

HEI Global Health Program

Past, Present and Future

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Health Effects Institute

Boston, MA

Chicago, Illinois

May 1, 2018



Past: Public Health and Air Pollution in Asia (PAPA), ESCALA...

- Special report 15. 2004. **Health Effects of Outdoor Air Pollution in Developing Countries of Asia: A literature review**
- First set of coordinated time-series studies in major cities in Asia with local investigators
 - HEI Research Report 154: 2010
 - Bangkok, Shanghai, Hong Kong, Wuhan
 - HEI Research Report 157: 2011
 - Delhi, Chennai
 - HEI Research Report 169: 2012
 - Ho Chi Minh city, Vietnam
- Special Report 18. 2010. **Outdoor Air Pollution and Health in the Developing Countries of Asia: A Comprehensive Review**
- HEI Research Report 171. 2012. Romieu et al., **Multicity Study of Air Pollution and Mortality in Latin America (the ESCALA Study).**

Building a global program

Targeted research
opportunities

Communication

Strategic Partnerships

Foundation funding



Present: Global Burden of Disease Major Air Pollution Sources

- Begun in 2013
- Focus: China and India
- Scientific expertise: The GBD MAPS Working Group
- High level oversight: The GBD MAPS International Steering Committee
- External Peer Review

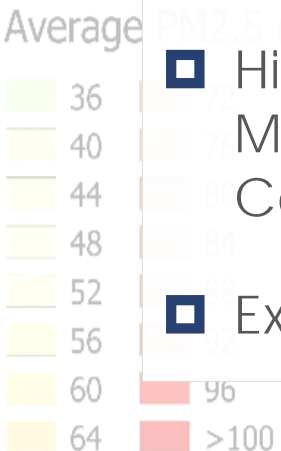
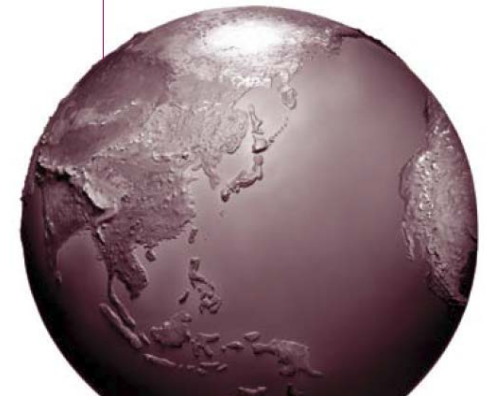


