

Exploring the Link Between Air Pollution and Health in High Pollution Environments: Insights from Recent Research Studies

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Colorado State University

How we classify countries and people— and why it matters

Themrise Khan,¹ Seye Abimbola ,² Catherine Kyobutungi ,³
Madhukar Pai ⁴

To cite: Khan T, Abimbola S, Kyobutungi C, *et al*. How we classify countries and people—and why it matters. *BMJ Global Health* 2022;**7**:e009704. doi:10.1136/bmjgh-2022-009704

The practice and vocabulary of global health and global development today have their origins in racism and colonialism, which has created a false hierarchy among nations, ascribed a higher value to some lives, and allowed some groups to extract, exploit and subjugate others.^{1–4}

media for instance, continue to use them every now and then, as we have seen most recently during the coverage of the Ukraine war, or the COVID-19 pandemic. The idea that countries are inherently different, ordered or ranked along a hierarchy is a racist, colonialist construct. But one thing

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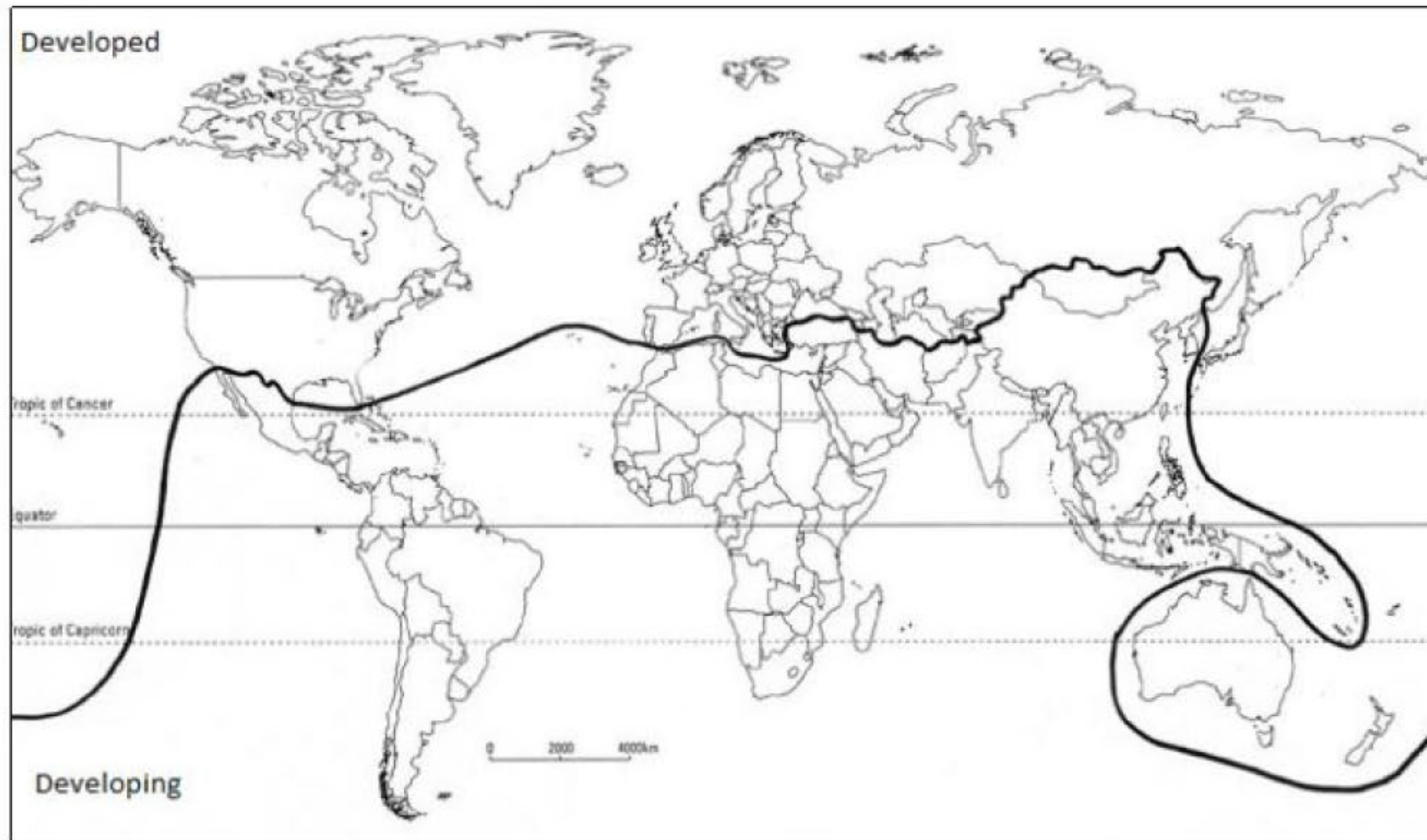
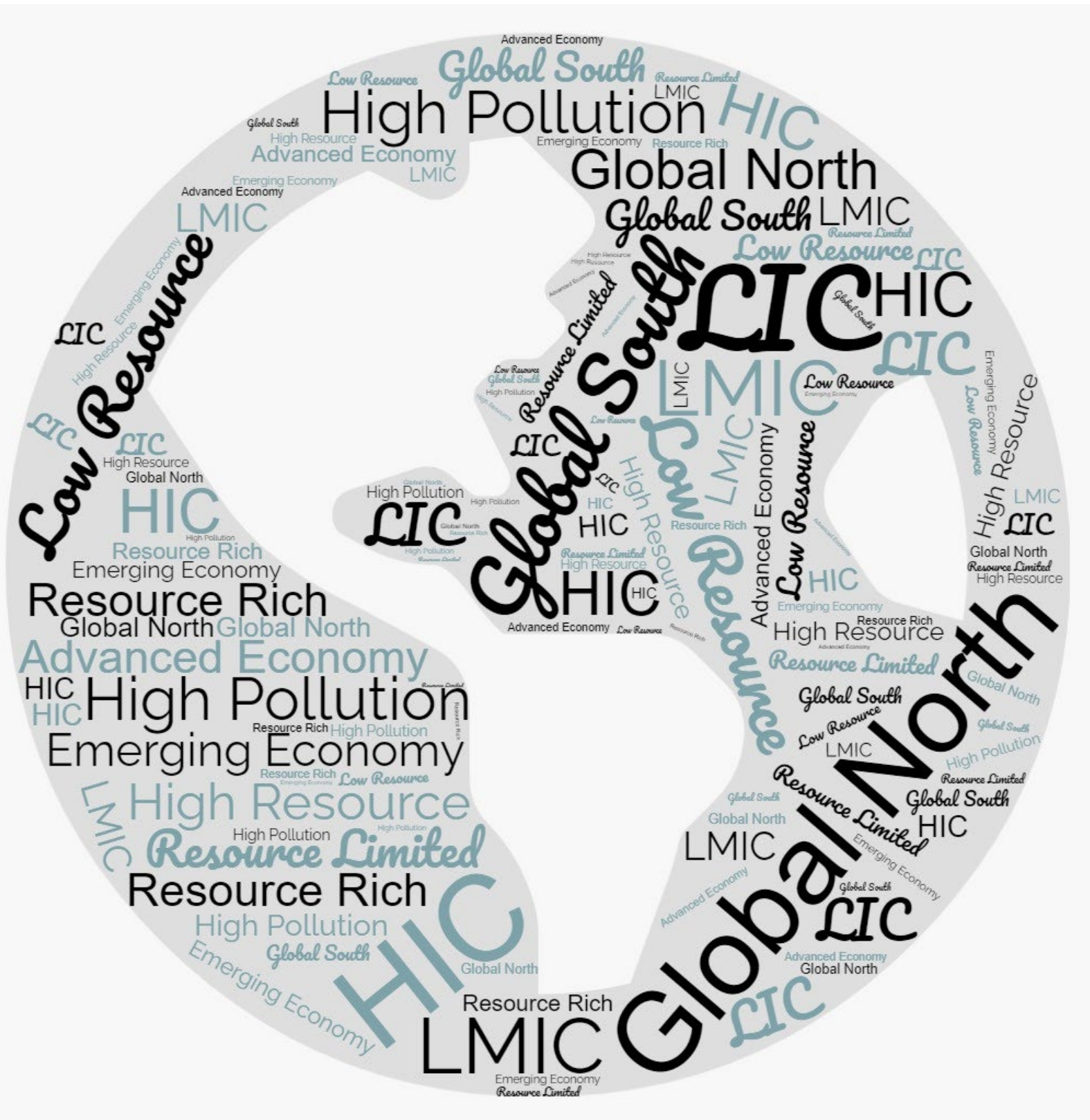


