ADDRESSING CUMULATIVE IMPACTS: LESSONS FROM ENVIRONMENTAL JUSTICE SCREENING TOOL DEVELOPMENT AND RESISTANCE

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SUMMARY

This Article discusses how disparate environmental burdens can be addressed using environmental justice (EJ) screening tools. It identifies states that have developed state-specific EJ screening tools, analyzes these tools' functions, and identifies strategies to overcome resistance to them. The authors conducted interviews with multiple stakeholder groups to understand how state-specific screening tools are used, and make a series of recommendations for states to follow as they proceed in their efforts to develop EJ screening tools.

For more than 15 years, community leaders in southwest Detroit have taken interested groups on "toxic tours" through their neighborhoods, directing tourists' attention to the industries like steel mills and oil refineries that surround them.[1] The leaders continue to host these tours in the hopes that others will see what community members have felt for decades: that they are overburdened by pollution.[2] Southwest Detroit—also known by its zip code, 48217—experiences the highest air pollution in the state, and consequently suffers from high rates of cancer, asthma, and other respiratory ailments.[3]

There are currently 52 heavy industrial sites within a three-mile radius of this zip code, and almost one-half of them handle toxic chemical waste.[4] Industries in this area have technically been in compliance for their individual emissions under the Clean Air Act (CAA),[5] yet these chemicals in combination have created toxic conditions.[6] In 48217, health issues vary from respiratory illnesses like asthma, which are 50% higher than the state average, to cancer rates that are 25% higher than the state average.[7] The combination of health and social disadvantage in 48217 and sur-

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As the majority of our research was conducted while we were students at the University of Michigan, we respectfully acknowledge that the university resides on the traditional lands of the Anishinaabeg—the Ojibwe, Odawa, and Bodewadmi. As we continue to work, play, and live on these territories, we encourage everyone to reflect on the ongoing effects of colonization on indigenous peoples and tribal sovereignty. We affirm that this acknowledgment is the first of many steps and that in order to support indigenous people and be good neighbors to and stewards of their homelands, we should take meaningful action toward decolonization.

1. Detroit Public Television, *Toxic Town: Michigan's Most Polluted Zip Code*, YouTube (June 15, 2017), https://www.youtube.com/watch?v=CyGLEtvjlR8.
2. *Id.*
3. Lisa Berglund, *"We're Forgotten": The Shaping of Place Attachment and Collective Action in Detroit's 48217 Neighborhood*, 42 J. Urb. Affs. 1 (2018); Terressa A. Benz, *Toxic Cities: Neoliberalism and Environmental Racism in Flint and Detroit, Michigan*, 45 Critical Soc. 49 (2019).
4. Zoë Schlanger, *Choking to Death in Detroit: Flint Isn't Michigan's Only Disaster*, Newsweek (Mar. 30, 2016), https://www.newsweek.com/2016/04/08/michigan-air-pollution-poison-southwest-detroit-441914.html; Benz, *supra* note 3.
5. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
6. Schlanger, *supra* note 4; Benz, *supra* note 3.
7. Berglund, *supra* note 3.

rounding communities has created extreme, generational injustices, which some call environmental injustice.

Environmental injustices are not unique to southwest Detroit, nor even to the state of Michigan; they continue to occur across the nation. This is due, in part, to current environmental laws that do not equally protect all communities from environmental hazards to the degree that would improve public health.[8] Moreover, as federal environmental justice (EJ) policies are currently more symbolic than actionable,[9] EJ researchers and activists have argued for greater policy intervention at the state level.[10] Many states have developed, or are in the process of developing, state-specific EJ screening tools for this purpose.[11]

This Article has several objectives. First, we aim to identify states that have developed state-specific EJ screening tools. Second, we use this information to analyze the functions of current state-specific screening tools, such as how they inform their respective states' policies and programs. Third, we use these lessons to identify strategies to overcome the resistance against screening tools. To address our objectives, we conducted interviews with multiple stakeholder groups—academics, state officials, community members, EJ advocates, and industry representatives—to understand how state-specific EJ screening tools are used in the United States.

I. Background

A. EJ and Cumulative Impacts

EJ is both a political movement and a field of academic study in the United States that has gained both national and international attention in recent years. EJ has broad definitions and applications, to the point where EJ scholarship varies in its terminology and shifts perspective when using these terms.[12] To capture the breadth of EJ issues, law scholar Robert Kuehn offers four categories of EJ[13]: distributive justice, procedural justice,[14] corrective justice,[15] and social justice.[16] From the perspective of Kuehn's classifications, many environmental injustices are identified through the lens of distributive justice, which he defines as "the right to equal treatment, and the same distribution of goods and opportunities as everyone else has or is given."[17]

Extrapolating from this definition, one common strategy to advance EJ is to identify and address the cumulative impacts of environmental burdens on communities.[18] Cumulative impacts[19]—which are closely related, and thus lead to disparate environmental burdens—describe: "a consistent pattern of greater exposure to multiple and cumulative environmental and social stressors falling on the same populations and places—primarily people of color, low-income, or indigenous."[20] One significant reason that cumulative impacts persist in the United States is the lack of efficient and enforceable environmental policies, particularly at the federal level.[21]

B. EJ Policies

Environmental injustices have burdened communities of color in the United States for well over a century.[22] Segregation of racial minorities in cities, the use of pesticides on Chicano and Filipino farmworkers,[23] and indigenous groups fighting for continued access to and sovereignty of their lands[24] are just some examples of environmental racism throughout the United States' history. However, EJ became publicly recognized as both an active political and social movement during the 1980s and 1990s.

The catalyst of this chain reaction was the 1982 protests in Warren County, North Carolina.[25] When the state of North Carolina chose a predominantly Black community for the siting of a toxic waste landfill, communities protested this decision and prompted the United Church

8. *See* Robert Bullard & Glenn Johnson, *Environmental Justice: Grassroots Activism and Its Impact on Public Policy Decision Making*, 56 J. Soc. Issues 555 (2000).
9. *See* David M. Konisky, *The Limited Effects of Federal Environmental Justice Policy on State Enforcement*, 37 Pol'y Stud. J. 475 (2009); Bullard & Johnson, *supra* note 8.
10. *See* Charles Lee, *A Game Changer in the Making? Lessons From States Advancing Environmental Justice Through Mapping and Cumulative Impact Strategies*, 50 ELR 10203 (Mar. 2020).
11. *Id.*
12. *See* Robert R. Kuehn, *A Taxonomy of Environmental Justice*, 30 ELR 10681 (Sept. 2000).
13. *Id.*
14. The right to treatment as an equal in regard to political concern and decisionmaking processes in both ex ante and ex post circumstances. *See id.*
15. Fairness in assigning punishments for law breaking, and adequately addressing damages inflicted upon communities. *See id.*
16. The socioeconomic frameworks that broaden EJ through a core value of "fairness." *See id.*
17. *Id.*
18. Lee, *supra* note 10.
19. Cumulative impacts often focus on matters related to air toxins, water pollution, and hazardous waste, but do not encapsulate the entirety of EJ issues experienced by communities. There are many EJ concerns that include, but are not limited to, indigenous sovereignty (Jamie Vickery & Lori M. Hunter, *Native Americans: Where in Environmental Justice Research?*, 29 Soc'y & Nat. Res. 36 (2016)); access to safe and nutritious foods (Angela Hilmers et al., *Neighborhood Disparities in Access to Healthy Foods and Their Effects on Environmental Justice*, 102 Am. J. Pub. Health 1644 (2012)); access to affordable energy, which is also termed "energy justice" (Tony G. Reames, *Targeting Energy Justice: Exploring Spatial, Racial/Ethnic and Socioeconomic Disparities in Urban Residential Heating Energy Efficiency*, 97 Energy Pol'y 549 (2016)); access to running water (Leila M. Harris et al., *Revisiting the Human Right to Water From an Environmental Justice Lens*, 3 Pol., Grps., & Identities 660 (2015)); access to sustainable transportation (Stefan Gössling, *Urban Transport Justice*, 54 J. Transp. Geography 1 (2016)); access to green spaces, such as recreational areas and parks (Jennifer R. Wolch et al., *Urban Green Space, Public Health, and Environmental Justice: The Challenge of Making Cities "Just Green Enough,"* 125 Landscape & Urb. Plan. 234 (2014)); and proximity of schools to environmental hazards and their impact on student performance (Paul Mohai et al., *Air Pollution Around Schools Is Linked to Poorer Student Health and Academic Performance*, 30 Health Affs. 852 (2011)). While these examples of environmental injustice may not be considered "cumulative impacts," we recognize that one form of environmental injustice could exacerbate the severity of another.
20. Lee, *supra* note 10, at 10205.
21. Konisky, *supra* note 9.
22. *See* Dorceta Taylor, The Environment and the People in American Cities, 1600s-1900s (2009).
23. *Id.*
24. *See* Vickery & Hunter, *supra* note 19.
25. *See* Robert Bullard et al., United Church of Christ, Toxic Wastes and Race at Twenty: 1987-2007 (2007).

