December 12, 2023

Attn: OSTP-CE-2023-0012
U.S. Office of Science and Technology Policy
725 17th Street NW
Washington, D.C., U.S.

Re: Request for Information To Support the Development of a Federal Environmental Justice Science, Data, and Research Plan (OSTP-CE-2023-0012)

Harvard Undergraduates for Environmental Justice (HUEJ) is an advocacy and student activism organization that aims to educate and mobilize members of the Harvard and surrounding community to protect the Earth's resources and ecosystems. With a strong and dedicated membership of undergraduates at Harvard College, HUEJ members work to emphasize the justice in environmental justice, with a particular focus on communities and areas disproportionately affected by environmental issues due to compounding social and historical factors through educational campaigns, active participation in organizing and engaging in local and national policy. Our membership constantly seeks opportunities to confront pressing issues regarding the environment in our society today and to look critically at the injustices inherent in those issues. As a result, HUEJ has an interest in the development and use of science, data, and research to support Environmental Justice policy at the Federal Level. We appreciate the government's attention to improving environmental injustices in the country, and we hope that the suggestions following are implemented to inform future decision-making and encourage participatory science community engagement.

Comments on Information Requested, Section 1(c) and Section 3(f, g)

A Participatory Action Research (PAR) methodology doesn't have an endpoint in the way that traditional scientific research methods do. Its primary concern is not the generation of knowledge, whatever utility that knowledge may have. Rather, PAR must concern itself with the *process* of knowledge creation, where decisions made at every step in this process are oriented toward knowledge *for* and *through* action (Cornish et al. 2023) and value as impacts the relationships developed throughout the process in addition to the final publication and (ideally) policy action. The fundamental process of building relationships between communities, academics, and decision-makers occurs throughout iterative cycles of problem, definition, action, observation, and reflection; this, by nature, cannot be strictly proceduralized, lending context-specific flexibility to PAR processes. PAR requires that community members are granted resources to academia and granted respect as active participants in the research process from governmental and research institutions. There is little to no existing literature suggesting a

downside to incorporation and emphasis on PAR, with the majority of scholarly research to this time asserting its benefits in reducing harm to communities in a variety of issue areas.

The imperative for inclusion is already present within the context of promoting and improving upon environmental justice policies. For example, in Executive Order 14096 Section 3 there is a sustained emphasis specifically on improving upon the hazards and environmental impacts experienced by recognized EJ communities; "identify, analyze, and address disproportionate and adverse human health and environmental effects (including risks) and hazards of Federal activities, including those related to climate change and cumulative impacts of environmental and other burdens on communities with environmental justice concerns". PAR represents a well-supported and effective mechanism to address these effects while simultaneously engaging and drawing from those communities that are themselves affected by these dangers. As it currently stands, pathways to participation are available but are limiting. As established in Executive Order 12898 Section 3-301 (c), "Federal agencies shall provide minority populations and low-income populations the opportunity to comment on the development and design of research strategies undertaken pursuant to this order". PAR extends beyond merely the opportunity to comment, which can be complicated by accessibility and the availability of community members to know when and how to offer comments.

Often, policy critical to environmental justice is stalled because of the broader paradigm which requires an exceedingly thorough study *of* communities before governmental action happens *for* them. This trend of delays–or, often, complete lack of action–bears out its cost in the well-being and even lives of people often suffering other injustices as well. In place of this segmented and removed approach on the part of government actors, PAR integrates research and action as a collaborative effort, operating on a single timeline. For example, researchers in the seminal 1999 community-driven study of diesel exhaust exposure among adolescents in Harlem designed the process in collaboration with parents, teachers, and students, gathered data by employing high-schoolers trained by community EJ group WE ACT, and first distributed study results in a layperson-accessible format via WE ACT's publication. This integration has great potential to increase both the rigor of research and the haste with which people suffering environmental injustice receive support. In the Northern California Household Exposure Study (HES) (Green et al. 2009), community partners were key to developing a process that addressed local health concerns and focused on informing local refinery policy (Balazs and Morello-Frosch 2013). In the San Joaquin Valley Drinking Water Study (DWS) (Balazs, Morello-Frosch and Hubbard 2012), community participation was crucial in "spurring the labor-intensive process of estimating community-level demographics in community water systems" (Balazs and Morello-Frosch 2013). The Harlem study has also been directly credited as a determining factor in EPA clean air regulations (Bacon et al 2013).

