

# PURE EARTH

**What:** US-based environmental health non-profit, established 1999

**Mission:** Reduce health impacts from toxic chemicals in low- and middle-income countries

**Where:** HQ in New York, 7 offices in LMICs around the world

**Current priority:** reduce lead and mercury poisoning



unicef   
for every child

 **PURE  
EARTH**  
BLACKSMITH INSTITUTE

## 2020 Toxic Truth report on lead exposure:

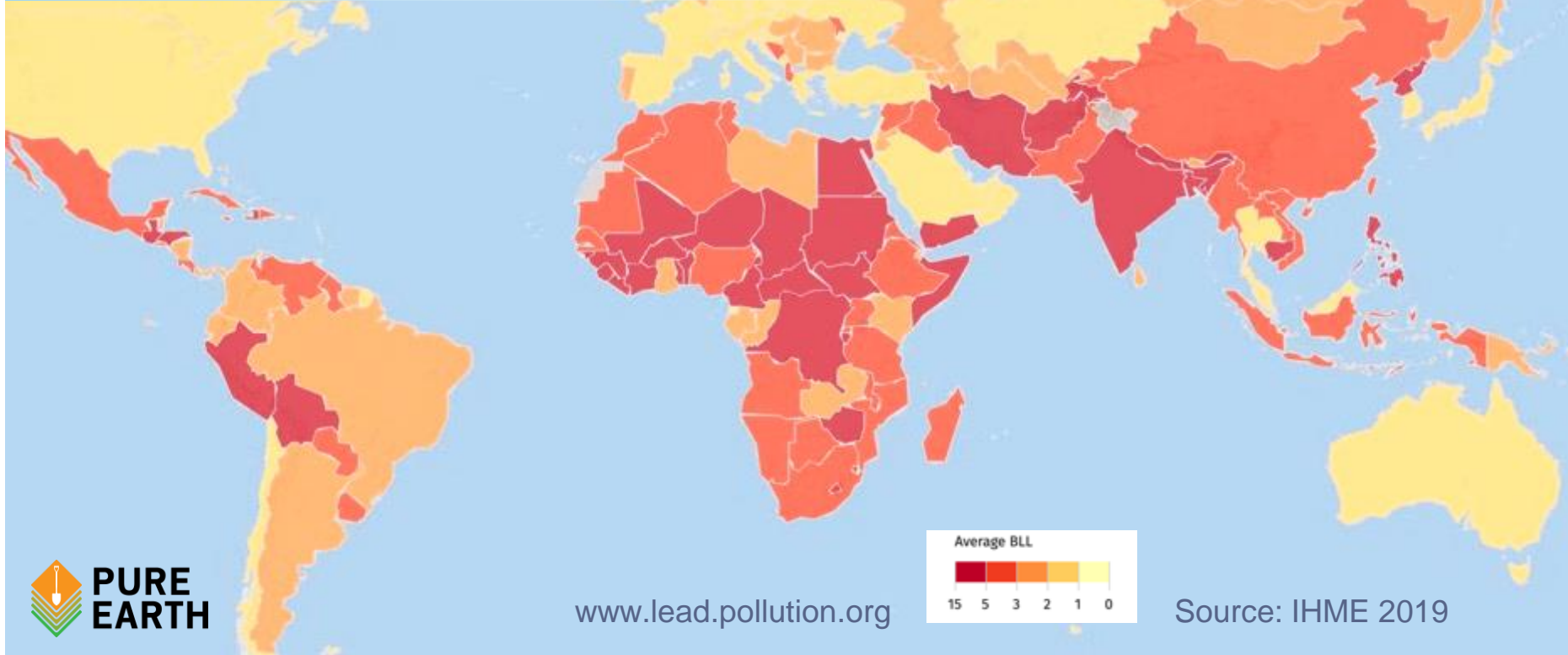
- Health impacts
- Sources
- Solutions

### Top-level finding:

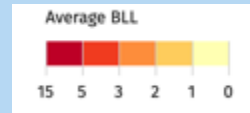
- 1 in 3 kids has lead poisoning
- Almost all in LMICs
- \$1T in annual GDP loss

**The Toxic Truth: Children's Exposure to Lead Pollution  
Undermines a Generation of Future Potential**

# CHILDHOOD LEAD EXPOSURE BY COUNTRY



[www.lead.pollution.org](http://www.lead.pollution.org)



Source: IHME 2019

# Impacts from Lead Exposure & ULAB Recycling

## Lead:

- 1 in 3 kids is lead poisoned (>5ug/dL)
- 90%+ in LMICs
- 1M annual deaths (mostly CVD)
- Permanent brain damage & IQ loss
- \$1T in annual GDP loss
- Children are most at risk
- WHO: brain damage occurs “at the lowest blood lead concentrations yet studied.”
- Lead does not degrade, will poison generation after generation if not remediated