of Christ (UCC) to conduct a national-level quantitative study now known as *Toxic Wastes and Race in the United States*. This study found that the percentage of people of color in communities where commercial hazardous waste facilities were located was double that of communities without such facilities, and that race was the best predictor of where such facilities are located.[26]

Following the UCC's publication of *Toxic Wastes and Race in the United States*, University of Michigan Profs. Bunyan Bryant and Paul Mohai organized the 1990 Michigan Conference on Race and the Incidence of Environmental Hazards, with the purpose of bringing together academic researchers, activists, and public policy officials to discuss the emerging evidence and its implications.[27] At the conference, participants drafted a letter to then-U.S. Environmental Protection Agency (EPA) Administrator William Reilly, requesting a meeting to discuss evidence pertaining to race-based environmental inequalities, and pathways for the Agency to address the problem.

The following September, representatives from the 1990 Michigan conference met with Administrator Reilly, which led to the creation of an internal EPA working group. The Environmental Equity Workgroup was charged with investigating evidence of environmental racism, and drafted a set of proposals to address environmental inequalities. This group later went on to produce a report titled *Environmental Equity: Reducing Risk for All Communities*, which was the first official, published acknowledgement by the federal government that environmental injustice was an issue that warranted federal attention.[28]

While the history of the modern EJ movement in the United States dates back to the early 1980s,[29] there was no explicit federal policy response to the movement until the mid-1990s. Following the sequence of historic events mentioned above, accumulating research evidence, and mounting pressure from a growing EJ movement, the William Clinton Administration signed Executive Order (EO) No. 12898 in 1994, which until 2021 was the only piece of federal EJ action.[30] EO 12898 is significant in that it requires all federal agencies to make EJ "part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[31]

EO 12898 also recommends that Title VI of the 1964 Civil Rights Act be used to address any actions that may be influenced by racial bias.[32] However, critics of EO 12898 consider the Order to be largely symbolic,[33] as there are no enforcement mechanisms in the EO to ensure that EJ considerations are maintained in government agencies.[34] President Joseph Biden recently signed EO 14008, Tackling the Climate Crisis at Home and Abroad, which calls on the country to "deliver environmental justice in communities all across America," through various climate, environmental, and economic justice plans; the creation of the White House Environmental Justice Advisory Council; and the implementation of the Justice40 Initiative, among other provisions.[35]

In addition to EOs, there are examples of current federal environmental legislation, such as the CAA, that are intended to address cumulative impacts. However, there are several shortcomings to these federal policies and their enforcement. One issue is that the structure of EPA is decentralized, leaving much of the power to implement federal regulations in the hands of state governments.[36] Due to this decentralized nature of regulatory enforcement, the implementation of federal actions through regional EPA offices is slower than state actions.

Studies have shown that, while there is some effect of top-down regulatory actions, state enforcement of EPA policies "respond[s] more to intrastate political and economic phenomenon and to interstate concerns."[37] Recognizing these limitations, EJ scholars in the past decade have argued that state-specific action is the most efficient means to advance EJ policies and correct distributive injustices.[38] Currently, more than 40 states already have some form of EJ program or action.[39] One method that many states are adopting to draft effective EJ policy utilizes a state-specific EJ screening tool.

C. EJ Screening Tools

EJ screening tools, such as EPA's EJSCREEN, CalEnviroScreen, and others, combine socioeconomic data with available data on environmental hazards and pollutants to visualize areas with the greatest environmental injustice. In this way, screening tools are used to identify distributive injustices and disproportionate environmental burdens, which EJ scholars consider a critical step when drafting legislation.[40] Currently, states without a state-specific tool

26. *See* UCC, Toxic Wastes and Race in the United States (1987).
27. *See* Race and the Incidence of Environmental Hazards: A Time for Discourse (Bunyan Bryant & Paul Mohai eds., 2019).
28. *See* Paul Mohai, *Equity and the Environmental Justice Debate*, 15 Equity & Env't 21 (2007).
29. *See* Paul Mohai, *Environmental Justice and the Flint Water Crisis*, 32 Mich. Soc. Rev. 1 (2018).
30. *See* Clair Bullock et al., *Measuring the Relationship Between State Environmental Justice Action and Air Pollution Inequality, 1990-2009*, 35 Rev. Pol'y Rsch. 466 (2018); Bullard & Johnson, *supra* note 8. Although many EJ-related bills have been proposed over the past two decades at the federal level, none have passed. *See* Bullock et al., *supra*.
31. Exec. Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 3 C.F.R. 1 (1994).
32. Konisky, *supra* note 9. We note that EO 12898 has resulted in some positive legal outcomes, such as *In the Matter of Louisiana Energy Services, L.P.,* 45 NRC 367 (1997), wherein judges ruled that racial bias played a role in the site selection process of nuclear waste in Louisiana. *See* Bullard & Johnson, *supra* note 8.
33. Bullard et al., *supra* note 25.
34. Konisky, *supra* note 9.
35. *See* Exec. Order No. 14008, Tackling the Climate Crisis at Home and Abroad, 86 Fed. Reg. 7619 (Feb. 1, 2021), https://www.govinfo.gov/content/pkg/FR-2021-02-01/pdf/2021-02177.pdf. While EO 14008 is an important recognition of climate and EJ issues in the United States, it is too soon to speak on its ability to address them.
36. Konisky, *supra* note 9.
37. *Id.* at 479.
38. Lee, *supra* note 10.
39. Bullock et al., *supra* note 30.
40. Lee, *supra* note 10.

can use EPA's EJSCREEN to estimate areas with disproportionate burdens.