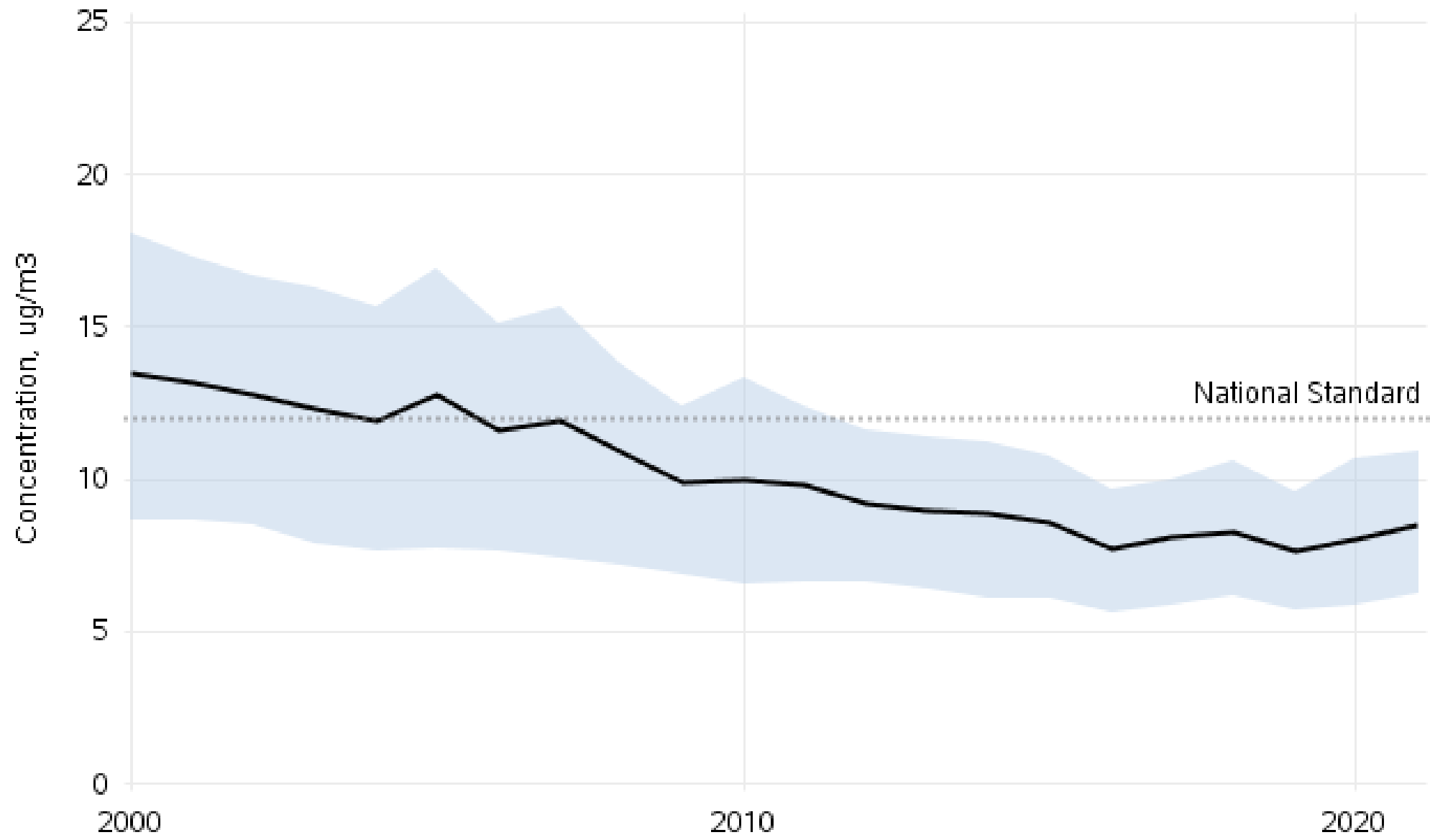
Figure 1 The Brandt line and the division of the World into Global North ('developed') and Global South ('developing'). Source: https://en.wikipedia.org/wiki/Global_North_and_Global_South#/media/File:The_Brandt_Line.png.



