Comments on Cal EnviroScreen Version 4.0, submitted online May 14, 2021

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Date: Friday, May 14, 2021, 6:38 PM PDT

Dear OEHHA:

Thank you for developing and updating Enviroscreen, especially for adding the children's lead indicator and the housing burden indicator. Please consider the following comments to address significant environmental health and safety problems facing California.

EXTREME HEAT

The list of Indicators did not include a category for heat health risks. The indicator based on air conditioning from census data is inadequate by itself to address this risk. It does not factor in the wide variety in the thermal performance and energy efficiency of homes (or schools), nor does it factor other important socioeconomic factors. Samuelson et al. (2020) evaluted current Heat Vulnerability Indices and found that they "fail to capture important components of heat vulnerability. Moreover, (they) demonstrate how these maps currently overlook important nuances regarding the impact of building age and air conditioning functionality."(1) A better tool to target homes at risk for overheating is even more important now that wildfires and power outages have increased drastically in California and federal recovery proposals include major investment in retrofitting existing buildings to reduce GHG emissions and health risks.

Please include more information on housing and household characteristics in terms of the ability and willingness to cool homes, e.g.

-- Vintage of building construction, building type, retrofit status. The simplest indicators would be based on pre & post Title 24 building energy standards and the major upgrades to the standards. For example, a detailed assessment of Los Angeles building stock was done based on property records for various building archetypes and vintages. (2) Buildings built before 1970s were generally much more likely to overheat quickly. Also, in general, multifamily buildings, especially in the top floor, are more likely to overheat than single-family homes, and older manufactured homes are more likely to overheat (they are not regulated by Title 24).

-- Interactive or synergistic effects should also be included to fully address overheating risks in buildings. For example, the risks in old and new buildings with air conditioning are exacerbated by low income status, older age, and increased risk of power outages due to wildfires or other factors. Household energy burden is another interactive factor and could be addressed using recent work on this topic (3).

RENAL DISEASE

Please include an indicator for prevalence of renal disease, an important risk factors for heat related morbidity, especially in warmer climates. For example, renal disease was associated with a relative risk up to about 30 in Los Angeles Medicare patients, a much higher risk level than those for other chronic health conditions. (4) Renal disease will probably become much more common as our population ages and our climate warms.

CLIMATE CHANGE VULNERABILITY

Please include one or more indicators to reflect the very large increases expected in cooling demand, heat wave frequency & duration, nighttime temperatures, and energy use due to climate change. Cal Adapt provides such information at the local level, and the data can be downloaded (5). An alternative appproach is at least address our major metropolitan areas and their increased risk of premature death due to "oppressive heat waves" with high humidity and high nighttime temperatures as our climate changes (6).

AIR QUALITY

The annual average understates the health risks from ozone because cool season levels are so much lower than those the for hot season. The better approach would be to use hot season averages or a peak concentration indicator.

A similar approach should be evaluated for PM 2.5, which it Is generally much higher in the winter. However, the recent increases in major wildfire events may complicate the seasonal variations.

NOISE

The level of health effects from community noise exposure can be comparable to those from outdoor air pollution. Mapping of high noise areas such as highways, airports, rail routes, warehouse centers, etc. should be considered to address this major environmental health risk. Noise mapping has already been done in the U.S., e.g., the interactive may by the U.S. Bureau of Transportation Statistics (7). European agencies may also provide good examples.

NOTES

1. Samuelson et al., 2020. Housing as a critical determinant of heat vulnerability and health. Housing as a critical determinant of heat vulnerability and health. DOI:10.1016/j.scitotenv.2020.137296
2. Chester et al., Sept. 9, 2015 presentation. Prioritizing Cooling Infrastructure Investments for Vulnerable Southwest Populations. ASU/UCLA study. AC status based on property tax records regarding central air systems, etc. (See publications by Nehalik et al., 2017, https://ascelibrary.org/doi/10.1061/%28ASCE%29IS.1943-555X.0000349)
3. Drehbohl and Ross, 2016. Lifting the High Energy Burden in America's Largest Cities. EEFA and ACEEE.
4. Gronlund et al., 2014. Heat, heat waves, and hospital admissions among the elderly in the United States, 1992-2006.
   Gronlund et al., 2016, Vulnerability to Renal, Heat and Respiratory Hospitalizations During Extreme Heat Among U.S. Elderly, doi: 10.1007/s10584-016-1638-9.
5. Sheridan et al., 2011. A spatial synoptic classification approach to projected heat vulnerability in California under future climate change scenariosPresentation, final report and papers. https://ww3.arb.ca.gov/research/single-project_ajax.php?row_id=64809.
6. Cal-Adapt, 2021. Extreme Heat Tool. Cal-Adapt.
7. NPR, March 33, 2017. How Noisy Is Your Neighborhood? Now There's A Map For That. https://www.npr.org/sections/thetwo-way/2017/03/23/521227214/how-noisy-is-your-neighborhood-now-theres-a-map-for-that.

I hope this helps you improve the utility and accuracy of Envriroscreen.

Sincerely,
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