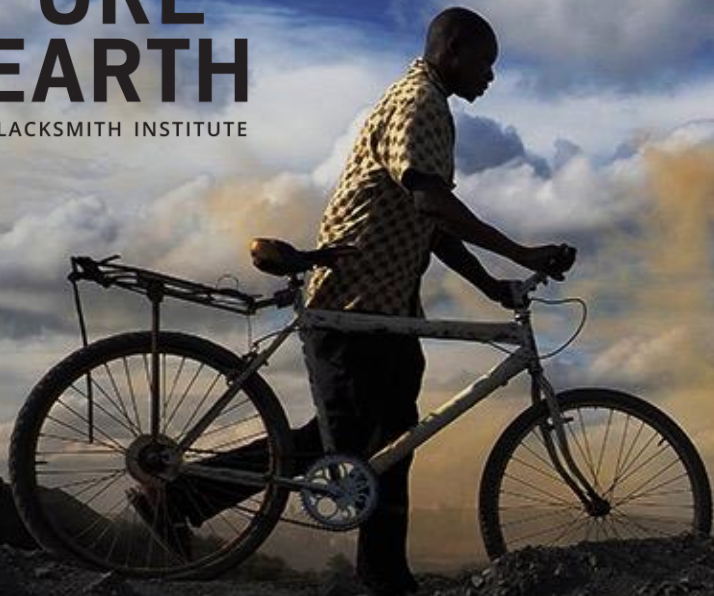




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# Lead Pollution & Battery Recycling

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# Topics

1. Trends in health impacts from lead
1. Informal sector challenges & solutions
2. Cleaning-up contaminated sites



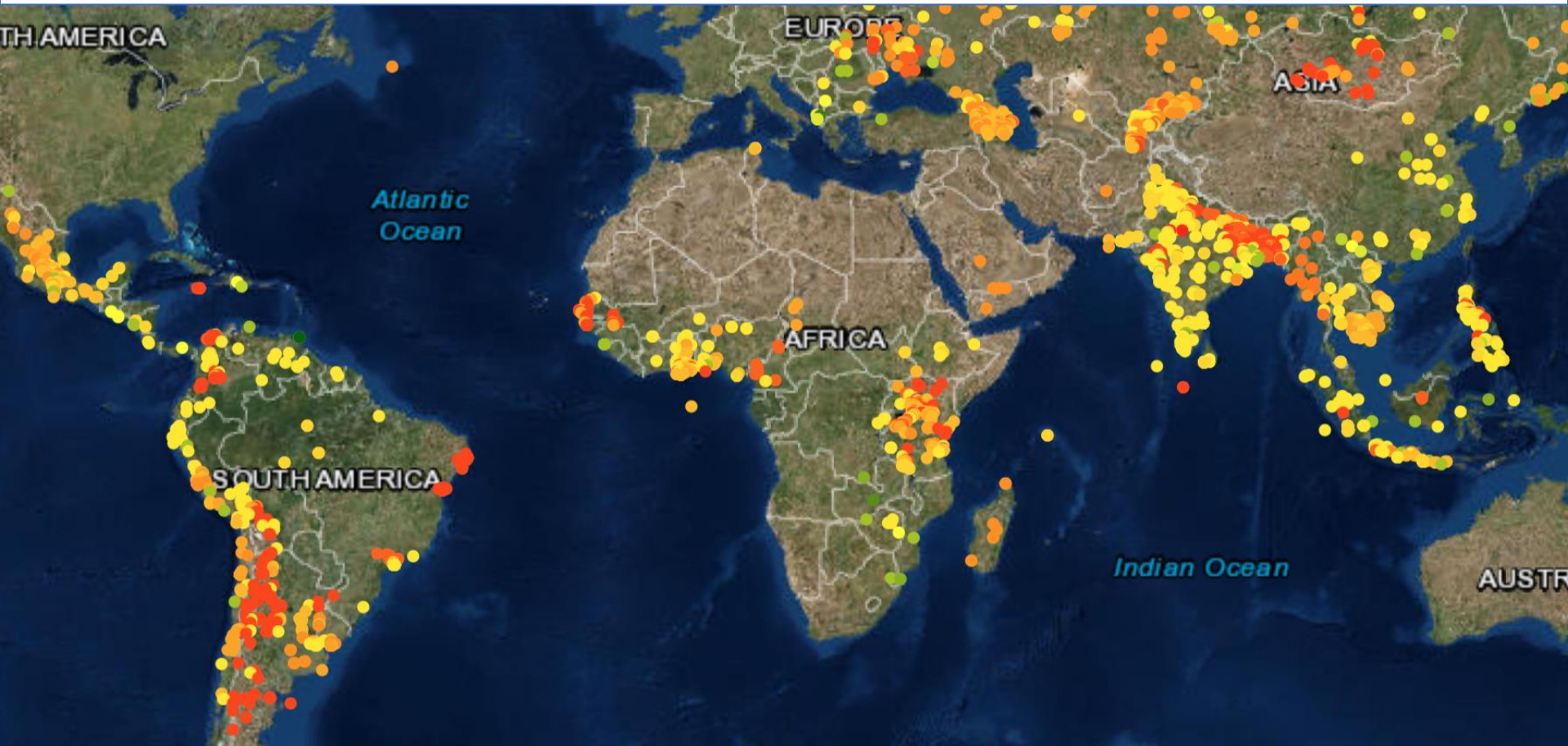
Women of childbearing age dismantling lead-acid batteries in India



