



Mapping Environmental Justice in the Biden-Harris Administration

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Introduction and summary

Addressing environmental justice is a top priority of the Biden-Harris administration.¹ Just one week after his inauguration, President Joe Biden designated January 27 Climate Day at the White House² and signed a number of executive orders, including one aimed to “Secure Environmental Justice and Spur Economic Opportunity.”³ Under this executive order, President Biden took the first steps to make good on his campaign’s environmental justice commitments, which align closely with the Equitable and Just National Climate Platform—a national climate agenda co-authored by environmental justice and national environmental organizations and co-signed by more than 300 groups, including the Center for American Progress.⁴

Notably, the executive order takes two critical steps in identifying and targeting benefits to disadvantaged communities.⁵ First, it will initiate the development of an environmental justice screening tool that will build upon EJSCREEN, the U.S. Environmental Protection Agency’s (EPA) existing tool. The purpose of the tool will be to identify disadvantaged communities to which federal investments and benefits will be targeted as well as to “inform equitable decision making across the federal government.”⁶ Second, it will create a “government-wide Justice40 Initiative” that will facilitate the delivery of 40 percent of overall benefits of “relevant federal investments to disadvantaged communities.”⁷ The day after the executive order was launched, Rep. Cori Bush (D-MO) and Sens. Tammy Duckworth (D-IL) and Ed Markey (D-MA) introduced the Environmental Justice Mapping and Data Collection Act of 2021, which builds on many of the concepts in the executive order and would create a whole-of-government initiative, including data infrastructure and funding to “identify communities most at risk from environmental injustices.”⁸

Defining environmental justice

The EPA defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.”⁹

This report summarizes lessons learned from California’s environmental justice screening tool, CalEnviroScreen (CES), to help guide the implementation of the tool proposed in President Biden’s executive order. CES has been used in California for a number of years to identify and target benefits to disadvantaged communities that both face the greatest pollution burden and are the most vulnerable to pollution’s effects. There are six guiding principles for what an environmental justice screening tool should be, gleaned from the California experience by experts Arsenio Mataka and Charles Lee: (1) science-based and data-driven; (2) informed by community experience; (3) endorsed and used by government; (4) available for the public to use; (5) developed through a process of public participation; and (6) a third-party validator of the lived experiences of disadvantaged communities.¹⁰

In addition to these principles, the Biden-Harris administration can build on 10 lessons learned from California in the design of a national environmental justice screening tool:

1. Apply the right scale for analysis.
2. Produce a cumulative score that can be used to provide a community assessment and comparison.
3. Establish a threshold for determining which communities are designated as disadvantaged.
4. Establish minimum thresholds for investment in disadvantaged communities.
5. Prioritize community co-creation, leadership, and engagement.
6. Acknowledge and account for the limitations to and incompleteness of data, and continuously and regularly iterate upon and improve the tool.
7. Develop funding programs specifically designed for disadvantaged communities using information from the tool.
8. Provide technical assistance and capacity-building resources to support communities and community leaders, including to help them successfully access funds designated for disadvantaged communities.
9. Use screening tools not only to target benefits and investments but also to improve and better coordinate regulatory compliance and enforcement work in disadvantaged communities.
10. Acknowledge that mapping tools have limitations and, on their own, are not a panacea.

