through Mapping and Cumulative Impact Strategies,* 51 ENV'T LAW INST. 10676 (2021), https://www.elr.info/sites/default/files/article/2021/07/51.10676.pdf.

[110] Devon C. Payne-Sturges *et al.*, *Engaging Communities in Research on Cumulative Risk and Social Stress-Environment Interactions: Lessons Learned from EPA's Star Program,* ENV'T JUST. (2015).

[111] *Id.*

[112] Julie Sze, NOXIOUS NEW YORK: THE RACIAL POLITICS OF URBAN HEALTH AND ENVIRONMENTAL JUSTICE 91 (Nov. 2007).

of the noxious facilities—a medical waste incinerator and a new diesel bus depot—argued that there was not adequate proof that emissions would worsen childhood asthma.[113] Community residents argued that the official risk assessments did not consider the cumulative exposure that residents faced from multiple pollution exposures, citing their own experience with asthma as well as the experience of their children.[114]

Community-based organizations throughout the country have recognized the connections between research, organizing, and advocacy to improve environmental health goals through understanding of cumulative impacts. Community organizations now play a significant role in developing bottom-up strategies to define cumulative impacts and quantify the cumulative pollution burden and vulnerabilities in collaboration with academia and government agencies.

C. Cumulative Impacts in Federal Environmental Decision-Making

As noted in the *Framework*, "[c]umulative impacts analysis may inform a range of federal activities, as appropriate and consistent with federal law."[115] For EPA, this range includes "standard setting, permitting, rulemaking, cleanup, emergency response, funding, planning, state, territorial, and Tribal program oversight, and other decision-making, and initiating administrative or judicial action in situations for which there is actual—or potential for—imminent and substantial endangerment[.]"[116]

Consideration of the cumulative effects of environmental pollution at the federal level is not new.[117] Dating back to 1974, the National Environmental Policy Act (NEPA)[118] has required federal agencies to include potentially affected parties in deliberations about projects with significant environmental effects and to consider the cumulative environmental, economic, and public health effects of such projects, including in analyses required for the development of Environmental Impact Statements and Environmental Assessments.[119] NEPA defined cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions[.]."[120] Such analysis of cumulative effects responded to recognition that "environmental degradation" often results from "multiple changes over time."[121]

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[113] *Id.*
[114] *Id.*
[115] INTERIM FRAMEWORK, *supra* note 1, at 7.
[116] INTERIM FRAMEWORK, *supra* note 1, at 7.
[117] Bakksen *et al.*, *supra* note 108, at 1.
[118] Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. §§ 4321-47).
[119] Bakksen *et al.*, *supra* note 108, at 1.
[120] *Id.*
[121] *Id.*

EPA has determined that it has "legal authority to address cumulative impacts in communities with environmental justice concerns" across a broad range of agency activities,[122] including in the standard-setting context.[123] For example, in reviewing and revising performance standards for listed source categories under the Clean Air Act (CAA), EPA may prioritize source categories that contribute to cumulative impacts in communities with environmental justice concerns.[124] Within eight years of setting national emission standards for hazardous air pollutants, the CAA requires EPA to review the health and environmental risks associated with the emissions standards, and revise them as necessary[125] Pursuant to § 112(f)(2), standards for each source category must "provide an ample margin of safety to protect public health[,]" by reducing "lifetime excess cancer risks to the *individual most exposed* to emissions from a source in the category or subcategory[.]" Such a determination requires the consideration contemplated by cumulative risk or impacts analysis by emphasizing determination of the "actual health effects with respect to persons living in the vicinity of sources" including "risks presented by background concentrations of hazardous air pollutants."[126] EPA also may consider cumulative impacts when deciding whether to initiate an administrative or judicial action to address actual or potential endangerment.[127]

EPA additionally has authority to employ cumulative impacts analysis when conducting risk assessments, such as under the Toxic Substances Control Act.[128] As applied to existing chemicals, TSCA requires EPA to eliminate any unreasonable risks presented by "the manufacture, processing, distribution in commerce, use, or disposal of a chemical substance. . . or. . . *any combination of such activities.*"[129] Implicit in this provision is the requirement to consider cumulative risk, since EPA cannot comply with TSCA's mandate to eliminate any unreasonable risks caused by a "combination[s]" of uses and other activities unless it first evaluates those combined, or "aggregate," risks and determines whether they are unreasonable. The consideration of aggregate and cumulative risk is also required by TSCA's mandate to evaluate and regulate chemicals "in a manner consistent with the best available science."[130]

EPA also has authority to consider cumulative impacts under the Safe Drinking Water Act, which requires the agency to address imminent and substantial endangerment to the health of persons due to the presence of a contaminant in "a public water system or underground source of

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[122] EPA, EPA LEGAL TOOLS TO ADVANCE ENVIRONMENTAL JUSTICE: CUMULATIVE IMPACTS ADDENDUM 2 (Jan. 2023), https://www.epa.gov/system/files/documents/2022-12/bh508-Cumulative%20Impacts%20Addendum%20Final%202022-11-28.pdf.
[123] *See, e.g.*, 42 U.S.C. § 7411(f)(2); *id.* § 7409(d).
[124] *Id.* § 7411(f)(2).
[125] *Id.* § 7412(f)(2); *see also, e.g.*, *Nat'l Ass'n for Surface Finishing v. EPA*, 795 F.3d 1, 5 (D.C. Cir. 2015).
[126] 42 U.S.C. § 7412(f)(1)(C).
[127] *See, e.g.,* 42 U.S.C. § 300i(a); 33 U.S.C. § 1364(a).
[128] *See, e.g.*, 15 U.S.C. § 2605(b)(4); 42 U.S.C. § 7412(f)(1)(C).
[129] 15 U.S.C. § 2605(a) (emphasis added).
[130] *Id.* § 2625(h).

