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# Holding State Agencies Accountable: The Creation of an Environmental Justice Scorecard for Maryland State Agencies

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## ABSTRACT

Environmental justice (EJ) examines the cumulative and disproportionate burden of hazards on vulnerable populations, including low-income communities of color. EJ scorecards provide constituents with a tool to assess their agencies' stances on environmental issues. Through the development of a 2019–2021 Maryland Agency Scorecard, we tracked agency actions to advance EJ, by focusing attention on five key areas: (1) community engagement; (2) commitment to protect the environment both from past policies and protections for the future; (3) prioritization of those impacted by environmental racism; (4) existing resources toward building environmental literacy; and (5) proactive EJ work.  $N=9$  agencies were scored on a scale of 0–5, based on the methodology from previous EJ Scorecards such as the California Environmental Justice Alliance and the League of Conservation Voters. The agencies with the strongest performance toward EJ were the Department of the Environment (4.25 points) and the Department of Natural Resources (3.86 points). The weakest performing agencies were the Department of Agriculture (0.8 points) and the Energy Administration (0.83 points). Most agencies demonstrated an upward trend during the scoring period, suggesting that the role scorecards can play in holding agencies accountable. Overall, this scorecard highlighted areas where each of the nine Maryland state agencies can improve their efforts on EJ issues. Collectively, each agency should integrate President Biden's Executive Orders on Justice40 and Racial Equity, respectively, to the state level. Future directions will include biennial applications of the scorecard to track progress over time.

**Keywords:** remediation, environmental planning, environmental justice, politics of public health

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## INTRODUCTION

ACCORDING TO DR. BUNYAN BRYANT, environmental justice (EJ) is served when people can realize their highest potential, without experiencing the “isms.”<sup>1</sup> This directly addresses the underlying causes of inequity. Government structures and policies can institutionalize and reinforce the “isms” (racism, classism, sexism, ableism, etc.) that perpetuate inequitable environmental, social, health, and economic outcomes.<sup>2</sup> In addition, the communities that bear the negative externalities of environmental decision making are also politically disenfranchised, systematically marginalized, and excluded.<sup>3,4</sup>

Benjamin Chavis, former head of the United Church of Christ’s Commission on Racial Justice, coined the term “environmental racism,” after his involvement with the 1982 protests against the siting of a hazardous waste landfill in Warren County, North Carolina.<sup>5</sup> Chavis defines environmental racism as the racial discrimination in environmental policy-making and enforcement of regulations and laws, the deliberate targeting of communities of color for toxic waste facilities, and the history of excluding people of color from leadership of the environmental movement.<sup>6</sup>

This uneven distribution of polluting entities, capitalistic exploitation, sanctioned poisoning, and othering of Black and Indigenous People of Color communities imposes “environmental slavery,” which refers to the absence of moral conscience and the disregard of justice toward nature and its most powerless inhabitants.<sup>7</sup> Within EJ, it is considered a race-based division of benefits and burdens that normalizes toxic pollution in low-income communities of color, as well as the devaluation of poverty-stricken communities.<sup>8</sup> These communities are stripped of basic ecological benefits such as clean air and water, and forced to struggle with negative environmental factors that restrict their quality of life, as opposed to their white counterparts. This has been the case in rural and unincorporated lands such as Brandywine, Maryland and Uniontown, Alabama, both of which

our research team has partnered with to provide technical assistance, build environmental health literacy, and conduct citizen science training to assess toxic exposures.<sup>9,10,11</sup>

### EJ concerns in Maryland

In the state of Maryland, there are disproportionate impacts of environmental burden on low-wealth communities, communities of color, under-resourced communities, and those in vulnerable life stages.<sup>12,13</sup> This explains the health disparities that follow sociodemographic lines in the state. For example, infant mortality rates (2.6 times higher) and cardiovascular mortality rates (52.1 more deaths per 100,000 population) among African Americans in Maryland were significantly higher than those of White Marylanders.<sup>14</sup>

In addition, rural communities in Maryland possess elevated rates of chronic diseases, such as all-cause cancer and metabolic syndrome.<sup>15</sup> Overall, age-adjusted mortality rates were highest in Baltimore City, the Eastern Shore, and Southern Maryland.<sup>16</sup> These were regions that contained a higher percentage of low-income and people of color, compared with the rest of the state.<sup>17</sup>

Racial and economic segregation. Racial and economic segregation is a concern in Baltimore City. The legacy of racist zoning and land-use planning policies in Baltimore, largely attributed to the Baltimore Segregation Law of 1910, has given rise to a hypersegregated “black butterfly” spatial distribution, whereby

<sup>9</sup>Sacoby Wilson, Kamita Gray, Jan-Michael Archer, Lucy Kavi, and Rosemary Ezeugoh. “Modern Day Environmental Slavery: The Fight for Environmental Justice in Brandywine, Maryland.” In APHA’s 2019 Annual Meeting and Expo (November 2–November 6). (APHA, 2019).

<sup>10</sup>Ellie Bach. *The Coal Ash Community: An Analysis of Environmental Racism in Uniontown, Alabama*.

<sup>11</sup>Samantha Sobol. “Examining Systemic Environmental Racism Through Inequities in Access to Clean Water Domestically and Globally: Exhibiting Erasure, Highlighting Concrete Disparities, and Field Study in Uniontown, Alabama.” PhD diss., Dartmouth College, 2019.

<sup>12</sup>Aubree Driver, Crystal Mehdizadeh, Samuel Bara-Garcia, Coline Bodenreider, Jessica Lewis, and Sacoby Wilson. “Utilization of the Maryland Environmental Justice Screening Tool: A Bladensburg, Maryland Case Study.” *International Journal of Environmental Research and Public Health* 16 (2019): 348.

<sup>13</sup>Christopher G. Boone, Geoffrey L. Buckley, J. Morgan Grove, and Chona Sister. “Parks and People: An Environmental Justice Inquiry in Baltimore, Maryland.” *Annals of the Association of American Geographers* 99 (2009): 767–787.

<sup>14</sup>Claudia R. Baquet and Richard Colgan. “Overview of Health Disparities: Maryland Considerations.” *The Maryland Family Doctor/Maryland Academy of Family Physicians* 49 (2013): 8.

<sup>15</sup>Ibid.

<sup>16</sup>Claudia R. Baquet, Kelly M. Mack, Shiraz I. Mishra, Joy Bramble, Mary DeShields, Delores Datcher, Mervin Savoy, Sandra E. Brooks, Stephanie Boykin-Brown, and Kery Hummel. “Maryland’s Special Populations Network: A Model for Cancer Disparities Research, Education, and Training.” *Cancer* 107 (2006): 20612070.

<sup>17</sup>Ibid.

<sup>1</sup>Bunyan Bryant. *Environmental Justice: Issues, Policies, and Solutions*. (Island Press, 1995), 74–75.

<sup>2</sup>Ibid.

<sup>3</sup>Thalia Gonzalez and Giovanni Saarman. “Regulating Pollutants, Negative Externalities, and Good Neighbor Agreements: Who Bears the Burden of Protecting Communities.” *Ecology LQ* 41 (2014): 37.

<sup>4</sup>Erik O. Eriksen. “Political Differentiation and the Problem of Dominance: Segmentation and Hegemony.” *European Journal of Political Research* 57 (2018): 989–1008.