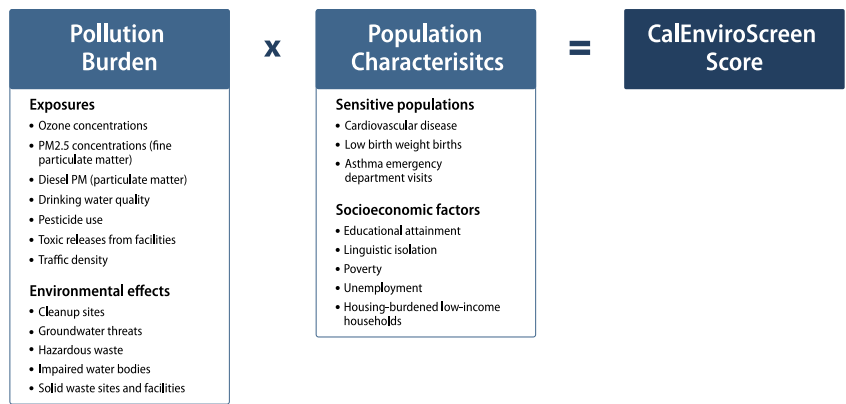
There are many parallels between the proposed federal screening tool and CES, including its use in targeting programs and benefits to priority populations that are especially vulnerable to the cumulative impacts of pollution. This report describes how CES works; covers the history of the evolution of CES and how it has been used to target benefits to disadvantaged communities; and provides lessons learned that can help inform the development of the new federal Climate and Economic Justice Screening Tool.

CalEnviroScreen: An overview

At its core, CES is a mapping tool designed to identify communities in California with both the greatest pollution burden and vulnerability to the effects of pollution.¹¹ CES uses health, environmental, and socioeconomic information to produce scores out of 100 that can be used to rank communities. An area with a higher score experiences higher pollution burdens and vulnerabilities.¹²

CES is founded on the principle of cumulative impact, defined as the combined, incremental effects of human activity that pose a serious threat to the environment.¹³ CES takes up-to-date data on 20 indicators—from educational attainment to groundwater threats and asthma emergency room visits—that characterize the pollution burden and population characteristics of communities.¹⁴ This information is organized around four data types: exposures, environmental effects, sensitive populations, and socioeconomic factors. Data describing these four categories are assigned to either the pollution burden or population characteristics group and are then weighted and combined to derive a CES score. Comparison between communities is possible because each of these data types is gathered on a geographic basis and given a relative ranking.¹⁵

FIGURE 1
CalEnviroScreen 3.0 indicator and component scoring



Source: California Environmental Protection Agency, "Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De León)" (Sacramento, CA: 2017), p. 3, available at <https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf>.

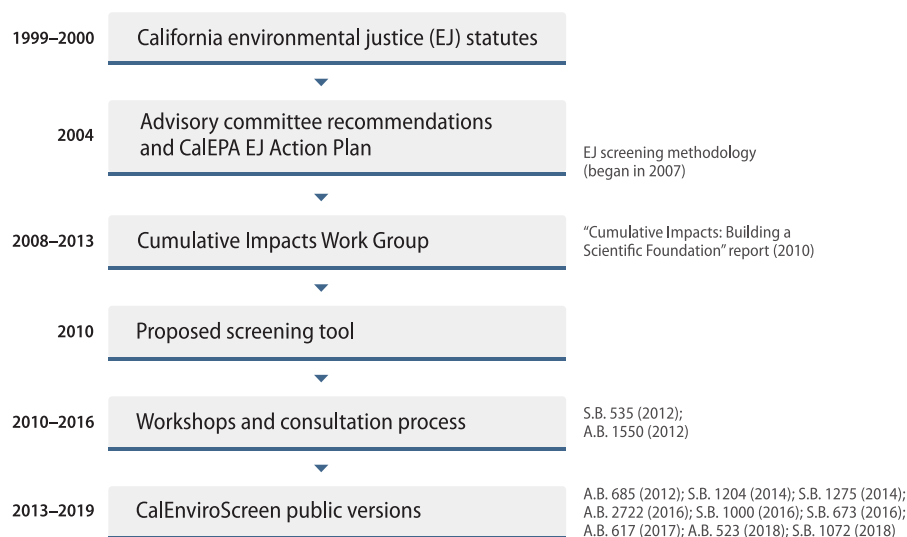
The history of CalEnviroScreen

In California, like the rest of the country,¹⁶ communities of color are disproportionately burdened by pollution. In census tracts scoring in the top 10 percent of CES, 89 percent of the residents are people of color.¹⁷ African American and Latino residents disproportionately reside in these highly burdened communities, while white people are overrepresented in the least-burdened communities.¹⁸ Environmental justice groups were instrumental in pushing for the development of CES as part of a more comprehensive approach to addressing the burdens faced by these communities.¹⁹