However, there are a few ways in which using a state-based tool is superior to using a national tool. First, state-specific screening tools differ from national tools like EJSCREEN in that they can look at particular state problems. In the case of CalEnviroScreen, EJ scores are calculated by census tract,[41] which incorporate state-based data, and developers engaged in ground-truthing processes from community organizers to confirm data points. Scores by EJSCREEN, on the other hand, provide a more generalized visualization of cumulative impacts[42] because not all data are available for every state, and hence cannot be incorporated in a nationally consistent screening tool.[43]

Second, while EPA's EJSCREEN does not provide thresholds for what constitutes an impacted or disadvantaged community (it uses its 11 environmental indicators, six demographic indicators, and 11 EJ indexes to identify areas of concern), some EJ scholars have criticized this minimal classification, arguing that "a nationally consistent screening tool requires a single index of disproportionate impact," which by nature of this assumption does not account for the complexity within communities.[44] Conversely, states are using visualizations and mapping tools that can be tailored to include particular environmental health data relevant to local communities, which residents in Maryland, for example, consider to be preferable to the use of a general tool like EJSCREEN.[45] Although these tools are important in addressing EJ issues like cumulative impacts, there are many states that have yet to develop their own EJ screening tool.

D. Research Focus: Michigan

Our research was conducted in partnership with the Michigan Environmental Justice Coalition (MEJC),[46] which has been actively involved in advancing the use of a Michigan-based EJ screening tool to establish EJ policies and ensure justice-based community actions in the state of Michigan. The state of Michigan is also interested in developing and advancing an EJ screening tool for Michigan in response to recommendations made by the governor's Environmental Justice Work Group (EJWG) in March 2018 in the wake of the Flint water crisis.[47]

Michigan has received national attention for several EJ issues in recent years, namely the Flint water crisis[48]; Enbridge's Line 5 and the potential oil spill into the Great Lakes[49]; and the public health crisis of southwest Detroit caused by cumulative impacts of pollution.[50] These three issues are similar in that they affect low-income communities of color, and many believe they have received insufficient state response[51] because, to state policymakers, "the interests of corporations, like General Motors and Marathon Oil, are considered more worthy of protection than the health and lives of Michigan residents."[52] However, one of the actionable outcomes of these recent events—specifically the Flint water crisis—was that it began formal state reactions to environmental injustices in Michigan.

In 2017, former Gov. Rick Snyder appointed the EJWG in direct response to the Flint water crisis. The EJWG was charged "to develop and provide recommendations to the Governor that improve environmental justice awareness and engagement in state and local agencies."[53] Governor Snyder received a list of 33 recommendations from the EJWG in March 2018 as a means of guiding state-based EJ action. The EJWG recommendation that we address in our research is the recommendation that Michigan "develop an environmental justice screening tool in Michigan and include cumulative impacts in decision making processes."[54]

In response to this recommendation, the MEJC partnered with the University of Michigan to assess the state of EJ in Michigan and, further, how EJ is spatially distributed. The research of master's students Laura Grier, Delia

41. *Id.*
42. *See* U.S. EPA, *Limitations and Caveats in Using EJSCREEN: Uncertainty in Estimates for Small Areas*, https://www.epa.gov/ejscreen/limitations-and-caveats-using-ejscreen#small-areas (last updated Apr. 26, 2021).
43. Some states collect additional forms of health data in comparison to other states. To ensure consistency in presenting environmental health outcomes on a national scale, EPA does not incorporate unbalanced data, or data captured by some but not all states, such as health data, into a national-level tool, and thus omits such data.
44. *See* Ryan Holifield, *Accounting for Diversity in Environmental Justice Screening Tools: Toward Multiple Indices of Disproportionate Impact*, 16 Env't Prac. 77, 78 (2014).
45. *See* Aubree Driver et al., *Utilization of the Maryland Environmental Justice Screening Tool: A Bladensburg, Maryland Case Study*, 16 Int'l J. Env't Rsch. & Pub. Health 348 (2019).
46. This research was conducted as a partnership between the MEJC and the University of Michigan School for Environment and Sustainability. The MEJC is a statewide coalition of activists, leaders, scholars, and scientists, and its mission is "to achieve a clean, healthy, and safe environment for Michigan's most vulnerable residents." MEJC, *Who We Are*, https://www.michiganej.org/who-we-are (last visited Jan. 12, 2022).
47. *See* EJWG, Environmental Justice Work Group Report: Michigan as a Global Leader in Environmental Justice 16-17 (2018), https://www.michigan.gov/documents/snyder/Environmental_Justice_Work_Group_Report_616102_7.pdf. *See* Michigan Department of Environment, Great Lakes, and Energy, *The New Mi EJ Screen—Why It Matters and Now What?—2021 MI EJ Conference*, YouTube (May 18, 2021), https://www.youtube.com/watch?v=E-Lo6SvN_Kg.
48. *See* Ron Fonger, *Crusading Flint Doctor Says "We're Not Done" Fighting Fallout of Lead in Water*, MLive (Apr. 3, 2019), https://www.mlive.com/news/flint/2015/12/crusading_flint_doctor_says_we.html; Mona Hanna-Attisha et al., *Elevated Blood Lead Levels in Children Associated With the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response*, 106 Am. J. Pub. Health 283 (2016); Jeremy C.F. Lin, *Events That Led to Flint's Water Crisis*, N.Y. Times (Jan. 21, 2016), https://www.nytimes.com/interactive/2016/01/21/us/flint-lead-water-timeline.html; Mohai, *supra* note 29.
49. *See* David J. Schwab, University of Michigan, Ann Arbor, Statistical Analysis of Straits of Mackinac Line 5: Worst Case Spill Scenarios (2016), http://graham.umich.edu/media/pubs/Mackinac-Line-5-Worst-Case-Spill-Scenarios.pdf; *Michigan Tribes to Paddle the Mackinac Straits in Protest of Line 5*, Mich. Pub. Radio (Aug. 30, 2018), https://www.michiganradio.org/post/michigan-tribes-paddle-mackinac-straits-protest-line-5.
50. Schlanger, *supra* note 4. The authors acknowledge that, while these three EJ issues have gained the most media attention, they do not encompass the entirety of EJ issues in Michigan.
51. Berglund, *supra* note 3.
52. Benz, *supra* note 3, at 58.
53. EJWG, *supra* note 47.
54. *Id.* For more information on this report, see Laura Grier et al., Assessing the State of Environmental Justice in Michigan (2019), *available at* https://deepblue.lib.umich.edu/bitstream/handle/2027.42/149105/AssessingtheStateofEnvironmentalJusticeinMichigan_344.pdf?sequence=1.

Mayor, and Brett Zeuner from the University of Michigan's School for Environment and Sustainability evaluated EJ in Michigan, and, through quantitative measures used by the state of California, created a draft version of a Michigan-specific EJ screening tool.[55] This draft tool was adopted and built upon by Michigan state officials.

In May 2021, the Michigan Department of Environment, Great Lakes, and Energy introduced MiEJScreen at the Michigan Environmental Justice Conference, where they acknowledged the groundwork that Grier et al. laid for this new tool.[56] Still in development, the tool has been proposed to inform state policies, though there is currently no law to utilize the tool in decisionmaking processes.[57]

Our research had several objectives. First, we wanted to identify states that have developed state-specific EJ screening tools and evaluate them. Second, to better understand how existing EJ screening tools are used in those states to inform and influence state-level policymaking, we conducted interviews in a semi-structured format with various stakeholders, including those in local communities, government officials, and members of the academic field who research EJ issues. We used this information to identify and analyze the functions of current state-specific screening tools, sources of resistance to their use, and strategies for overcoming the resistance. Although our research was motivated by the current interest in the state of Michigan to develop and advance an EJ screening tool for the state, we believe our findings can be applied as lessons to other states in a more generalized context.