HEALTH
EFFECTS
INSTITUTE
January 2018

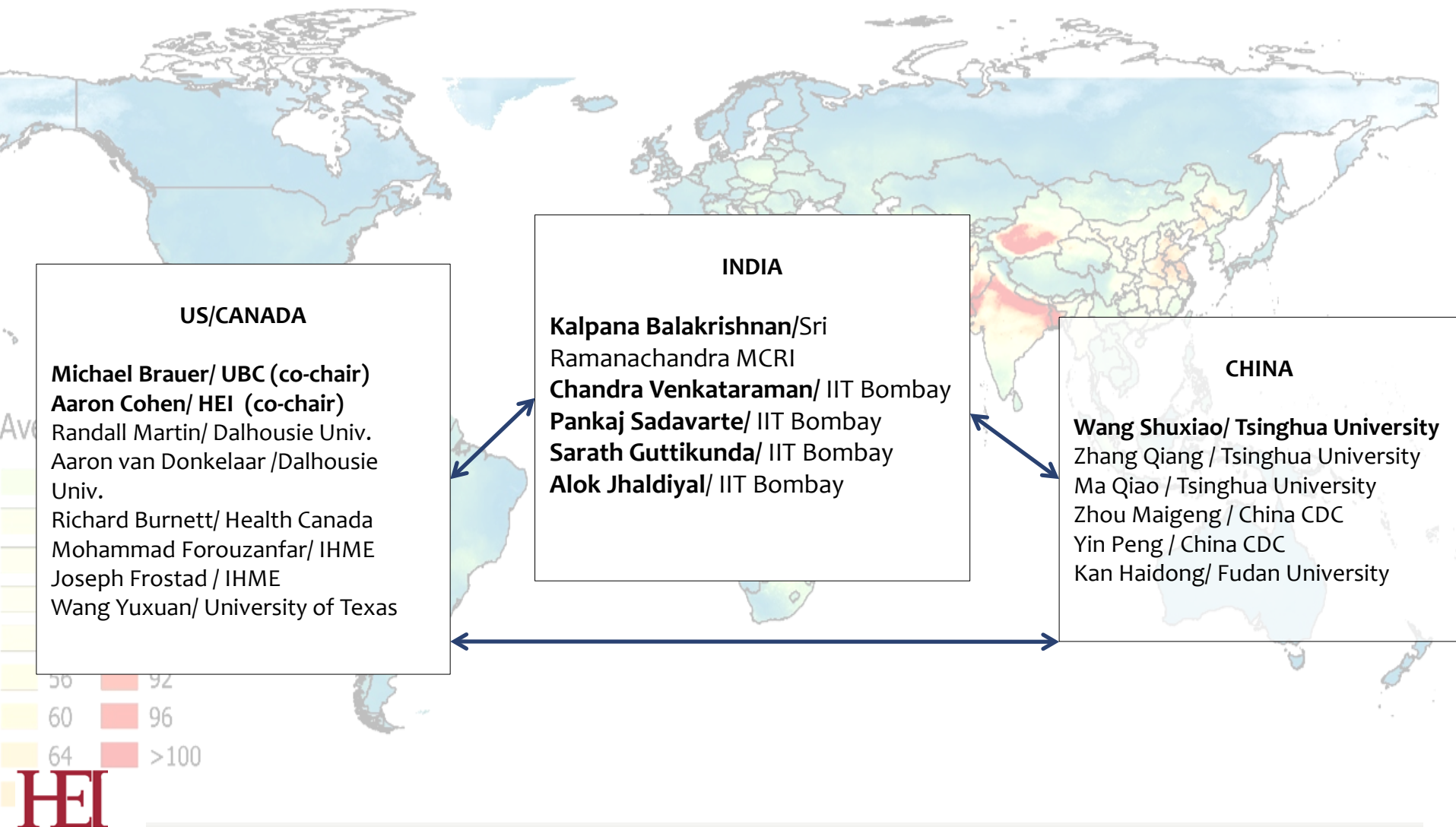
SPECIAL REPORT 21

**Burden of Disease Attributable
to Major Air Pollution
Sources in India**

GBD MAPS Working Group



An international collaboration: The GBD MAPS Working Group

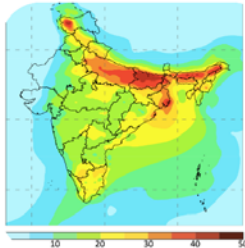


GBD MAPS Approach

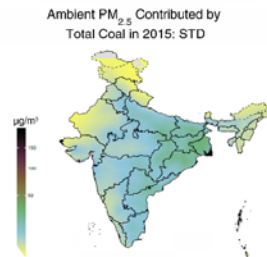


- Develop current and future emissions inventories

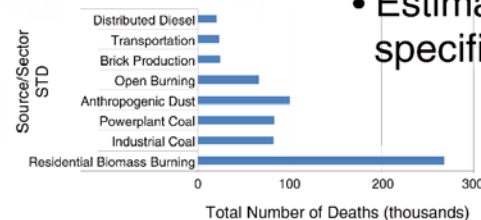
Future inventories based on alternative energy and control policies