<sup>5</sup>Ryan Holifield. “Defining Environmental Justice and Environmental Racism.” *Urban Geography* 22 (2001): 78–90.

<sup>6</sup>Ibid.

<sup>7</sup>Fitzroy B. Beckford. *Poverty and Climate Change: Restoring a Global Biogeochemical Equilibrium*. (CRC Press, 2018).

<sup>8</sup>Sacoby Wilson. “Environmental Justice Movement: A Review of History, Research, and Public Health Issues.” *Journal of Public Management and Social Policy* 16 (2010): 19–50.

predominantly African American communities occupy areas with elevated rates of poverty and crime, and face food apartheid.<sup>18</sup> For example, more than 50% of children residing within inner Baltimore live under the federal poverty line.<sup>19</sup>

According to the Urban Institute, per-home sale prices in predominantly white neighborhoods are significantly higher than those in black neighborhoods.<sup>20</sup> In addition, studies have shown that living in low-income, segregated neighborhoods may negatively affect the development of children and well-being of families.<sup>21,22,23</sup> Therefore, racial and economic segregation becomes a public health concern that warrants attention.

**Energy-related inequities.** Energy burden disparities are pronounced across Maryland.<sup>24</sup> People of color are more likely to be vulnerable to landlord policies, with just 54% owning homes in Maryland as compared with 77% of Whites.<sup>25</sup> Maryland also has one of the highest rates of vacant lots in the country, particularly in Baltimore, the Eastern Shore, and Western Maryland.<sup>26</sup> Electric vehicle infrastructure is also lacking in the Western and Eastern Shore regions of Maryland; there is a lack of Zero-Emission Vehicle charging stations.<sup>27</sup> Baltimore presents a case of energy injustice due to the

number of incinerators,<sup>28</sup> power plants,<sup>29</sup> and heavily trafficked roads.<sup>30</sup>

These have contributed to increased air pollution, which has been correlated with the urban heat island effect and overall excessive heat.<sup>31</sup> Between 2012 and 2018, 28% of Maryland's heat-related deaths occurred in Baltimore,<sup>32</sup> whose population is predominantly Black and home to only about 10% of the state population,<sup>33</sup> demonstrating the differential burden of energy injustice on communities of color in the state of Maryland.

In Baltimore, incinerators are the largest source of pollution in the city, leading to 5% and 13% increases in cancer mortality and asthma rates, respectively, for fenceline African American neighborhoods.<sup>34</sup> Brandywine is another majority Black (72%) community experiencing poor air quality, due to five nearby power plants within a 13-mile radius of the town, placing it in the top 99th percentile nationwide in terms of facility saturation.<sup>35</sup> The report *Coal-Blooded* found that 75 of 378 U.S. coal-fired power plants received a failing grade, with a high percentage of People of Color living within three miles.<sup>36</sup>

Studies have also demonstrated a link between the lack of mass transit infrastructure and fossil fuel combustion, greenhouse gas emissions, and co-pollutant

<sup>18</sup>Lawrence Brown. *The Black Butterfly: The Harmful Politics of Race and Space in America*. (Johns Hopkins University Press, 2021).

<sup>19</sup>The City of Baltimore. (2021). “Percent of Children Living Below the Poverty Line—Community Statistical Area.” <<https://data.baltimorecity.gov/datasets/bnajfi::percent-of-children-living-below-the-poverty-line/explore?layer=0&location=39.293087%2C-76.623821%2C12.34>>. (Last accessed on June 11, 2022).

<sup>20</sup>The Urban Institute. (2019). “‘The Black Butterfly’: Racial Segregation and Investment Patterns in Baltimore.” <<https://apps.urban.org/features/baltimore-investment-flows/>>. (Last accessed on June 11, 2022).

<sup>21</sup>Kellee White and Luisa N. Borrell. “Racial/Ethnic Residential Segregation: Framing the Context of Health Risk and Health Disparities.” *Health & Place* 17 (2011): 438–448.

<sup>22</sup>Jens Ludwig, Greg J. Duncan, Lisa A. Gennetian, Lawrence F. Katz, Ronald C. Kessler, Jeffrey R. Kling, and Lisa Sanbonmatsu. “Neighborhood Effects on the Long-Term Well-Being of Low-Income Adults.” *Science* 337 (2012): 1505–1510.

<sup>23</sup>Malo André Hutson and Sacoby Wilson. “The Role of Community-Based Strategies in Addressing Metropolitan Segregation and Racial Health Disparities.” *Community Development* 42 (2011): 476–493.

<sup>24</sup>Arjun Makhijani. *Energy Justice in Maryland's Residential and Renewable Energy Sectors: A Report of the Renewable Maryland Project*. (IEER Press, 2015).

<sup>25</sup>Maria Krysan. “Does Race Matter in the Search for Housing? An Exploratory Study of Search Strategies, Experiences, and Locations.” *Social Science Research* 37 (2008): 581–603.

<sup>26</sup>(2020). (rep.). “Maryland Housing Needs Assessment & 10-Year Strategic Plan.” <<https://dhcd.maryland.gov/Documents/Other%20Publications/Report.pdf>>. (Last accessed on 2022).

<sup>27</sup>Maryland Department of Transportation. (2021). “Annual Report 2021.” <[https://www.mdot.maryland.gov/OPCP/ZEEVIC-2021Report\\_Final.pdf](https://www.mdot.maryland.gov/OPCP/ZEEVIC-2021Report_Final.pdf)>. (Last accessed on June 11, 2022).

<sup>28</sup>Wheelabrator Incinerator. (2021). “Chesapeake Bay Foundation.” <<https://www.cbf.org/about-cbf/locations/maryland/issues/wheelabrator-incinerator.html#:~:text=The%20Wheelabrator%20incinerator%20in%20Baltimore,Anne%20Arundel%20and%20Howard%20counties>>. (Last accessed on March 3, 2022).

<sup>29</sup>Samuel O. Alamu, Ayodeji Wemida, Tiyobistiya Tsegaye, and Gbekeloluwa Oguntiemein. “Sustainability Assessment of Municipal Solid Waste in Baltimore USA.” *Sustainability* 13 (2021): 1915.

<sup>30</sup>U.S. Environmental Protection Agency. (2021). Environmental Justice Screening Tool (EPA EJSCREEN) Analysis of 1-Mile Buffer Surrounding BRESCO Incinerator. <<https://ejscreen.epa.gov/mapper/>>. (Last accessed on June 11, 2022).

<sup>31</sup>CEEJH. (2021, August 16). Heatwave Hell in Maryland. Center for Community Engagement, Environmental Justice, and Health (CEEJH). <<https://ceejh.medium.com/heatwave-hell-in-maryland-fa33e7153c0a>>. (Last accessed on April 20, 2022).

<sup>32</sup>Maryland, C. N. S. (2019, August 15). Red Alert Neighborhood Heat Inequality. CNS Maryland—Capital News Service. <<https://cnsmaryland.org/interactives/summer-2019/code-red/neighborhood-heat-inequality.html>>. (Last accessed on April 20, 2022).

<sup>33</sup>Alamu *et al.* (2021), Op. cit.

