



April 25, 2022

Council on Environmental Quality  
730 Jackson Place NW  
Washington, D.C. 20506

Re: Do. Number CEQ-2022-0002 Climate and Economic Justice Screening Tool Beta Version Request for Information

To Whom It May Concern:

We appreciate the opportunity to comment on the Climate and Economic Justice Screening Tool. As noted in the request for information, Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad," charged the US Council on Environmental Quality (CEQ) with creating a geospatial Climate and Economic Justice Screening Tool and publishing interactive maps highlighting disadvantaged communities that are marginalized, underserved, and overburdened by pollution. We are policy experts in climate and environmental justice, data science, and data visualization offering input and recommendations to improve the tool for use by federal agencies advancing the goals of the Justice40 initiative.

We are employed by the Urban Institute, but the views in this public comment are our own and should not be attributed to the Urban Institute, its trustees, or its funders. The Urban Institute is a leading research organization dedicated to developing evidence-based insights that improve people's lives and strengthen communities, with a demonstrated track record of research and evaluation that advances public and private performance measurement, processes, and outcomes.

This submission contains recommendations in response to all three areas of feedback solicited by the CEQ: methodology, datasets, and map usability and accessibility.

## Methodology

Considering the stated purpose of the Climate and Economic Justice Screening Tool (the Tool)—to identify disadvantaged communities as a way to guide investments under the administration's Justice40 initiative—we provide suggestions on methodology to incorporate race as an indicator in identifying communities, to measure the degree of disadvantage, and to consider the benefits of investments in addition to eligibility.

## **Incorporate race as an indicator in identifying communities to avoid perpetuating patterns of disadvantage.**

Although the eight categories of criteria included in the Tool are undeniably important factors in defining disadvantaged communities, exclusively focusing on those indicators—and omitting race as an indicator—ignores clear evidence of historical and ongoing racial discrimination in the US, including as it relates to the kinds of community and economic development and land-use decisions that the Justice40 initiative is trying to solve for. Even when controlling for income, race is the strongest and most significant predictor of exposure to environmental hazards due to centuries of intentionally and unintentionally racist economic and land-use policies.<sup>1,2,3</sup> Furthermore, on its [Environmental Justice](#) webpage, the US Environmental Protection Agency (EPA) cites several seminal studies from the last few decades that provide empirical support for the strong correlation between race and environmental injustice, including studies that show residents' race was the most significant factor in determining their proximity to hazardous waste sites.

Given that the goal of Justice40 is to target investments to address disproportionate exposures to environmental hazards, we raise concerns about the contribution and use value of a resource that does not include the most relevant predictor of environmental hazard exposure. By omitting race as an indicator, the Tool obscures disparities by race and thus risks perpetuating patterns of disadvantage.

We offer the following considerations in support of using race as an indicator:

1. Race would be one of many indicators in eligibility criteria for identifying disadvantaged communities.
2. Through Executive Order 14008, President Biden commits to “delivering 40 percent of the overall benefits of federal climate, clean energy, affordable and sustainable housing, clean water, and other investments to disadvantaged communities that have been historically marginalized, underserved, and overburdened by pollution.”<sup>4</sup> Considering that the environmental justice movement was started by and continues to be led by communities of color, and that evidence shows race is the strongest and most significant predictor of disadvantage, it's clear that the administration's intent for Justice40—and climate and economic justice efforts more broadly—is inclusive of race.

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<sup>1</sup> Paul Mohai and Robin Saha, “[Which Came First, People or Pollution? Assessing the Disparate Siting and Post-Siting Demographic Change Hypotheses of Environmental Injustice](#).” *Environmental Research Letters* 10, no. 11 (2015).

<sup>2</sup> Paul Mohai and Robin Saha, “[Racial Inequality in the Distribution of Hazardous Waste: A National-Level Reassessment](#).” *Social Problems* 54, no. 3 (2007): 343–370.

<sup>3</sup> Robert D. Bullard, “[Environmental Justice in the 21st Century: Race Still Matters](#).” *Phylon* 49, no. 3/4 (2001): 151–171.