- Simulate the fraction of ambient PM_{2.5} due to each major source

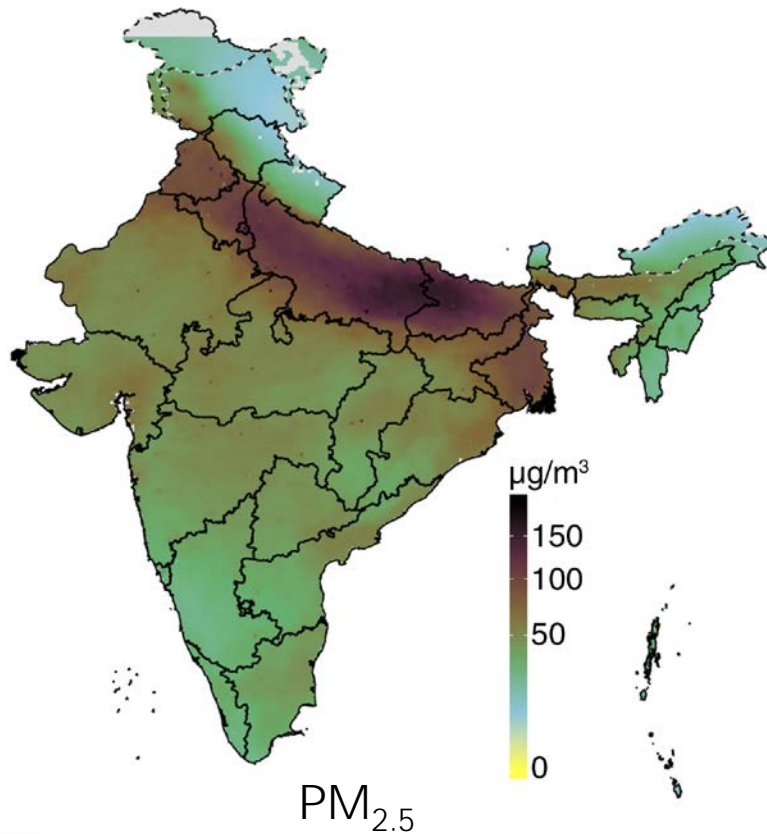


- Estimate the GBD 2015 population exposure to each source



- Estimate source-specific burden

Scientific and Policy Questions

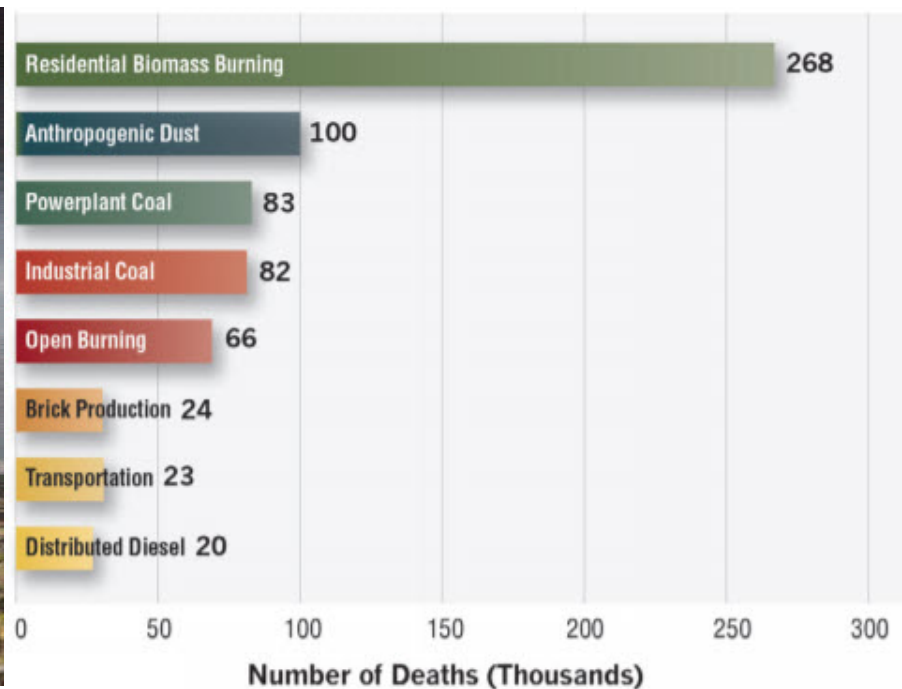


- What are the major sources of air pollution in India?
- How do they contribute to population exposures to air pollution?
- What are their relative contributions to adverse effects on human health?
- What kinds of actions would it take to achieve substantial improvements in air quality and public health?

Baseline contributions 2015



Source/Sectors



Residential burning of biomass for cooking and heating contributed ~24% of ambient $PM_{2.5}$ and of mortality burden

See Poster # 3. Mike Brauer et al. for more details

Communication: Released at workshop in Delhi, January 2018



Lalit Dandona/
PHFI



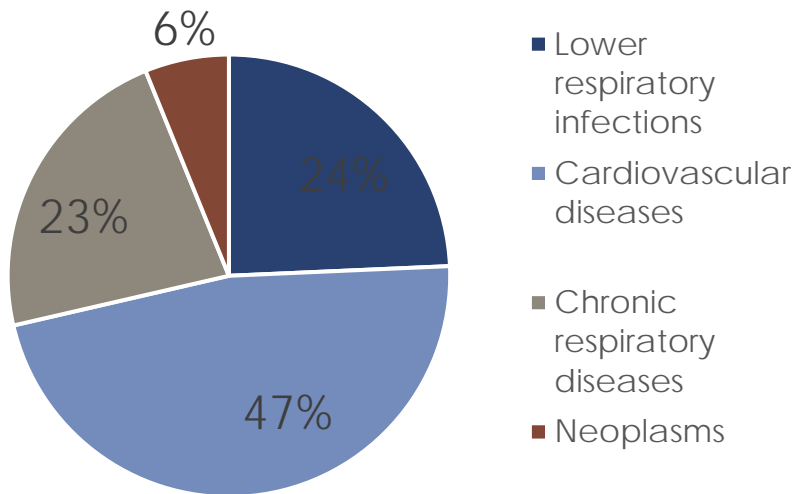
Kalpna
Balakrishnan

Mike
Brauer

Chandra
Venkataraman

Ongoing: Household Air Pollution and Non-Communicable Disease

HAP-related deaths



~75% attributable to
non-communicable
disease



Ongoing: Household Air Pollution and Non-Communicable Diseases

Objectives

- Updated review of literature on non-communicable diseases associated with HAP; including intervention literature
- Focused analysis of GBD MAPS India provincial level data on HAP contributions to ambient air and burden

Partnerships

- **Susan Anenberg**, GW School of Public Health
- **Darby Jack**, Columbia University
- **Ajay Pillarisetti**, UC Berkeley
- Consulting – A Cohen, M Brauer.