<sup>34</sup>NHP 2017—55 Westport-Mt Winans-Lakeland. (2017). Baltimore City Health Department. <[https://health.baltimorecity.gov/sites/default/files/NHP%202017%20-%2055%20Westport-Mt%20Winans-Lakeland%20\(rev%206-9-17\).pdf](https://health.baltimorecity.gov/sites/default/files/NHP%202017%20-%2055%20Westport-Mt%20Winans-Lakeland%20(rev%206-9-17).pdf)>. (Last accessed on June 11, 2022).

<sup>35</sup>CEEJH. (2019, February 3). Brandywine, MD as a “sacrifice zone” for the DMV. Community Engagement, Environmental Justice & Health. <<https://www.ceejh.center/mid-atlantic/projects/2019/2/1/brandywine-md-as-a-sacrifice-zone-for-the-dmv-k9kls-zakag-jas3j>>. (Last accessed on April 21, 2022).

<sup>36</sup>Patterson Wilson, Jacqui Adrian, Kimberly Wasserman, Amanda Starbuck, Annie Sartor, Judy Hatcher, John Fleming, and Katie Fink. *Coal Blooded: Putting Profits Before People*. (NAACP, 2012).

exposures.<sup>37,38</sup> These factors will not just impact fence-line communities, but with climate change and global warming patterns and projections, will also devastate the entire state if not addressed.<sup>39,40,41,42</sup>

### Scorecard purpose

Maryland's path toward environmental and climate justice, and the alleviation of racial segregation and energy inequities, has been accelerated by the global COVID-19 pandemic, an economic crisis, and protests for racial justice. These events have elucidated historic and growing inequities for communities isolated from power and meaningful involvement in policymaking. Recognizing the benefits of other scorecards, such as the 2020 California Environmental Justice Alliance (CEJA) EJ Scorecard, we developed an EJ scorecard for Maryland state agencies.

We tracked agency actions to advance EJ, by focusing attention on five key areas: (1) community engagement through the establishment of an EJ office and transparency; (2) commitment to protect the environment both from past policies and protections for the future; (3) prioritization of those impacted by environmental racism; (4) existing resources toward building environmental literacy; and (5) proactive EJ work.

## METHODS

Our scorecard was modeled after the 2020 CEJA EJ Agency Assessment.<sup>43</sup> We selected relevant Maryland state agencies, developed scoring criteria, and collected and analyzed publicly available data. We then communicated with agencies about their scores, received additional materials from select agencies, and revised those scores accordingly. Multiple reviewers assessed the agencies to allow for inter-rater reliability.

### Selecting relevant agencies

We identified nine agencies that were relevant to EJ: Department of Natural Resources (DNR); Department of

Agriculture; Department of Planning; Maryland Department of the Environment (MDE); Maryland Department of Transportation; Department of Housing and Community Development (DHCD); Maryland Department of Health (MDH); Maryland Energy Administration; and Public Service Commission (PSC). These agencies were unanimously agreed upon by our research team.

### Developing scoring criteria

Having selected nine agencies for their relevance to EJ, we then reviewed them across five criteria developed from the 17 Principles of Environmental Justice and CEJA's 8 Principles of Collaboration.<sup>44,45</sup> The 17 principles were created by Delegates to the First National People of Color Environmental Leadership Summit held on October 24–27, 1991, in Washington, DC, and have been used by grassroots movements for EJ projects since.<sup>46</sup> We analyzed these principles, ranked and voted on which criteria points to include, and ultimately synthesized five EJ scoring criteria. We specifically focused on racial and social equity, particularly agency proactiveness in acknowledging and rectifying environmental racism.

### Data collection and analysis of agency materials

Agencies were evaluated for each criterion on an ordinal scale of 0–5 points. Assessment took place via qualitative content analysis of publicly available information from each agency's website and included news releases, educational materials, annual reports, and event calendars. To reduce individual bias and strengthen the scoring method, each agency was scored twice by two different team members independently from each other.

Scorers evaluated available publications on agency websites by each criterion. Both scores were averaged to determine the final score for each agency, represented by a letter grade, based on CEJA methods. These letter grades used cutoffs as follows: 5 = A; 4 = B; 3 = C; 2 = D; and 1 = F. This allowed for better standardization of each agency.

### Agency follow-up and additional analysis

Agencies were contacted with information about the project, the scoring process, and given their scores for 2019, 2020, and 2021. This opened a dialogue with the agencies and allowed them to provide additional resources. Each agency scored in this project was contacted initially. If no reply was received, a follow-up attempt

<sup>37</sup>Krysan. (2008). Op. cit.

<sup>38</sup>Fossil fueled Foolery 2.0. NAACP. (2021, May 11). <<https://naacp.org/resources/fossil-fueled-foolery-20>>. (Last accessed on April 20, 2022).

<sup>39</sup>Matthias Ruth and Ai-Chen Lin. "Regional Energy Demand and Adaptations to Climate Change: Methodology and Application to the State of Maryland, USA." *Energy Policy* 34 (2006): 2820–2833.

<sup>40</sup>NOAA. (2021). "Digital Coast Tools." <<https://coast.noaa.gov/digitalcoast/tools/>>. (Last accessed on March 1, 2022).

<sup>41</sup>Maryland's Sea Level Is Rising. (2021). "Sea Level Rise." <<https://sealevelrise.org/states/maryland/>>. (Last accessed on June 11, 2022).

<sup>42</sup>Rising Sea Level. (2021). Maryland Sea Grant. <<https://www.mdsg.umd.edu/topics/coastal-flooding/rising-sea-level>>. (Last accessed on June 11, 2022).

<sup>43</sup>California Environmental Justice Alliance. (2021, July 8). 2020 Environmental Justice Agency Assessment. <<https://caleja.org/2021/07/2020-environmental-justice-agency-assessment/>>. (Last accessed on May 7, 2022).

<sup>44</sup>The First National People of Color Environmental Leadership Summit. (1991). The Principles of Environmental Justice (EJ). EJNET. <<https://www.ejnet.org/ej/principles.pdf>>. (Last accessed on June 11, 2022).

<sup>45</sup>CEJA. (n.d.). Principles of Collaboration. California Environmental Justice Alliance. <<https://caleja.org/wp-content/uploads/2014/03/Principles-of-Collaboration.pdf>>. (Last accessed on June 11, 2022).

<sup>46</sup>Mónica Ramirez-Andreotta. "Environmental Justice." In *Environmental and Pollution Science*. (Academic Press, 2019), 573–583.

TABLE 1. SCORING CRITERIA FOR THE MARYLAND STATE AGENCIES

Criteria	Requirement
Criterion 1: Agency stakeholder engagement and transparency on EJ	Does the agency have a solid, established form of connection with the community including having an EJ office and officer with a direct line of contact (e.g., asking for key stakeholders' opinions, town hall meetings)? Is the agency committed to being transparent with the public about their work (in general)?
Criterion 2: Protection and repair of the environment	Is the agency committed to a "one health" approach in protecting the physical environment (i.e., habitats, trees, ecosystem), animals, and human health by both repairing harm done from past policies and creating further protections via their current policies?
Criterion 3: Prioritization of health for communities with EJ impact	Does the agency prioritize the health of workers and communities historically impacted by environmental racism?
Criterion 4: Environmental and health education resources	Does the agency have resources directed toward environmental and health education?
Criterion 5: Proactive initiative on EJ	Is the agency proactive in their EJ work (i.e., do they have prevention measures, are they taking initiative to solve EJ issues)?