II. Methods

To address our first objective of identifying states that have developed state-specific EJ screening tools, we began with previous reports and testimonies from prominent EJ scholars to inform us of states with histories of using EJ screening tools in policy and program development.[58] From these reports, we determined that California and Minnesota were states of interest. These tools—California's CalEnviroScreen[59] and Minnesota's What's in My Neighborhood[60] and EJ Story Map[61]—are the most established in that they have the longest histories as state-specific EJ screening tools.

We supplemented this information by consulting with EJ academics and advocacy leaders, in addition to performing Internet searches on Washington's Environmental Health Disparities Map,[62] Maryland's MD EJSCREEN,[63] and several tools that were in development in New Jersey[64] and North Carolina.[65] These tools were not as established as those for California or Minnesota, meaning that their histories were much shorter, with some tools only coming into use in the past year or so. Nevertheless, their respective development processes—specifically regarding a screening tool's functionality and in addressing potential stakeholder resistance—could provide valuable insights.

These screening tools were all similar in that they (1) served as a statewide tool; (2) combined environmental data with socioeconomic or health data to represent EJ issues; (3) visualized these data on an interactive online platform; and (4) made these data available to the public in some form. Visualization of these overlapping factors is key, as it demonstrates the correlation between structural societal elements (e.g., economics, racial dynamics) and the burden of environmental health hazards.[66] Additionally, visualization is important, as the public's access to and understanding of the tool is crucial to a screening tool's success from a procedural EJ perspective.

We note that although there are several other EJ screening tools or databases currently available in the United States, these were not included in our analysis because they either:

1. lacked a visualization component;
2. lacked environmental hazard data in combination with social factors like race or income;
3. contained outdated data (e.g., data that are more than 10 years old); or
4. they were not presented on an interactive platform (see Appendix 1).

55. Grier et al., *supra* note 54.
56. Michigan Department of Environment, Great Lakes, and Energy, *supra* note 47.
57. *Id.*
58. Grier et al., *supra* note 54.
59. *See* Matthew Rodriquez & Lauren Zeise, California Environmental Protection Agency, Update to the California Communities Environmental Health Screening Tool: CalEnviroScreen 3.0 (2017), https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf.
60. *See* Minnesota Pollution Control Agency (MPCA), *What's in My Neighborhood*, https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=9d45793c75644e05bac197525f633f87 (last visited Dec. 18, 2021).
61. *See* MPCA, *Understanding Environmental Justice in Minnesota*, https://mpca.maps.arcgis.com/apps/MapSeries/index.html?appid=f5bf57c8dac24404b7f8ef1717f57d00 (last visited Dec. 18, 2021).
62. *See* Washington State Department of Health, *Washington Environmental Health Disparities Map*, https://www.doh.wa.gov/DataandStatisticalReports/WashingtonTrackingNetworkWTN/InformationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap (last visited Dec. 18, 2021).
63. *See* University of Maryland National Center for Smart Growth, the Community Engagement, Environmental Justice, and Health, *Maryland EJScreen Mapper*, https://p1.cgis.umd.edu/ejscreen/ (last visited Dec. 18, 2021).
64. Since the Environmental Justice Law, New Jersey Statutes Annotated §13:1D-157, was signed into law by Gov. Phil Murphy on September 18, 2020, New Jersey Department of Environmental Protection (NJDEP) officials now use a tool, the New Jersey Environmental Justice Mapping Tool, to aid in the identification of overburdened communities in their permit application evaluation processes.
65. *See* North Carolina Department of Environmental Quality (NCDEQ), Title VI: Increasing Equity, Transparency, and Environmental Protection in the Permitting of Swine Operations in North Carolina—Attachment L: Community Mapping System & Environmental Justice Tool 1.0 Document, (2020), https://files.nc.gov/ncdeq/EJ/AttachL-Community-Mapping-System-Environmental-Justice-Tool-1.0-Document.pdf. During our time of data collection, the NCDEQ suspended development of its Community Mapping System due to a legal settlement with citizens' groups regarding the permitting of swine waste in the state. A settlement was reached in May 2020. *See* NCDEQ, Title VI: Increasing Equity, Transparency, and Environmental Protection in the Permitting of Swine Operations in North Carolina—Attachment A: Settlement Agreement Between NCDEQ and the Citizen Groups (2020), https://files.nc.gov/ncdeq/EJ/AttachA-Settlement-Agreement-NCDEQ-Citizen-groups.pdf.
66. Driver et al., *supra* note 45.

The states we did not include for the reasons listed above were Connecticut, Illinois, Massachusetts, New Mexico, New York, and Pennsylvania (see Appendix 1).

Thus, we concentrated our analysis on California, Minnesota, Washington, Maryland, and New Jersey.[67] In order to better understand how existing EJ screening tools are used in those states to inform and influence state-level policymaking, we conducted interviews in a semi-structured format with various stakeholders, including those in local communities, government officials, and members of the academic field who research EJ issues. While written reports of the above-mentioned screening tools are published and accessible to the public online, we wanted to conduct interviews to gain additional details about the development process of the tools and their uses in policymaking. In addition, we interviewed EJ stakeholders based in Michigan, to compare their plans and expectations for tool development with established processes in other states that use state-specific screening tools.

Our initial research sample began with recommendations from the leadership of the MEJC, the leading EJ organization in Michigan, followed by a snowball methodology where we asked interviewees if they knew of any additional individuals with relevant experience to state-specific screening tools, whether on the development side, the policy side, or the advocacy side. However, when this methodology led to no new recommendations, we switched to a key-informant sampling methodology, wherein subjects with "special expertise" are targeted in qualitative research.[68] Our original goal was to conduct 30 interviews over the course of this project, but due to institutional responses to the global coronavirus pandemic, we discontinued our efforts in coordinating any further interviews.

In total, we conducted 28 anonymous semi-structured interviews with EJ advocates and activists, academics, state officials, industry representatives, as well as nonprofit professionals who were involved in the development of an EJ screening tool in California, Washington, Minnesota, Maryland, North Carolina, New Jersey, and Michigan, among others. We conducted the majority (N=25) of our interviews through online conferencing platforms, such as Zoom or BlueJeans, with obtained consent from our interviewees.[69] These interviews were recorded and transcribed using the speech-to-text software service from Rev.com.[70] The remaining interviews were held over the phone or through written communication.

To analyze the interview data, our project team developed a codebook using the qualitative analysis software program NVivo 12 Plus. Using this software, we used inductive analysis[71] to identify major themes concerning EJ screening tool development.

III. Results

From the inductive analysis of our interviews, three major themes emerged: (1) current functions of state-specific EJ screening tools; (2) stakeholder resistance to tool development; and (3) strategies for overcoming resistance. Additionally, we found several sub-themes within these larger categorizations, such as specific functions that tools currently serve, or different types of resistance to an EJ screening tool. These themes and sub-themes are discussed in more detail below. A summary of our findings is also given in Table 1 on the next page.

A. *Current Functions of State-Specific EJ Screening Tools*

Discussions with our interviewees revealed that the current functions of state-specific EJ screening tools are varied. The functions of screening tools from our study sample were seen as either (1) informational; (2) community advocacy-based; (3) regulatory- or policy-based; or some combination of the three (see Table 1).

Regarding the first function (informational), respondents in California, Washington, Minnesota, and Maryland explained how their screening tools are being used as a source for both state officials and community members. Specifically, the state EJ screening tools of California, Washington, and Maryland were perceived as helpful to visualize cumulative impacts and to identify areas to prioritize, whether in community activism or to inform policymakers. One respondent, an EJ advocate from California, discussed how CalEnviroScreen ensures pollution burdens are holistically experienced:

> So it really has become the single platform and repository for this data, and it overlays it in a way that reflects the cumulative impacts, which I do think is novel. We're not looking at the factors in silos, but really thinking about them holistically through a single index, which more accurately reflects how communities experience these issues, which is all at the same time and cumulatively, having interactions with each other.