drinking water."[131] In determining whether a containment poses such endangerment, EPA may consider the contaminant's cumulative impacts.[132] EPA's legal authority to address cumulative impacts in disadvantaged communities also extends to the "permitting, cleanup, emergency response, funding, planning, [and] state program oversight" contexts.[133]

D. History of EPA's Cumulative Impacts *Framework*

In 2003, EPA published a *Framework for Cumulative Risk Assessment* (*2003 Framework*), "intended to foster consistent approaches . . . within EPA, identify key issues, and define terms[,]" as well as lay groundwork for agency-wide guidelines.[134] The following year, EPA's National Environmental Justice Advisory Council (NEJAC) published a report responding to EPA's request for NEJAC input on implementation of the *2003 Framework*.[135] In the report, the NEJAC acknowledged EPA's *2003 Framework* as "a profound advancement in the kind of thinking that will help communities and tribes address their concerns."[136] The NEJAC went on to recommend EPA "fully incorporate the concept of vulnerability" and "social, economic, cultural, and community health factors" into EPA's strategic plans, research agendas, and decision-making.[137] The NEJAC "promot[ed] a paradigm shift to community-based approaches, particularly community-based participatory research and intervention."[138] And finally, the NEJAC urged "a bias for action within EPA through the widespread utilization of an Environmental Justice Collaborative Problem-Solving Model."[139]

In 2024, EPA, again, requested that the NEJAC provide recommendations "to assist EPA to lay a sound foundation for assessing and addressing cumulative impacts by making overburdened communities, populations or groups, especially those facing extreme exposure or vulnerability, a central part of the process."[140] In October 2024, the NEJAC issued a report in response, entitled *Recommendations for Reducing Cumulative and Disproportionate Impacts and*

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[131] 42 U.S.C. § 300i(a).
[132] *Id*.
[133] EPA, LEGAL TOOLS, *supra* note122, at 2.
[134] EPA RISK ASSESSMENT FORUM, FRAMEWORK FOR CUMULATIVE RISK ASSESSMENT xvii (2003), https://www.epa.gov/sites/default/files/2014-11/documents/frmwrk_cum_risk_assmnt.pdf.
[135] NAT'L. ENV'T. JUST. ADVISORY COUNCIL, ENSURING RISK REDUCTION IN COMMUNITIES WITH MULTIPLE STRESSORS: ENVIRONMENTAL JUSTICE AND CUMULATIVE RISKS/IMPACTS ii (2004), https://www.epa.gov/sites/default/files/2015-02/documents/nejac-cum-risk-rpt-122104.pdf (hereinafter, NEJAC 2004).
[136] *Id.*
[137] *Id.* at v.
[138] *Id.* at 2.
[139] *Id.* at 1.
[140] Nat'l. Env't. Just. Advisory Council Workgroups, *Cumulative Impacts Workgroup Charge* (May 2024) https://www.epa.gov/system/files/documents/2024-05/nejac-current-workgroups-updated-may-2024.pdf.

Burdens in Environmental Justice Communities.[141] The report includes several recommendations relevant to EPA's current *Framework*, notably that EPA should:

- "use cumulative impact assessments to reduce disproportionate exposures and impacts in overburdened communities[;]"
- "accelerate the progress of innovative approaches to cumulative impacts implementation[;]"
- "determine and communicate a set of principles to guide the practice of cumulative impact assessment[;]"
- "validate lived experience and incorporate it into assessments and processes through co-design and shared leadership[;]" and
- "incorporate structural drivers such as colonialism and racism into its cumulative impacts practice and framework for implementation [as] root causes and structural drivers of disproportionate and cumulative impacts[.]"[142]

In December 2024, EPA released the *Interim Framework for Advancing Consideration of Cumulative Impacts* to provide EPA's programs "with a foundation of information and resources that can support developing and implementing approaches to incorporate analysis and consideration of cumulative impacts into their work, with the goal of achieving results that improve health and quality of life in America's communities."[143]

IV. Cumulative Impacts Analysis Is Increasingly Important for and Embedded in State Environmental and Public Health Decision-making.

Our States have taken significant steps to integrate cumulative impacts analysis into our environmental and public-health decision-making. In fact, many of our States are at the forefront of efforts to develop mapping and screening tools and advance legislation, regulations, and policies, with community engagement as a core priority.

A. Mapping and Screening Tools

Our States have developed and adopted mapping and screening tools to ascertain the geographic distribution of environmental benefits and harms and social determinants of health.

In 2013, California developed and released a mapping tool, CalEnviroScreen, which became a national model for identifying communities most vulnerable to environmental harms due

[141] NAT'L. ENV'T. JUST. ADVISORY COUNCIL, REDUCING CUMULATIVE AND DISPROPORTIONATE IMPACTS AND BURDENS IN ENVIRONMENTAL JUSTICE COMMUNITIES, 6 (2024), https://www.epa.gov/system/files/documents/2024-11/nejac-recommendations-for-reducing-cumulative-and-disproportionate-impacts-and-burdens-in-environmental-justice-communities.pdf. (Hereinafter NEJAC 2024).
[142] *Id.* at 4-5.
[143] INTERIM FRAMEWORK, *supra* note 1, at 2.

