Alliance of Nurses for Healthy Environments | American Lung Association | Breast Cancer Prevention Partners | Los Jardines Institute | Medical Students for a Sustainable Future | National Association of Pediatric Nurse Practitioners | National League for Nursing | OUCH-International (Oncology Associates United for Climate and Health) | Physicians for Social Responsibility

January 17, 2025

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

**Re: Comment on EPA's Interim Framework for Advancing Consideration of Cumulative Impacts (Docket ID: EPA-HQ-OLEM-2024-0360)[1]**

The undersigned health organizations offer the following comments to EPA on its "Interim Framework for Advancing Consideration of Cumulative Impacts" with specific input on the Framework's application in the determination of the primary National Ambient Air Quality Standards for criteria air pollutants.

Chronic exposure to multiple environmental pollutants imposes a huge public health burden which epidemiological case studies have shown to be exacerbated by extrinsic factors such as socioeconomic status, location, access to nutritional and medical needs, and other social determinants of health, climate change and natural hazard stressors.[2,3,4,5,6] Additional risk factors including intrinsic vulnerabilities such as life stages, pre-existing morbidities, genetic pre-dispositions, etc. add to the aggregated adverse health impacts of pollutant exposures. Chronic exposure to chemical pollutants and other stressors is linked to numerous physical morbidities, biological changes including epigenetic changes and "weathering," and mental health deprivation, as noted in the Framework.

Several scientific bodies[7] have identified the need for cumulative risks and cumulative impacts

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[1] Interim Framework for Advancing Consideration of Cumulative Impacts.
[2] Boing *et al*. (2022). Air Pollution, Socioeconomic Status, and Age-Specific Mortality Risk in the United States. *JAMA Netw Open.,* 5(*5*):e; Bevan, G. H., *et al*. (2021). Association between ambient air pollution and county-level cardiovascular mortality in the United States by social deprivation index. *Am Heart J*., 235,125–31;
[3] Nicky Sheats, N. & Baptista, A. Addressing Environmental Injustice Through the Adoption of Cumulative Impacts Policies, Coming Clean, Louisville Charter Policy Brief; "Laws, policies and regulations frequently fail to account for the heightened susceptibilities of EJ communities to pollution due to social vulnerabilities that already exist in those communities."
[4] Clougherty, J. E. *et al*. (7/2021). Social Susceptibility to Multiple Air Pollutants in Cardiovascular Disease. Case Reports. *Res. Rep. Health Effects Institute*, 206,1-71.
[5] American Lung Association. (6/14/2022). Air Pollution and Health Equity: A Closer Look at How Redlining and E-Commerce Affect the Air We Breathe; The Unequal Burden of Asthma on the Black Community (2/28/2024)
[6] Boing *et al*. (2022). Air Pollution, Socioeconomic Status, and Age-Specific Mortality Risk in the United States. *JAMA Netw Open.,* 5(*5*):e; Bevan, G. H., *et al*. (2021). Association between ambient air pollution and county-level cardiovascular mortality in the United States by social deprivation index. *Am Heart J*., 235,125–31;
[7] National Academies of Science, Engineering, and Medicine - NASEM. (ongoing). State-of-the-Science and the Future of Cumulative Impact Assessment; National Research Council - NRC (2012); Science Advisory Board -SAB (2022); Clean Air Scientific Advisory Committee - CASAC Reports (2022-2023);

assessments in EPA's decision-making including in risk and exposure assessments. The cumulative impacts of the various risk factors, i.e. the "totality of exposures to combinations of chemical and non-chemical stressors and their effects on health, well-being, and quality of life outcomes,"[8] are disproportionately borne by communities of color, fenceline communities with polluting sources nearby, communities with more vulnerabilities and experiencing more stressors, etc. Such communities also face inequities in receiving benefits of projects and programs implemented to improve the environment and mitigate harms. The inequities in both experiencing environmental harms and environmental benefits by subpopulations and the need to address them were underscored in President Biden's Executive Order on "Revitalizing Our Nation's Commitment to Environmental Justice for All".[9] The Office of Management and Budget's (OMB's) "Circular A-4 guidance on regulatory analysis[10] speaks to this whole-of-government approach in impacts assessment by "standardizing the way benefits and costs of federal regulatory actions are measured and reported." The Circular provides detailed guidance on undertaking qualitative or quantitative "distributional analysis" of a proposed action, i.e. a cumulative assessment of the uneven distribution of likely benefits, net benefits, and costs of a regulatory action experienced over time by each of the different groups (based on income groups, race or ethnicity, disability, occupation, geography, etc.) that are likely to be affected. Results of such analyses would help an agency identify more effective regulatory alternatives or mitigate costs through other decisions.