Interviewees in Washington specifically spoke to the way the tool promotes clear and easy communication about the state of EJ in Washington because it visualizes disparities between communities using both environmental and social indicators. According to a Washington state official: "I do have other health disparity information, and socioeconomic, but [the Environmental Health Disparities Map] is

67. Since New Jersey Statutes Annotated §13:1D-157 was signed into law by Gov. Phil Murphy, NJDEP officials use the New Jersey Environmental Justice Mapping Tool. This tool was not publicly accessible during our research collection in 2019.
68. *See* Martin Marshall, *Sampling for Qualitative Research*, 13 Fam. Prac. 522 (1996).
69. See Molly Blondell et al., Environmental Justice Tools for the 21st Century (2020), *available at* https://deepblue.lib.umich.edu/handle/2027.42/154874, for examples of our interview questions.
70. For more information on Rev.com's mission and services, visit their website at https://www.rev.com/about.
71. Inductive analysis relies on post-research empirical observations that generate common patterns, or themes, in our interview data.

Table 1. Summary of Interview Findings, Based on Themes Derived

Theme	Sub-Theme	Representative Quote*
Current Functions of State-Specific EJ Screening Tools	Informational	"I think one of the great opportunities with the tool is for it to actually educate folks what they're exposed to . . . the burden of hazards, different types of hazards in their community." (Maryland academic)
	Community advocacy-based	"I think community-based organizations do really name and point to CalEnviroScreen as a framework that has uplifted the issues that we've known have always existed. Because we're organizing, we live and work and advocate in those neighborhoods. . . . And so I think it does have community support." (California advocate)
	Regulatory or policy-based	"This tool could be used by any agency: local, county, or state level. That's the goal. It can be used by any agency. And so I have an opportunity, really, to have an impact on policy with this tool." (Maryland academic)
Resistance to Tool Development	Internal resistance	"We're just going to need more people to do that. So there's the IT [information technology] side and then any time you add any sort of layer to a regulatory system, it just means there's more time and more people that need to figure out what decisions need to be made." (Michigan state official)
	External resistance	"The ability of industry to continue to operate the status quo is of economic importance to politicians and the State, and the state regulators see those industries as their customers. Their job is to help them operate, not to necessarily stop them." (New Jersey academic)
Strategies for Overcoming Resistance	Framing and messaging	"[A]s much as we emotionally get why [EJ is] important, it's not going to matter to some people unless you could show them hard numbers. And this is a way to quantify impact and not just anecdotally talk about impact, and I think it should be described in that way." (Michigan state official)

* Representative quotes were selected to demonstrate the themes.

the only one that sort of combines both of those and has 19 different indicators. So, it's the most expansive. . . ."

In Maryland, an EJ academic said the information provided by MD EJSCREEN informs community members about "the type of hazards that is present in their community," and also "educates policy makers" about EJ. Minnesota's EJ screening tools are primarily used to inform the internal permitting processes and regulations of the Minnesota Pollution Control Agency (MPCA), where the tool is consulted as part of the permitting process, rather than state legislation.

Regarding the second function of EJ screening tools (advocacy purposes), respondents in California, Washington, Maryland, and Michigan strongly expressed that the tool can be used to support community action in highly impacted areas. EJ advocates in California and Maryland shared frustrations related to the responsibility put on community members to personally argue for EJ policies to local and state governments. EJ screening tools are considered helpful to validate these community experiences.

In California, an EJ advocate noted that CalEnviroScreen shapes much of the campaigns and activities of EJ organizations, saying:

> [CalEnviroScreen] is a sea of change for I think all environmental justice organizations. Prior to CalEnviroScreen, [EJ organizations] had created analysis and maps that showed the ethnic and racial makeup of our communities, the level of income and poverty in our communities, the level of pollution from sources that we could access, and we took pains to try to map that to show how it impacted our communities. Then CalEnviroScreen put all of those factors together, and we were able to demonstrate all the different ways that our communities are impacted. It had an immediate effect of saying, "These are places where there are disproportionate impacts."

State officials who wish to further EJ principles in their states also use EJ screening tools. For example, a Washington state official said that the tool is used by "agencies to guide their work" on EJ, and cumulative impact analyses to provide a "grander scheme . . . for policy makers, agencies, or organizations to advocate for equity and EJ." In terms of future expectations of a state-specific screening tool, a community member in Michigan expressed the following:

> Well, using the data, we have a number of people in our community who file lawsuits. They file lawsuits against polluting companies. And so once the public has the knowledge in terms of who are the polluters, and what they are polluting, and the health impacts, and the detriment to their own bodies—I think people need to know.

Community action in Michigan relies on the public access and transparency of information to further industry accountability, and a screening tool is seen as helpful to pursue that goal.

EJ screening tools can also impact regulatory agencies or specific policies. For example, a state official in Washington said that "[t]here are a couple of agencies that are already using [the tool]," such as the Department of Ecology, which uses it "in one of their public participation grants." The interviewee went on to say that the Department of Ecology "[asks] communities to look at the map and find out where their community ranks, then they rank the communities that get a score of eight or higher," to determine who receives the grant.

Respondents in Washington also discussed how Washington's Environmental Health Disparities Map was used to inform the Healthy Environment for All (HEAL) Act,[72] which pushes for EJ at the state level by (1) defining EJ; (2) directing agencies to address environmental health disparities; and (3) creating an EJ task force. According to one respondent from Seattle, the Environmental Health Disparities Map was also used to pass the Clean Energy Transformation Act, which proposes a transition to clean energy with discussions of environmental health and cumulative impact analysis.[73]

As mentioned previously, our respondents from Minnesota explained that the MPCA primarily uses their tool for internal regulatory purposes, including statutes regarding the permitting process.[74] As Minnesota's Environmental Protection Statute §116.07.4a states: "The agency may not issue a permit to a facility without analyzing and considering the cumulative levels and effects of past and current environmental pollution from all sources on the environment and residents of the geographic area within which the facility's emissions are likely to be deposited."[75]

While New Jersey's What's in My Community tool is not currently in use, one interviewee from New Jersey explained that this tool informed Newark's Environmental Justice and Cumulative Impact Ordinance.[76] Specifically, the interviewee said that "we developed—New Jersey's EJ Alliance—developed a municipal ordinance in Newark," and that "we took [the model municipal ordinance] to Newark and it eventually was adopted by Newark." In California, respondents frequently mentioned A.B. 2722, which enacted the Transformative Climate Communities Program, which provides funds for the development and implementation of neighborhood-level climate community projects, such as greenhouse gas emissions reduction projects, that provide local economic, environmental, and health benefits to disadvantaged communities, as defined by CalEnviroScreen.[77]

Interviewees from states that did not use a tool to inform current policy expressed interest in the tool serving that purpose in the future. Maryland currently does not use MD EJSCREEN to inform policy. However, a university professor who assisted in the development of MD EJSCREEN expressed aims for the tool to "have an impact on policy" moving forward. In Michigan, where a screening tool is still in the initial stages of development, officials said that a tool could be used to inform regulations or policies, but that it should not be framed as such. One state official said specifically that "messaging" around an EJ screening tool might need to change to work in Michigan:

> I know it's commonly called a screening tool, but I actually think it should be more framed . . . in the context of a data tool. So you're identifying data that can help address whatever challenge or issue there is that we're trying to address. If you couch it as data, it can help substantiate policy, it can help . . . policy recommendations.