Will be published as an HEI Communication this summer

Ongoing: Air quality and health impacts of shipping on Shanghai/Yangtze River Delta



■ Case study: Shanghai Yangtze River Delta

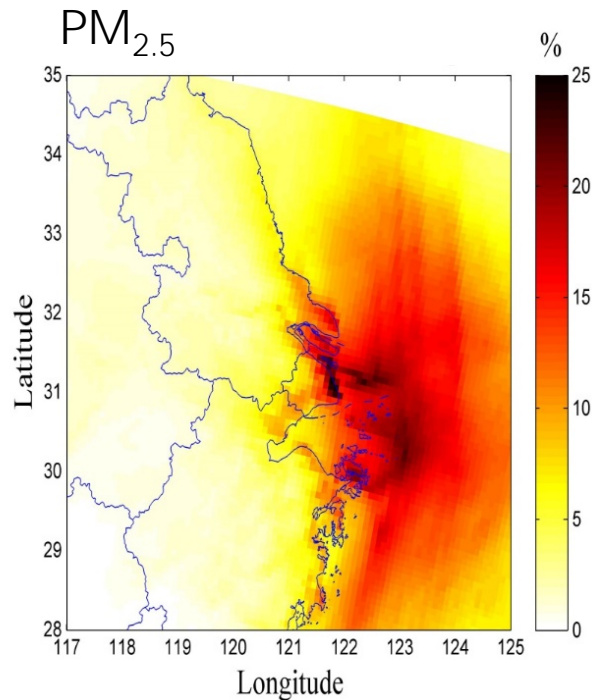
- Ocean going vessels, river ships, land transport
- Evaluation of baseline and Domestic Emissions Control Areas and other policies

■ Collaborators:

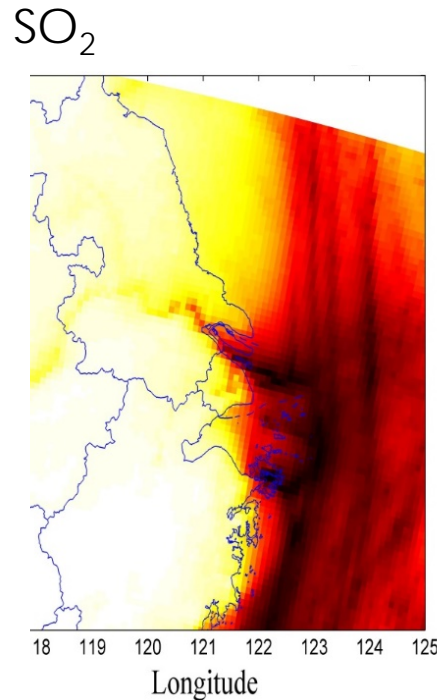
- Prof. Zhang Yan; Kan Haidong/Fudan University,
- Prof Wang Shuxiao/ Tsinghua Univ.
- Shanghai Environmental Monitoring Center; Shanghai Academy of Environmental Sciences
- Advisors: Neal Fann/US EPA; Noelle Selin/MIT

Percentage Contribution of Ships within 200 nautical miles to Air Pollutant Concentrations in YRD Region

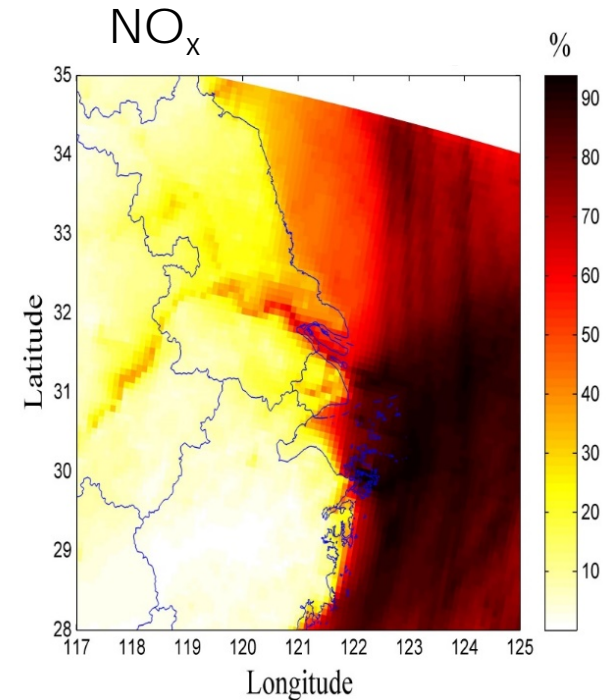
$$(C_{\text{ships}}/C_{\text{all sources}})$$



