SMEP | Sustainable Manufacturing and Environmental Pollution

PURE EARTH BANGLADESH

Evidence to Action: Economic and Policy Pathways for a Safer Lead-Acid Battery Circular Economy in Bangladesh

Overview of the SMEP Project Activities and Key Outputs

Together, we can
#SolveLeadPollution

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Sustainable Manufacturing and Environmental Pollution (SMEP) Programme

Project Title: *Development of Business Models and Policy Interventions to Reduce Informal ULAB Recycling in Bangladesh*

FUNDING AND TECHNICAL ASSISTANCE

UK International Development — Partnership | Progress | Prosperity

UN trade & development

PROGRAMME MANAGEMENT

SOUTH SOUTH NORTH — TOWARDS CLIMATE RESILIENCE

PEGASYS — CHANGING LIVES CHANGING WORLDS

PROJECT LEAD

PURE EARTH BANGLADESH

RESEARCH PARTNERS

Georgetown University McDonough School of Business

Stanford Graduate School of Business

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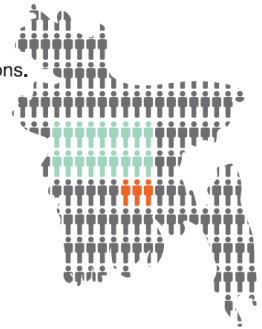
Project Rationale & Objectives

3rd most lead-impacted country globally is Bangladesh, according to global estimations.

20% of the population lives within 5 km of informal smelting sites.

~5 percentage point increase in terminated pregnancies



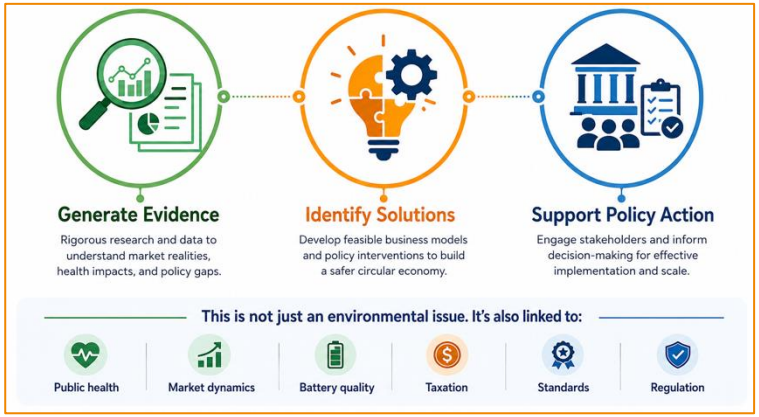
National survey shows ~38% children under 5 years have elevated blood lead levels

$29 B annually lost due to lead exposure (approximately 8% of GDP).

$91M tax revenue is lost annually by the government due to informal recycling.[2]

Lead-associated health risks:

IQ loss · Learning Disability · Loss of Income · Cardiovascular Diseases · Renal Diseases · Pregnancy Miscarriages