to pollution and health and socioeconomic factors.[144] CalEnviroScreen combines datasets on environmental exposures and effects and socioeconomic factors, which are used to cumulatively rank census tract levels.[145] A number of California programs use that ranking to prioritize resource allocation and environmental protection efforts.[146]

More recently in 2022, the New Jersey Department of Environmental Protection (NJDEP) released a beta version of its Environmental Justice Mapping, Assessment, and Protection (EJMAP) tool and companion technical guidance document.[147] EJMAP establishes an objective, publicly available representation of the existing environmental and public health stressors in the state's overburdened communities and supports the analysis required under the Environmental Justice Rules.[148] Among the several ways EJMAP enables users to identify relevant population, demographic, and environmental data, users can determine whether an overburdened community is subject to adverse cumulative stressors.[149] New Jersey's EJMAP comes out of requirements under the New Jersey Environmental Justice Law[150] to determine the appropriate geographic point of comparison for the overburdened community comparative analysis. New Jersey compares overburdened communities, or an adjacent block group's greatest stressed overburdened community neighbor, to both the state and relevant county non-overburdened community 50th percentile levels for each environmental and public health stressor, relying on whichever is most protective (e.g., lower) in each instance.[151]

Other States have released mapping tools using similar methodologies. Washington uses a web-based mapping tool[152] to inform environmental assessments of significant agency actions and to facilitate engagement with disadvantaged communities.[153] Illinois has used California's methodology to identify "environmental justice communities" for the purpose of allocating solar

[144] Cal. Office of Env't Health Hazard Assessment, *CalEnviroScreen*, https://oehha.ca.gov/calenviroscreen; Lee, *Another Game Changer in the Making?, supra* note 109, at 10678.
[145] Lee, *Another Game Changer in the Making?, supra* note 109, at 10677.
[146] *Id.* at 10,680; *see, e.g.*, Cal. Gov't Code § 16428.89(e).
[147] N.J. Dept. of Env't Prot., Environmental Justice Mapping, Assessment and Protection Tool, https://experience.arcgis.com/experience/548632a2351b41b8a0443cfc3a9f4ef6.
[148] N. J. Dept. of Env't Prot., *Guidance Document for Environmental Justice* (April 12, 2023), njdep-ej-technical-guide.pdf.
[149] *See id.*
[150] N.J.S.A. 13:1D-157 *et seq.*
[151] *Id.*
[152] Lee, *Another Game Changer in the Making?, supra* note 109, at 10681; Wash. State Dep't of Health, *Washington Environmental Health Disparities Map*, https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map.
[153] Wash. Rev. Code § 70A.02.060(4)(b); *id.* § 70A.02.050(1)(c); *see also* Arianna Zrzavy et al., *Addressing Cumulative Impacts: Lessons from Environmental Justice Screening Tool Development and Resistance*, ENV'T L. REP. 10118 (2022).

energy access.[154] Minnesota[155] and New Jersey[156] use mapping and screening tools to identify disadvantaged communities for permit application review purposes. Maryland has also released a screening tool to track disadvantaged communities and the distribution of environmental harms.[157] And additional states, including Michigan and Vermont, are in the process of developing mapping tools to inform state policies.[158] These tools enable states to identify existing and foreseeable disparities, and to direct attention and resources toward communities that are most susceptible to and impacted by environmental harms.[159]

B. Cumulative Impacts in Environmental Siting and Permitting

Many of our States require private parties to produce cumulative impacts analyses when applying for a permit for a project or action that might impose disproportionate environmental impacts on a disadvantaged community. Those analyses must account for, among other things, environmental and public health stressors already borne by the affected community as a result of existing conditions and the potential of the proposed project or action to add to existing environmental and health burdens. By shedding light on environmental and health disparities, needs, and vulnerabilities, cumulative impacts analysis enables state agencies to prevent projects or actions that will exacerbate existing inequities, or ameliorate the harms thereof.

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[154] Lee, *Another Game Changer in the Making?, supra* note 109, at 10681; Ill. Solar for All, *Environmental Justice Communities*, https://www.illinoissfa.com/environmental-justice-communities; Ill. Power Agency, *2024 Long-Term Renewable Resources Procurement Plan*, 300-308 (Apr. 19, 2024), https://ipa.illinois.gov/content/dam/soi/en/web/ipa/documents/final-2024-long-term-renewable-resources-procurement-plan-19-apr-2024.pdf.

[155] *See* Zrzavy, *supra* note 153, at 10118; Minn. Pollution Control Agency, *Environmental Justice*, https://www.pca.state.mn.us/about-mpca/environmental-justice; Minn. Pollution Control Agency, *Fact Sheet: Cumulative Levels and Effects Analysis*, https://www.pca.state.mn.us/sites/default/files/aq1-42b.pdf.

[156] N.J. Dep't of Envtl. Prot., *New Jersey Environmental Justice Mapping Tool*, https://experience.arcgis.com/experience/548632a2351b41b8a0443cfc3a9f4ef6; N.J. Stat. Ann. § 13:1D-159.

[157] *See* Md. Dep't of the Env't, *MDE's Environmental Justice Screening Tool*, https://mde.maryland.gov/Environmental_Justice/Pages/EJ-Screening-Tool.aspx; Zrzavy, *supra* note 153, at 10117.

[158] *See* Zrzavy, *supra* note 153, at 10115; Vt. Stat. Ann tit. 3, § 6005.