CES was developed over a multiyear process that involved stakeholders, including community residents, work groups, and various environmental agencies across the state.²⁰ The process started in 2000 when California Senate Bill (SB) 89 was passed and required the creation of an environmental justice working group and public advisory committee to assist the California Environmental Protection Agency (CalEPA) in developing an interagency environmental justice strategy.²¹ In 2004, CalEPA released an environmental justice action plan dedicated to developing guidance on cumulative impact analysis, crafting precautionary approaches, and improving public participation and capacity building in the agency's work.²² During this process, CalEPA's Environmental Justice Working Group adopted a definition of cumulative impacts as the relationship between population characteristics and pollution burden, and it served as the principle that shaped work on CES. Subsequently, California's Office of Environmental Health Hazard Assessment (OEHHA) led the development of CES, defined as a tool focused on "scientific and technological methods to assess cumulative impacts."²³ The metrics and methodology used to develop the tool are evidence-based and have been peer-reviewed.

Throughout the development process, stakeholders and working groups were extensively involved to build trust among communities, CalEPA, and OEHHA. In addition, it was crucial that the lived experiences of communities on the ground informed the process of building and updating CES using information gathered through workshops and stakeholder engagement.²⁴

FIGURE 2
Timeline for CalEnviroScreen's development and use



Note: The bills listed above include legislation that is influencing or whose implementation is influenced by CalEnviroScreen.
Source: California Environmental Protection Agency, "Designation of Disadvantaged Communities Pursuant to Senat Bill 535 (De León)" (Sacramento, CA: 2017), available at <https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf>.

Since its introduction, CES has gone through three iterations to improve its core functionality. CES 1.0, which mapped impacts by ZIP code, was criticized for excluding analysis on small, highly impacted communities²⁵ within a given ZIP code. In addition, California's ZIP code lines do not necessarily reflect community boundaries.²⁶

The second iteration, CES 2.0, added analysis at the census-tract level, which many environmental justice advocates deemed a more appropriate neighborhood-based geographic boundary in California—although it may pose data limitations at the federal level since not all data are available at such a granular level. OEHHA also considered neighborhood designations, similar to the boundaries commonly used in real estate maps, which some believed would better align with on-the-ground communities than census tracts. CES 2.0 also sought to incorporate pollution data from the California-Mexico border to more accurately capture transboundary air, water, waste, and toxics issues, and it included a few additional indicators that allowed for sharper overall scores and more uniform analysis.²⁷

The next version, CES 3.0—built on CES 2.0 by using more recent data, including additional data from the California-Mexico border region that had since become available—improved on the way some indicators were calculated and used. It also

included two new indicators—rent-burdened low-income households and cardiovascular disease—that helped to paint a more accurate picture of an area’s health and socioeconomic vulnerability to pollution.²⁸

CES has been subject to a number of critiques over the course of its development, including concerns that it: does not always capture hyperlocal impacts; may deprioritize rural and tribal communities;²⁹ fails to sufficiently take into account high costs of living in some areas, specifically the Bay Area; and does not incorporate climate impacts and resilience considerations. Other gaps remain as well, including the omission of race and ethnicity indicators; the inability to capture pollution impacts faced by workers who may not work in the same census tract where they reside; and the inability to capture the impact of climate change threats—for example, wildfires, extreme heat, sea level rise—on communities.³⁰ In addition, although the development of CES has provided opportunities for community engagement and stakeholder involvement, some stakeholders feel that more such opportunities to provide input should be built into the process.

Aside from critiques to the functionality of the tool itself, CES has faced challenges related to the use of the tool in identifying disadvantaged communities for statewide funding purposes. There has also been criticism that it has been poorly discussed and shared with key stakeholders, particularly with members of the California Legislature, creating some animosity toward the tool—particularly among those representing regions that have felt left out or insufficiently prioritized by it.