As mentioned previously, while New Jersey's What's in My Community tool has been used to inform a citywide ordinance, the tool has largely been unused, and has not been updated since Gov. Chris Christie's administration assumed office in 2010. A New Jersey academic stated that the EJ community in New Jersey is unaware of the future use of the tool: "We don't know . . . The screening tool that [New Jersey] developed, we don't know what they're doing with that and they seem to be disavowing it. We want to talk to them about that. We just don't know what's going on." This disparity in communication regarding the development and use of the tool additionally highlights the necessity for better communication structures between frontline communities and decisionmakers.

Further, on September 18, 2020, the Environmental Justice Law, New Jersey Statutes Annotated §13:1D-157, was signed into law by Gov. Phil Murphy. This requires the New Jersey Department of Environmental Protection (NJDEP) to expand its permit application review processes and evaluate how polluting facilities may exacerbate existing environmental and public health stressors in overburdened communities. NJDEP officials now use a tool, the New Jersey Environmental Justice Mapping Tool, to aid in the identification of overburdened communities in their permit application evaluation processes.[78]

B. Stakeholder Resistance to Tool Development

A second major theme that emerged from our analysis of interview responses was that of stakeholder resistance to EJ screening tool development. Stakeholders fell into

72. *See* S.B. 5489, 66th Leg. (Wash. 2019), https://app.leg.wa.gov/billsummary?BillNumber=5489&Year=2019&Initiative=false#billhistorytitle.
73. *See* Wash. Rev. Code ch. 19.405 (2019), https://app.leg.wa.gov/RCW/default.aspx?cite=19.405&full=true.
74. *See* Minn. Stat. §116.07 (2019), https://www.revisor.mn.gov/statutes/cite/116.07#stat.116.07.4a.
75. *Id.*
76. *See* Newark, N.J., Ordinance 16-0803 (July 7, 2016), http://www.njeja.org/wp-content/uploads/2019/10/Newark_EJ_CumulativeImpacts_ordinance.pdf.
77. *See* A.B. 2722, 2015-2016 Reg. Sess., ch. 371 (2016), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB2722.
78. *See* NJDEP, *New Jersey Environmental Justice Mapping Tool*, https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=34e507ead25b4aa5a5051dbb85e55055 (last visited Dec. 18, 2021).

two major categories: those internal and those external to their respective state governments (see Table 1). Internal stakeholders include state agencies, administrators, and legislators, and are limited by state politics and other governmental restraints such as laws, regulations, and limited resources.

External stakeholders operate outside of state governments and include community organizers, nongovernmental organizations (NGOs), and industry representatives. Industry representatives and lobbyists are most commonly recognized as being external actors resistant to screening tools in that they see it as a possible disruption to their business practices. We discuss both types of resistance (internal and external) in more detail below.

1. Internal Resistance

Regarding internal resistance, our interviewees noted that conflicts arose among state-level decisionmakers (e.g., lawmakers, agencies, administrators, etc.) pertaining to screening tools, such as disagreement on the tool's validity to identify EJ populations; the absence of a legal framework to support the tool; and resource constraints to adopting procedures informed by the tool, among others.

While EJ screening tools strive to be inclusive of all communities that experience cumulative impacts, its measurements reflect the experience of pollution burdens relatively from one community to another. This format highlights which communities are experiencing the greatest burdens of cumulative impacts, though communities that have lower rankings may also experience environmental injustices to a smaller extent. In California, some lawmakers questioned the accuracy of CalEnviroScreen 3.0, as the criteria for identifying an EJ community may not be inclusive of all communities that experience cumulative impacts or other environmental injustices. However, one California EJ advocate argued that the need for complete accuracy was detrimental to the utility and understanding of how the tool works:

> I do know some organizations that do push back a little bit. But again, because there's a lot of miseducation, misinformation, there's a territorial-ness that happens, which is like, they hear an agency say this tool doesn't accurately capture your communities. People take that talking point and use it to advocate against the tool. I think that those types of efforts are counterproductive, because really, this is a starting place. We can be in conversation about the gaps and continue to strengthen it, but we don't need to let perfect be the enemy of good.

This interviewee also noted that developers of the tool validated criteria of identifying EJ communities through ground-truthing methods in community knowledge and experience:

> I think, community-based organizations do really name and point to CalEnviroScreen as a framework that has uplifted the issues that we've known have always existed. Because we're organizing, we live and work and advocate in those neighborhoods. So there was a lot of ground truthing, from my understanding, that also happened to make sure that the maps, in draft form, initially were compared, or there was time allowed for reflection and analysis around, does this map accurately reflect your experience on the ground?

Though internal resistance in California predominantly relies on misunderstandings of a tool's inaccuracy among lawmakers' perception of community exclusion, community members and organizers have already resolved issues through engagement and education efforts within communities.

In Washington, certain agencies are concerned about how the findings of the tool may impact the processes of state agencies being held accountable for the resolution of environmental injustices. Additionally, a district representative argued against the tool's accuracy during a Washington legislative session. The representative argued their community was misranked (i.e., ranked lower than it should have been), because "the tool measures overall air pollution but not short term sort of situational measures, like wildfire smoke," a natural disaster that frequently occurs in the representative's community.

Similarly, there is extensive political debate in New Jersey about whether scientists know how to accurately account for multiple source pollutants in their analyses. One academic in New Jersey believed this to be a result of the regulatory structure of the state being risk averse, and the politicization of power dynamics within the state that places EJ communities in positions of less power and influence with elected officials than industry representatives:

> And because EJ communities often find themselves politically vulnerable, they're not able to move the State to say no to industry. And even under Democratic administrations, which you would assume would be friendlier to these types of interventions, there's still resistance, because the regulatory structure of the state is risk averse.

Internal resistance from state agencies, administrators, and legislators, therefore, can occur in regard to questioning the processes of calculations within the tool, and what criteria are included in its analysis.

In Minnesota, the tool faces a different form of internal resistance. As the tool is used internally for state representatives—meaning that the What's in My Neighborhood tool can only be used by personnel within the MPCA, and not the general public—there is resistance within the MPCA regarding how permitting processes are disrupted and slowed down as a result of the tool. As noted by an MPCA official:

> The environmental justice policies and tools that we have are going to slow the process down and it's going to frustrate the facilities, but that is our commissioner's focus, but also now our permitting staff's goal is to slow down the process when a facility finds itself in an overburdened community.

When a community is designated as overburdened by What's in My Neighborhood, the permitting staff of MPCA is required to halt the permit approval process for a more extended evaluation of the facility applying for a permit, slowing the productivity of a facility, essentially creating a larger workload for MPCA staff.

Michigan state officials also expressed similar expectations of internal resistance within state agencies. They noted that state administrators within state agencies would possibly be more resistant to a tool, as it would disrupt or change their institutional norms and processes. According to a Michigan state official, a screening tool could "make [agencies'] permitting more challenging." Additionally, this same respondent added that state agencies who use the tool could "run into some barriers with potentially local governments as well," as government agencies at the city and county levels may face difficulties with budgetary restraints while adhering to updated statewide policies and regulations.

A Michigan-based expert in environmental law stated that state legislators would also "probably be resistant" to the tool because they would be opposed to "something that would try to benefit low-income communities of color." This respondent continued by saying:

> I would imagine their response would be, "We have a set of environmental laws that protects all people. Why do we need to make sure that . . . Why do we need to give special treatment essentially to communities of color in regards to this issue?" Environmental justice just isn't in their consciousness as it is with I think some other people, some other legislators. And so I think it would be seen as something that would be not necessary by a lot of state legislators, essentially.