<sup>4</sup> Cecilia Martinez and Candace Vahlsing, “[Delivering on Justice40](#).” White House Council on Environmental Quality News and Updates, December 2, 2021.

3. Race-neutral measures produce different results than race-conscious measures, as evidenced by the modeled impacts of 2020's proposed changes to the US Department of Housing and Urban Development's (HUD) Affirmatively Furthering Fair Housing rule.<sup>5</sup>
4. The CEQ can consider other federal models in which precedent exists for including race, such as the US Department of Health and Human Service's Healthy People interactive data tool.<sup>6</sup>

**Measure cumulative impacts and prioritize communities with the greatest environmental hazard exposure and the greatest economic and public health burdens.**

Nationwide, nearly one in three census tracts qualifies for Justice40 investments under the Tool's "disadvantaged" criteria.<sup>7</sup> Per the methodology, "communities are identified as disadvantaged...if they are located in census tracts that are at or above the thresholds in one or more of eight categories of criteria."<sup>8</sup> However, the current version of the Tool uses a binary determination, meaning that the methodology does not make it possible to ensure that communities bearing the most significant environmental burdens are prioritized and/or to proportionally target investments to communities in greatest need.

It is possible that one community could meet eligibility criteria across all eight categories, and another community meet eligibility criteria in just one category, yet both would meet the Tool's standard for disadvantaged communities and qualify for Justice40 investments. Without identifying and prioritizing communities with the greatest burdens, there is a risk of diluting the impact of the Justice40 commitment, such that communities with comparatively few environmental-hazard burdens may outcompete communities with the greatest and most significant environmental burdens for investment resources—an outcome that neither aligns with the intent of Justice40 nor follows environmental justice principles.

Often, communities face more than one economic, health, and environmental stressor, resulting in cumulative burden. For example, communities located near a petrochemical plant or landfill can experience depressed property values as a result of their proximity to the site; poor air quality resulting from emissions related to the site's operations; poor water quality from chemical runoff or leaching related to the site's operations; health burdens such as cardiopulmonary illness and cancers from emissions and other toxic waste related to the site's operations; financial strain including from missed work, if not the inability to work, as a result of health burdens; and socio-psychological impacts from living with these exposures and related stressors.

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<sup>5</sup> Martha M. Galvez, Solomon Greene, Katherine Thomas, and Claudia D. Solari. [What HUD's Proposed Rule Gets Wrong about Fair Housing](#), the Urban Institute, March 16, 2020.

<sup>6</sup> [Healthy People 2020](#), US Department of Health and Human Services Office of Disease Prevention and Health Promotion, accessed April 20, 2022.

<sup>7</sup> Emily Pontecorvo, "[The Next Test for Environmental Justice Policy? Defining 'Disadvantaged Communities.'](#)" Grist.org, July 22, 2021.

<sup>8</sup> [Climate and Economic Justice Screening Tool](#), US Council on Environmental Quality, 2022.

Studies have evaluated the importance of acknowledging cumulative burdens in policymaking<sup>9</sup> and the EPA also acknowledges “the importance of understanding the aggregation of risks from multiple environmental stressors.” To ensure that communities get resources proportional to their need, the Tool should ensure users can identify the multitude of burdens a community is facing.

We recommend that the CEQ redesign eligibility to a cumulative impact model after state environmental justice screening tools like California’s CalEnviroScreen<sup>10</sup> and Maryland’s EJScreen,<sup>11</sup> which both employ an indicator-scoring methodology that comparatively ranks and prioritizes communities according to pollution burdens and population vulnerability characteristics.

**A tool or approach that measures the benefits of the investments is a necessary compliment to the screening tool, which focuses solely on eligibility.**

The Justice40 Initiative sets the goal that 40 percent of the benefits of certain federal investments flow to disadvantaged communities. Further, a stated goal of the White House for the Tool is to “ensure that the benefits of the nation’s climate, clean energy, and environmental programs are finally reaching the communities that have been left out and left behind for far too long.”<sup>12</sup>

However, the Tool narrowly focuses on identifying eligible communities (and makes implicit assumptions about how investments yield benefits to specific communities). An investment in a specific geography does not necessarily yield benefits directly to residents there, and dollars spent do not equate to benefits accrued. This creates the need for a complimentary tool or set of tools that specifically measures benefits and considers potential harms and/or unintended consequences.