EJ, environmental justice.

was made. Not all agencies responded to our communication attempts. For those who did, we explained the project in further detail and asked them to submit additional documentation that the scorers may have missed or had not been publicly available.

In the event where agencies provided additional information that was not previously available to the public, the new content was evaluated by the same criteria to reassess the final score. The updated scores replaced the previous scores for accuracy. During the evaluation process, each rater provided justifications for each criterion score which was recorded electronically and uploaded to the Google G-Suite shared cloud Drive system.

#### Agency EJ scoring criteria

The descriptions for the five EJ scoring criteria are shown in Table 1. These consisted of: agency stakeholder engagement and transparency regarding EJ, focus on the protection and repair of the environment/ecosystem, the prioritization of health for communities with EJ impact,

availability of environmental and health education resources, and proactive initiatives on EJ. To assess each criterion, a point system was used to rate each agency, ranging from 0 to 5 (Table 2).

## RESULTS

### Overview of agency scores by year

Table 3 reveals the 2019, 2020, and 2021 agency scores, respectively. After an initial round of scoring, these agencies were given the opportunity to improve their score by providing additional documentation or evidence of ways they were promoting EJ. Only the DNR, DHCD, MDE, and PSC provided further evidence for us to assess. Updated scores are noted, along with the original scores. The MDE received a moderate score (3.5) in 2019 and an improved rating in 2020 (4.65), after submitting additional material. The MDE had the highest score (3.5–4.6), followed by DNR (3.5–4.1) from 2019–2021.

TABLE 2. POINT SYSTEM FOR AGENCY ENVIRONMENTAL JUSTICE SCORING CRITERIA

Points	Requirements to earn corresponding points
0	(1) No available information about the criteria point at all; and (2) no language referencing EJ on that specific point
1	(1) Information available about the criteria point but not in the context of EJ; (2) no language referencing EJ; and (3) the information is not up to date
2	(1) Mentions "environmental justice" or uses EJ language (e.g., "sacrifice zones," "POC," "health disparities," "inequality/inequity") and (2) little to no commitment to integrating EJ into the criteria point
3	(1) Has information on an EJ project or prowork; (2) their EJ work is poorly developed: out-of-date, poor process, only targets a small number of constituents, no measurement of outcome or impact
4	(1) The information the agency has on their EJ work is up to date (within the past year); (2) the agency has moderate information available on the work they're doing for the criteria point
5	(1) Centers their information on "environmental justice" and/or EJ language (e.g., "sacrifice zones," "POC"), (2) have detailed, extensive information available on the work they're doing for the criteria point, (3) the agency's work for criteria point is effective, up to date, and evidence-based

POC, People of Color.

TABLE 3. AGENCY SCORES BY YEAR

Agency	2019		2020		2021	
	Average score (out of 5)	Letter grade	Average score (out of 5)	Letter grade	Average score (out of 5)	Letter grade
MDE	3.5	C	4.65 (initial—1.5)	B (initial—F)	4.6	B
DNR	3.5 (initial—1.2)	C (initial—F)	4.0 (initial—0.5)	B (initial—F)	4.1	B
PSC	2.7	D	2.7 (initial—1.2)	D (initial—F)	2.4	D
DHCD	1.9	F	1.9 (initial—0.8)	F (initial—F)	1.2	F
Department of Planning	1.9	F	0.9	F	2.2	D
MDOT	1.8 (initial—0.9)	F (initial—F)	0.5	F	2	D
MDH	1.25	F	0.5	F	2.5	D
Department of Agriculture	0.6	F	0.3	F	1.5	F
Energy Administration	0.5	F	0.2	F	1.8	F

DHCD, Department of Housing and Community Development; DNR, Department of Natural Resources; MDE, Maryland Department of the Environment; MDH, Maryland Department of Health; MDOT, Maryland Department of Transportation; PSC, Public Service Commission.

The agencies that appear to need the most improvements are the Departments of Energy, Agriculture, and Health. Some agencies appeared to have variable efforts between 2019 and 2021. In 2019, the highest agency score was 3.5 (MDE and DNR), whereas the lowest was 0.5 (Agriculture). For 2020, the highest score was notably higher at 4.65 (MDE), whereas the lowest score was even lower at 0.2 (Energy). For 2021, the highest agency score was 4.6 (MDE), whereas the lowest was notably higher at 1.2 (DHCD).

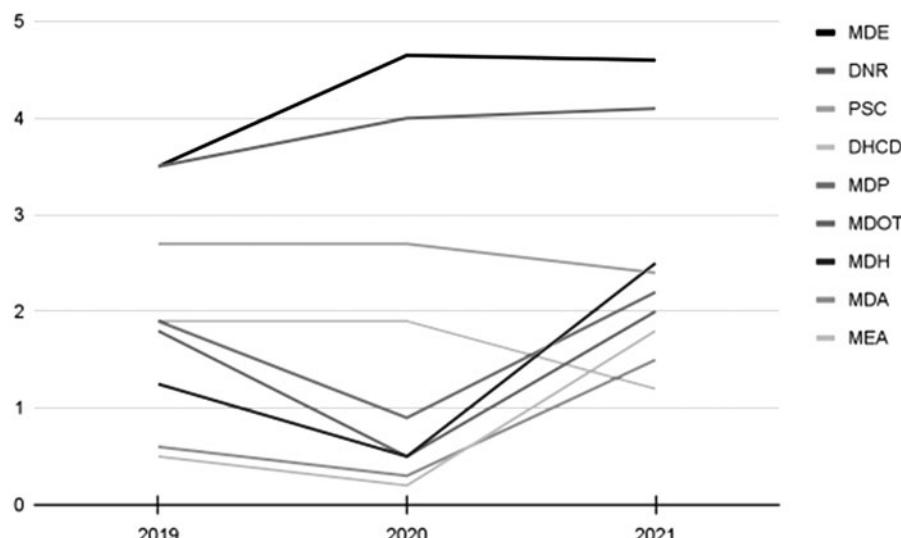
Figure 1 presents a rolling average of agency scores from 2019 to 2021. Here, we see the “risers” and “fallers” across the study period, with MDE and DNR showing promise, whereas PSC and DHCD appear to be on the decline. The Department of Agriculture and the Energy Administration scored the poorest from 2019 to 2020, but it improved the most on a percentage basis out of all the agencies.

#### Summary of scores by criterion

Agency efforts on EJ varied markedly by criterion (Table 4). Criterion 2, which focused on protection and repair of the environment, scored the highest across 2019–2021. The weakest area for 2019 was Criterion 3, which emphasizes the prioritization of health for communities with EJ impact; for 2020, it was Criterion 4, whether agencies had environmental and health education resources. For 2021, it was Criterion 5, whether agencies had adequate stakeholder engagement and transparency on EJ. For agencies that provided material and received an updated score, only the updated score is used here to calculate the criterion averages (not the initial).

#### Results by criterion

**Criterion 1:** An established form of connection with the community and transparency. Specific aspects of



**FIG. 1.** Rolling average of agency scores from 2019 to 2021.

TABLE 4. OVERALL AVERAGES BY CRITERION

Year	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5
2019	2.22	2.67	1.00	1.69	1.64
2020	1.75	1.89	1.78	1.53	1.61
2021	2.22	2.64	2.64	2.56	2.33

the assessment looked for whether the agency had an EJ office and officer with a direct line of contact with the community, for example, establishing a forum for asking for key stakeholders' opinions or holding consistent town hall meetings. For this criterion, scorers examined employee directories, public meeting opportunities, and available channels for the community to contact agency officials. Transparency factors included website accessibility (i.e., if relevant EJ materials were readily available on the website) and comprehensiveness of information on agency operations.