10-25 % in coastal regions



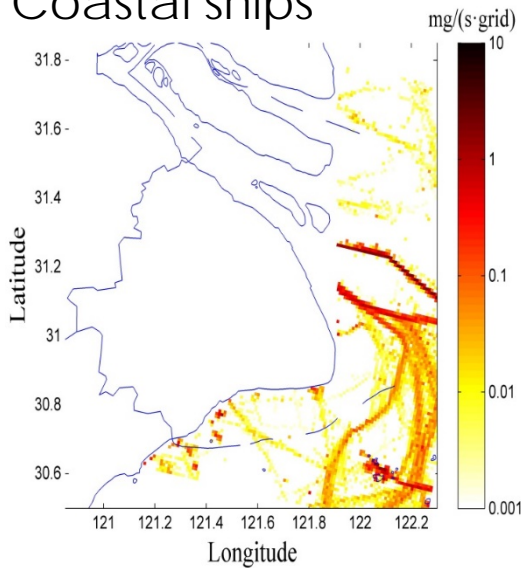
50-80 % along Yangtze River



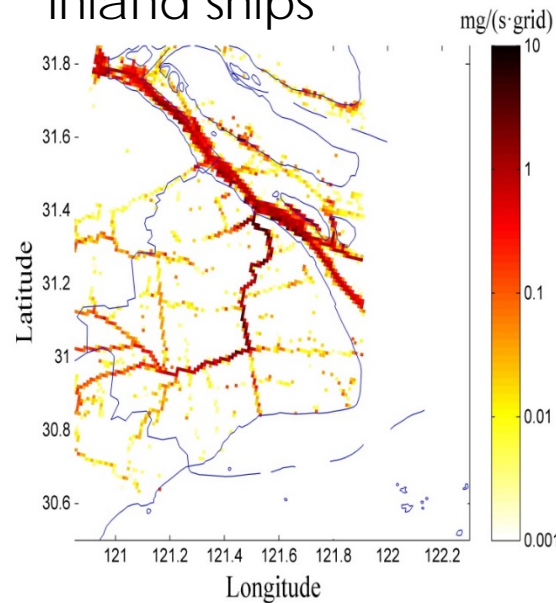
50-70 % along Yangtze River

Distribution of Port-Related PM_{2.5} Emissions by Shipping-Related Sources in Shanghai

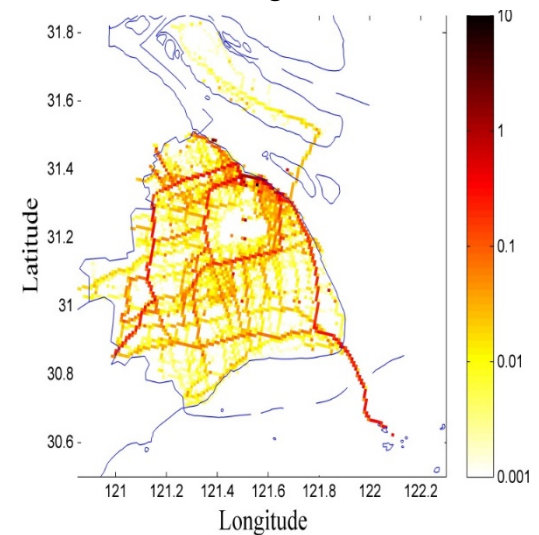
Coastal ships*



Inland ships



Container-Cargo trucks and in-port machinery



* Considers all ships in the water area administrated by Shanghai Maritime Safety Administration (SHMSA)

Communication: State of Global Air 2018

STATE OF GLOBAL AIR /2018

HOW CLEAN IS YOUR AIR? IMPACT ON YOUR HEALTH EXPLORE THE DATA READ THE REPORT WHAT'S NEW + Share

HEI IHME

STATE OF GLOBAL AIR /2018

NEW FOR 2018 Your source for the latest global, regional, and country-specific data on air quality and health.

How clean is the air you breathe?

Nearly 95% of the world's population live in areas where fine particle levels exceed global air quality guidelines. **NEW for 2018** – Data on exposures to household air pollution!

What is the impact on your health?

Air pollution is linked to illness and early death and is the fourth leading risk factor globally. Household air pollution is the eighth leading risk factor!

Explore the interactive data.

Explore your country's air and health using this unique site. View maps, compare trends, and download data. **NEW for 2018** – Data on household air pollution and health!