## ULAB Recycling:

- 85% of lead is in LABs
- Most LAB are made, used and recycled in LMICs
- 10,000-30,000 informal ULAB sites, affecting 6-17M people
- Estimated to be 1,100 in Bangladesh alone (World Bank)
- ULAB worker BLLs average 47 µg/dL in battery manufacturing plants and 64 µg/dL in recycling
- Mean BLLs for children 0-4 years living near recyclers is 31 µg/dL

**Background on ULAB  
Recycling, Informal  
Actors, &  
Consequences of  
Substandard  
Recycling**



















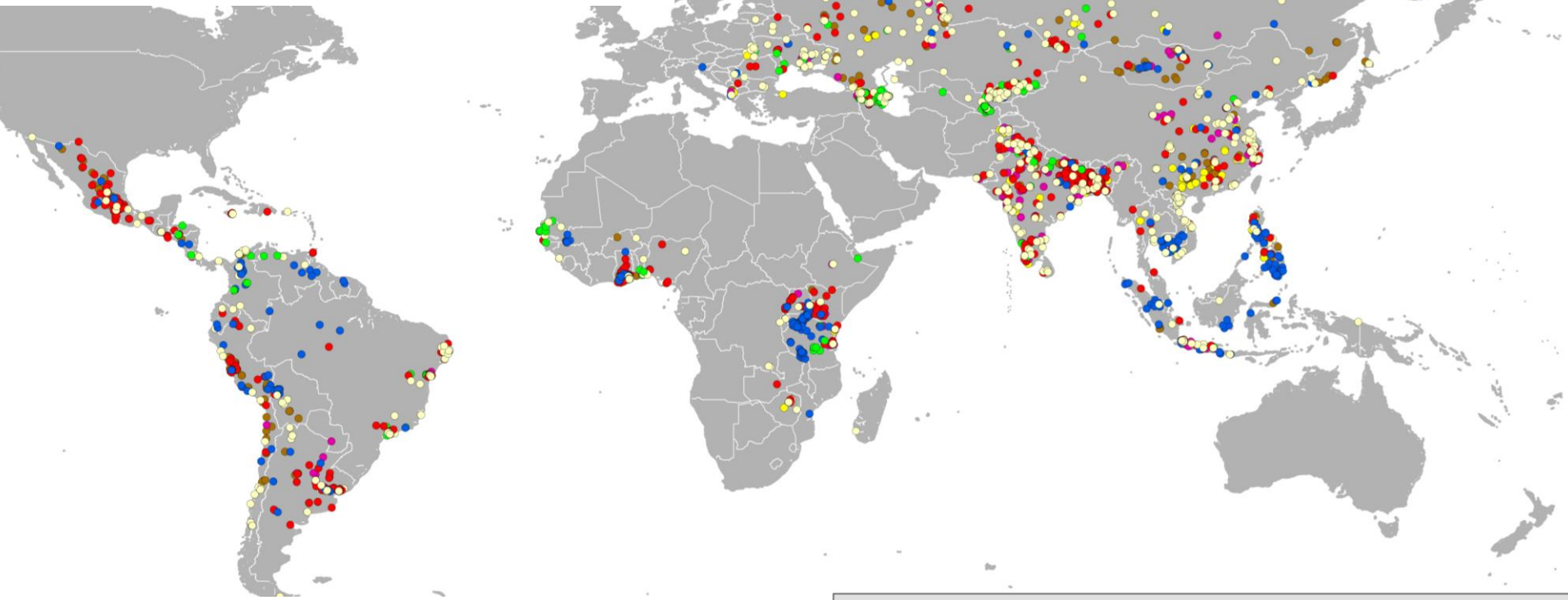


# Formal Recycling Can Be Very Dangerous Too





Available at  
[www.contaminatedsites.org](http://www.contaminatedsites.org)



**5,000 Contaminated Sites  
(1,700 Lead Sites)**

**Toxic Site Identification Program - sites by pollutant**

- |           |            |              |         |
|-----------|------------|--------------|---------|
| ● Arsenic | ● Chromium | ● Mercury    | ● Other |
| ● Cadmium | ● Lead     | ● Pesticides |         |

# STANDARDS, TECH RESOURCES, POLICY GUIDANCE

1. [Basel Technical Guidelines](#)
2. [Policy Guidance for African Policy-Makers](#) (UNEP)
3. [Standard Operating Procedures \(SOPs\) for LMICs](#) (SRI program)
4. [Consequences of a Mobile Future](#) (World Econ Forum)



# Basel Technical Guidelines

## Strengths:

- UN backed & agreed by Basel members
- Highly detailed

## Weaknesses:

- Very old and outdated (2002)
- Errors and omissions
- Not much emphasis on informal actors