Agencies varied as to how much stakeholder engagement and transparency they had. Across all 3 years, MDE scored highest (5 pts) for the employment of a Diversity, Equity, and Inclusion officer, breadth of transparent materials, and availability of multiple channels for community engagement. Each year, The Energy Administration (0–1.5 pts), Department of Agriculture (0.5–1.5 pts) and DHCD (0.5–1.5 pts) showed consistent need for increase in transparency and engagement. See Table 5 for the full breakdown of Criterion 1 scoring by department throughout the scoring period.

**Criterion 2: Commitment to protecting the physical environment.** The physical environment in this case refers to habitats, trees, animals, human life, and the general ecosystem. It is expected that agencies have a strong emphasis on environmental protection and repair, particularly in light of climate change and adverse impacts on public health. To achieve a high score, agencies must show evidence of repairing harm done from past policies.

In addition, an agency must display current policies that protect the environment to secure long-term health for future generations. Scorers evaluated agency materials in regard to environmental protection and sustainable practices, specifically the acknowledgment of public

health in context of the environment. Agencies varied as to how much they focused on protection and repair of the environment through the “one-health” lens.

In 2019, the Department of Planning received the highest score (4.5 pts), whereas MDE scored the highest in both 2020 (5 pts) and 2021 (4.5 pts). The DNR has steadily improved its rating since 2019 (3.5–4.0 pts). These agencies demonstrated projects that prioritized the protection of environmental and public health. The MDH and the Department of Agriculture were rated the lowest for both 2019 and 2020, whereas the Energy Administration received the lowest score in 2021 (1.5 pts).

Agencies that scored the lowest failed to promote materials relating to the criterion. See Table 6 for the full breakdown of Criterion 2 scoring by department throughout the scoring period.

**Criterion 3: Prioritizing workers' health and communities historically impacted by environmental injustice.** For Criterion 3, scorers focused on materials that included information about the health of agency workers and recognized disproportionate wellness concerns in impacted EJ communities. In 2019, no agency received a score greater than 3 in this category. MDH had the top score in 2019, whereas MDE scored highest in 2020. Keeping its scores from the previous year, MDE tied with DNR for the top score of 4.5 in 2021.

Agencies that scored the highest in this criterion published materials that demonstrated commitment to the health of workers and EJ communities. Overall, scores were very low in this criterion. Four agencies received a mean score of 0 in 2019 (Planning, Agriculture, PSC, and Energy) whereas three agencies received the same score in 2020 (Agriculture, Transportation, and Energy). By 2021, no agency received lower than a mean of 1. Low scores were a result of unavailable material regarding

TABLE 5. CRITERION 1: AGENCY STAKEHOLDER ENGAGEMENT AND TRANSPARENCY ON ENVIRONMENTAL JUSTICE—BREAKDOWN BY DEPARTMENT AND YEAR

Agency	2019	2020	2021
Environment	5	4.5	4.5
Planning	3	0.5	1.5
PSC	3	3.5	2.0
Natural Resources	3	3.75	3.5
Health	2	1.0	2.0
Transportation	2	0.5	2.5
Agriculture	1	0.5	1.5
Housing and Community	0.5	1.5	1.0
Energy	0.5	0	1.5

TABLE 6. CRITERION 2: PROTECTION AND REPAIR OF THE ENVIRONMENT—BREAKDOWN BY DEPARTMENT AND YEAR

Agency	2019	2020	2021
Environment	3.5	5.0	4.5
Planning	4.5	1.0	2.5
PSC	3.5	3.0	2.0
Natural Resources	3.5	4.0	4.0
Health	0	0.0	3.0
Transportation	2.5	1.0	2.5
Agriculture	1.5	0.5	1.5
Housing and Community	3	1.5	2.0
Energy	2	1.0	1.5

TABLE 7. CRITERION 3: PRIORITIZATION OF HEALTH FOR COMMUNITIES WITH ENVIRONMENTAL JUSTICE IMPACT—BREAKDOWN BY DEPARTMENT AND YEAR

Agency	2019	2020	2021
Environment	1.0	4.5	4.5
Planning	0	1.5	2.0
PSC	0	3.0	3.0
Natural Resources	2.5	3.5	4.5
Health	3.0	1.0	3.0
Transportation	1.5	0	2.0
Agriculture	0	0	1.0
Housing and Community	1.0	2.5	1.5
Energy	0	0	2.25

Criterion 3. See Table 7 for the full breakdown of Criterion 3 scoring by department throughout the scoring period.

Criterion 4: Environmental and health education resources. This criterion assessed whether the agencies have resources directed toward environmental and health education. To achieve a high score, agencies must show evidence of having community-friendly materials created to increase environmental literacy and education. Scorers examined the available educational materials and programs provided by each agency.

A few agencies performed very well in this criterion, as many agencies possessed very few available resources on the required topics. DNR and MDE scored highly in all 3 years, particularly in comparison to all other agencies. In 2021, MDH vastly improved its score from previous years, as the agency published additional material in regard to the environment and public health. Several agencies had low scores each year, but no agency received a score lower than a 1 in 2021. In 2019 and 2020, most agencies scored below a 2, whereas the majority scored 2.5 or above in 2021. The lowest scoring agencies lacked accessible materials focused on environmental and health education. See Table 8 for the full breakdown of Criterion 4 scoring by department throughout the scoring period.

Criterion 5: Proactive initiative on EJ. This criterion examined whether the agencies are proactive in their EJ

work, which includes having prevention measures and initiative to solve EJ issues. Criterion 5 was evaluated based on agencies' available programs and projects that prioritized public and environmental health, with specific consideration to disadvantaged communities. As was observed with the other criteria, DNR and MDE had the highest scores for all 3 years.

On average, these agencies scored two points higher than other agencies. The DNR and MDE published information on multiple projects that focused on EJ. Meanwhile, the Energy Administration scored the lowest for 2019 and 2020, whereas DHCD scored the lowest in 2021. These agencies lacked materials that demonstrated proactive initiative on EJ-focused projects. See Table 9 for the full breakdown of Criterion 5 scoring by department throughout the scoring period.

## DISCUSSION

Our scorecard provides an assessment of the EJ-related work done by nine Maryland state agencies from 2019 to 2021. Out of all the agencies, only MDE, PSC, DHCD, and DNR submitted additional information and improved their scores. The lack of response by the other agencies played a big factor into their scores, since there was no attempt to provide documentation of EJ programs and initiatives that were not explicitly present on their websites.

We do, however, acknowledge that the subjective strength of relationship between our team and the agencies, or even poor agency internal communication, could have influenced the disparities in scores. These are factors to consider in future scoring, to create a more robust and valid scorecard that can be added to toolkits for researchers and community leaders.