[159] *See* Lee, *Another Game Changer in the Making?, supra* note 109, at 10,677; Zrzavy, *supra* note 153, at 10114.

a. Permitting Processes

Several States, including California, Connecticut, and Montana, have long incorporated cumulative impacts analysis in their environmental review under mini-NEPA statutes.[160,161] More recently, States have begun to require agencies to deny, or attach conditions to, applicable permits that are expected, based on cumulative impacts analysis, to exacerbate environmental and health inequities.[162]

New Jersey's environmental justice permitting regulations were finalized and adopted in 2023.[163] One of the three purposes for these regulations was to "limit the placement of new facilities that would create a disproportionate impact by causing or contributing to adverse cumulative stressors in an overburdened community."[164] NJDEP defines "adverse cumulative stressors" as instances where the combined stressor total of the overburdened community is higher than the overburdened community's geographic point of comparison or would be made higher than

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[160] Cal. Pub. Res. Code §§ 21156; Conn. Gen. Stat. § 22a-1b(c) (requiring environmental impact evaluations to account for cumulative environmental effects); Haw. Code R. § 11-200.1-24(i), (l) (requiring environmental impact statement to examine cumulative impacts of proposed actions); Mont. Code Ann. § 75-1-208(11) (requiring agency, "when appropriate, [to] evaluate the cumulative impacts of a proposed project"); N.Y. Envir. Conser. Law § 8-0109.2(a)(k), 8-0109.4; *see also* N.J. Attachment to Exec. Order No. 215, *Guidelines for the Preparation of an Environmental Impact Statement / Environmental Assessment*, at 3 (requiring environmental assessments and impact statements to identify and describe the cumulative impacts of a proposed project); Wash. Rev. Code §§ 43.21C.405(3)(a), 43.21C.535(3)(a) (requiring certain agencies' environmental impact statements to include analysis of cumulative impacts on "environmental justice and overburdened communities"); Ga. Code Ann. § 12-16-8(3) (advising that a government agency might prepare an environmental effects report on the basis that "the cumulative effect" of "a series of [proposed] governmental actions . . . is significantly adverse").

[161] "Mini-NEPA" statutes require government agencies to conduct environmental reviews of government or government-funded actions, similar to the environmental review processes required under NEPA. Dominique Rolle & William Snape, *Summary of the Current Issues on Environmental Justice and State "Mini-NEPAS*," Environmental Justice State by State, https://ejstatebystate.org/current-issues/mini-nepa.

[162] *See* N.J. Stat. Ann. §§ 13:1D-158 to 13:1D-160 (requiring a permit applicant to prepare an "environmental justice impact statement that assesses the potential environmental and public health stressors associated with the proposed new or expanded facility, . . . , and the environmental or public health stressors already borne by the overburdened community," and requiring the Department of Environmental Protection to "deny a permit for a new facility upon a finding that approval . . . would . . . cause or contribute to adverse cumulative environmental or public health stressors in the overburdened community that are higher than those borne by other communities"); N.C. Gen. Stat. § 113A-120(a)(10) (requiring State body to deny an application for a permit upon certain findings about the proposed development's contribution to cumulative effects, but limiting cumulative effects to "impacts attributable to the collective effects of a number of projects"); N.Y. Envir. Conser. Law § 70-118.2(b), 3(b) (requiring a permit applicant to prepare an "existing burden report," and requiring the New York Department of Environmental Conservation to deny a permit for a new project "if it determines that the project will cause or contribute more than a de minimis amount of pollution to a disproportionate pollution burden on [a] disadvantaged community"); 2023 Minn. Laws ch. 60, art. 8, § 3, subd. 3, 5(b) (requiring a permit applicant when applicable to include cumulative impacts analysis with its application, and requiring the Minnesota Pollution Control Agency to enter into a community benefit agreement with, or "deny a permit . . . for[,] a facility in an environmental justice area if the cumulative impacts analysis determines that issuing the permit, in combination with the environmental stressors present in the . . . area . . . and considering the socioeconomic impact of the facility . . . , would have a substantial adverse impact on the environment or health of the . . . area and its residents").

[163] N.J.A.C. 7:1C.

[164] N.J.A.C. 7:1C-1.3.

an overburdened community's geographic point of comparison as a result of the facility's contribution.[165] Where the overburdened community is subject to adverse cumulative stressors, the regulations require the applicant to include information in accordance with the Environmental Justice Impact Statement Requirements.[166]

In another example, Massachusetts requires applicants seeking permits for facilities in or adjacent to environmental justice populations to submit a cumulative impact analysis as part of a Comprehensive Plan Application (CPA).[167] The CPA requires an assessment of existing community conditions based on evaluation of 33 environmental, health, and socio-economic indicators "including conditions and concerns raised by [environmental justice] populations[,]"[168] as well as air toxics risk characterization, air quality dispersion modeling, and an evaluation of "how air pollutant emissions could affect existing environmental and public health conditions." and any proposed mitigation measures.[169] Under recently passed legislation, Massachusetts also now requires energy siting applications to include cumulative impacts analyses and requires the Energy Facilities Siting Board to consider those impacts as part of its decision-making process.[170]

C. Distribution of Resources

Several states rely upon cumulative impacts analysis to distribute resources equitably to meet the needs of communities who bear disproportionate environmental and health burdens. Under Maryland law, the Commission on Environmental Justice and Sustainable Communities is charged with developing strategies to build climate equity and resilience in communities disproportionately affected by climate change.[171] Vermont requires certain agencies to set goals around directing their investments that provide environmental benefits.[172] California requires agencies to ensure that activities undertaken to comply with regulations setting greenhouse gas emissions limits and reduction measures do not disproportionately burden disadvantaged