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PM2.5 Air Quality, 2000 - 2021

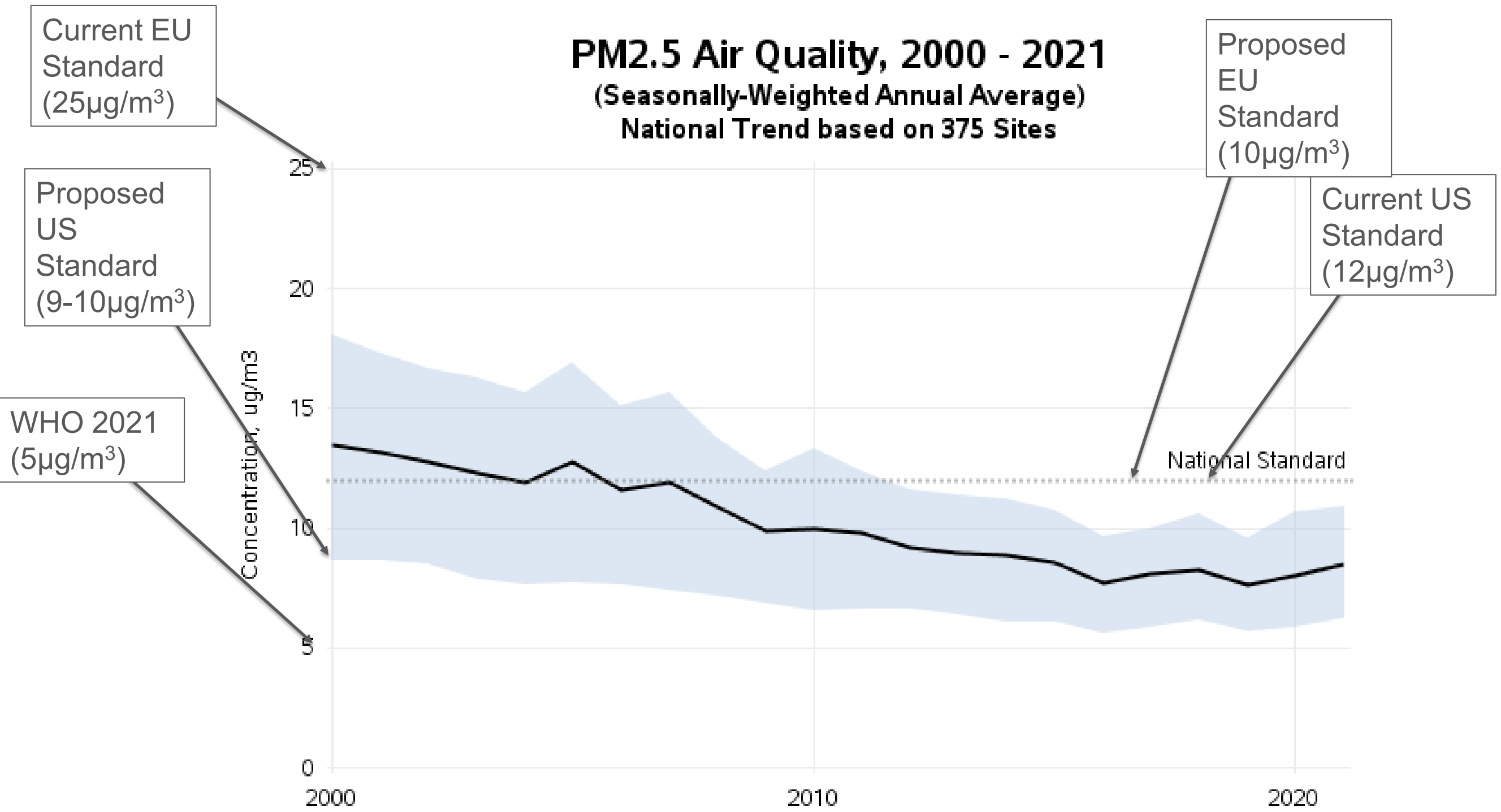
(Seasonally-Weighted Annual Average)
National Trend based on 375 Sites