## What we do:

1. Identify and assess toxic hotspots
2. Research on pollution and health
3. Policy and planning assistance to governments
4. Remediation projects

# Toxic Sites Identification Program 5,000 Contaminated Sites Assessed



# Data Source for Health Impacts from Lead

- WHO & IHME Burden of Disease Studies
- Captures causes and risk factors for death and disability
- WHO & IHME are collaborating
- How reliable is the lead data?
  - Good, not great
  - OK for macro-trends



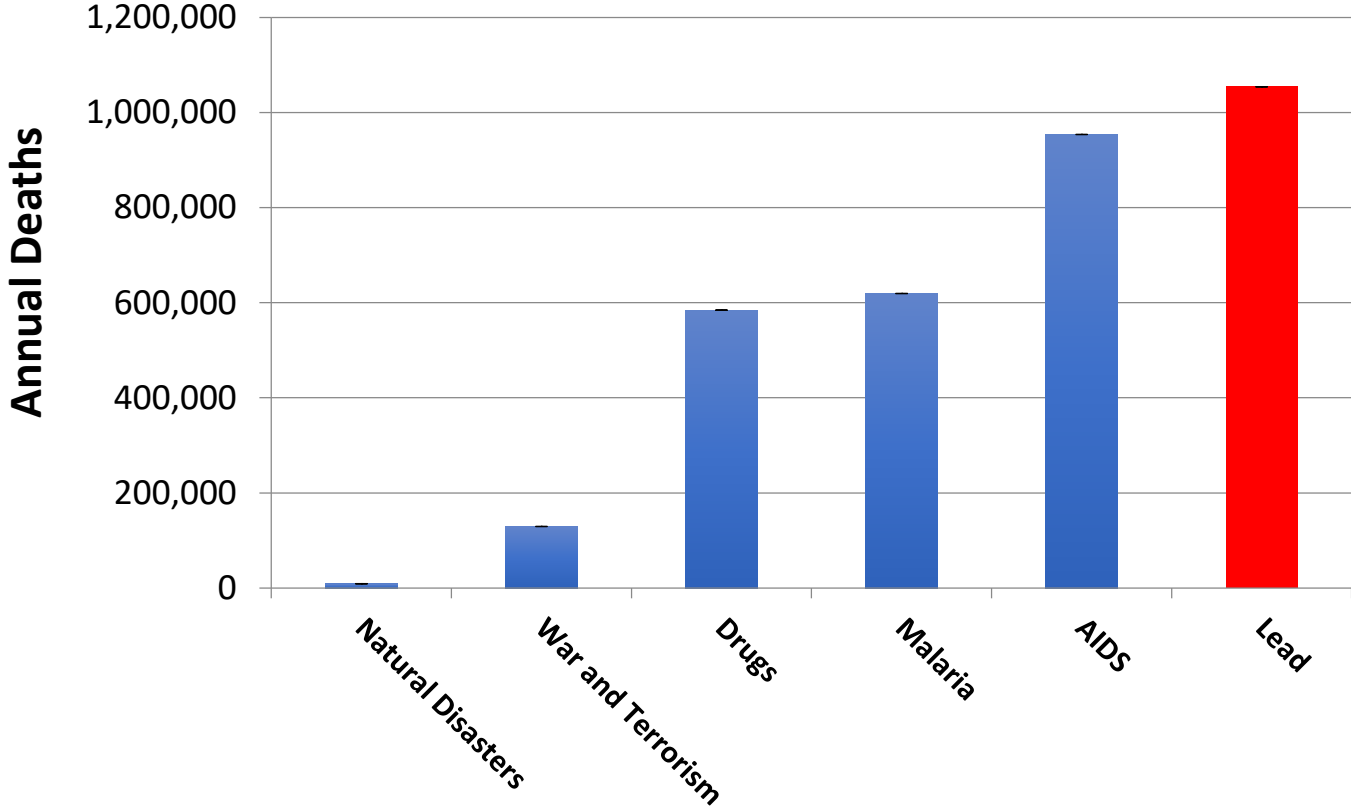
The screenshot shows the WHO Europe website. The header includes the WHO logo and the text 'World Health Organization REGIONAL OFFICE FOR Europe'. There are language options for English, Français, Deutsch, and Русский. A search bar is present. The main navigation bar includes links for Home, Health topics, Countries, Publications, Data and evidence, Media centre, and About us. The current page is 'Data and evidence', with a breadcrumb trail: 'Data and evidence > New memorandum of understanding between WHO and IHME brings better data and evidence for more informed decision-making for health'. The main content area features a news article titled 'New memorandum of understanding between WHO and IHME brings better data and evidence for more informed decision-making for health', dated 03-07-2018. The article text states: 'At the Seventy-first World Health Assembly in May 2018, WHO and the Institute for Health Metrics and Evaluation (IHME) signed a new memorandum of understanding (MoU) and agreed to strengthen collaboration on the global burden of disease (GBD) and enhance policy use of GBD findings.' A small photo of people is visible on the right side of the article.



