ACADEMIC WORKSHOP AND PUBLIC MEETING ON THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY'S DRAFT CALIFORNIA COMMUNITIES ENVIRONMENTAL HEALTH SCREENING TOOL

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CHARGE TO THE ACADEMIC EXPERTS

Recognizing that many Californians are burdened by multiple sources of pollution and that some people are more vulnerable to the effects of pollution than others, the California Environmental Protection Agency (CalEPA) has developed a method for evaluating the cumulative impacts of pollution on communities. In December 2010, the Office of Environmental Health Hazard Assessment (OEHHA) released a report, *Cumulative Impacts: Building a Scientific Foundation*, which described a framework for evaluating the impact of multiple sources of pollution in communities across the state. In July 2012, OEHHA released the proposed screening tool for applying the framework to statewide analysis in the draft report, *California Communities Environmental Health Screening Tool (CalEnviroScreen)*. The proposed tool is based on the CalEPA definition for cumulative impacts:

> "Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socioeconomic factors, where applicable and to the extent data are available."

OEHHA is seeking feedback on several specific aspects of the proposed screening tool. These relate to:

- Selection and Scoring of Indicators
- The Model
- Sensitivity Analysis
- Other Suggestions

Selection and Scoring of Indicators

The draft report selects a suite of indicators for statewide analysis that represent contribution to impact for five components: Exposures, Public Health Effects, Environmental Effects, Sensitive Populations, and Socioeconomic Factors. The criteria used for selecting the indicators for each component are described in the draft report (page 5). In the context of CalEPA's definition of cumulative impacts, please comment on:

- Whether the indicators selected describe the component well and whether there are other indicators supported by alternative data sources that should be used. Please include comments on the indicators used to characterize the Socioeconomic Factors component.
- The treatment of Public Health Effects and Sensitive Populations components in the model and possible improvements to the selection of indicators of Public Health Effects.

  The 2012 draft report identifies four indicators for Public Health Effects, two indicators for Sensitive Populations, and four indicators for Socioeconomic Factors.[1] *A number of*

[1] The 2010 report interpreted several of the terms used in CalEPA's definition of cumulative impacts. Public Health Effects are health conditions that can be caused or exacerbated by exposure to pollutants. Sensitive Populations

comments received to date have suggested that some of the indicators of public health status could instead be indicators of population sensitivity or vulnerability to pollutants.

- Whether the use of percentiles to score indicators is the best approach to differentiate the most impacted communities from others. Include discussion of alternatives that could improve the approach.

The Model

The proposed model is used for calculating a cumulative impact score for different communities across the state. The overall cumulative impact score is based on subscores for each of the five components of cumulative impact described above. Component scores are calculated as the average of the indicator percentiles that make it up. Component scores related to the burden of pollution (Exposures, Public Health Effects, and Environmental Effects) and population characteristics (Sensitive Populations and Socioeconomic Factors) are summed separately. Totals for these two groups are multiplied, based on a hazard × vulnerability model to produce an overall cumulative impact score. In the context of Cal/EPA's definition of cumulative impacts, please comment on:

- The strengths and weaknesses of the proposed model, including
    - The addition of components to represent population burden and population characteristics and
    - The multiplication of pollution burden and population characteristics.
- The adequacy of the proposed model, specifically the range of scores for the components, to differentiate the most impacted communities from others.

The ZIP Code scale is used for the preliminary analysis presented in the draft report. Please discuss:

- Suggestions for additional data at alternative scales that could be used to improve the models ability to discriminate highly impacted communities, and how to incorporate those data into our analysis.

Sensitivity Analysis

Sensitivity analysis may provide a helpful means of understanding the proposed cumulative impacts model (page 4) and how changing model parameters might influence the outputs. Please discuss:

- The types of sensitivity analyses that would be most effective in testing the tool's robustness in identifying highly impacted communities.

Other Suggestions

We intend to release a revised draft at the end of the year.

- Provide any additional suggestions that could be accomplished in the short-term.

We intend to update the guidelines over time.

- What suggestions do you have for long-term improvements or supplemental analyses?

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are populations with biological traits that may magnify the effects of pollutant exposures. Socioeconomic Factors are community characteristics that may result in increased vulnerability to pollutants.