Despite these critiques, CES has improved over time. Its development has been iterative, and the multiple versions reflect work over the course of a number of years to address its shortcomings to the extent possible. In addition, the tool is publicly available online, and anyone can use it and provide input on how it can be improved, from policymakers to nongovernmental organizations and communities themselves. While California still has significant work to do to address environmental justice issues, CES has proved to be an important step and a tool for enabling state and local governments to better meet the needs of disadvantaged communities.³¹

A project’s benefits must be “direct, meaningful, and assured” in order to count as benefiting disadvantaged communities for the purposes of targeting program benefits.

Using CES to target benefits to disadvantaged communities

Since its launch in 2013, proceeds from California's cap-and-trade program have been reinvested under the California Climate Investments program in furtherance of the state's climate goals, including investments that reduce greenhouse gases while also delivering economic, environmental, and public health benefits for Californians, particularly to the most disadvantaged communities.³² The California Climate Investments program has resulted in \$6.4 billion for implemented projects, with 55 percent of that investment, or \$3.5 billion, benefiting priority populations. Programs range from affordable housing, active transportation, and low-income weatherization, training, and workforce development, to safe drinking water and wildfire response and readiness. (see text box)

California Climate Investments cumulative outcomes

The program has resulted in:³³

- \$6.4 billion in implemented projects
- 55 percent of funding benefiting priority populations (\$3.5 billion)
- At least 456,000 individual projects implemented
- At least 6,400 affordable housing units under contract
- At least 118,000 urban tree plantings
- 769,000 acres of land preservation or restoration
- At least 600 transit agency projects funded, adding or expanding transit service
- At least 122,000 projects installing energy efficiency measures in homes
- At least 318,000 rebates issued for zero-emission and plug-in hybrid vehicles

In 2012, California enacted SB 535,³⁴ requiring that 25 percent of California Climate Investments funds provide a benefit to disadvantaged communities, which are located in census tracts with CES scores in the top 25th percentile. In addition, the bill required that at least 10 percent of funds go toward projects located directly in those communities—as distinct from projects that benefit but may be located outside a community. This distinction is important because it ensures that programs that are counted as benefiting disadvantaged communities are doing so directly and not tangentially.

In considering a threshold in the 20th percentile to 25th percentile range, CalEPA looked at:

- Other legislation, including SB 43, which created the Green Tariff/Shared Renewables Program and allowed low-income Californians to participate in the market for renewable energy
- The 2014 California Poverty Measure, developed by the Public Policy Institute of California and the Stanford Center on Poverty and Inequality, which identified roughly 20 percent of California residents as living in poor families
- 2015 census information, indicating that 21 percent of California households spent more than half of their income on housing
- 2014 data from Feeding America, showing that the food insecurity rate for children in California was slightly less than 23 percent³⁵

In 2016, California's Assembly Bill (AB) 1550 amended the investment minimums to communities. It required that at least 25 percent of funds go to projects within and benefiting disadvantaged communities and at least an additional 10 percent go to low-income households or communities.³⁶ It also added two 5 percent buckets of funding: one to low-income census tracts next to disadvantaged communities, and the other to any other low-income census tract in the state. AB 1550 sought to ensure access to funds among poor, often rural communities that do not face cumulative pollution burdens in the same ways as their more urban counterparts but may otherwise still be considered disadvantaged.