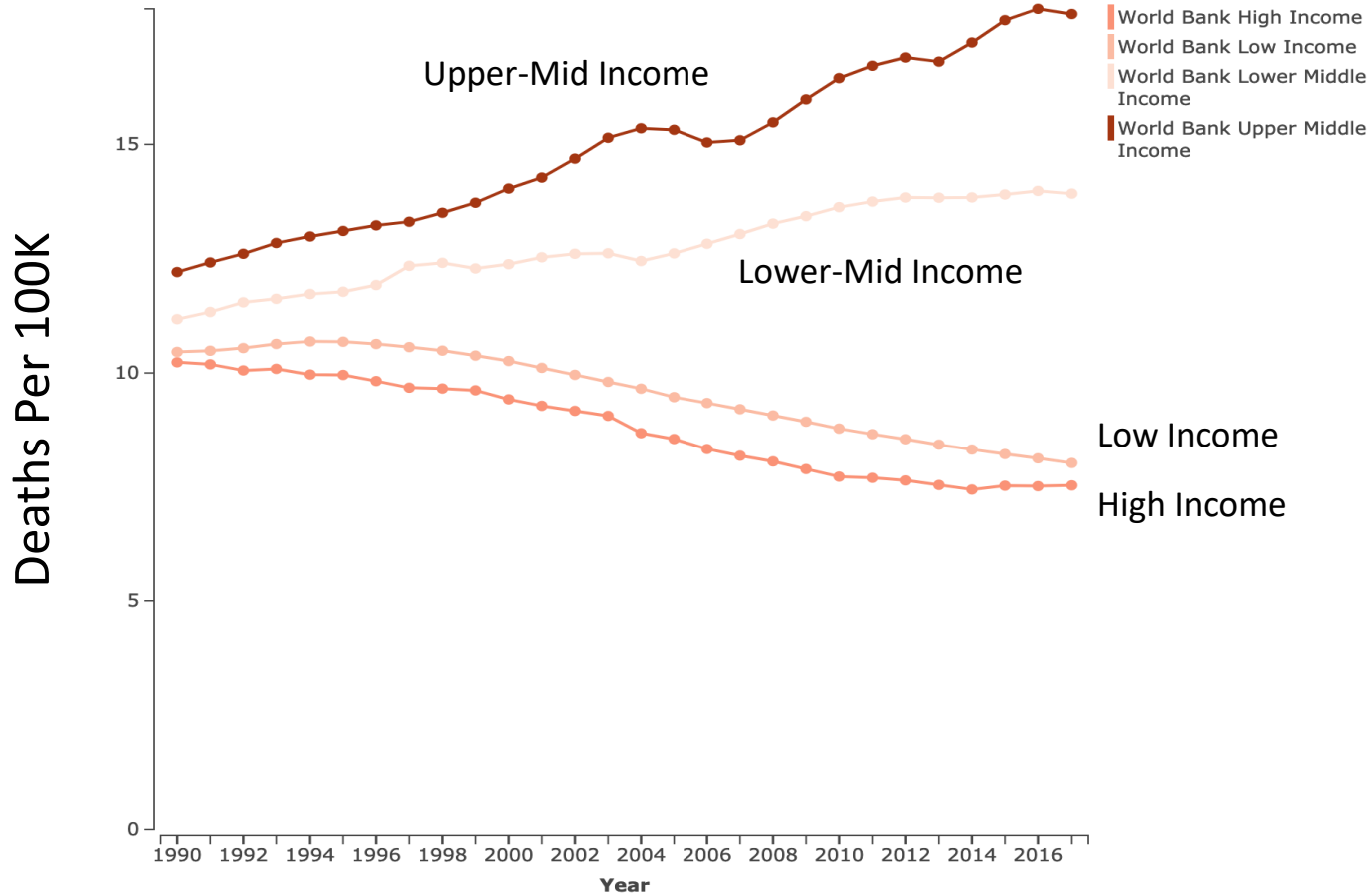
The screenshot shows the IHME website. The header includes the IHME logo and the tagline 'Measuring what matters'. There are navigation links for Home, Results, News & Events, Projects, Get Involved, and About. The main content area features a news article titled 'WHO and IHME collaborate to improve health data globally'. The article text states: 'GENEVA - The World Health Organization and the Institute for Health Metrics and Evaluation (IHME) have formally agreed to collaborate in improving the accuracy,'. The article is dated 22 May 2018. A small photo of people is visible on the right side of the article.