This integration necessitates interdisciplinary collaboration and relationship-building among governments, academics, and community members, which is facilitated by frequent and thorough communication throughout the PAR process. Because PAR follows an iterative, cyclical model, opportunities to form these relationships should occur organically if all parties are fulfilling their obligations to engage in good faith. This obligation is especially important on the part of governments and academics; PAR is rooted in mutual trust and accountability, and participants must be consciously aware of and account for the history of unequal researcher-researched relationships. If cultivated correctly, the new paradigm of community-researcher relationships opens doors to the broader reach and effectiveness of PAR studies. In the Harlem study, zero parents chose to opt their children out of the study, demonstrating the bridges of trust built through community participation in research processes. The DWS also provides insight into the effect of relationship-building and policy-oriented research. After publishing, the San Joaquin Valley Community Water Center was able to leverage its connections to expand the study's reach *within the research community*, in addition to bringing its conclusions to key venues for policymaking. This illustrates another indispensable feature of PAR: the process does not and cannot end when the final report is published. Indeed, Executive Order 14096 3(a)(vii)(A) requires that governmental agencies provide "timely opportunities" for "meaningful engagement" among communities with environmental justice concerns; HUEJ interprets this Executive Order to require that engagement be facilitated at such timely opportunities as may arise for participatory input both during and after the research process. For example, study participants–communities, researchers, and decision-makers–should gather to interpret and discuss studies' results, and resources for translating research-for-action into research-in-action should be made readily accessible.

In addition to formalized PAR methodologies, more informal citizen science research ought also to be incorporated into ground-up research efforts. Citizen science, broadly defined as the process of crowdsourcing data for scientific analysis from public participation, has recently grown in prominence and has been increasingly acknowledged as an authoritative form of inquiry. Environmental impact and environmental justice projects can especially benefit from citizen science approaches. Indeed, citizen science has proven a valuable tool for the monitoring of invasive species. For example, in March of 2017, then-eleven-year-old Sam Hunt uploaded a photo to citizen science platform iNaturalist of what would later be identified as North Texas's first record of Emerald Ash Borer, an invasive beetle that has proven over 99% fatal to ashes in parts of North America (Herms and McCullough 2014). Sammy's photo was identified by experts and launched a formal investigation by Texas Parks and Wildlife, which resulted in definitive genetic identification of Emerald Ash Borer in North Texas. This utilization of crowdsourced observation went on to inform response planning for communities as the beetle continued to spread through North Texas. Citizen science networks have also been expanding recently, especially within groups often underrepresented in knowledge production (Fraisl,

Hager, and Bedessem et al.). This plays a crucial role in generating data relevant to particular communities' needs, whether through citizen-led, PAR, or traditional scientific processes.

HUEJ believes Participatory Action Research is a crucial and largely overlooked method of study in data collection and use at the government level. In combination with the robust application of credible citizen science practices, it has the potential to affect a wide range of environmental justice needs at scale. PAR has specific relevance to governance because it concerns direct engagement with communities, bottom-up knowledge generation, and policy-oriented processes. It democratizes knowledge production, providing a sense of ownership to those benefitting from the research. Its obligatory cross-disciplinary nature also eliminates siloed approaches to research, which is necessary for research that will inform policymaking. PAR gains even more unique benefits in the context of environmental justice. Participation of on-the-ground individuals increases experimental relevance and rigor of spatial studies that may otherwise lack the resources to effectively identify and examine environmental trends. Connections within environmental justice communities developed through PAR are vital to achieving equity of processes and outcomes. Iterative PAR engagement can be crucial in rebuilding bridges of trust over harm done to environments or confidence by researchers or government action.

HUEJ recommends that a federal strategy to identify and address gaps in science, data, and research related to environmental justice make broad use of PAR and citizen science methods to address historical deficits of relevance, trust, and effectiveness in environmental justice research processes. The Environmental Justice Science, Data, and Research Plan should acknowledge the broad-based validity of PAR and citizen-science processes and establish a coordinated effort among government bodies, researchers, and community groups to facilitate widespread applications of PAR in environmental justice research.

HUEJ appreciates the opportunity to comment and thanks you for your consideration.

Sincerely,
Harvard Undergraduates for Environmental Justice

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