Some state agencies struggled with internal resistance against their screening tools because of an absence of legal backing and broader support from the state. In Maryland, for example, MD EJSCREEN is housed in an academic institution and not in a state agency, thereby reducing its legitimacy as a tool to be used for governing by other state agencies. A developer of MD EJSCREEN mentioned that it is important for the tool to have a legal framework that would render the tool valid (e.g., CalEnviroScreen) or to have the tool be legislatively institutionalized to increase its reliability and validity among state decisionmakers.

Further, a Maryland academic noted that including representatives from multiple state agencies in the development of a statewide screening tool could reduce internal resistance, as there would be multiple authorities invested in its development and use. This absence of a collaborative approach in Maryland has led to questions regarding the validity and reliability of the tool by non-environmental public agencies, and has impeded the process of establishing MD EJSCREEN as an official tool in Maryland.

Michigan could face similar resistance to adopting the tool at the state level based on limited information technology (IT) capacities within state agencies. According to one state official:

> With actually developing the tools, again, I'd see [issues] from an IT and just a capacity perspective for our EJ Public Advocate Office. It's more on the implementation side that I see that we would need significant funding if we're going to be doing more assessments or adding things to our permit process. We're just going to need more people to do that. So there's the IT side and then any time you add any sort of layer to a regulatory system, it just means there's more time and more people that need to figure out what decisions need to be made.

Internal resistance manifests in multiple forms, including lawmakers' concerns related to a screening tool's ability to identify (or not identify) an EJ area; statewide acceptance of the tool's legitimacy; a lack of legal backing and collaborative developmental process in creating the tool; and limited structural resources to develop a tool. However, as many of our respondents noted, the respective manifestations of internal resistance are not contrary to the effectiveness of a tool, but rather disruptions to procedural status quos that also perpetuate inequity toward impacted communities.

2. External Resistance

Our respondents also discussed resistance expressed by stakeholders that are not officials within state governments (e.g., community organizers, NGOs, and industry representatives), hereby referred to as external resistance. For example, external actors in California—especially industries—are seeing shifts in the enforcement of pollution regulations. Though these shifts in enforcement and regulation are based on decisionmakers utilizing CalEnviroScreen, these changes could result in the tool, and any subsequent enforcement of pollution regulations, being met with industry resistance.

In New Jersey and Michigan, industry is identified as an external actor that has significant influence in statewide decisionmaking processes, in addition to being considered a powerful adversarial group against EJ communities. A New Jersey academic noted that state administrations, regardless of being Republican or Democratic, have resisted the incorporation of cumulative impacts in their EJ measures due to industry influence. Another academic based in New Jersey noted that cumulative impact approaches to justice would demand that state officials enforce emissions reduction standards for industries. However, based on the state's decisionmakers being financially risk averse, enforcement is seen as a risk that may result in industry officials retaliating against the state, as one EJ academic noted:

> The ability of industry to continue to operate the status quo is of economic importance to politicians and the State, and the state regulators see those industries as their customers. Their job is to help them operate, not to necessarily stop them. And so, cumulative impacts if it works well, should tell the State there are conditions under which you have to say no [to industries]. Where you have to intervene in the marketplace, and how industry can't pollute. [Industries] have

> to reduce [their] emissions or not enter into this community. And States are unwilling politically to do that, unless they're pressured to do so by a large swath of their electorate.

All Michigan-based interviewees, regardless of their categorization—which include community members, academics, lawyers, and state officials—agreed that a screening tool could be considered a threat to the business practices of the heaviest polluters, and therefore industries could be opposed to an EJ screening tool being used in a regulatory context. Additionally, industries may not want information concerning their contributions to exacerbating cumulative impacts in nearby communities to be exposed.

A Washington-based EJ community organization member noted utility industry resistance seems to be more vested in general confusion about how the tool is being developed, rather than a display of resistance against the tool itself. For instance, utilities would "challenge a little bit the legitimacy about, what was the sample size of community outreach you did" or would claim that their information is "not scientifically sound or not representative of agencies," thereby denying the accuracy of the science behind the tool, not the tool itself.

Lastly, EJ and faith-based organizations were also seen as possible resistant groups in Michigan, in that they had the potential to be co-opted by industry. This concern was raised by a Michigan community activist from Detroit, who explained that this kind of co-option is already happening in regard to decisionmaking processes for DTE Energy:

> [M]any of these community organizations—the lower nonprofits and the faith-based organizations—many of them are poor, and they're cash-strapped. So yeah, so many of them can often be co-opted [by industry] as we see now. When we went to speak to the Michigan Public Service Commission, they had a line of ministers that lined up to support DTE and their coal power plant in their production of energy, and how helpful they were because they were poor, so they were able to be paid off, so they were co-opted. There's no trust. . . .

For this reason, some Michigan interviewees expressed some apprehension toward moving forward with the tool.

In Washington, a staff member from a state government county office in Seattle pointed out that industries and lobbyists argue against the tool and "put equity groups against" EJ policies, because those policies are imperfect in that they do not provide "perfect solutions." Such resistance, they noted, demands the perfection of equity policy from the outset, rather than embracing a policy that could be improved upon and become more inclusive over time.

C. *Strategies for Overcoming Resistance*

There have been several strategies proposed by our interviewees to overcome internal and external forms of resistance. According to a local activist in Washington, one way to overcome external resistance that denounces the tool's accuracy is to have a state agency house the tool, rather than an educational institution. By having state officials house the tool, there is a state-based authority validating its use and impact on decisionmaking.

In Michigan, one state official argued that if the tool is framed as an educational tool, rather than a regulatory or enforcement tool, then perhaps some of the industry resistance could be avoided:

> That's how I would message [the tool], because as much as we emotionally get why [EJ is] important, it's not going to matter to some people unless you could show them hard numbers. And this is a way to quantify impact and not just anecdotally talk about impact, and I think it should be described in that way.

This approach of framing the tool as an educational and/or informational tool is also necessary to overcome internal resistance from state legislators, according to a Michigan-based expert in environmental law. This respondent stated:

> [F]or policymakers, I would think it would be important to stress that it's an information gathering tool that you're looking to assess these risks, and essentially try to see if there's a problem, and not assume that there is a problem, but basically say, "If there is, then we'll craft what are the necessary solutions to address it."

A federal actor at EPA described similar resistance with EPA's EJSCREEN, saying that EPA had to "make clear what [the tool] is and what it isn't, that it was a screening tool," and that "it wasn't going to be used for regulatory or . . . risk assessment purposes."

Interviewees in Minnesota emphasized that the importance of overcoming internal resistance was based on their agency's communication networks and through the importance of inclusivity in all decisionmaking processes, from hiring to permit review. As noted by a Minnesota state official:

> [W]hat we run into is to make sure that we're educating our supervisors and managers to make sure they know what environmental justice is and how we as an agency are pushing it as a policy so they can support their staff to do more, to do their job properly and that is to fulfill our mission on protecting the environment and human health.

Additionally, interviewees in California credit CalEnviroScreen's adaptability as a means of addressing more localized concerns of internal resistance. Though the tool takes a state-based focus, proponents of the tool have noted that it could be used for information-sharing, collaboration, and decisionmaking at local and regional levels, thereby being applicable to specific, local concerns of community members and legislators. As one EJ advocate noted, "It's not just about the state-level either. You can also use the data for regional decision making and planning and also for local decision making and planning, too." EJ tools, through their inherent adaptability to regional scopes, may already have the capacities to address concerns of regional exclusion expressed by lawmakers.