### Overall takeaways

The agencies with the strongest efforts toward advancing EJ from 2019 to 2021 were the MDE (overall average=4.25) and DNR (overall average=3.86). Agencies in need of the most improvements included the Department of Agriculture (overall average=0.8) and the Energy Administration (overall average=0.83). In terms of most improved agencies, MDH's score increased from

TABLE 8. CRITERION 4: ENVIRONMENTAL AND HEALTH EDUCATION RESOURCES—BREAKDOWN BY DEPARTMENT AND YEAR

Agency	2019	2020	2021
Environment	4.0	4.25	5.0
Planning	2.0	1.0	2.5
PSC	0	1.0	2.5
Natural Resources	4.5	4.0	4.0
Health	1.25	0.5	4.0
Transportation	1.5	1.0	1.5
Agriculture	1.0	0.5	2.0
Housing and Community	1.0	1.5	1.0
Energy	0	0	2.0

TABLE 9. CRITERION 5: PROACTIVE INITIATIVE ON ENVIRONMENTAL JUSTICE—BREAKDOWN BY DEPARTMENT AND YEAR

Agency	2019	2020	2021
Environment	4.0	4.25	4.5
Planning	2.0	1.0	2.5
PSC	0	1.0	2.5
Natural Resources	4.0	4.75	4.5
Health	1.25	0.5	2.0
Transportation	1.5	1.0	1.5
Agriculture	1.0	0.5	1.5
Housing and Community	1.0	1.5	0.5
Energy	0	0	1.5

1.25 to 2.5 from 2019 to 2021 (+100%), suggesting that they have taken the most EJ measures in recent years.

Although the Energy Administration scored poorly overall, they also experienced a jump from 0.5 in 2019 to 1.8 in 2021 (+260%), suggesting that while this agency still has work to do, it has been taking steps in recent years as well.

#### *By criteria*

In terms of specific criteria, in 2019 and 2020, agencies received their lowest scores in Criterion 3: prioritization of the health of workers and communities historically impacted by environmental racism. In 2021, agencies scored lowest in Criterion 1: a solid, established form of connection with the community including having an EJ office and officer with a direct line of contact; and transparency with the public about their work.

In 2019 and 2020, agencies collectively scored highest in Criterion 2: commitment to a “one health” approach in protecting the physical environment, animals, and human health by both repairing harm done from past policies and creating further protections via their current policies. Contrary to the findings from 2019 to 2020, in 2021, the agencies collectively scored the highest in Criterion 3, making it the most improved Criterion over the study period.

#### *Need for transparent environmental justice screening and mapping tools*

Environmental departments in other similarly situated states present environmental justice screening and mapping (EJSM) tools on their websites. One example is California’s Environmental Protection Agency (CalEPA), which showcases its CalEnviroScreen tool.<sup>47</sup> CalEPA also clearly presents its commitment to racial equity and vision statement, without viewers having to circumnavigate the website. However, other states that have been EJ pioneers, such as New York and its Department of Environmental Conservation, are not as transparent.<sup>48</sup>

This reveals that, despite efforts to promote EJ, state-specific environmental departments need to make this information easily accessible on their webpages. Multiple agencies had publications discussing their EJ work, but these pages were not accessible from the website without an intensive and time-consuming search. For example, the DNR has significantly aided in the development of the Park Equity Mapper and Maryland Environmental Justice Screen (MD EJSCREEN) tool, but these tools

were not readily available from the website.<sup>49</sup> These tools can aid the general public, researchers, and urban planners investigate the cultural, socioeconomic, and health barriers to green space access for people of color and low-wealth community members throughout the state.<sup>50</sup>

#### *Lacking acknowledgment of historic and current driving forces of inequity*

Although many agencies showed efforts in improving the well-being of the community, little mention was made of historical implications and subsequent disproportionate impacts. The first step toward achieving EJ is to acknowledge and address driving forces of inequity. Studies have demonstrated a need to reconceptualize environmental racism in the context racial capitalism, in regard to agency scoring.<sup>51</sup> For example, scholars suggest that agencies and corporations choose not to address EJ issues because they know there will be minor, if any, sanctions.

A Flint, Michigan study presented a case of the devaluation of Black Americans, creating a landscape of differential value and local agency inaction.<sup>52</sup> This feeds into the politics of public health argument, the notion that state agencies have limited mobility in promoting EJ, when compared with politicians in power.<sup>53,54</sup>

#### *Emphasizing a multifaceted approach for state agencies*

Many agencies performed well in one criterion but received low overall scores. For example, agencies were proactive in their EJ work, but their plans and progress were not transparent and available to the general public. Another commonly missing component is the lack of an EJ representative and/or office. Introducing an EJ office would help to not only advance EJ efforts but also reflect cohesion throughout the agency as many EJ initiatives work to benefit the greater community. By addressing these synergistic elements of EJ, the agencies can both improve their scores and allow burdened communities throughout Maryland to achieve EJ.

<sup>47</sup>California Office of Environmental Health Hazard Assessment. (2017, January). CalEnviroScreen 3.0. <<https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf>>. (Last accessed on January 17, 2022).

<sup>48</sup>New York State Department of Environmental Conservation. (n.d.). Department of Environmental Conservation. <<https://www.dec.ny.gov/>>. (Last accessed on May 2, 2022).

<sup>49</sup>Center for Community Engagement, Environmental Justice & Health. “MD EJSCREEN.” <<https://www.ceejh.center/med-ejscreen-1#:~:text=MD%20EJSCREEN%20%2D%20The%20Maryland%20Environmental,concern%20or%20story%20they%20would>>. (Last accessed on July 23, 2022).

<sup>50</sup>Driver *et al.* (2019). Op. cit.

<sup>51</sup>Laura Pulido. “Geographies of Race and Ethnicity II: Environmental Racism, Racial Capitalism and State-Sanctioned Violence.” *Progress in Human Geography* 41 (2017): 524–533.

<sup>52</sup>Laura Pulido. “Flint, Environmental Racism, and Racial Capitalism.” *Capitalism Nature Socialism* 27 (2016): 1–16.

<sup>53</sup>Julie Sze. *Noxious New York: The Racial Politics of Urban Health and Environmental Justice*. (MIT Press, 2006).

<sup>54</sup>Jacob I. Ricks and Richard F. Doner. “Getting Institutions Right: Matching Institutional Capacities to Developmental Tasks.” *World Development* 139 (2021): 105334.

### Limitations

**Data collection.** Each agency's website was thoroughly evaluated for available reports, new releases, programs, and educational resources to contribute to scoring. However, some agencies may have had additional initiatives that met our criteria, but they were not considered if the information was not publicly available. In addition, most materials available on the agency websites did not include publication dates. This made it difficult for scorers to accurately conduct content analysis for previous years.

Government transparency and public accessibility is a major component of EJ, yet we found many agency websites falling short. The EJ advocates and community members rely on website publications for information and updates regarding agency projects. Agency websites are the most accessible platform that agencies utilize to disseminate information and promote community engagement, as they are designed to contain information in a condensed and comprehensive manner.

Most agency websites could benefit from updates to improve the interface and better communicate resources, actions, and public meetings. In addition, the documentation related to data collection, precisely which agency websites and materials were accessed, could have been stronger and more detailed, to preserve an audit trail and ensure consistency between scorers.

**Scoring.** Improvements may also be needed to delineate and operationalize the scoring criteria, to achieve greater consistency between scorers. Future efforts will include scoring to consensus, adding additional scorers, and calculating inter-rater reliability. Another limitation is the lack of response from agencies. It is likely that agency scores could have improved through further engagement with the agencies or by interviewing key stakeholders.