Link: <https://vizhub.healthdata.org/gbd-compare/>

# Annual Deaths from Well-Known Diseases & Risk Factors

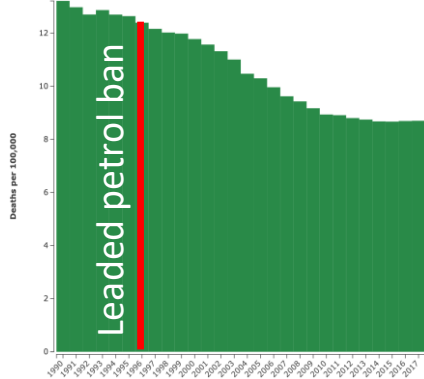


# Trends in Lead Deaths by National Income

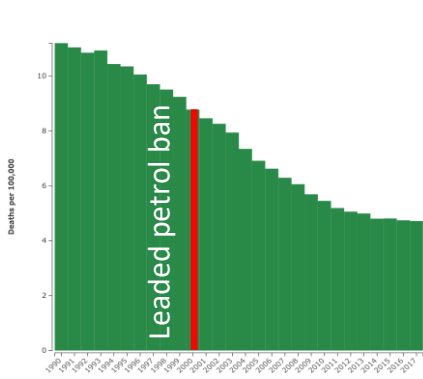