Read the report.

View the latest analysis of air quality and health findings meant for citizens, policy makers, journalists, and scientists. **NEW for 2018** – The role of household air pollution!



The State of Global Air website is a collaboration between the [Health Effects Institute](#) and the [Institute for Health Metrics and Evaluation](#), with expert input from the [University of British Columbia](#).

[Air Quality](#) | [Health Impact](#) | [Data](#) | [Report](#) | [News](#)
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www.stateofglobalair.org

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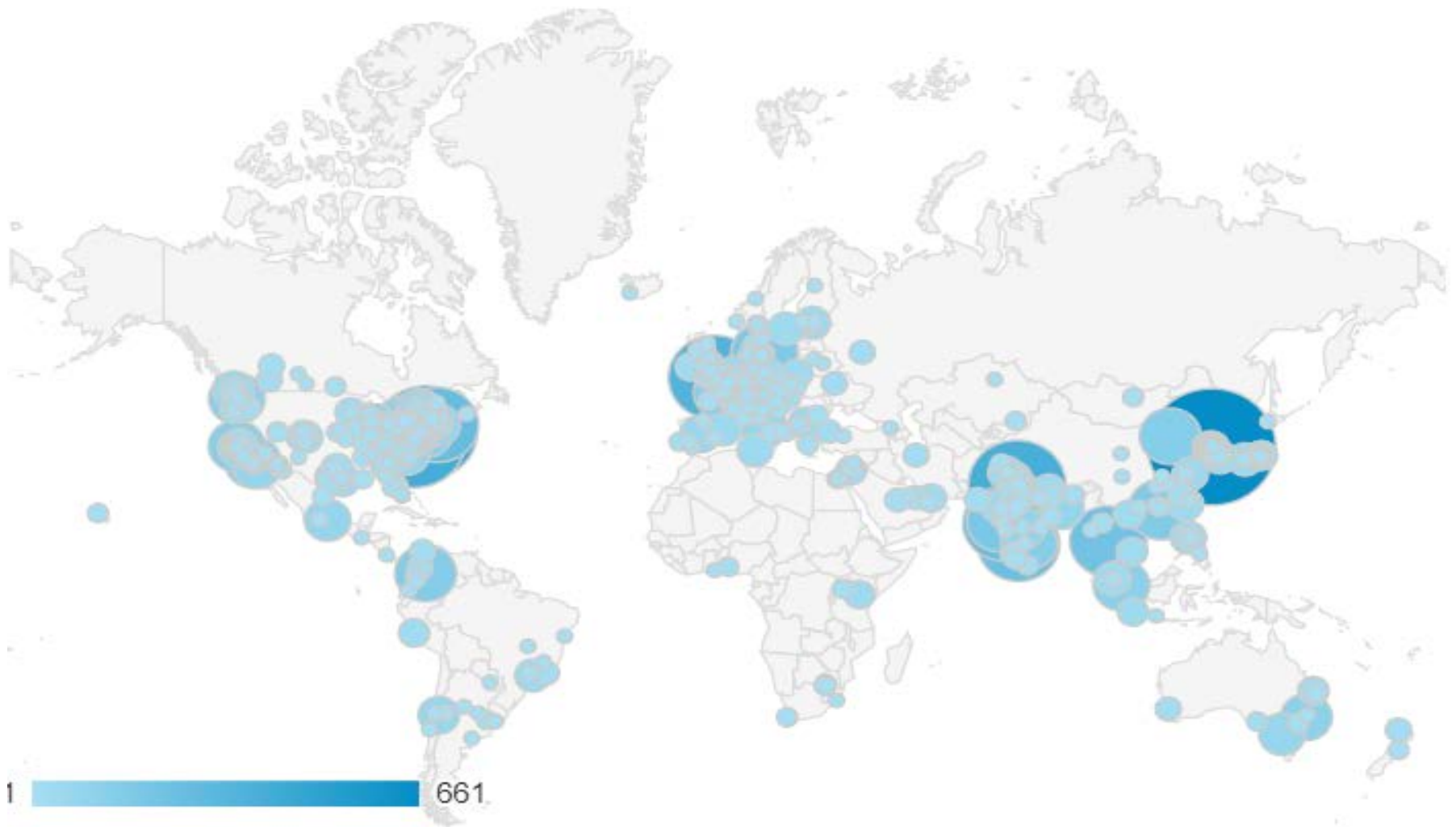
State of Global Air: What's new?