2000 to 2021 : 37% decrease in National Average

PM2.5 Air Quality, 2000 - 2021

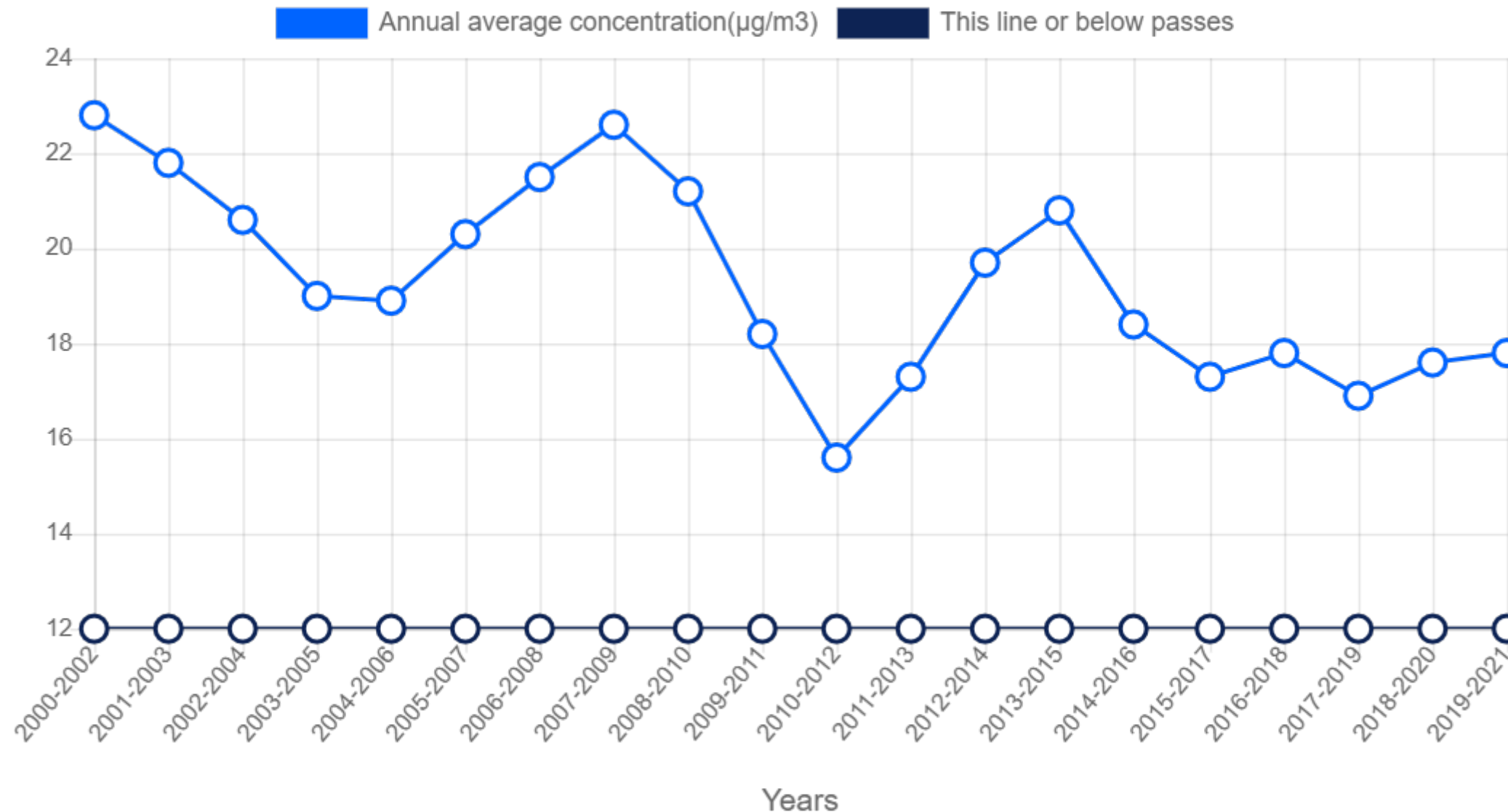
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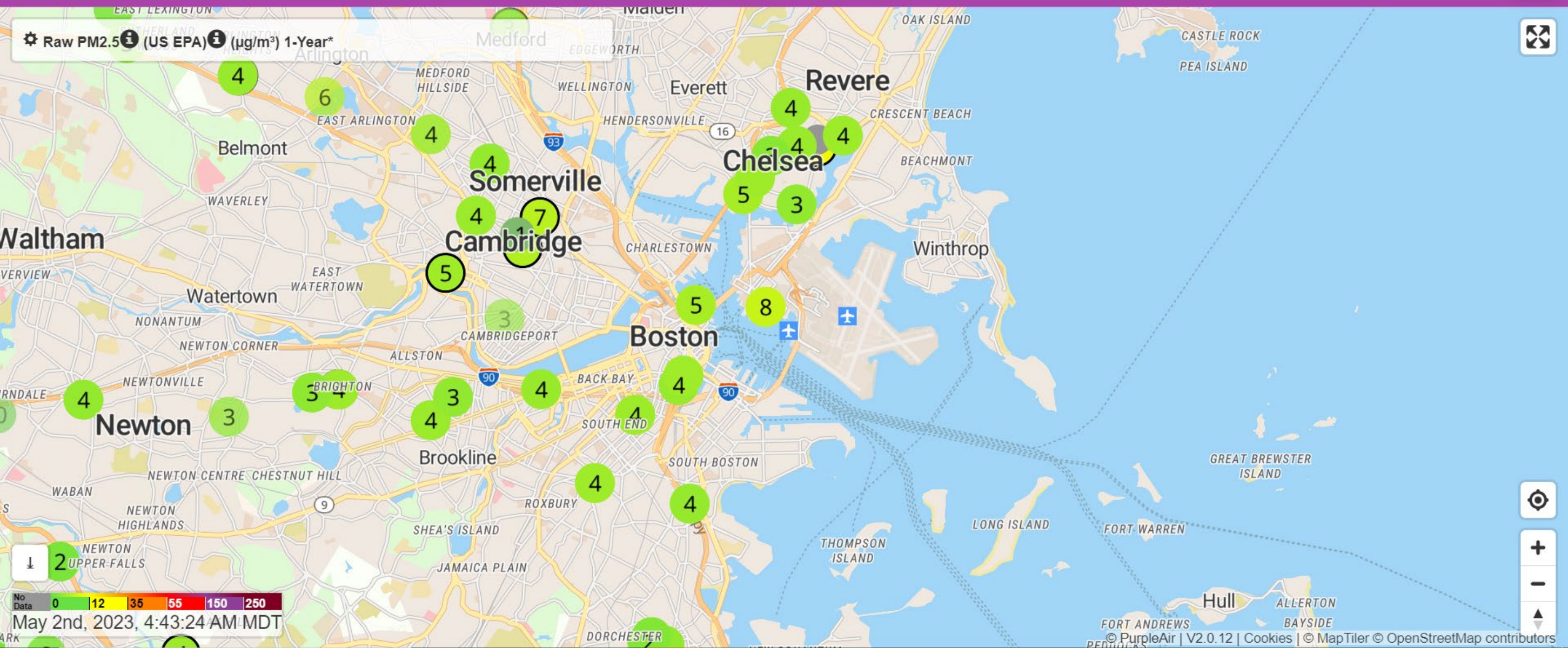
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Bakersfield, CA PM_{2.5} Annual Average