# Death Rates (per 100K) from Lead

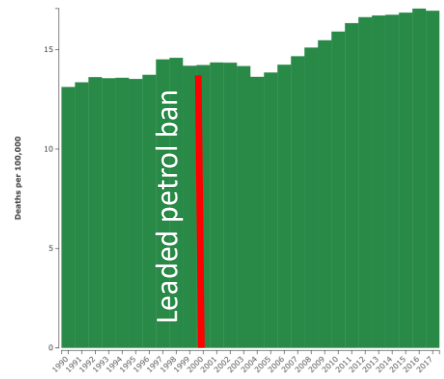
## USA



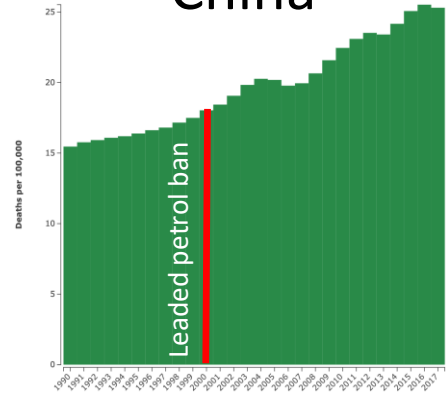
## UK



## India

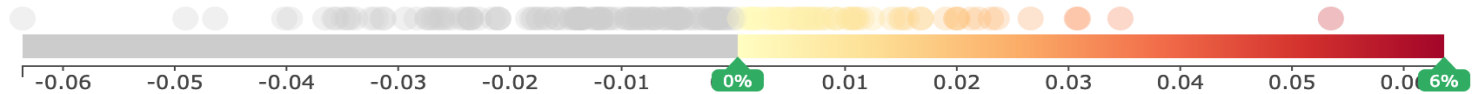
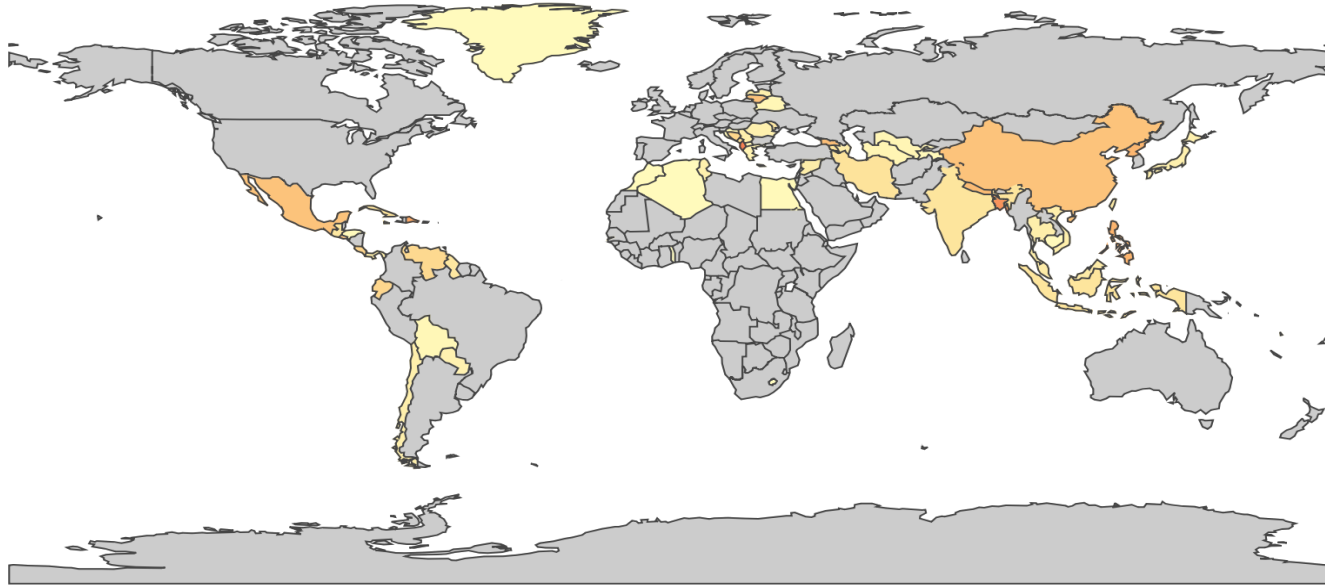