2017

- ▣ PM_{2.5}
- ▣ Ozone

2018

- ▣ PM_{2.5}
- ▣ Ozone
- ▣ Household Air Pollution
- ▣ 'Total' Air Pollution



Year 1: State of Global Air Activity

Year 2: Using the data around the world



Mike Bloomberg ✓

@MikeBloomberg

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A new Health Effects Institute report shows that 95% of the world breathes unhealthy air – causing 6.1M deaths per year primarily from heart disease, stroke & other NCDs. This study helps outline where the problems are greatest & where to target solutions.

mikebloom.bg/2JnjeL4



7:02 AM - 24 Apr 2018

97 Retweets 137 Likes



Year 2: Using the data around the world



A new Health Effect that 95% of the w – causing 6.1M d heart disease, stro study helps outlin greatest & where mikebloom.bg/2

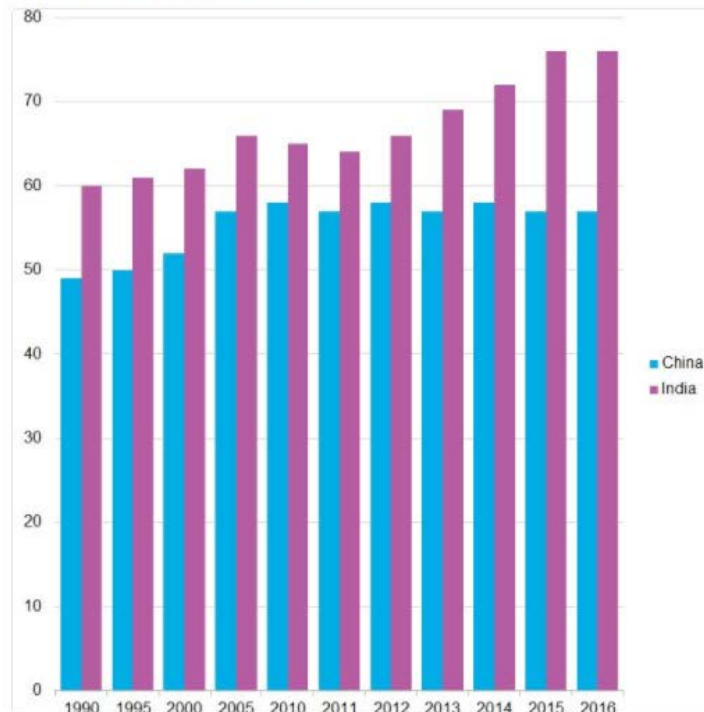


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In the latest **State of Global Air** report: India has had more ambient particulate matter pollution than China since at least 1990 - and while China's air pollution is improving slightly, India's is steadily worsening
stateofglobalair.org/data/#/air/tab...



↕ 25

14

Year 2: Using the data around the world



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@MikeBloomberg

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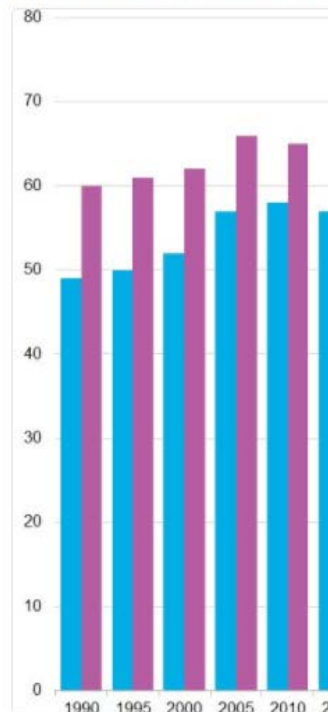
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Nathaniel Bullard ✓ @NatBullard · Apr 19

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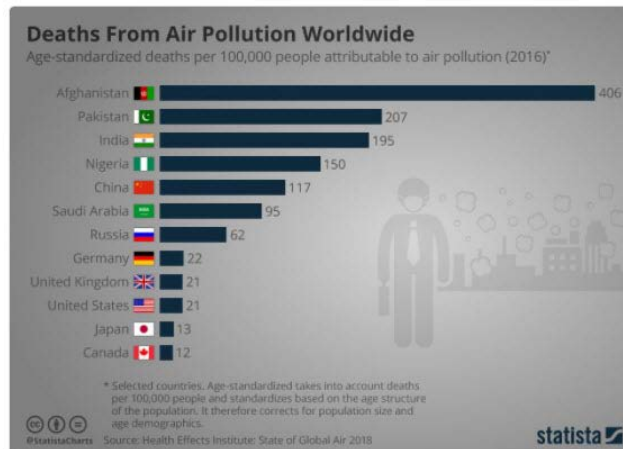
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Simon Kuestenmacher
@simongerman600

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#Infographic shows the number of deaths from air pollution. Data is corrected for age etc. The general trend shows that poorer countries get hit hard because they can't neither afford clean industrial technology nor adequate medical treatments. Source: buff.ly/2qIGTP1



8:15 AM - 25 Apr 2018

62 Retweets 71 Likes



62



71

Year 2: Using the data around the world



Mike Bloomberg
@MikeBloomberg

A new Health Effects Institute report shows that 95% of the world's population lives in areas where air pollution is causing 6.1M deaths each year – heart disease, stroke, lung cancer, and chronic obstructive pulmonary disease. The study helps outline the greatest & where the greatest health burden is. mikebloom.bg/2...