<https://www.lung.org/research/sota/city-rankings/msas/bakersfield-ca#pmann>



Raw PM2.5 (US EPA) (µg/m³) 1-Year*



May 2nd, 2023, 4:43:24 AM MDT

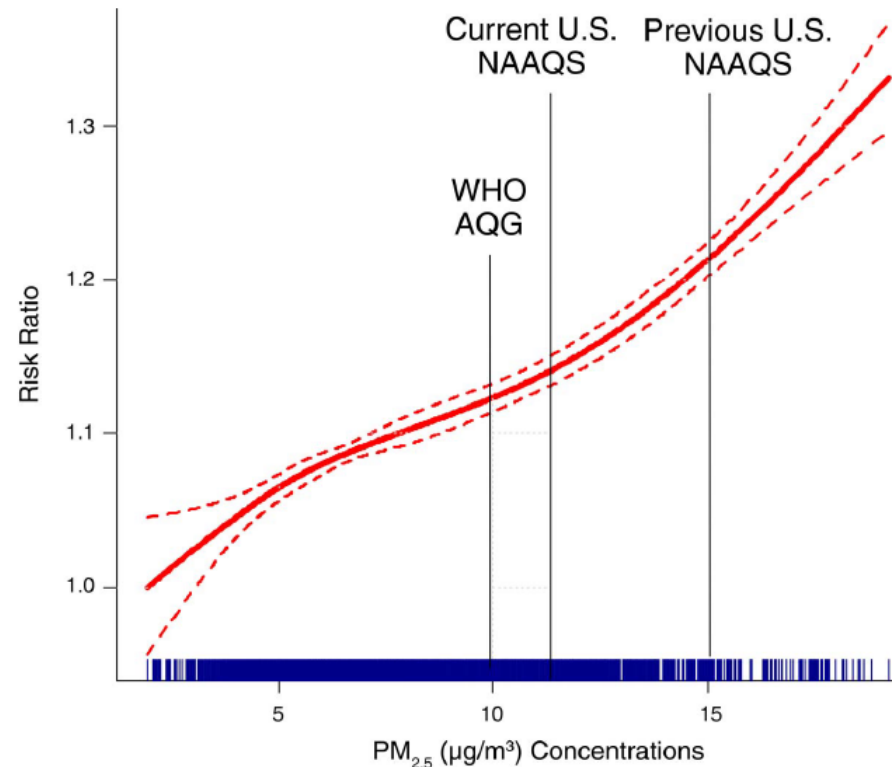
HEI's Program to Assess Adverse Health Effects of Long-Term Exposure to Low Levels of Ambient Air Pollution

INTRODUCTION

Levels of ambient air pollution have declined significantly over the last decades in North America, Europe, and in other developed regions. Despite the decreasing levels of air pollution, recent epidemiological studies report associations between adverse health effects and exposure to air pollution. These studies have found associations between exposure to fine particulate matter, that is, particulate matter ≤ 2.5 μm in aerodynamic diameter ($\text{PM}_{2.5}$ *), and mortality at levels below

current ambient air quality standards (e.g., Beelen et al. 2014; Crouse et al. 2012; Hales et al. 2012) (Preface Figure 1). In order to improve the science and inform future regulation, it is important to confirm whether associations with adverse health effects continue to be observed as levels of air pollution have declined. It is also important to better understand the shape of the exposure–response function at those low levels.

The growing scientific evidence for effects at levels below current air quality standards and the large overall estimates of the air pollution-attributable burden of



Preface Figure 1. Shape of the concentration–response function for mortality associated with fine particulate matter in a Canadian Cohort. (Courtesy R. Burnett). NAAQS = National Ambient Air Quality Standard; WHO AQG = World Health Organization Air Quality Guidelines.