## China





# 56 Countries Where Lead Death Rates Increased Since 2000 (when most banned leaded fuel)



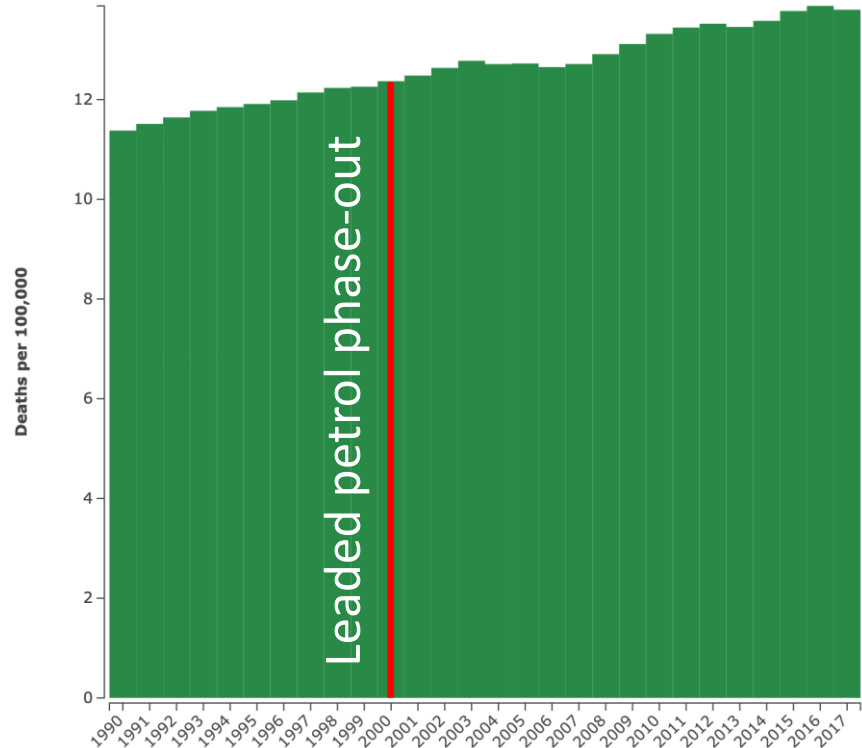
Institute for Health Metrics and Evaluation (IHME). GBD Compare. Seattle, WA: IHME, University of Washington, 2015. Available from <http://vizhub.healthdata.org/gbd-compare>. (Accessed Feb 12, 2019)

# Global Death Rate from Lead (per 100K, 1990- 2017)

So, what's going on?

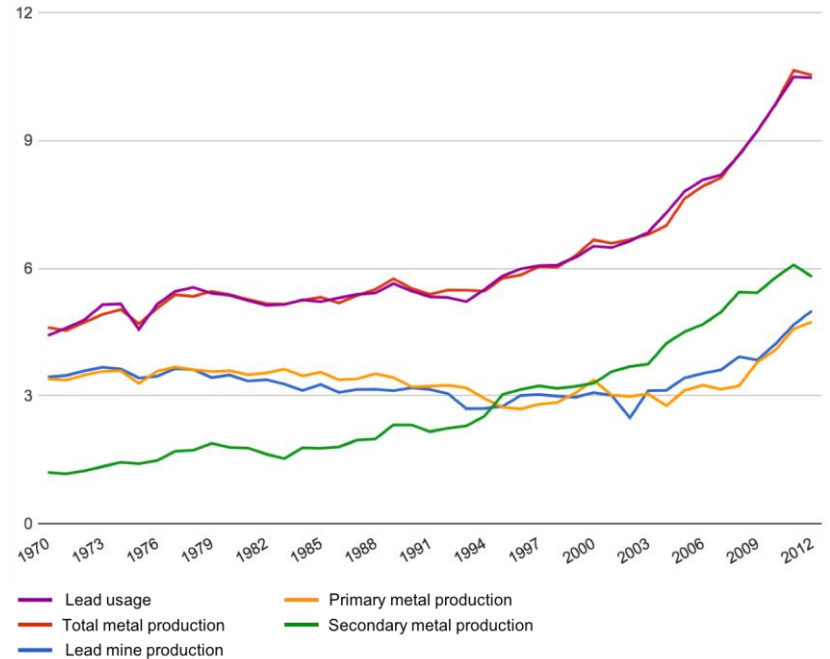
Where is the lead  
coming from?

In part, unsafe battery  
recycling



# Lead-Acid Batteries Are Not Going Away

- Per capita use of lead is rising
- 80% goes into batteries
- Car ownership is increasing
- Batteries used in solar energy systems
- Electric cars, scooters, and auto-rickshaws all use lead-acid batteries



Global use and production of lead, in million metric tons. (International Lead Association, n.d.)