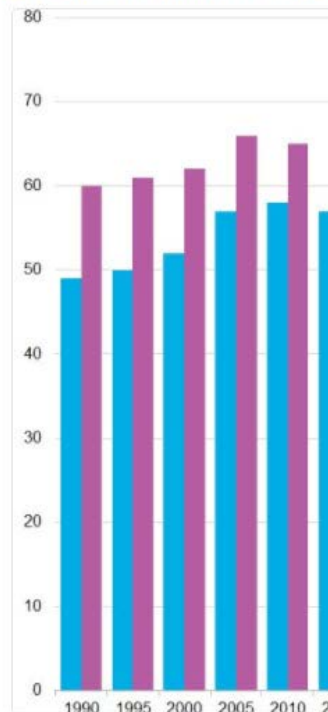
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@NatBullard · Apr 19

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25



14



Simon Kuestenmacher
@simongerman600

#Infographic shows the number of deaths from air pollution. etc. The general trend in all countries get hit hard, neither afford clean air, nor adequate medical buffer. buff.ly/2qIGTP1



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71

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Edmund Kagire
@kagire · Apr 23

Over 7 Billion People Face Unsafe Air: **State of Global Air 2018**
One in Three Globally Face a "Double Burden": Exposed to Household Burning and Outdoor Air Pollution. stateofglobalair.org/whats-new/pres... Nitutateka neza ngo tubeho neza turashira 😊😊 #CleanCooking



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Year 2: Using the data around the world



Mike Bloomberg 
@MikeBloomberg

A new Health Effect that 95% of the world – causing 6.1M deaths – heart disease, stroke study helps outline greatest & where mikebloom.bg/2017/05/01/heart-disease-stroke/



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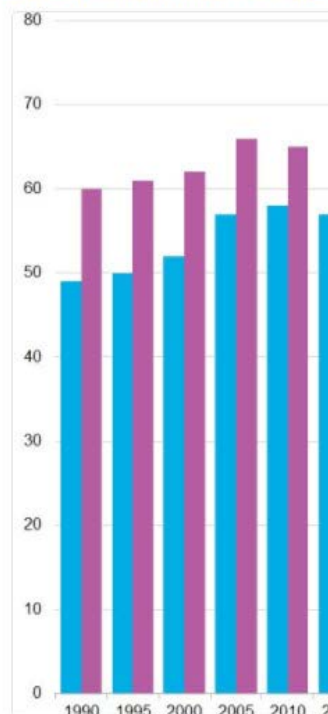


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Simon Kuestenmacher
@simongerman500



25 14



Simon Kuestenmacher
@simongerman600

#Infographic shows the number of deaths from air pollution, etc. The general trend is that developing countries get hit hardest, and they neither afford clean energy nor adequate medical care. buff.ly/2gIGTP1



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Edmund Kaire  @kaire · Apr 23

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and Outdoor Air Pollution. stateofglobalair.org/whats-new/pres... Nitudateka neza
nko tubeho neza turashira 🙄🙄 #CleanCooking



Diane Lange @DclareDiane · 4h

'State of Global Air': More Air Quality Lies from the Health Effects Institute
junkscience.com/2018/04/state-... via @JunkScience



'State of Global Air': More Air Quality Lies from the ...
The air pollution scare industry is in panic mode, led by the Health Effects Institute.
junkscience.com



Building a global program

Targeted research opportunities

- GBD MAPS – New policies in China? Other key regions? Global?
- Reviews of the literature
- Leverage funding of research to support core and global programs

Strategic Partnerships

- Build on existing
- Seek out new ones
- New international oversight/advisory committee
- New staffing

Communication

- Augment State of Global Air
- Expand HEI project communication

Foundation funding



Collaboration and Support

HEI Staff

- Annemoon van Erp, Managing Scientist
- Hilary Selby Polk, Managing Editor
- Allison Patton, Staff Scientist
- Kathryn Liziewski, Research Assistant
- Aaron Cohen, Consulting Scientist
- Devashri Salvi, Research Intern
- Mary Brennan, Consulting Editor
- Fred Howe, Consulting Proofreader
- Ruth Shaw, Consulting Compositor

International Collaborations



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