In February 2017, workshops were held to consider the use of 20 percent, 25 percent, and 30 percent as potential funding thresholds. There were concerns that a 20 percent threshold might exclude communities with legitimate environmental justice concerns, including around the Port of Oakland and along the California-Mexico border, whereas a 30 percent threshold might be considered regressive for disadvantaged communities since the percentage of the population targeted would have exceeded the percentage of funds allocated to disadvantaged communities under SB 535 (25 percent). As a result, CalEPA determined to set the threshold at 25 percent, while committing to refine CES to ensure that those communities at or near the threshold would not be excluded.³⁷

It has also been important for the state to clearly define the meaning of “benefit.” In 2018, the California Air Resources Board’s funding guidelines were amended to clarify that a project’s benefits must be “direct, meaningful, and assured” in order to count as benefiting disadvantaged communities for the purposes of targeting program benefits.³⁸

Transformative Climate Communities program

Despite the significant allocation of California Climate Investments funding to disadvantaged communities, it can be difficult for some communities to access funds. Recognizing this, specific programs have been developed to help support the distribution of funds designated for disadvantaged communities. One of the most well-known and successful programs has been the Transformative Climate Communities (TCC) program, which is responsible for directing large-scale grants to disadvantaged communities by funding community-led plans at the neighborhood level to reduce greenhouse gases while concurrently addressing economic, environmental, and public health needs.³⁹

In general, TCC prioritizes communities that demonstrate the most need. CES played a critical role in the determination of need, with communities in the top 5 percent of CES scores being the first to receive funding and attention in the first year of the program. This focus was subsequently broadened to assistance for, at the very least, the top 25 percent of CES communities.⁴⁰ TCC, which is run by California’s Strategic Growth Council,⁴¹ has supported community-based programs in some of the state’s most disadvantaged communities, including the cities of Fresno, Ontario, and Sacramento, as well as the Watts and Pacoima neighborhoods of Los Angeles.⁴² As of December 2020, the latest cohort of selected communities included Stockton, East Oakland, and Riverside.⁴³ The TCC program has heralded an important shift away from sector-specific silos and toward an integrated, community-based, and community-driven approach.

Of particular note is the program’s Collaborative Stakeholder Structure,⁴⁴ which brings together a variety of community-based organizations during the application process and allows these groups to organize themselves to outline their legal and financial relationships and decision-making processes for implementation of a TCC grant. This is a powerful method of organization that allows for collaboration and building a collective vision for community decarbonization in ways that meet the community’s particular needs.

As part of the TCC process, communities receive planning grants and support to develop their visions and proposals. These grants have been critical for the success of TCC. Two of the three awards made in 2020—Stockton and Oakland—were to communities that received planning grants before they received an implementation award. This model has also inspired the California Air Resources Board’s development of the Sustainable Transportation Equity Project⁴⁵—modeled on TCC but focused on transportation—which recently awarded \$19.5 million in implementation and planning grants to disadvantaged communities.⁴⁶

Concerns exist about the potential for TCC investments to have unintended negative consequences, such as displacing longtime local residents and businesses as property values rise through the process of gentrification, which in turn can have both negative social and environmental impacts. To address this, the California Strategic Growth Council’s Affordable Housing and Sustainable Communities program⁴⁷ has developed anti-displacement strategies, which are included in its guidelines.⁴⁸

A case study in community-based climate solutions: TCC program

Transformative Climate Communities is a program that funds community-led development and infrastructure projects that achieve major environmental, health, and economic benefits in California’s most disadvantaged communities.

Funded by revenue from California’s cap-and-trade program, the first round of TCC grants awarded \$66.5 million to the city of Fresno, \$33 million to the Watts neighborhood of Los Angeles, and \$33 million to the city of Ontario. In round two, the Strategic Growth Council awarded TCC grants to the city of Sacramento and the Pacoima neighborhood of Los Angeles, for \$23 million each.

TCC uses a place-based strategy for reducing greenhouse gases. Projects must significantly reduce greenhouse gases over time, leverage additional funding sources, and provide additional health, environmental, and economic benefits. Examples include:

- Affordable and sustainable housing developments
- Transit stations and facilities
- Bike and car share
- Residential weatherization and solar projects
- Water efficiency installations
- Urban greening projects
- Health and well-being projects

The Strategic Growth Council, the body charged with developing TCC, undertook a yearlong process to develop guidelines for the program, hosting convenings in the most affected communities—for example, Fresno and parts of Los Angeles. These convenings were community-specific and provided a space not only for capacity building and technical assistance, but also for communities to air their grievances and discuss their needs. Communities that apply for TCC funding are required to develop legally binding memorandums of understanding that bring together local government, community, faith-based organizations, and others on an equal decision-making level in what is called a Collaborative Stakeholder Structure to develop a shared vision of transformation for the community. Entities participate for three to five years.