[165] N.J.A.C. 7:1C-1.5.
[166] N.J.A.C. 7:1C-2.2(b)3.
[167] *See* 310 Mass. Code Regs. 7.02(14)(a), (c), (h); *see also* Colo. Code Regs. § 404-1:315.b(2), (5) (requiring the operator of a proposed oil and gas operation to submit a cumulative impacts analysis as part of their permit application, and requiring the Colorado Oil and Gas Conservation Commission to review that analysis to ensure cumulative impacts are adequately addressed); Conn. Gen. Stat. § 22a-20a(a)(1), (b)(1) (requiring permit applicants seeking approval for a facility affecting an "environmental justice community" to include "an assessment of environmental or public health stressors").
[168] Massachusetts Department of Environmental Protection, *Guidance for Conducting Cumulative Impact Analysis For Air Quality Comprehensive Plan Applications* 1 (March 28, 2024), https://www.mass.gov/doc/guidance-for-conducting-cumulative-impact-analysis-for-air-quality-comprehensive-plan-applications-march-28-2024/download.
[169] *Id.*
[170] 2024 Mass. Legis. Serv. ch. 239, §§ 60, 65.
[171] Md. Code Ann., Envir. §1-701(a)(7)-(8), (h)(5).
[172] *See* 3 V.S.A. § 6004(h).0

communities.[173] And Maryland and California both prioritize the allocation of climate change funds toward disproportionately affected communities.[174]

D. Prioritization of Community Engagement

Finally, many of our States' environmental programs prioritize engagement with disadvantaged communities as a central component of identifying and understanding cumulative impacts.

As early as 2009, New Jersey Governor Corzine signed New Jersey Executive Order 131, promoting environmental quality in low-income and minority communities.[175] EO 131 states, among other things, "the cumulative exposure to pollution and other hazards from multiple sources in communities whose residents are predominantly low-income and persons of color creates a disproportionate impact on the health, well-being, and quality of life[.]"[176] EO 131 also acknowledges that addressing cumulative impacts "requires a coordinated response across multiple governmental agencies and a more inclusive process of decision-making."[177] In 2021, the NJDEP Commissioner built on existing efforts by issuing Administrative Order 2021-25 requiring NJDEP to use "its existing legal authority to… ensure meaningful public engagement and the implementation of feasible conditions to avoid or reduce contributions to existing public health and environmental stressors in overburdened communities while rulemaking is ongoing."[178] Permit applicants are required to "respond to and address the concerns raised by individuals in the overburdened community and to conduct any additional analysis related thereto that the Department deems necessary for its review."[179]

Many states require permit applicants to hold public hearings and engage in other forms of public involvement when their proposed facilities would be located in or have an impact on disadvantaged communities, where permitting involves a community benefits agreement,[180] or in developing zoning plans.[181] States also require certain agencies to conduct public outreach, community listening sessions, and form commissions partly comprised of residents of

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[173] Cal. Health & Safety Code, § 38562(b)(2).
[174] *Id.* § 1-701(h)(5)(iii); Cal. Health & Safety Code § 39713(a).
[175] Office of New Jersey Governor Jon S. Corzine, Executive Order No. 131 (February 5, 2009), https://nj.gov/infobank/circular/eojsc131.htm.
[176] *Id.*
[177] *Id.*
[178] Office of New Jersey Department of Environmental Protection Commissioner Shawn LaTourette, Administrative Order No. 2021-25 (September 20, 2021), https://dep.nj.gov/wp-content/uploads/ej/docs/njdep-ao-2021-25-environmental-justice.pdf.
[179] *Id.*
[180] Minn. Stat. § 116.065 subd. 6(c)(4)(i) (requiring Minnesota Pollution Control Agency, when entering into a community benefits agreement with a facility in an environmental justice area, to conduct "active outreach to," and "at least one public meeting with," residents of the impacted area to "achieve significant community participation").
[181] Cal. Gov't Code § 65302(h)(1)(B) (requiring county or city zoning plan to promote civic engagement by disadvantaged communities in the public decision-making process).

disadvantaged communities, to ensure that regulations and agency actions reflect the interests of those communities.[182]

States continue to innovate in our efforts to meet the challenges posed by cumulative impacts on our residents and look to EPA as a partner in this work.

V. States Urge Federal Leadership on Cumulative Impacts.

While drafted "as resource for EPA staff and decision-makers," the guidance and leadership offered by EPA's *Framework*, along with other recent steps to bolster EPA's implementation of cumulative impacts analysis, benefit our States and our stakeholders.[183,184] Incorporating assessments of the cumulative impacts of environmental and climate burdens and benefits has become increasingly important to protecting the health, safety, and prosperity of our residents and to facilitating sound environmental and climate decision-making. Clear direction from EPA enables the agency to provide effective and efficient programs and services, enhance cross-agency collaboration, and respond with greater transparency and consistency to the needs of State, local, and Tribal governments, communities, and regulated entities.