IV. Discussion and Conclusions

A. Summary of Key Findings

Our study had three objectives: (1) identify states that have developed state-specific EJ screening tools; (2) analyze existing state-specific screening tools and how they inform their respective states' EJ policies and programs; and (3) identify the reasons for resistance to the use of EJ screening tools and strategies to overcome the resistance. To address our objectives, we conducted interviews with multiple stakeholder groups—academics, state officials, community members, EJ advocates, and industry representatives—to understand how state-specific EJ screening tools are perceived and used in the United States.

The utility of screening tools stems from their quantification of cumulative impacts and ability to visualize areas of disproportionate burdens, and can be used for many purposes, including informational, community advocacy-based, and regulatory or policy-based. However, as we have seen through our interviews with actors from Michigan and other states, there are resistant groups that may prevent an EJ screening tool from being adopted to its full regulatory efficiency, both internally and externally from state governments.

Depending on the development process, EJ screening tools may be met with subsequent resistance by industry, state officials, or community members who question the tool's relative scope, data accuracy, and capacity for implementation. Although our interviewees suggested framing future state screening tools as educational to avoid this type of resistance, we believe that this is only a temporary solution and actually may feed into skepticism of the tools' purposes or effectiveness. Transparency will be key to gain trust and support from a wide range of actors that have either historically been ignored by state governments, or have vested interests in proving the tools incapable in assisting regulatory processes.

B. Implications of Findings for Resolving Environmental Injustices

EJ screening tools have the capacity to convey a visual representation of cumulative impacts. This visualization, in turn, reinforces frontline community testimonies regarding the state of public and environmental health in their communities. Responses to internal and external resistance of EJ screening tools may highlight the versatility of the tools and their potential to identify cumulative impacts at the state level, as well as local and regional levels. We note, however, that these tools mark an initial step toward reducing cumulative impacts. They may identify cumulative impact burdens experienced by communities, but the degree to which cumulative impacts are resolved rely upon decisionmakers enacting and enforcing policies and procedures that significantly reduce pollution.

We also wish to point out that EJ screening tools do not measure every manifestation of environmental injustice. There are various examples of environmental injustice, such as access to safe and nutritious foods, access to affordable energy, access to running water, access to sustainable transportation, proximity of schools to environmental hazards and their impact on student performance, and access to green spaces as well as recreational areas and parks, that may not be measured by an EJ screening tool. Despite the absence of these measurements, an EJ screening tool may be used to inform how such cases of environmental injustices are interlinked with, or even exacerbated by, cumulative impacts of air toxins.

Previous research has also revealed there are other policies outside of federal and state legislation that aim to correct issues related to EJ nationwide.[79] Overall, these policies include, but are not limited to, bans on pollutants, public health codes, land use, proactive planning, and changes to review processes.[80] These policies typically occur on a smaller scale, within the legal context of a city ordinance or a county law. As environmental injustices impact communities at local and broader levels, we recognize that both local and state EJ policies may serve as critical bureaucratic responses to ensure community well-being. We suggest that state-specific EJ screening tools may also be valuable to enact and enforce existing policies that assist impacted communities at city, county, and state levels.

C. Recommendations for Next Steps in Research and Policy Development

From this analysis, we make the following recommendations for Michigan and other states as they move forward with their screening tool development:

1. Michigan can, and should, use an EJ screening tool for information, advocacy, and regulatory purposes statewide.
2. The tool should be used at different levels of government (e.g., statewide, countywide, citywide) to ensure all affected communities are identified for their specific needs.
3. The EJ screening tool must be housed in a state agency rather than an outside institution.[81]
4. Multiple state agencies (environmental, health and human services, transportation, among others) must collaborate on the tool's creation and use.[82]

79. *See* Ana Isabel Baptista et al., New School, Local Policies for Environmental Justice: A National Scan (2019), https://doi.org/doi:10.7282/t3-pywf-p055.
80. *Id.* at 15 tbl.2.
81. This is to allow for the most stable infrastructure and access to resources.
82. We encourage multiple state agencies to collaborate on the tool's creation—specifically sharing relevant data—and to use information from the tool to inform better practices.

5. Michigan should aim to implement both local and state EJ policies, as they approach EJ problems at different scales.[83]

EJ screening tools have the capacity to identify environmental burdens and injustices experienced by frontline communities, and these identifications are meaningful and often confirm testimonies of community members regarding their surrounding environments. However, the tool itself does not remediate the harms experienced by community members and the environment. We argue that EJ screening tools are only impactful insofar as they are used to intervene in the perpetuation of environmental injustices. State decisionmakers must work to improve the health and well-being of communities experiencing cumulative impacts, using these tools in congruence with community testimony.

83. Having EJ policies set at both the state and local levels will strengthen overall accountability.

Appendix 1. Current State-Specific EJ Screening Tools Excluded From Analysis

State	Department	Tool Name	Reasons for Exclusion From Analysis
Connecticut	Department of Energy & Environmental Protection	Environmental Justice Communities*	(a) lacks a visualization component;** (b) lacks environmental hazard data in combination with social factors like race or income; (d) not presented on an interactive platform
Illinois	Illinois EPA	EJ Start***	(b) lacks environmental hazard data in combination with social factors like race or income
Massachusetts	Executive Office of Energy and Environmental Affairs	Environmental Justice Viewer****	(b) lacks environmental hazard data in combination with social factors like race or income; (c) contains outdated data
New York	Department of Environmental Conservation	Potential Environmental Justice Areas*****	(a) lacks a visualization component; (b) lacks environmental hazard data in combination with social factors like race or income; (d) not presented on an interactive platform
Pennsylvania	Department of Environmental Protection	eMap PA******	(b) lacks environmental hazard data in combination with social factors like race or income
New Mexico	Environment Department	OpenEnviroMap*******	(c) contains outdated data********

* See Connecticut Department of Energy and Environmental Protection (CTDEEP), *Environmental Justice Communities*, https://www.ct.gov/deep/cwp/view.asp?a=2688&Q=432364&deepNav_GID=1511 (last updated Oct. 2021).

** CTDEEP's Environmental Justice Communities maps different towns in terms of their levels of poverty, but does not visualize EJ in terms of that data in combination with environmental data.

*** See Illinois EPA, *Definitions and Sources for the Environmental Justice Website (EJ Start)*, https://www.arcgis.com/apps/webappviewer/index.html?id=f154845da68a4a3f837cd3b880b0233c (last visited Dec. 18, 2021).

**** See Massachusetts Department of Environmental Protection, *Environmental Justice Viewer,* https://mass-eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=1d6f63e7762a48e5930de84ed4849212 (last visited Dec. 18, 2021).

***** See New York State Department of Environmental Conservation, *Maps & Geospatial Information System (GIS) Tools for Environmental Justice,* https://www.dec.ny.gov/public/911.html (last visited Dec. 18, 2021).

****** See Pennsylvania Department of Environmental Protection, *Geographic Information Systems (GIS) Mapping Tools*, https://www.dep.pa.gov/DataandTools/Pages/GIS.aspx (last visited Dec. 18, 2021).

******* See New Mexico Environment Department, *OpenEnviroMap*, https://gis.web.env.nm.gov/oem/?map=egis (last visited Dec. 18, 2021).

******** The data depicted in New Mexico's *OpenEnviroMap* are not frequently updated, and the dates of last update of each of the layers are different.