Agencies who did submit additional information improved their scores markedly. In 2020, the four top agencies were those who submitted additional information. We had variable preexisting relationships and connections with different agencies, and, presumably, preexisting relationships would have heightened the chance that agencies would respond to communication about this project.

**Bias.** Though there were several rounds of scoring performed by our research team, the fact remains that the agencies could not be blinded from raters. As such, there may have been bias present in terms of pre-existing knowledge or perceptions. For instance, a team focused on EJ may be more knowledgeable about MDE or DNR. To address this limitation, reflexivity and discussions around scorers' agency perceptions would be helpful to confront and minimize biases, in addition to improvements on the standardization of the collection used to score each agency.

**COVID-19 pandemic leading to shutdown of 2020 legislative session.** Another limitation was the emergence of the COVID-19 pandemic in 2020. This limited

organizational capacity and meetings were limited to virtual events, which was a relatively novel concept at the time. This major global event may have confounded the results of this scorecard, particularly community engagement efforts as government agencies struggled to pivot and utilize web-based meetings to connect with stakeholders (some of whom have challenges with internet and technology access).

**Scorecard nature in literature.** The nature of scorecards seen within only literature often does not reach the amount of impact anticipated. Agencies are not as incentivized to create changes in their institutions if the scorecard is viewed as a onetime literature. Scorecards should be viewed as a living document that agencies should integrate into their organization with tangible plans and budgets to improve their EJ scores.

### Agency-wide recommendations

Maryland Agencies are to be held accountable for improving EJ and providing tangible benefits and improvements within overburdened communities. In a 2015–2017 Equity Scorecard, data and criteria were created to bring to attention how racialization is embedded in their teaching and outcomes, creating racial inequality within the college campus.<sup>55,56</sup> The scorecard served as a tool to support race sensemaking of student outcomes, resource distribution, hiring practices, etc.<sup>57</sup>

Our Agency Scorecard serves the purpose of pinpointing where agencies could improve in EJ communities. Scorecard criteria and recommendations are also expected to be integrated into their agenda with specific budgets in preparation for implementation.

Form an EJ office and formulate an actionable comprehensive strategic plan. Each agency should form an EJ office and designate a corresponding EJ officer to serve as a liaison to environmental organizations and EJ advocates, ensuring that the agency is making adequate progress toward achieving EJ. An EJ office can work alongside the agency to develop a comprehensive EJ Strategic Plan with goals and measurable outcomes that are publicly reported annually, whereas the officer can act as a liaison for community outreach.

Strategic plans would benefit from having a logic model to outline and track agency inputs, goal outputs, activities to achieve specific objectives, as well as short-term, midterm, and long-term goals. Tools such as the Maryland Agency Scorecard should be referenced for direction in program planning and accountability. Performance should be tied to agency funding, which

<sup>55</sup>Center for American Progress. (2021). Op. cit.

<sup>56</sup>Columbia Law School. (n.d.). Kimberlé Crenshaw on Intersectionality, More Than Two Decades Later. <<https://www.law.columbia.edu/news/archive/kimberle-crenshaw-intersectionality-more-two-decades-later>>. (Last accessed on June 11, 2022).

<sup>57</sup>Estela Bensimon. *Equity Scorecard Report*. (University of Wisconsin Oshkosh, 2017).

acknowledges the capacity of agencies relative to one another. To promote EJ agency-wide, agencies should provide all staff with incentives to promote EJ, in the form of performance plans, potential job promotions, and other benefits.

Implement the Justice40 initiative in Maryland to deliver infrastructure and climate benefits to disadvantaged communities. All agencies should scale President Biden's 2021 Executive Order: Justice40, which outlines that at least 40% of investments in clean energy and climate benefit disadvantaged (i.e., EJ) communities to the state level.<sup>58</sup> This comprehensive list has values and needed investment benefits identified by EJ advocates in four categories: healthy communities and pollution reduction, climate justice and resilience, just transition, and allowing communities to speak for themselves.<sup>59</sup>

Agencies should make financial tracking transparent to ensure equity in resource distribution, particularly as it relates to EJ planning. Agencies should also take an intersectional approach, by examining places where forces of power, such as white supremacy, misogyny, and class overlap and intersect.<sup>60</sup> They should prioritize meaningful community engagement, particularly from marginalized groups, in all agency actions.<sup>61</sup>

Community engagement is a key prerequisite in achieving EJ. Such dialogues should be continuous to develop programming that is responsive to the needs of the community, and fosters community-government trust.<sup>62</sup> This includes publishing transparent and accessible EJ resources to the public on agency websites. To drive state agency actions, Maryland's governor and other state governors should issue similar strong EJ executive orders at the state level.

As federal agency EJ action follows President Biden's executive order, Maryland agencies act according to state orders. At the state level, the governor has the capacity to issue an executive order similar to Justice40 according to EJ progress and context in Maryland.

Include mandatory EJ training workshops for agency employees to address hidden inequities and the history

<sup>58</sup>Shalanda Young, Brenda Mallory, and Gina McCarthy. *The Path to Achieving Justice40*. (The White House, 2021).

<sup>59</sup>Center for American Progress, Equitable and Just National Climate Platform, and The New School's Tishman Environment and Design Center. *Justice40 Recommendations*. (Center for American Progress, 2021). <<https://cdn.americanprogress.org/content/uploads/2021/03/16083513/Justice40-Recommendations.pdf>>. (Last accessed on June 11, 2022).

<sup>60</sup>Columbia Law School. (n.d.). Op. cit.

<sup>61</sup>Wendell C. Taylor, Myron F. Floyd, Melicia C. Whitt-Glover, and Joseph Brooks. "Environmental Justice: A Framework for Collaboration Between the Public Health and Parks and Recreation Fields to Study Disparities in Physical Activity." *Journal of Physical Activity and Health* 4 (2007): S50-S63.

<sup>62</sup>Isabelle Anguelovski. "Understanding the Dynamics of Community Engagement of Corporations in Communities: The Iterative Relationship Between Dialogue Processes and Local Protest at the Tintaya Copper Mine in Peru." *Society and Natural Resources* 24 (2011): 384-399.

of environmental racism in Maryland. To improve EJ awareness, agencies should require EJ and anti-racism training workshops for agency employees<sup>63</sup> By the end of the training programs, agency employees should have a better understanding of how concepts such as history of the EJ movement, implicit bias, cumulative impacts, and principles of EJ can be applied to their work. This should entail including EJ metrics to be weighed in performance reviews for both process and impact evaluation.

Federal agencies such as the EPA and CDC contain examples of such EJ resources, listed on the Department of the Interior's website.<sup>64</sup> Once EJ literacy is built, agencies should develop screening methodologies to ensure actions do not create or exacerbate health, environmental, or racial inequities. This can prevent further harm to historically disadvantaged groups. Although EJ policies and agency actions may appear beneficial on the surface, past policies (i.e., greenwashing, creation of sacrifice zones or hotspots, and pitfalls of cap-and-trade programs) have actually been counterintuitive to promoting EJ.<sup>65,66</sup>

Therefore, these hidden inequities need to be embedded within the agency scoring methodology, and staff who perform the scoring should be trained accordingly. Agencies should also directly acknowledge environmental racism and introduce policies that center restorative action.<sup>67</sup> This includes educational resources and programs that recognize the role of environmental racism in driving health inequities.