Given the above goals to benefit disadvantaged communities and the definition of disadvantaged communities as those that suffer most from environmental, health, and economic burdens, the CEQ should consider defining the benefits from Justice40 investments around positive economic, health, and environmental outcomes. Further, success could be measured not only by whether the investments result in positive outcomes, but also by what degree. Table 1 includes potential measures of success for Justice40, which reference the 17 Principals of Environmental Justice developed by delegates to the First National

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<sup>9</sup> Ken Sexton and Stephen H Linder, “[The Role of Cumulative Risk Assessment in Decisions About Environmental Justice](#).” *International Journal of Environmental Research and Public Health* 7, no. 11 (2010): 4037–4049.

<sup>10</sup> [Map of CalEnviroScreen 4.0 Indicators](#), California Office of Environmental Health Hazard Assessment, California Communities Environmental Health Screening Tool, October 20, 2021.

<sup>11</sup> [Maryland Environmental Justice Screening Tool \(MD EJScreen\)](#) Center for Community Engagement, Environmental Justice & Health (CCEJH), 2017.

<sup>12</sup> The White House Council on Environmental Quality, “[CEQ Publishes Draft Climate and Economic Justice Screening Tool, Key Component in the Implementation of President Biden’s Justice40 Initiative](#),” February 18, 2022.

People of Color Environmental Leadership Summit,<sup>13</sup> the CDC’s HealthyPeople2020 midcourse review,<sup>14</sup> and the CDC’s [Reproductive Health](#) website.

TABLE 1

**Example Outcome Measures in Economic, Health, and Environmental Domains**

<b>Economic</b>	<b>Health</b>	<b>Environmental</b>
1. Percent of qualified communities that receive investment	1. Mortality rates across age groups	1. Climate vulnerability, adaptation, and resilience
2. Total dollars invested in each community	2. Life expectancy	2. Land use(s)
3. Percent of the invested dollars contracted to BIPOC-, women-, and LGBTQ-owned businesses	3. Rates of cardiopulmonary illnesses, cancers, and other physical health burdens	3. Air quality, water quality, and soil quality
4. Percent of workers employed by contracted businesses who identify with one or more historically marginalized groups	4. Maternal and infant health	4. Levels of exposure to toxic waste and other hazardous materials
5. Quality of the resulting jobs	5. Mental health	5. Heat index
6. Aligned efforts in BIPOC, women, and LGBTQ business development; workforce development; and STEAM (Science, Technology, Engineering, Arts, and Math)		6. Biodiversity
7. Unemployment rate		
8. Poverty rate		

This approach could also specify the duration of time and cadence of which the benefits will be measured and reported on at the local and federal levels. Direct, indirect, and induced economic, health, and environmental benefits can take time to manifest. Additionally, Justice40 is an initiative paired with the Infrastructure Investment and Jobs Act, which authorizes funding over several fiscal years. Thus, we recommend that measuring and reporting occur annually for at least 5 years following the federal distribution and local spending of the funds.

The tools and resources needed to measure benefits are significantly different (and more burdensome) than those needed to measure eligibility, so it may be more appropriate to think of the Tool as one piece of a broader toolbox of accountability to the Justice40 Initiative.

## Datasets

We recommend several changes to improve measurement accuracy, representativeness, validity, and data quality of the indicators and metrics currently used in the Tool.

<sup>13</sup> Delegates to the First National People of Color Environmental Leadership Summit, [The Principles of Environmental Justice](#), 1991.

<sup>14</sup> US Centers for Disease Control and Prevention, “[Chapter IV: Leading Health Indicators](#),” [Healthy People 2020 Midcourse Review](#), April 2017.