In this Framework, EPA seeks to address the disproportionate burden of environmental harms faced by communities that are also experiencing other risk factors by developing agency-wide, non-prescriptive approaches on the consideration of cumulative impacts in multiple agency activities: standard setting, permitting, rulemaking, cleanup, emergency response, funding, planning, program oversight, initiating administrative or judicial action for enforcement, and compliance. We support this much-needed Framework because it sets a common baseline across the agency in considering a wide range of risks and exposures to arrive at more holistic and equitable agency action that ensures a healthy environment for all.

We ask EPA to build on this Framework to more accurately capture the objectives that it has laid out. Towards this end, we offer the following points for agency consideration:

1. The risk factors that affect human health are diverse and numerous, as are the opportunities for interventions to improve public health and advance equity. It is challenging for any single agency action to address all the risk factors that science has identified. As such, a holistic whole-of government approach is needed in which all federal agencies consider the cumulative impacts of relevant/specific stressors in their actions to effectively reduce disproportionate burdens of environmental harms and ensure benefits of agency actions are delivered to all populations. OMB's Circular A-4 provides guidance on analyzing the total effects on the environment and public health from multiple actions over time, rather than just the immediate effects of a single action to ensure that agency actions are informed by their long-term consequences and large-scale effects on protecting public health and the environment. Together, this Framework and Circular A-4 demonstrate the critical importance and commitment of all federal departments and agencies in considering the principles of cumulative impacts in their analyses.

   A whole-of-government approach requires interagency collaboration to pool data and develop assessment tools and maps within a common living framework that is built on the

[8] EPA. (9/16/2023). Guidelines for Cumulative Risk Assessment: Planning and Problem Formulation (Public Comment Draft). GLOSSARY OF KEY TERMS; page v
[9] The White House. (April 21, 2023). Executive Order 14096 on Revitalizing Our Nation's Commitment to Environmental Justice for All
[10] Office of Management and Budget. (Nov 9, 2023). Circular No. A-4

best practices and successes of agencies that are already engaged in this endeavor, as OMB has noted as well. Such a cohesive framework could include general actions across agencies followed by agency-specific actions (as outlined in this Interim Framework) relevant to the statutes that an agency administers. Streamlining the process across agencies would be a more efficient utilization of time, budget and other resources to make discernible and expeditious progress.

2. EPA could make this Framework even more effective, beyond being a guidance, by making cumulative impact assessment a requirement in decision-making, if there is no statutory constraint or prohibition to doing so. If an agency action is unable to consider cumulative impacts, then it should provide a public explanation of the reasons.
3. To ensure meaningful public engagement, EPA needs to identify vulnerable communities, engage them in regular consultations, include their input in agency actions, and evaluate/report back on the effectiveness of those actions.
4. Given the numerous stressors of public health that science has identified for cumulative impacts assessment, EPA should prioritize for its specific actions, subsets of stressors which are likely to have the most impact and those for which data already exists or could be more readily obtained. Among the subset of chemical stressors are ambient air pollutants, specifically the criteria air pollutants (CAPs) that EPA regulates under the Clean Air Act. A newly published study found monitoring disparities "for all criteria pollutants, particularly sulfur dioxide and lead, followed by ozone and carbon monoxide. Disparities were consistent across most racial and ethnic groups."[11] Monitoring being the first step in discerning inequities in CAP exposures, EPA must evaluate the current siting of regulatory monitors for each of the six CAPs, in relation to the location of existing emission sources and communities near those sources. Ensuring the installation of an adequate number of monitors, their appropriate placement, the accuracy and precision of their measurements, their maintenance, and periodic evaluation of these parameters are primary requisites to removing inequities in exposure to chemical risk factors that adversely impact public health.
5. One intervention opportunity in addressing a disproportionate burden of CAP exposures is in the requirement of construction and operation permits for stationary sources of air pollutant emissions - Title V permits for new major sources, existing sources that undergo major modifications, as well as for non-major/area sources. As the Framework notes, states such as New Jersey and Massachusetts[12] are ahead of the federal government in applying cumulative impacts analysis in air quality related decision-making especially in air permit applications. EPA could help other states to adapt the guidelines and the mapping and data tools for permitting/zoning developed by these two states to address inequities in their own states. Cumulative impact analysis could also be made a requirement in state implementation plans (SIPs) to meet revised National Ambient Air Quality Standards (NAAQS).
6. Another significant opportunity in applying cumulative impact analysis in national-level rulemaking is in standard setting of ambient air pollutants. In regulated chemical exposures, copollutants are potential risk factors that add to the existing burden of