**Utilize EJSM tools.** EJSM tools are an emerging resource for EJ initiatives. Maryland agencies should utilize tools such as MD EJSCREEN and the United States Environmental Protection Agency (EPA) EJSCREEN to micro target localities in greatest need of program and policy intervention.<sup>68,69</sup> Agency employees can be trained to use these tools to evaluate cumulative impacts of multiple burdens or the paucity of health promoting infrastructure to ensure that agency actions do not create or exacerbate health, environmental, or racial inequities that harm historically disadvantaged groups.

<sup>63</sup>Lisa V. Blitz and Benjamin G. Kohl Jr. "Addressing Racism in the Organization: The Role of White Racial Affinity Groups in Creating Change." *Administration in Social Work* 36 (2012): 479-498.

<sup>64</sup>U.S. Department of the Interior. (2021, October 1). Environmental justice training resources. U.S. Department of the Interior. <<https://www.doi.gov/oepc/resources/environmental-justice/training>>. (Last accessed on July 7, 2022).

<sup>65</sup>Robert D. Bullard. "Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States." 119 (2011): A266.

<sup>66</sup>Raul P. Lejano, Wing Shan Kan, and Ching Chit Chau. "The Hidden Disequities of Carbon Trading: Carbon Emissions, Air Toxics, and Environmental Justice." *Frontiers in Environmental Science* 8 (2020): 593014.

<sup>67</sup>Aaron Golub, Maren Mahoney, and John Harlow. "Sustainability and Intergenerational Equity: Do Past Injustices Matter?" *Sustainability Science* 8 (2013): 269-277.

<sup>68</sup>Driver *et al.* (2019). Op. cit.

<sup>69</sup>U.S. Environmental Protection Agency. (2021), Op. cit.

These data can guide equitable decision making, as well as effective microtargeting of previously overlooked communities from lower-resolution analyses.

#### *Future studies and next steps*

Future scorecards should take into account the varying purposes and missions of each agency. However, considering the Federal government's Justice40 Initiative and the value of a whole-of-government approach, one could also argue that every state agency has relevance toward EJ efforts and, thus, should be held accountable. To address Justice40 recommendations, we should cater an EJ Scorecard for every agency, reflective of its core responsibilities and obligations, that tracks the impacts officials have on disadvantaged communities, especially where disadvantage is produced by racial discrimination and economic barriers.<sup>70</sup>

Further, we can develop and scale EJ Scorecards from the state level to county agencies, which would allow for regional assessments. Future scorecard studies will also aim at taking into consideration the tangible benefits brought to communities by agencies. The added criteria will hold agencies accountable to the effectiveness of their EJ goals being carried out with meaningful benefits and with real impact on disadvantaged communities in Maryland, as well as the effectiveness of agency program delivery.

Measures for this assessment could include benchmarks such as reduction of air pollution, water quality improvement, and increased accessibility to transportation and energy. Future scorecards will also look for the integration of recommendations into agency agenda with specific budgets in preparation for implementation.

Future iterations of this scorecard will expand the number of agencies being assessed. Although nine were selected for this study based on relevance to EJ, there were notable entities left out. These include the Maryland Clean Energy Center (MCEC) and the Maryland Environmental Service (MES). The MCEC advances the adoption of clean energy, energy efficiency products, services, and technologies in Maryland and is a corporate instrumentality of the state created by the Maryland General Assembly (MGA).

Primary goals of MCEC are to create and retain jobs, promote economic and business development in local communities, assist in the commercialization of innovative technologies, reduce energy costs for consumers, and drive reductions in greenhouse gas emissions through a clean energy transition.<sup>71</sup> The MES was established by the MGA in 1970 to assist with the preservation, improvement, and management of the quality of air,

<sup>70</sup>WHEJAC. (2022). "Phase One Scorecard Recommendations Report." Environmental Protection Agency. <<https://www.epa.gov/system/files/documents/2022-04/whejac-phase-one-scorecard-recommendations-report.pdf>>. (Last accessed on June 11, 2022).

<sup>71</sup>Maryland Clean Energy Center. (2017). "What Does MCEC Do?" <<https://www.mdcleanenergy.org/>>. (Last accessed on June 11, 2022).

land, water, and natural resources, and to promote the health and welfare of the citizens of the State.

Today, MES operates over 1000 projects across Maryland and the Mid-Atlantic region. As a not-for-profit business unit of the state of Maryland, MES provides multidisciplinary environmental compliance services to enhance and protect the environment through innovative solutions to the region's most complex environmental challenges.<sup>72</sup> We will also consider weighted averaging and inputs from the Mid-Atlantic Justice Coalition, who compose of community-based organizations, green groups, and others based in Delaware, Maryland, Virginia, and Washington, DC, with the mission to fight for solutions that match the economic and EJ needs of and challenges faced by workers, lower-wealth communities, communities of color, and other marginalized people.<sup>73</sup>

#### **CONCLUSION**

The EJ advocates have worked for years to shape environmental and public health policy at state level. Yet, we continue to see the same communities faced with the same injustice. Our Agency Scorecard is a tool to educate Maryland residents, increase institutional and stakeholder knowledge, gain support in the EJ movement, and hold state agencies accountable. Progress can also be tracked over the years to identify "risers" and "fallers," as had been done with other scorecards.

The agencies with the strongest efforts toward EJ were the Department of the Environment and the DNR. Agencies in need of the most improvements on their EJ efforts include the Department of Agriculture and the Energy Administration. Overall, this report highlights areas where each of the nine Maryland state agencies can improve their efforts on EJ issues. State initiatives aiming at meeting EJ goals need metrics for evaluation, and the Maryland Agency Scorecard provides such a method.<sup>74</sup> Collectively, the agencies should have their own plan to scale President Biden's Executive Orders on Justice40 and Racial Equity, respectively, to the state level.

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<sup>72</sup>Maryland Environmental Service. (2022). "About Us." <<https://menv.com/about/>>. (Last accessed on June 11, 2022).

<sup>73</sup>MidAtlantic JusticeCoalition. "Our Principles." <<https://www.midatlanticjustice.org/our-principles>>. (Last accessed on July 23, 2022).

<sup>74</sup>Environmental Justice Scorecard Puts Teeth in Bidens Pledge. <<https://news.bloomberg.com/daily-labor-report/environment-justice-scorecard-puts-teeth-in-biden-equity-pledge>>. (Last accessed on June 11, 2022).

**AUTHORS' CONTRIBUTIONS**

V.R.: Investigation, formal analysis, validation, original draft preparation, writing—review and editing. S.D.: Investigation, methodology, data curation, validation, writing—review and editing. S.S.: Investigation, methodology, validation, writing—review and editing. A.A. and R.H.: Writing—review and editing. S.W.: Conceptualization, supervision, project administration, writing—review and editing.

**DATA AVAILABILITY STATEMENT**

The quantitative data that support statistical analysis of particulate matter levels in this study are publicly available and can be downloaded, with no access conditions, through the MGA website via <https://mgaleg.maryland.gov/mgawebsite/Search/Legislation>. Analyses of the data were performed using Microsoft Excel (V.2205), Python (V3.7), and SAS OnDemand for Academics. Additional code and datasets used to perform the analyses can be made available upon request to the corresponding author.

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