PURE EARTH

Solve pollution. Save lives. Protect the planet.

PREVENTING LEAD EXPOSURES FROM USED LEAD-ACID BATTERIES

GLOBAL INVESTMENT OPPORTUNITY

Unlike the U.S. and Europe, where more than 95% of lead from used lead-acid batteries (ULABs) is safely recycled, it is estimated that in LMICs, around 50% of used lead-acid batteries are recycled in the informal sector, where environmental standards and worker protections are often inadequate, leading to severe lead exposure. Properly managing the ULAB waste stream is more urgent and relevant than ever, requiring research, regulation, remediation, and improvement of a large and growing inventory of sub-standard recycling operations.

About the Project

BACKGROUND

1. Approximately **86%** of the total global consumption of lead is for the production of lead-acid batteries.
2. Lead-acid batteries are a **reliable and low-cost power storage technology**, used in both electric and gas vehicles, as well as with renewable resources, such as wind and solar energy.
3. Given that renewable energy sources play an increasingly critical role in the effort to mitigate climate change, the **demand for lead-acid batteries will grow** along with the risk of potential lead exposure, particularly in low- and middle-income countries (LMICs).
4. Research by New York University and Pure Earth estimates there are **10,000 - 30,000 informal ULAB recycling sites** worldwide where human health is at risk.
5. Up to **16.8 million people** are estimated to be exposed to lead at ULAB sites, including 557,000 - 1.8 million children (ages 0-4).
6. Many of the most severe lead poisoning cases are directly associated with these sites. Average BLL for children at ULAB sites is estimated at **31.15 µg/dL**, more than 6 times the World Health Organization's threshold of 5 µg/dL.

PROGRESS TO DATE

1 Health Surveillance

- Pure Earth has conducted more than 6,900 blood lead level (BLL) tests, including 4,791 children, in ULAB affected areas of Bangladesh, Indonesia and Ghana.

2 Source Analysis

- Pure Earth and partners catalogued 534 contaminated sites from ULAB recycling in 34 countries affecting 1.2 million people.

3 Source-specific Interventions

- Pure Earth and local partners have conducted more than 10 ULAB site cleanups in Colombia, Dominican Republic, Senegal, India, Vietnam and Bangladesh. Average BLL reductions post-clean up range from 30% - 72%.

4 Communications

- With UNEP, Pure Earth co-authored *A Guidance Manual For Policymakers and Regulators for the Environmentally Sound Management of Waste or Used Lead Acid Batteries in Africa* in 2023

5 Institutional Strengthening

- Pure Earth assisted the government of Indonesia in creating a national database of toxic sites, including ULAB sites.
- Assisted Ghana DSA and EPA to obtain permits for the clean-up of Bremang, a ULAB site in greater Accra.
- Assisted the Ghana government with drafting the approved Declaration of a National Action Plan to Reduce Lead Poisoning, which contains ULAB specific agreements, enhancing the regulatory environment for ULABs.

THE WAY FORWARD: PROGRAM ACTIVITIES REQUIRING FUNDING

1 East Africa (Kenya, Tanzania, Uganda):

- East Africa is an important hub of ULAB activity and a region that has influence to be a model for change; by developing partnerships with local stakeholders and relevant agencies, Pure Earth can identify priority interventions based on assessments of health risks.
- Conduct a regional Mass Balance Analysis of ULABs and related components– assessing the exports and imports of ULABs, and leakage of ULABs into unsafe, informal battery recycling operations.
- With relevant government entities, co-design upgraded regulations and built enforcement capacities.
- Conduct education and training sessions to ensure government representatives understand how the regulations interface with the complexities of ULAB recycling facilities, and can identify common issues and violations on-site.

2 Colombia/Peru:

- Conduct a regional Mass Balance Analysis of ULABs and related components including Colombia, Peru, Chile and Ecuador – assessing the exports and imports of ULABs, and leakage of ULABs into unsafe, informal battery recycling operations
- Leverage and disseminate data from a Mass Balance Analysis to work with government and industry on regulatory development and enforcement targeting the informal ULAB recycling sector.
- Conduct education and training sessions to ensure government representatives understand how the regulations interface with the complexities of ULAB recycling facilities, and can identify common issues and violations on-site.

3 Ghana:

- Train officials to conduct toxic site assessments and inventory.
- Assist government in developing national toxic site database for ULABs and other toxic sites.
- Support district authorities and Ghana EPA officials to conduct the pilot remediation of the former ULAB site in Bremang, serving as a model for additional clean-ups.
- Conduct workshops and public events with public servants and industry representatives around ULAB regulation compliance.

COST BENEFIT OF LEAD INTERVENTIONS

Contaminated ULAB Site Cleanup — **$2–$144 benefit per $1 invested**

FUNDING IN ACTION

1 Indonesia:

Pure Earth Indonesia is implementing a thorough regulatory analysis of ULABs and supporting authorities in implementing national regulations at sub-national levels to ensure local governments are well-equipped. Additionally, we are conducting community education in ULAB-affected areas to raise awareness and promote safer practices. Finally, we are training government officials on comprehensive ULAB site inspections and on the full regulatory landscape.

2 Bangladesh:

Pure Earth Bangladesh is training officials to conduct and inventory toxic site assessments. Additionally, we are completing the cleanup of one abandoned lead smelter site and developing training materials to help the government replicate these efforts. Finally, we are collaborating with government and industry to develop and enforce regulations aimed at the informal used lead-acid battery recycling sector.

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