CES has had a significant impact: Benefits to disadvantaged communities range from increased numbers of affordable housing units, greater numbers of trees planted in urban communities, and more community-based renewable and energy efficiency investments, to the enhancement of community voice and community assets, increased access to safe and viable transportation, and improved physical activity and health outcomes.⁴⁹ In addition, CES has been used to improve regulatory enforcement in disadvantaged communities. CalEPA's Environmental Justice Task Force uses CES to increase and coordinate compliance and enforcement work across the state's many environmentally focused regulatory agencies, as well as across local, state, and federal regulatory and law enforcement agencies and across all media, including air, water, solid waste, toxics, pesticides.⁵⁰

The proposed Biden-Harris environmental justice screening tool

President Biden committed in his campaign platform to an “inclusive and empowering All-of-Government approach” driven by decision-making rooted in data and science, including the development of an environmental justice screening tool similar to CES. He also committed to mobilize 40 percent of climate investment benefits to disadvantaged communities and to implement an all-of-government approach to build a just and inclusive economy, create good jobs, end environmental racism, and address cumulative impacts, including by reducing emissions in disadvantaged communities through stronger enforcement and new regulations and investments.⁵¹

On January 27, 2021, President Biden signed an executive order on “securing environmental justice and spurring economic opportunity,” taking the first steps toward making good on this campaign pledge.⁵² The executive order creates a White House Environmental Justice Interagency Council, chaired by the head of the Council on Environmental Quality (CEQ), and directs the interagency council to develop a strategy to “address current and historic environmental injustice” in consultation with environmental justice leaders.⁵³ The order then directs the CEQ chair to “create a geospatial Climate and Economic Justice Screening Tool” and to “annually publish interactive maps highlighting disadvantaged communities.”⁵⁴

The executive order also creates a Justice40 Initiative, to be established within four months of signing, under the direction of the chair of CEQ and with the participation of the director of the Office of Management and Budget, and the national climate adviser, and CEQ.⁵⁵ The goal of the initiative is to identify “how certain Federal investments might be made toward a goal that 40 percent of the overall benefits flow to disadvantaged communities,” with a focus on investments in clean energy, energy efficiency, transit, affordable housing, workforce development, remediation of legacy pollution, and the development of clean water infrastructure.⁵⁶ The initiative’s recommendations are supposed to be achievable within existing authorities to the extent possible, and, where not, recommendations on legislation are requested to meet the 40 percent goal.⁵⁷

The day after the executive order was released, Rep. Cori Bush and Sens. Tammy Duckworth and Ed Markey introduced the Environmental Justice Mapping and Data Collection Act of 2021. The bill would federally fund and create an inter-agency committee known as the Environmental Justice Mapping Committee to develop mapping solutions down to the neighborhood level of specific environmental risk factors, including but not limited to: air quality, fossil fuel infrastructure, maternal mortality, high cost of utilities, and gun and police violence. The authors hope the tool will be used to help direct at least 40 percent of climate investment to disadvantaged communities.⁵⁸

Learning from CES can support implementation of the policy changes and updates laid out in both the Environmental Justice Mapping and Data Collection Act and President Biden's executive order.

EJSCREEN will need to undergo a few key changes if it is to be used as the basis for the proposed environmental justice screening tool.⁵⁹ As one example, new monitoring in front-line and fence-line⁶⁰ communities will be required to ensure that the federal government has adequate data to support decision-making. This change will likely include installation of new monitors where they are currently lacking so that accurate data can also be made publicly available and in real time. California has taken a similar approach under AB 617, which requires the California Air Resources Board to consider annually the selection of communities for community air monitoring systems.⁶¹ AB 617 has provided funding for front-line communities to conduct community air monitoring programs, in turn helping them to build and advance community science capacity.