**Measure socioeconomic status at the subnational scale using measures of poverty that include expense burdens to accurately capture income variances across the country.**

The Tool's national low-income threshold does not account for variations in the cost of living across the country, yet multiple federal agencies use income eligibility criteria and guidance that the CEQ can consider. For example, HUD uses state-level rather than national-level median family income data as the basis for assessing low-income status in determining eligibility for some programs.<sup>15</sup> To account for geographic differences in expenses and income, the US Census Bureau uses the Supplemental Poverty Measure (SPM),<sup>16</sup> which reflects geographic cost-of-living differences in income as well as spending on housing, transportation, food, clothing, and utilities.<sup>17</sup> Although the SPM is not used to determine program eligibility, the CEQ could consider the SPM as a supplement to a state-level eligibility threshold and include it as an input to the cumulative impact model to determine priority tracts.

**Include state-level metrics to address urban bias and expand the representativeness of the Tool for rural and tribal communities.**

Environmental justice exposures and vulnerabilities common to many rural and tribal communities are missing from the Tool, in part because data are not available for or relevant to all 50 states and US territories. Because of this, many rural- and tribal-specific exposures—such as mining and reclamation hazards, deforestation, and agricultural production and its related air- and water-quality hazards—are not captured using the Tool, which could result in many rural and tribal areas being excluded from eligibility even though they experience significant environmental burdens. This could also result in rural and tribal communities qualifying for priority investment for environmental justice exposures or vulnerabilities that are captured in the Tool but are of lower salience than other non-eligible but more serious hazards, resulting in investments that align poorly with community needs.

We raise concerns about the contribution and use value of standardized national data that does not capture key environmental justice challenges of rural and tribal communities, and recommend improving the representativeness of the Tool for these communities by incorporating a screening process to allow for the submission of relevant state-level hazard data that roll up into the Tool's existing exposure categories. We also recommend that the CEQ consider additional rural-, tribal-, and unincorporated-specific eligibility metrics, such as those included in Maryland's EJScreen,<sup>18</sup> to better ensure that the environmental justice concerns in these communities are represented.

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<sup>15</sup> US Department of Health and Human Services Office of Community Services, [Low Income Home Energy Assistance Program Fact Sheet](#), 2021.

<sup>16</sup> US Census Bureau, [Supplemental Poverty Measure](#), 2020.

<sup>17</sup> Laura Wheaton, Linda Giannarelli, and Ilham Dehry, [2021 Poverty Projections: Assessing the Impact of Benefits and Stimulus Measures](#), Washington, DC: Urban Institute, July 28, 2021.

<sup>18</sup> CCEJH, [Maryland Environmental Justice Screening Tool](#), 2017.

**Address data gaps and measurement limitations and expand metrics for climate change impacts to increase accuracy, transparency, and user confidence.**

Some metrics used in the Tool present with gaps or limitations that we recommend both addressing and acknowledging in the Tool's methodology and data dictionary resources.

For example, NATA diesel particulate matter data from 2014 is of limited value, and the location of air pollution monitoring sensors are consistently underrepresented in low income areas, rural areas, and areas with higher populations of people of color.<sup>19</sup> Moreover, there are high rates of reporting noncompliance on the part of many polluters, with the highest rates of noncompliance on the pollutants with the most serious health effects.<sup>20</sup> In combination, these gaps and limitations result in inconsistent, inaccurate, or missing air-quality data that can mask the disproportionate risk of exposure to air-quality hazards and related poor health outcomes experienced by people of color, people with low incomes, and people in rural locations; we recommend making these shortcomings explicit. We also recommend probing opportunities to secure more accurate and updated particulate matter and air-quality data from EPA and NASA's [Health and Air Quality Applied Sciences Team](#).