A. States Support the Implementation of EPA's *Framework*.

First, the States affirm the value of clear goals as EPA looks to cumulative impacts analysis to further its mission to work with state, local, and Tribal governments, communities, and regulated entities to protect human health and the environment for all. Even as our States adapt the cumulative impacts approach to address the distinct needs and circumstances of our constituents, we recognize the need for common goals and principles with which to implement assessment and consideration of cumulative impacts. To provide a "shared point of reference," EPA outlines both long-term and immediate goals for "incorporating analysis and consideration of cumulative impacts into decisions." The *Framework* defines EPA's long-term goals as

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[182] See e.g. Md. Code Ann., Envir. § 1-701(c)(1), (g)(1), (h)(1) (establishing Commission on Environmental Justice and Sustainable Communities to advise Maryland agencies on environmental justice and other issues, requiring Commission to consist partly of residents of disadvantaged communities, and requiring Commission to host community listening sessions in disadvantaged communities); *id.* § 1-702(c)(1) (requiring Maryland Department of the Environment, in developing procedures for addressing climate impacts in disadvantaged communities, to "[s]olicit input from all segments of the population that will be impacted by th[ose] policies"); *See* 3 V.S.A. § 6004(c) (requiring certain Vermont agencies to create and adopt community engagement plans); *id.* § 6006(a), (d) (establishing in Vermont the Environmental Justice Advisory Council and Interagency Environmental Justice Committee "to provide independent advice and recommendations to State agencies and the General Assembly on matters relating to environmental justice," and requiring Council membership to be comprised "with a goal to have more than 50 percent residing in environmental justice focus populations").

[183] INTERIM FRAMEWORK, *supra* note 1, at 2.

[184] *See e.g.* EPA, *Legal Tools, supra* note 122; CUMULATIVE IMPACTS RESEARCH: RECOMMENDATIONS, *supra* note 5.

1) Achieving "safe, healthy, and thriving" communities[;]"
2) Protecting all people "from disproportionate and adverse environmental human health and environmental effects and hazards, including cumulative impacts of environmental and other burdens[;]" and
3) Ensuring that [n]o community bears a disproportionate share of adverse environmental and public health impacts[.]"[185]

The long-term vision articulated in those long-term goals aligns with goals underlying the environmental, environmental justice, and climate laws and policies adopted by our States, many of which are referenced above.

In service of that vision, the *Framework* details a set of more immediate goals as "empowering the EPA to:

1) More fully and accurately characterize the realities communities face;
2) Pinpoint the levers of decision-making and identify opportunities for interventions that improve health and quality of life while advancing equity; and
3) Increase meaningful engagement, improve transparency, and center actions on improving health and environmental conditions in communities."[186]

Those goals, too, echo our efforts to hone the precision, efficacy, and accountability of our approaches to cumulative impacts. Roadmaps guiding our environmental decision-making must be clear and transparent for all stakeholders involved. And government actors must build necessary trust to make certain the lived experiences of those most impacted guide the decisions to ensure all have access to clean air, water, and soil, and a safe and healthy home.

Second, we applaud EPA's guidance on methodology rooted in an emphasis on a "fit-for-purpose" approach to assessing and addressing cumulative impacts.[187] At the core of EPA's *Framework* is a conceptual model to inform the Initiation, Scoping and Problem Formation, Assessment, and Informing Decisions stages of a cumulative impacts assessment.[188] At the initiation stage, EPA identifies the need to understand the triggers for the analysis, its feasibility, and the decision context, including the relevant jurisdictions, procedures, and decision-makers. EPA also emphasizes the NEJAC's 2004 recommendation that development of "a common understanding" of the multiple stressors concerning a community assist with "building the confidence, trust, and capacity within the impacted community[.]"[189] EPA next outlines considerations at the scoping and problem formation stage, including methodology, data needs, decision alternatives, and processes for community engagement and broader public review, as well as clear identification, characterization, and prioritization of the issues of concern.

[185] INTERIM FRAMEWORK, *supra* note 1, at 10.
[186] *Id.* at 9-10.
[187] *Id.* at 11.
[188] *Id.* at 12-23.
[189] *Id.* at 11.

In conducting the assessment itself, EPA outlines a series of factors to consider including, but not limited to, the range of stressors, exposure pathways, and vulnerabilities, with priority given to stressors affecting people and the environment combined with analysis of the underlying distribution of environmental benefits and burdens, ecological and cultural context, and defined priorities.[190] The *Framework* emphasizes the relevance of Indigenous science and knowledge to the assessment, particularly in addressing the distinct exposure pathways facing Indigenous and Tribal Peoples.[191] As well, the *Framework* notes a range of relevant data sources to understand intrinsic and extrinsic individual, community, population, and/or life stage group vulnerabilities and health effects into the analysis, including quantitative, semiquantitative, and qualitative data, as well as mixed-methods and community participatory approaches. Finally, and particularly crucial, are the questions EPA outlines to guide how a cumulative impacts approach can inform environmental decision-making.[192]

At each of these stages, EPA appropriately identifies the need for a context-specific fit for purpose approach. As demonstrated by the typology of methods included within the *Framework*[193] and the background provided above, our States—along with local governments, the science community, and many NGOs—have developed tailored approaches to incorporating cumulative impacts analysis at all stages of environmental decision-making. In doing so, we have often sought models. The guidance offered by this conceptual model and the definition of key terms will facilitate effective and transparent policymaking and implementation in our States. Moreover, knowing the considerations EPA recommends raising at every stage of its own process will assist federal-state collaboration.