Another change follows California's governmentwide approach of establishing interagency teams to address targeted issues and partner directly with communities.⁶² This can and should be done in a way that creates pathways to access credit and capital for local governments and small businesses that are integral components of front-line and fence-line community structures.⁶³ It is also worth reiterating the importance of capacity building and providing the necessary support to communities to ensure that they have the adequate tools, time, and resources to participate in processes. Often, the same people who are serving on task forces are also stretched across a variety of other activities—for example, being advocates, working on the implementation of local projects, or being asked to contribute to other climate-related conversations, to name a few. To help address this severe capacity gap, the federal government could consider partnering with philanthropic

organizations. In California, SB 1072 was passed specifically to fill this gap. The resulting Partners Advancing Climate Equity program is a new capacity-building initiative that will establish cohorts of front-line community leaders, providing them with support, training, technical assistance, mentorship, and financial compensation for their commitment to and active participation in the program.⁶⁴

Lessons learned from CES for the Biden-Harris administration

A federal environmental justice mapping tool must facilitate the longer-term health and socioeconomic well-being of affected communities by publicly identifying and addressing cumulative environmental impacts and then democratically and collaboratively engaging with those communities to ensure lasting change.

In his paper “A Game Changer in the Making? Lessons From States Advancing Environmental Justice Through Mapping and Cumulative Impact Strategies,”⁶⁵ environmental justice expert Charles Lee sets out six guiding principles for developing an environmental justice mapping tool that achieves this aim, building on work from Arsenio Mataka, a California state official who was integrally involved in the creation of CES. The principles state that an environmental justice mapping tool must be (1) science-based and data-driven; (2) informed by community experience; (3) endorsed and used by government; (4) available for the public to use; (5) developed through a process of public participation; and (6) a third-party validator of the lived experiences of disadvantaged communities. While these principles do not necessarily cover every aspect of what is required for a successful screening tool, they do provide an important starting point.

In addition to these guiding principles, there are several lessons that can be gleaned from California’s experience with CES that could prove useful as the Biden-Harris administration seeks to retool EJSCREEN:

1. **Apply the right scale for analysis.** In California, census tracts have provided for sharper community analysis.⁶⁶ At the same time, it is important to note that census-tract-level analysis can present challenges for use in regional or local efforts,⁶⁷ and there are particular data distinctions to be mindful of between tribal and nontribal communities. The use of data available at the census-tract level might be imprecise in illustrating exposures and impacts at the community scale for some regions. This is particularly apparent in rural areas where issues such as smaller population and low reporting may result in inaccuracies. For example, emergency room visits for asthma and cardiovascular disease do not capture visits

to local or community health clinics, which is more likely the type of medical care sought in rural communities. In some rural areas where census tracts are larger than ZIP codes, a hybrid approach or ZIP code focus may be preferable.⁶⁸ At the same time, the Biden-Harris administration could consider developing neighborhood jurisdictions, similar to those commonly used in real estate maps, to better reflect community boundaries.

2. **Produce a cumulative score that can be used to provide a community assessment and comparison.** CES can be a powerful tool for directing resources to overburdened communities.⁶⁹ Fundamental to this is the development of a cumulative score to enable assessment of and comparison between communities—a feature that EJSCREEN currently lacks. There have been some critiques that the comparability of scores has been politicized, creating competition among regions around designation of disadvantaged communities for state policy applications, particularly funding. This does not mean that CES or tools like it should not be used for funding allocations and resource distribution, nor that it has not been powerful in its application for various policies. It does mean that there must be rigorous education and transparency in terms of the tool development process; the specific questions and communities the tool aims to capture; and how it can and should be applied.⁷⁰
3. **Establish a threshold for determining which communities are designated as disadvantaged.** Considerations could include how the threshold compares with other relevant metrics, ensuring that the threshold does not exclude communities with legitimate environmental justice concerns and/or aligning the threshold with the percentage of funds allocated to disadvantaged communities.
4. **Establish minimum thresholds for investment in disadvantaged communities.** The Biden-Harris administration has already set a bar of delivering at least 40 percent of investment benefits to disadvantaged communities; it should consider increasing this threshold over time.
5. **Prioritize community co-creation, leadership, and engagement.** In developing a mapping tool, it is imperative that government officials integrate the information derived from quantitative indicators and mapping with experiential knowledge and stories from community residents through ground-truthing processes. An inclusive and participatory public process to develop and apply the mapping tool is critical in order to generate well-informed decisions.