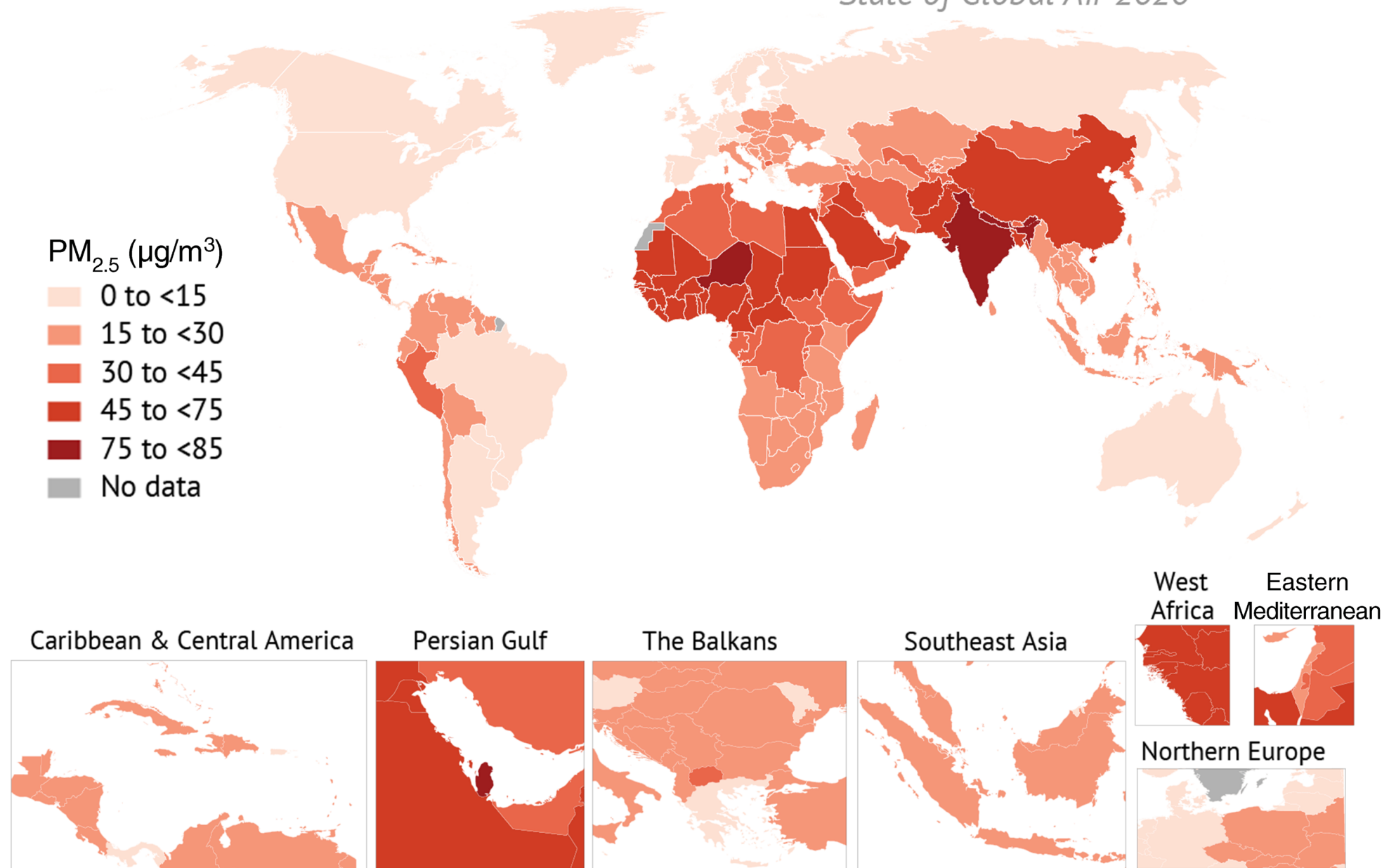
RESEARCH REPORT

HEALTH
EFFECTS
INSTITUTE

Number 200
November 2019

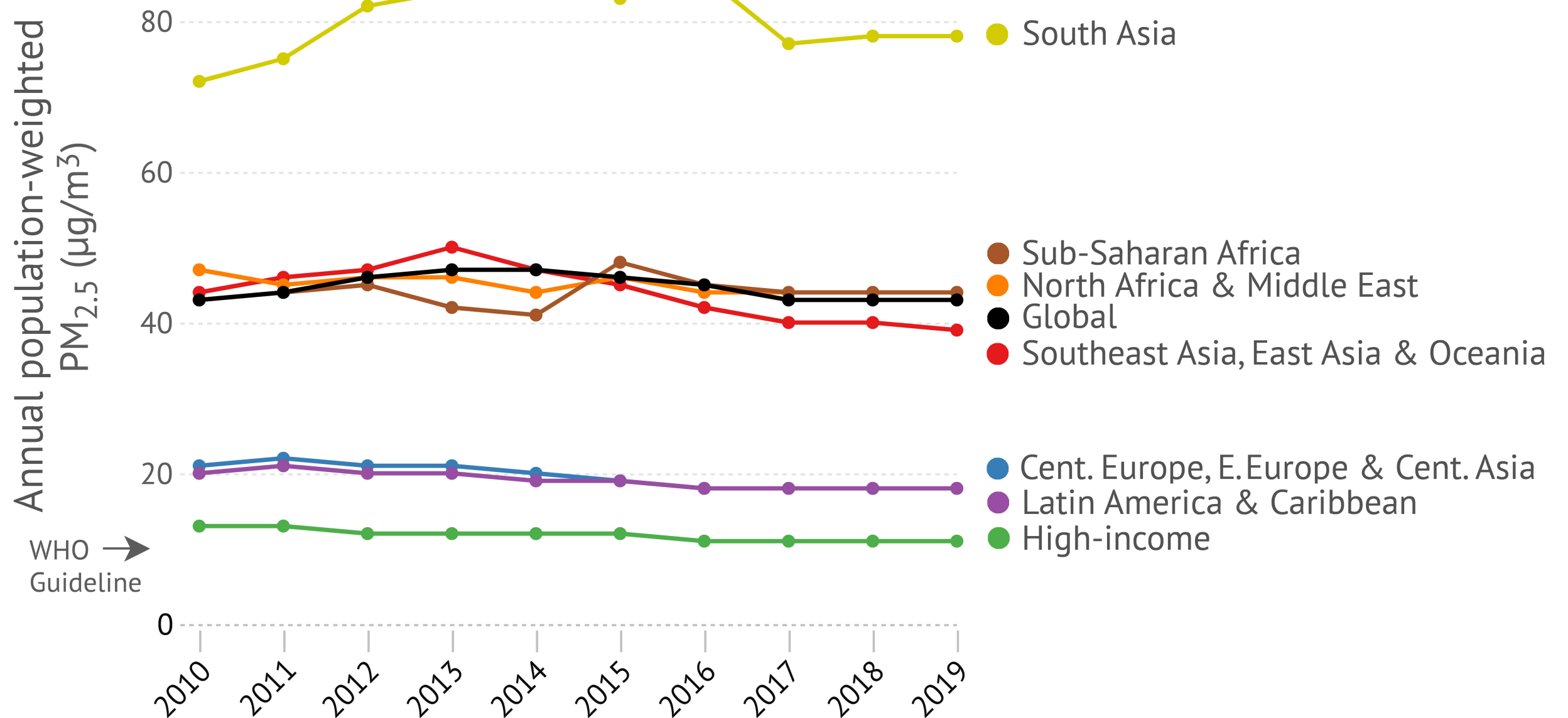
Assessing Adverse Health Effects of Long-Term Exposure to Low Levels of Ambient Air Pollution: Phase 1