Third, we applaud the emphasis and clear guidance on meaningful community engagement, with an emphasis on lived experience. Our States are committed to meaningful engagement with the communities most impacted by environmental and climate burdens including through cumulative impacts policies, many of which, the *Framework* notes, were "developed through a process of shared leadership, codesign, and authentic engagement with communities."[194] Incorporating lived experience is necessary to understanding cumulative impacts and ensure the accuracy and credibility of the analysis. Meaningful engagement is the heart of that process and must be "guided by integrity, inclusiveness, dialogue, influence, and accountability."[195] A robust cumulative impacts analysis requires participation of those who can provide "local knowledge of health and existing conditions; identify areas of concern and issues of interest that might not be readily apparent to those outside the community; offer contextual/cultural perceptions and

[190] *Id.* at 19-22.
[191] *Id.* at 20.
[192] *Id.* at 22.
[193] *Id.* at 24.
[194] *Id.* at 50.
[195] *Id.* at 14.

experiences; and assist in identifying and refining the scope of the assessment and its ultimate recommendations."[196]

The emphasis on a place-based approach to cumulative impacts analysis reflects a need to understand the realities of geographically defined communities but does not discount the relevance of geographically dispersed populations. The *Framework*'s recognition that cumulative impacts analysis also applies to the vulnerabilities experienced by individuals, population groups, and life stages expands the vision for meaningful engagement consistent with the fit for purpose approach.[197] Finally, as noted above, the *Framework* appropriately gives special consideration to engagement with Indigenous Peoples and Tribal nations, a necessity not simply due to relevant expertise and vulnerabilities, but the sovereign relationships at issue and the need for free, prior, and informed consent.

Finally, we support the *Framework*'s stated commitment to utilize cumulative impacts analysis to "improv[e] human health, quality of life, and the environment in all communities" and "[f]ocus[] on the disproportionate and adverse burden of cumulative impacts."[198] As noted by the Union of Concerned Scientists in its recent guide to cumulative impacts,

> "[c]umulative impacts and disproportionate impacts are different but related concepts. *Cumulative impacts* refers to the totality of stressors and burdens. *Disproportionate impacts* refers to the fact that some communities have greater stressors and burdens relative to others. Assessing cumulative impacts is one way to bring attention to and acknowledge the full magnitude of both types of inequality."[199]

The *Framework* underscores the links between compounding social, environmental, and climate stressors and significant—often dire—disparities in health and wellbeing linked to structural inequality. As the 2024 NEJAC report cautions, traditional risk assessment alone might be insufficiently protective of human health and unable account for "the physical, social and emotional burdens" experienced by disadvantaged communities or "disproportionate burdens between communities."[200] The *Framework* acknowledges the relationship between traditional risk assessment, cumulative risk assessment, and cumulative impacts analysis, with recognition that cumulative impacts analysis "can employ key components of traditional risk assessment" while taking into account "stressors that are not considered in the EPA's traditional risk assessment paradigm."[201] Our States are undertaking various measures to identify and alleviate these persistent

[196] *Id.* at 14.
[197] *Id.* at 4.
[198] *Id.* at 9-10, 11, 17.
[199] UNION OF CONCERNED SCIENTISTS, *supra* note 3, at 11.
[200] NEJAC 2024, *supra* note 141, at 8.
[201] INTERIM FRAMEWORK, *supra* note 1, at 15.

disparities, including using cumulative impacts analysis. We welcome the guidance and illustrative examples offered by the *Framework*.

B. States Urge Continued Innovation to Fully Integrate Cumulative Impacts Analysis Into Federal Decision-Making and Model For Our and Other States and Municipalities.

In its *Framework*, EPA has outlined a series of next steps, which our States support. We also urge EPA to build on this *Framework* to more completely fulfill the objectives that it has laid out, including supporting "cumulative impacts analysis and assessment becoming a standard business practice across its programs[.]"[202] Toward this end, we offer the following points for agency consideration:

Improve access to publicly available data and expand consideration of indicators and impacts. We emphasize the continued need to expand access to publicly available data, which is crucial to inform cumulative impacts analysis and to ensure that the tools necessary for implementation are broadly accessible. EPA should also provide guidance on and expand the range of impacts and indices considered in cumulative impacts analysis.[203] The National Academy of Sciences, Engineering, and Medicine's *Constructing Valid Geospatial Tools For Environmental Justice* report is particularly instructive.[204] This report recommends the adoption of "systematic, transparent, and inclusive processes to identify and select indicators and datasets that consider technical criteria (validity, sensitivity, specificity, robustness, reproducibility, and scale) and practicality (measurability, availability, simplicity, affordability, credibility, and relevance)[,]" as well as to "[e]valuate measures in consultation with federal agencies, technical experts, and community partners."[205]

Improve and adopt methods that facilitate consideration of lived experience and foster sustained community partnerships. To fulfill the goals of the *Framework*, the agency should heed the recommendations from the NEJAC to ensure that cumulative impacts analysis fully captures "experiential and community knowledge."[206] As a component of that effort, we recommend incorporating and making accessible data that enhance consideration of lived experience.[207] As the *Framework* acknowledges, this requires consideration of quantitative,

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[202] *Id.* at 28.
[203] Solomon et al., *supra* note 11.
[204] NAT'L ACADS., *supra* note 7, at 197.
[205] *Id.* at 9.
[206] NEJAC 2024, *supra* note 141, at 39.
[207] "Both community measures of data and lived experiences improve the understanding of local impacts from polluting sources and are useful for informing policy improvements. Combining indicators of environmental, health, and social stressors is similar to combining temperature and humidity to create a "heat index" or the temperature and wind speed to create a "wind-chill" so that communities can gain a better understanding of the full impact of multiple factors." UNION OF CONCERNED SCIENTISTS, *supra* note 3, at 12.

semiquantitative, and qualitative data, as well as mixed methods.[208] Use of more granular units of analysis can also be particularly helpful to ensure that community-level and distributional impacts are not obscured.[209] As noted by the NEJAC, EPA should "adopt methods to factor in qualitative data such as public testimony and lived experience, or community science with small numbers of participants, existing health conditions, and other data," including those "often dismissed in traditional risk assessment."[210] Moreover, across all applications of cumulative impacts analysis, accuracy, effectiveness, credibility, and trust require "[c]reating and sustain[ing] community partnerships that provide forums and opportunities to identify local environmental justice issues, identify the indicators and datasets for measuring them, and determine whether [the analysis] results reflect community lived experiences."[211]