6. Acknowledge and account for the limitations to and incompleteness of data, and continuously and regularly iterate upon and improve the tool.

No single framework can identify and capture all factors and trends contributing to community vulnerability. Other considerations, including those that are qualitative, should be factored in accordingly. In addition, a process of iteration and updating should be built into the tool's design—for example, every three to five years—as updated and more complete data become available.

7. Develop funding programs specifically designed for disadvantaged communities. The TCC program provides an excellent model that the Biden administration could consider, supporting community-led plans at the neighborhood level that reduce greenhouse gases while also addressing economic, environmental, and public health needs. Such programs should prioritize communities that demonstrate the most need and should model TCC's Collaborative Stakeholder Structure, which allows for collaboration and building a collective vision for community decarbonization, in ways that meet the community's particular needs. Funding guidelines should ensure that projects' benefits to disadvantaged communities are “direct, meaningful, and assured.”⁷¹

8. Provide technical assistance and capacity-building resources to support communities and community leaders. As part of programs such as TCC, it is critical to provide technical assistance and capacity-building resources to support communities and community leaders and their ability to successfully and autonomously access funding programs and other targeted resources. A model from California that the federal government might also consider is the new Partners Advancing Climate Equity program.

9. Use screening tools not only to target benefits and investments but also to improve and better coordinate regulatory compliance and enforcement work in disadvantaged communities. Environmental justice screening tools such as CES can and should also be employed for land use and zoning decisions, permitting processes, enforcement actions, and general plans and other long-term plans. According to the California Environmental Justice Alliance, “Decision-makers can utilize its [CES'] data to reverse uneven environmental enforcement practices, protect sensitive populations, prevent the overconcentration of polluting facilities in vulnerable areas, and direct much-needed capital and public service improvements to under-resourced neighborhoods.”⁷² The same is true at the federal level.

10. **Acknowledge that mapping tools have limitations and, on their own, are not a panacea.** Mapping tools must be complemented by other approaches to address structural inequality and environmental injustices. As noted above, community partnership is a critical component to the process.

Conclusion

States are often described as laboratories of policy innovation. California has years of experience iterating and improving on CalEnviroScreen, its environmental justice tool. While there is still room for improvement, the lessons learned from CES can be helpful as the Biden-Harris administration looks to build out an environmental justice screening tool and to distribute 40 percent of benefits to disadvantaged communities. Lessons should be considered in the broader context of advancing environmental justice, acknowledging that CES is only one piece of the puzzle.

About the authors

Aimee Barnes is the founder of Hua Nani Partners and a guest author working on state climate policy with the Energy and Environment Policy team at the Center for American Progress. She also serves as a senior adviser at the California-China Climate Institute and as a nonresident fellow at Columbia University's Center on Global Energy Policy. Barnes previously served as senior adviser to then-California Gov. Edmund G. Brown Jr. (D) and deputy secretary for border and inter-governmental relations at the California Environmental Protection Agency. She has an M.P.A. in environmental science and policy from Columbia University's School of International and Public Affairs, and a B.A. from Dartmouth College in Environmental Studies.

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Acknowledgements

The authors are grateful to Amee Raval, research director at the Asian Pacific Environmental Network, and Alvaro Sanchez, director of environmental equity at the Greenlining Institute, for their time and contributions to this report.

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