Francesca Dominici, Joel Schwartz, Qian Di, Danielle Braun, Christine Choirat, and Antonella Zanobetti



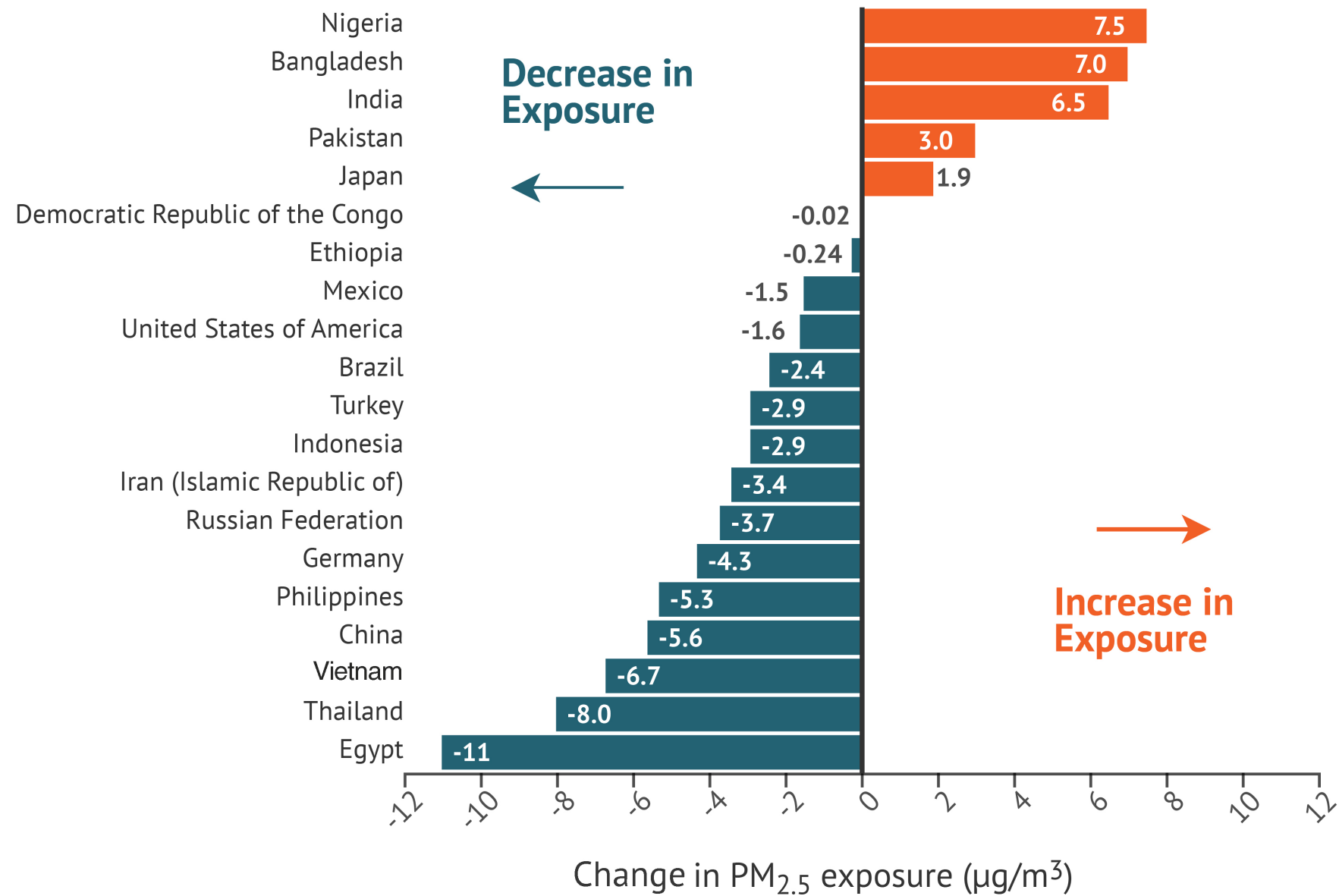
Global map of population-weighted annual average PM_{2.5} concentrations in 2019.

Visit stateofglobalair.org to explore data for your country or region.



Trends in population-weighted annual average PM_{2.5} concentrations globally and in the GBD Super Regions, 2010–2019.

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Change in population-weighted annual average PM_{2.5} exposure in the 20 most populous countries, 2010–2019.



https://www.nasa.gov/sites/default/files/styles/full_width_feature/public/thumbnails/image/trailofsmoke.jpg



Thank you!

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