[11] Kelly, B. C. *et al.* (Dec 4, 2024). Racial and Ethnic Disparities in Regulatory Air Quality Monitor Locations in the US. JAMA Netw Open, 7(12):e2449005.

[12] Massachusetts Department of Environmental Protection. (3/28/2024). Massachusetts Becomes First State to Require Analysis of Cumulative Impacts for Air Quality Permits near Environmental Justice Populations; as part of their applications MA-DEP requires certain air permit applicants to conduct a cumulative impact analysis of the proposed projects which involves evaluating 33 environmental (e.g. existing pollution sources), health vulnerability, and socio-economic indicators that could be worsened by increased air emissions from the proposed project.

environmental pollution. We ask EPA to consider the health impacts of contemporaneous exposures to multiple criteria air pollutants in setting primary NAAQS for individual CAPs under the CAA.

Real-world ambient exposures of all communities to CAPs involve simultaneous exposures to multiple copolluting CAPs. CAP exposure responses are complicated by more risk factors than are assessed by the simple 1-1 cause-effect approach that EPA currently uses in the Integrated Science Assessments as part of the NAAQS review process. EPA's current strategy used in the primary NAAQS review process "under-emphasizes the combined impact of various health findings by (1) under-valuing research findings from real-world multi-pollutant exposures, and (2) not considering the cumulative weight of additional susceptibility and vulnerability factors present in large segments of the population at large."[13] Consideration of cumulative health impacts of copolluting CAPs and other risk factors is appropriate, feasible, and consistent with the Act's requirement to set NAAQS at a level requisite to protect public health with an "adequate margin of safety to protect vulnerable populations." EPA should also consider cumulative health endpoints from CAP exposures, *i.e.* focus on "the combined strength of identified negative health outcomes across several organ system indices (respiratory, cardiovascular, neurologic, reproductive, metabolic)" instead of on "individual organ system uncertainties."[14]

The American Lung Association has just published a brief white paper on the status of science and policy in the consideration of cumulative impacts of copolluting CAPs in the determination of NAAQS. This report, which is appended to these comments, also makes recommendations to EPA on funding policy-relevant "fit-for-purpose" research studies to fill data gaps to better capture the health impacts in setting NAAQS.

7. Consideration of cumulative impact assessment in agency decision-making is possible only if there are statute-compliant, context-specific scientific data supporting it, or if analytic and mapping tools, research protocols, and methodologies are available to build an evidence base built on scientific integrity principles. Paucity of policy-relevant data across different study types (epidemiological studies, animal toxicological studies, human exposure chamber studies, exposure modeling**,** etc.) is a recurrent theme in the consideration of cumulative risk factors and their impacts in the regulation of criteria air pollutants. EPA needs to fund clearly formulated "fit-for-purpose" scientific research that assesses cumulative health impacts of chemical and nonchemical stressors tailored to specific interventions, programs, policies or other actions. The agency should also formulate strategies to operationalize and integrate the research data to reduce inequities in environmental burdens and also in regulatory benefits.

Thank you for your consideration of our comments. Signed,

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[13] CASAC. (6/9/2023). Review of the EPA's PA Draft Ver2 for Ozone NAAQS Reconsideration; Ed Avol, page 60
[14] CASAC. (6/9/2023). Review of the EPA's PA Draft Ver2 for Ozone NAAQS Reconsideration; Ed Avol, page 59