# Addressing Informal Battery Recycling

## Challenges:

- Large % of batteries are recycled informally (e.g. India 50%)
- Informal actors pay more for used batteries
- Informal recycling is done in residential areas, spreading lead dust, poisoning kids
- Strict enforcement can increase the problem
  - Informals just move, create more toxic hotspots
  - Need to change economic incentives



# Addressing Informal Battery Recycling

## Solutions:

- Use informal actors to collect batteries, not recycle
- Informal actors can (sometimes) be formalized
- Green Fee
  - Charged at point of sale
  - Goes into a fund controlled by government
  - Refunds to formal sector
  - Some funds used for monitoring, enforcement, remediation
  - Example: Brazil, California

# Cleaning Up Lead Contamination

Relatively cheap, easy and fast.

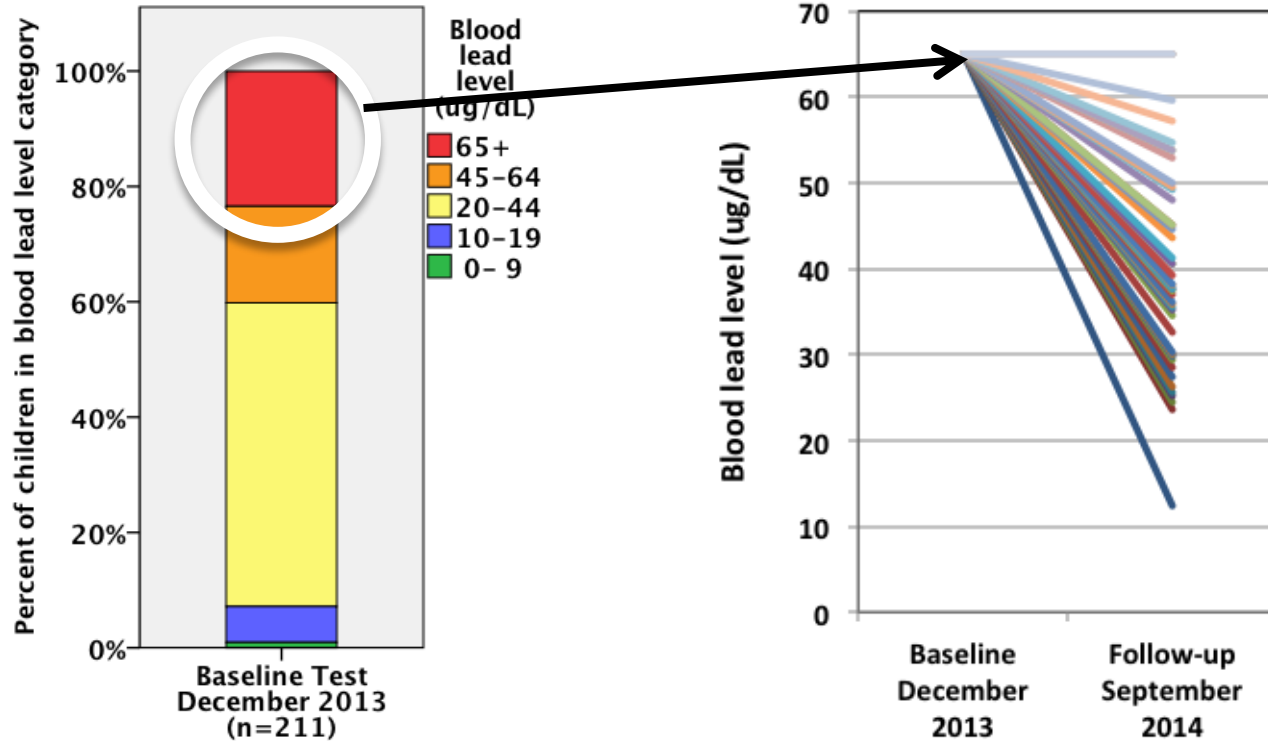
## 7 step process:

1. Detailed assessment
2. Health assessment (blood testing)
3. Community education
4. Close, move or improve Informal recyclers
5. Cap contaminated soils
6. Clean interiors of homes, schools, workshops
7. Final soil and blood assessment



# Example: Dong Mai, Vietnam

## Change in blood lead level after remediation project



# Pure Earth can help with:

1. Contaminated site assessment programs
2. Regulatory and policy solutions
3. Programs to address the informal sector
4. Remediation of lead contamination
5. National pollution action plans





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**Thank you!**

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