Similarly, while the Tool does address some aspects of future exposure to climate change–related extreme weather and disaster events, the impacts of climate change are worsening, and comprehensive metrics for these hazards and exposures should be incorporated into current and future environmental justice measurement tools. For example, although the Tool includes some measures for agriculture and property damage resulting from flooding and other risks, much FEMA flood hazard mapping data are outdated.<sup>21</sup> We recommend that the CEQ incorporate flood hazard exposure data using updated fluvial modeling that accounts for changing environmental conditions and flood risks resulting from climate change. A key factor in advancing racial equity in measuring future flood risk will require updating actuarial valuations of property loss and damages that are common to federal benefit-cost analyses to correct racial discounting in properties owned by people of color resulting from redlining and other racist planning and zoning practices.<sup>22</sup>

In addition to updated and more accurate flood- and property-loss metrics, we recommend that other climate change–related vulnerabilities such as extreme heat days and extreme precipitation days, accessible from NASA'S [North American Land Data Assimilation System](#), be included as climate change metrics, and that the CEQ investigate other climate change–related hazards and vulnerabilities to be included in future iterations of the Tool.

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<sup>19</sup> Union of Concerned Scientists, [Environmental Racism in the Heartland: Fighting for Equity and Health in Kansas City](#), November 8, 2021.

<sup>20</sup> Cynthia Giles, [Introduction, Next Generation Compliance: Environmental Regulation for the Modern Era](#), Harvard Law School Environmental and Energy Law Program, January 27, 2020.

<sup>21</sup> Association of State Floodplain Managers, [Flood Mapping for the Nation: A Cost Analysis for Completing and Maintaining the Nation's NFIP Flood Map Inventory](#), January 2020.

<sup>22</sup> Anne N. Junod, Carlos Martín, Rebecca Marx, and Amy Rogin, [Equitable Investments in Resilience: A Review of Benefit-Cost Analysis in Federal Flood Mitigation Infrastructure](#), Washington, DC: Urban Institute, June 1, 2021.

## Mapping Tool Usability and Accessibility

The mapping tool is a standard county-level map of the United States that allows users to click and zoom to find more information in the Tool tips and side banner. We believe there are several ways in which the data visualization and interactivity can be enhanced to more effectively communicate the data.

### **We recommend narrowing the scope of the mapping tool to a specific audience.**

It's difficult for us to provide specific advice about the usability or accessibility of the mapping tool because it is unclear exactly who the specific audience is for this tool and what decisions it can help them make. For example, is it mainly intended for community organizers applying to federal funding, regional officials who want to monitor compliance towards Justice40 goals, or researchers who want to use the underlying data in their own work? We recommend picking one of these specific audiences and building the mapping tool around it, because that process will make clear what features and usability measures are necessary. Currently the mapping tool seems to be targeted toward everyone who has an interest in Justice40-related work, but this breadth risks falling into the classic problem of designing a tool for everyone such that it is useful to no one.

### **Add more robust zoom, panning, and tract-selection behavior to increase the usability of the map.**

In the current iteration of the mapping tool, individual census tracts are not clickable until the user zooms in a sufficient amount, which makes it difficult to select large census tracts. (Some of our team members did not realize they could select tracts to get more information because they didn't zoom in enough!) When a tract is selected, the entire map pans and zooms to that tract, which can be very disorienting to the user. We found that this behavior has several bugs and often pans and zooms to only part of a tract instead of to a whole tract. (The easiest way to see this is to select a small tract and then select an adjacent larger tract.) This may be happening because the panning behavior is not allowed to zoom out, only zoom in further. After the user has selected a specific census tract, the blue outline denoting a selected tract disappears when the user zooms out beyond a specific point. All of these decisions have the effect of breaking a user's focus when using the mapping tool and make it difficult to perform simple tasks like comparing tracts to one another, particularly if the tracts are far apart.

Because the single-census-tract selection makes comparison between tracts difficult, the mapping tool could employ color or another form of data encoding to help the user compare specific metrics across the country. For example, when a user selects the *Expected agriculture loss rate* variable from the country-wide view, color could be added to the tracts (e.g., a choropleth map) to show the percentiles of each tract. From there, the user could zoom into a single tract to explore the data in more detail.