## Technical Guidelines for the Environmentally Sound Management of Waste Lead-acid Batteries



Secretariat of the Basel Convention



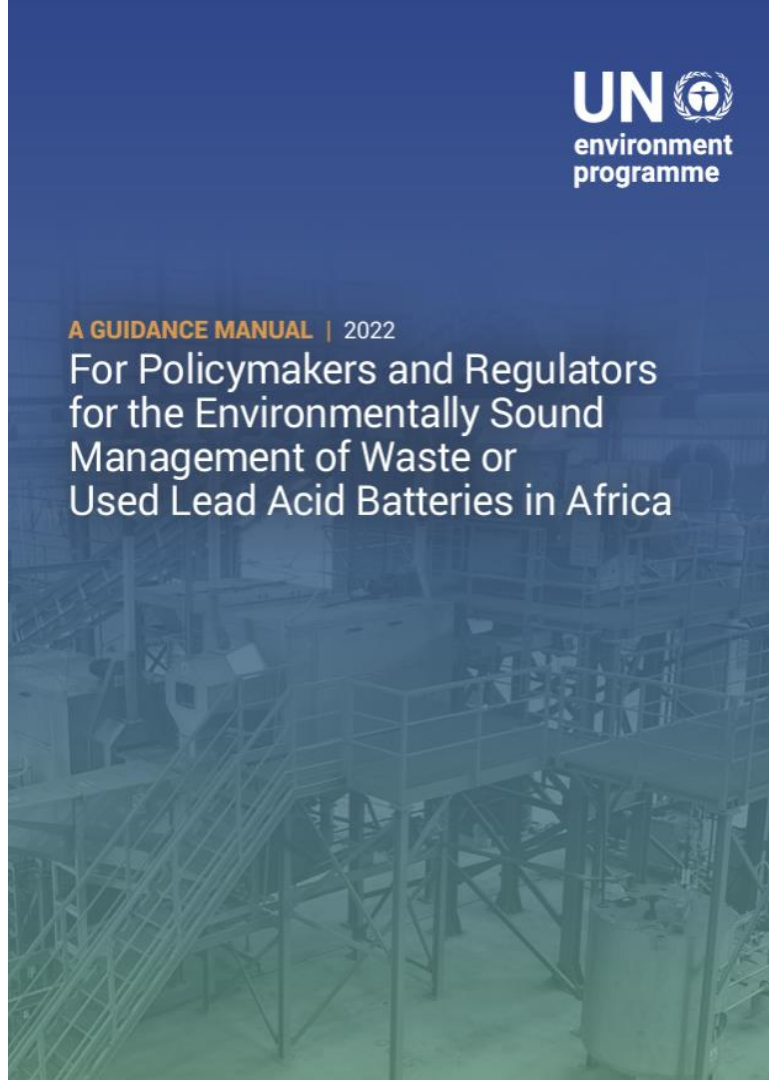
# UNEP Guidance for African Policymakers

## Strengths:

- Recently developed
- Made for LMICs
- Highly detailed
- Covers informal actors and site assessment and remediation

## Weaknesses:

- Focuses on Africa specifically



# SOPs Developed for SRI Program in Ghana

## Strengths:

- Recently developed
- Made for LMICs
- Simply, clear, and visual

## Weaknesses:

- Made for a specific program
- Not an “official” document
- Mostly technical about facilities, not public policy



Standard Operating Procedures for  
Environmentally Sound Management  
of Used Lead-acid Batteries

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December 2021

# World Econ Forum & Global Battery Alliance Doc

## Strengths:

- Recently developed
- Heavy on policy approaches
- Full discussion of informal actors and how to maximize benefit & minimize risks

## Weaknesses:

- Light on tech/operational guidance
- Not a UN document

In Collaboration with Pure Earth,  
the International Lead Association  
and Responsible Battery Coalition

**Consequences  
of a Mobile Future:**  
Creating an Environmentally  
Conscious Life Cycle for  
Lead-Acid Batteries

WHITE PAPER  
DECEMBER 2020

**GLOBAL  
BATTERY  
ALLIANCE**  
BATTERIES POWERING  
SUSTAINABLE DEVELOPMENT

In partnership with the  
World Economic Forum





# Key Policies & Issues

- **Limit informal sector to battery collection only**
- **Try to remove market advantages of informal recyclers and increase incentives/advantages for responsible formal sector recyclers**
- **Optimize battery usage**
- **Extend producer responsibility to full life-cycle of battery**
- **Ensure all battery recycling is located away from people**
- **Ensure licensing and auditing mechanism is functioning as needed**
- **Develop policies that ensure sellers of batteries and buyers of lead have clean supply chain**

# REMEDIATION COST-EFFECTIVENESS

- Contaminated sites will poisoning kids for generations
- Helping World Bank publish benefit/cost analysis of interventions
- Limited number of projects to analyze, so results are suggestive only
- **preliminary & unpublished, do not reproduce**



**Contaminated Site Cleanup  
(17 projects):  
\$2-\$144 benefit  
per \$1 invested**