Continue to advance cumulative impacts in federal decision-making, providing models to inform federal and non-federal jurisdictions. Consistent with statutory mandates and longstanding EPA practices, the agency should continue to utilize cumulative impacts analysis to inform environmental decision-making across EPA's programs. As both EPA and state efforts demonstrate, incorporation of cumulative impacts analysis results in more credible science- and data-driven decisions. EPA should continue to provide clarity and consistency regarding methodology and implementation, including where cumulative impacts analysis is mandated under federal law. This will help facilitate efficiency and certainty for state, local, and Tribal governments, communities, and regulated entities. As states adopt and refine laws and policies, EPA's approach helps establish a floor from which states can build, identify opportunities for innovation, and determine the best approach for our respective jurisdictions.

Improve and standardize distributional analyses across the agency and advance models for using cumulative impacts assessment to reduce disproportionate burdens. Consistent with the recommendations of the NEJAC, EPA should take every opportunity to use cumulative impacts analysis to identify and reduce disproportionate exposures and impacts in overburdened communities and on vulnerable populations.[212] Building on the principles outlined in the *Framework*, clear guidance is needed to ensure that agencies are conducting well-reasoned, informative distributional analyses in the implementation of a cumulative impacts approach to more fully identify and understand how and where exposures and impacts are felt—and for those analyses to inform decision-making across the agency. We recommend creating clear and consistent goals and developing consistent methodologies for how and when to incorporate

[208] INTERIM FRAMEWORK, *supra* note 1, at 19.
[209] Jack Lienke et al., *Making Regulations Fair How Cost-Benefit Analysis Can Promote Equity and Advance Environmental Justice*, INST. FOR POL'Y INTEGRITY (Aug. 2021), https://policyintegrity.org/files/publications/Making_Regulations_Fair_Report_vF_%281%29.pdf.
[210] NEJAC 2024, *supra* note 141, at 39.
[211] NAT'L ACADS., *supra* note 7, at 5 ("For community engagement to be meaningful, it will be collaborative and sustained, and allow communities to feel involved in governmental decisions with local implications.").
[212] *See generally* NEJAC 2024, *supra* note 141.

distributional analyses into the agency's cumulative impacts approach. Finally, we recommend establishing clear protocols for factoring distributive consequences in environmental decision-making to address environmental, economic, and health burdens on disadvantaged communities and vulnerable populations.

VI. Conclusion

In conclusion, consideration of cumulative impacts is crucial for sound federal and state environmental and public health decision-making. The release of EPA's *Framework* is a critical step in advancing consistent, accurate, fair, and transparent use of this approach—a benefit to State, local, and Tribal governments; communities; and regulated entities. We therefore urge EPA to keep the *Framework* in place and to continue to advance the cumulative impacts analysis approach, in service of a healthy environment—wherever people live, play, work, learn, grow, and worship.

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FOR THE COMMONWEALTH OF MASSACHUSETTS

ANDREA JOY CAMPBELL
Attorney General

/s/ Turner Smith
Turner Smith
Assistant Attorney General
Amy Laura Cahn
Climate & Environmental Justice Fellow
Office of the Attorney General
Environmental Protection Division
One Ashburton Place, 18th Floor
Boston, MA 02108
(617) 727-2200
turner.smith@mass.gov
amy.laura.cahn@mass.gov

FOR THE STATE OF ILLINOIS

KWAME RAOUL
Attorney General

/s/ Caitlin Kelly
MATTHEW DUNN
Chief, Environmental Enforcement/
Asbestos Litigation Division

FOR THE STATE OF MARYLAND

ANTHONY G. BROWN
Attorney General

/s/ Michael F. Strande
MICHAEL F. STRANDE
Assistant Attorney General

CAITLIN KELLY
Assistant Attorney General
Office of the Attorney General
69 W. Washington St., Ste. 1800
Chicago, IL 60602
(312) 415-7164
caitlin.kelly@ilag.gov

FOR THE STATE OF MINNESOTA

KEITH ELLISON
ATTORNEY GENERAL

/s/ Cat Rios-Keating
Cat Rios-Keating
Special Assistant Attorney General
Office of the Minnesota Attorney General
445 Minnesota St., Suite 600
St. Paul, MN 55101
651-300-7302
Catherine.Rios-Keating@ag.state.mn.us

FOR THE STATE OF OREGON

DAN RAYFIELD
ATTORNEY GENERAL

/s/ Paul Garrahan
PAUL GARRAHAN
Attorney-in-Charge
Natural Resources Section
Oregon Department of Justice
1162 Court Street NE
Salem, Oregon 97301-4096
(503) 947-4540
Paul.Garrahan@doj.oregon.gov

Office of the Attorney General
Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230
(410) 537-3421
michael.strande@maryland.gov

FOR THE STATE OF NEW JERSEY

MATTHEW J. PLATKIN
ATTORNEY GENERAL

/s/ Jesse Little
JESSE LITTLE
Deputy Attorney General
Division of Law
25 Market St., P.O. Box 093
(609) 376-2740
jesse.little@law.njoag.gov

FOR THE STATE OF VERMONT

CHARITY R. CLARK
ATTORNEY GENERAL

/s/Megan Hereth
Megan R.H. Hereth
Assistant Attorney General
Julio A. Thompson
Assistant Attorney General
Co-Director, Civil Rights Unit
Office of the Attorney General
109 State Street
Montpelier, VT 05609