We have five recommendations to improve map usability:

1. Make the selected tract outline thinner but visible at higher levels instead of having it disappear completely.
2. Allow tracts to be selectable at any zoom level
3. Remove the automatic panning behavior altogether
4. Consider whether areas outside the United States are necessary to include in the map



5. Create an easy way for users to explore the data to make comparisons across regions and tracts. This might include tables, bar charts, or other data visualizations.

In general, if the goal of the mapping tool is to enable different kinds of users to explore the data and gain different insights, we recommend following the mantra originally laid out by Ben Shneiderman: “Overview first, zoom and filter, then details on demand.”<sup>23</sup> This approach suggests first providing the user with an overview of the entire dataset (e.g., the entire map), then allowing them to zoom and filter to give the data more resolution and detail, and, finally, offering the user details on demand to allow the user to further explore the visualization without cluttering the screen. However, Archie Tse (see also Gregor Aisch) argued that the way people currently use the internet (i.e., preferring to scroll over swipe) and the importance of mobile technology (i.e., small screens) suggest that interactivity should be used only in special situations; if the user is asked to click or swipe, “something spectacular has to happen” and creators should “assume no one will ever see” tooltips or rollovers.<sup>24 25</sup> In this case, requiring the user to click and drill down into individual counties may not be the best way to get information to the user. Again, clearly defining the target audience—including how they are expected to interact with the mapping tool and their expected goals—would make the Tool as useful as possible for those users.

#### **Resolve some design issues to increase accessibility of the map.**

When a user expands a category to the right of the map, a scroll bar pops up and causes the rest of the categories to shift left by a few pixels. The map also uses the Mercator projection, which distorts the relative size of states at higher zoom levels. The selected colors for the map outline are also not sufficiently high contrast to be used by colorblind individuals (see, for example, the [Contrast Checker tool](#) at the WebAIM website). Finally, the translations to other languages are incomplete and sometimes have raw HTML text (e.g., the [Spanish](#) translation has a “Public Engagement” button and the category descriptions have a few instances of “<boldtag>” in the text).

We have four recommendations to increase map accessibility:

1. Make the scroll bar always visible/invisible or move the scroll bar outside the section headers
2. Use the Albers Equal Area projection rather than the Mercator projection
3. Choose higher contrast colors for use in the map
4. Complete the translated versions of the mapping tool

We have not conducted a full accessibility check of the Tool, but we would encourage the developers to ensure that the Tool works with modern screen reader tools such as NVDA (NonVisual Desktop Access) and JAWS (Job Access With Speech), as well as to ensure that the Tool is accessible to those with physical or intellectual impairments.

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<sup>23</sup> Ben Shneiderman, “[The Eyes Have It: A Task by Data Type Taxonomy for Information Visualizations](#),” Proceedings 1996 IEEE Symposium on Visual Languages (1996): 336-343.

<sup>24</sup> Archie Tse, [Why We Are Doing Fewer Interactives](#), presentation at the 2016 Malofiej Infographics World Summit.

<sup>25</sup> Gregor Aisch, [Data Visualization and the News](#), presentation at the 2016 Information Plus Conference.

By making vulnerability and exposure data broadly available, the Tool can help local, state, and federal stakeholders target investments to contribute to the stated goals of the Justice40 initiative. Adding capabilities and built-in functionality to help users understand and compare relevant risks and cumulative harms across geographies, improving data sources and representativeness, and improving design and functionality to increase accessibility will help the Tool meet its intended purpose. The Tool could also be coupled with a broader accountability framework to allow users to assess the benefits and beneficiaries—as well as unintended harm or consequences—of investments.

As the federal government continues to embed climate and environmental justice principles and priorities in policies and tools, we welcome any future opportunities to work with agencies to offer analyses, analytic tools, resources, and guidance. Thank you for your review and consideration of these comments. For questions or to request a follow-up dialogue, please contact Sara McTarnaghan, senior research associate and Climate and Communities Practice Area lead, and Amy Elsbree, senior director for external affairs, at [externalaffairs@urban.org](mailto:externalaffairs@urban.org).

Sincerely,

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