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Project Journey

2023

SMEP project initiated

2023-24

Field research and market analysis

April 2024

SMEP workshops and 8-point recommendations

2024-25

Supply-chain analysis and economic modeling

2025-26

Government and private sector engagements

April 2026

MoEFCC multi-stakeholder consultation

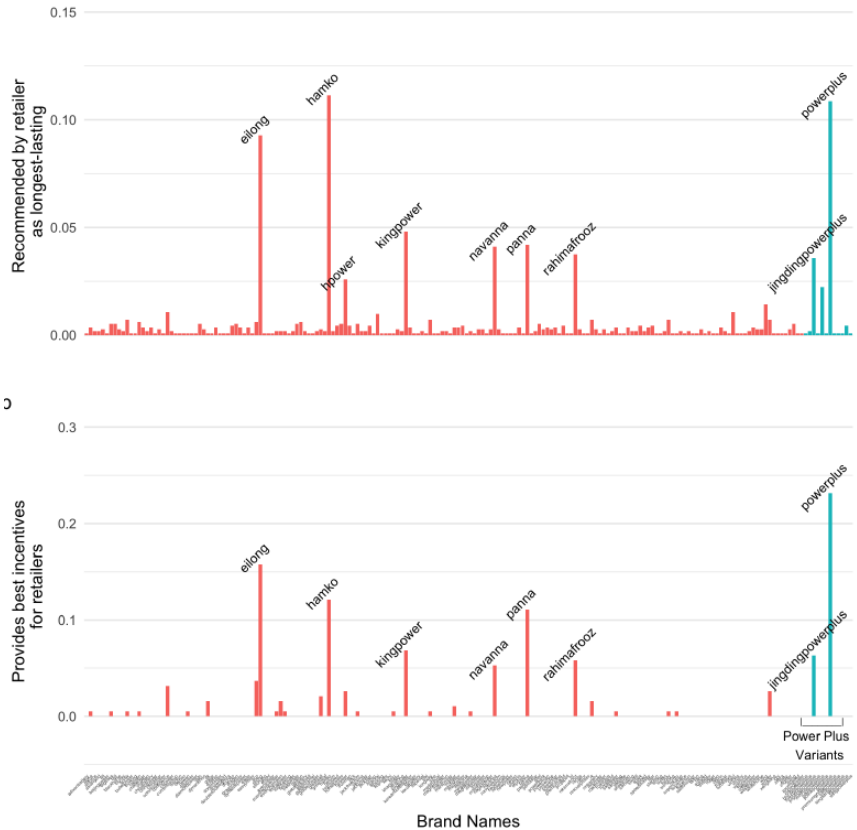
June 2026

Sharing evidence, solutions, and next steps

Evidence Generation: Mystery Shopping

Customers lack reliable information about battery life. Consumer protection and reliable battery performance information can therefore help reduce lead emissions.

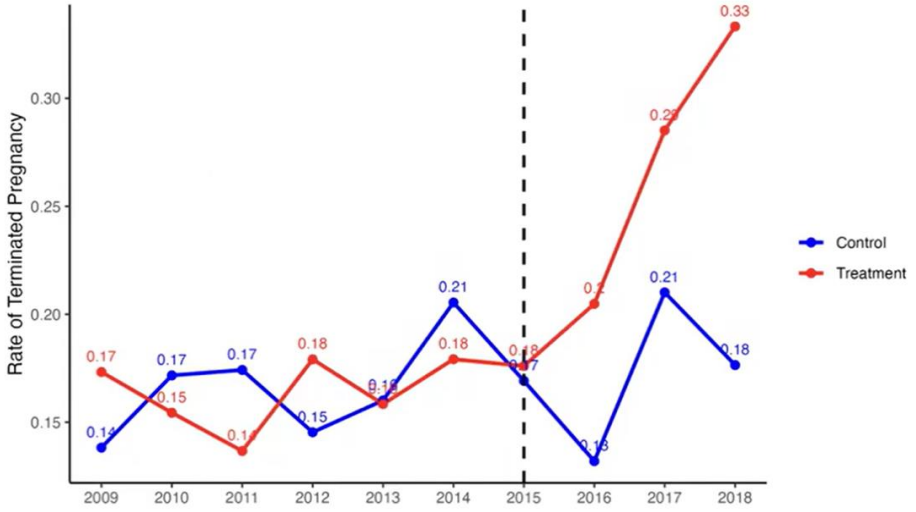
- Only **1 among 261 retailers** recommended a lead-free battery (low-quality lithium).
- **190 unique brands** are recommended as the longest-lasting battery brands.
- **80% of retailers** respond differently to different types of customers.
- **Retailers often recommend the brand that provides them the best incentive to poor customers.**
- **Predicted life differs** across retailers and customers for the same brand of battery.
- Retailers **exaggerate battery life** to poor customers and charge them more.
- Warranty is **at most 7 months**. Usually **0, 3, or 6 months.**



Evidence Generation: Terminated Pregnancy

Trade, battery quality, and recycling policy are directly linked to lead exposure and measurable maternal health risks.

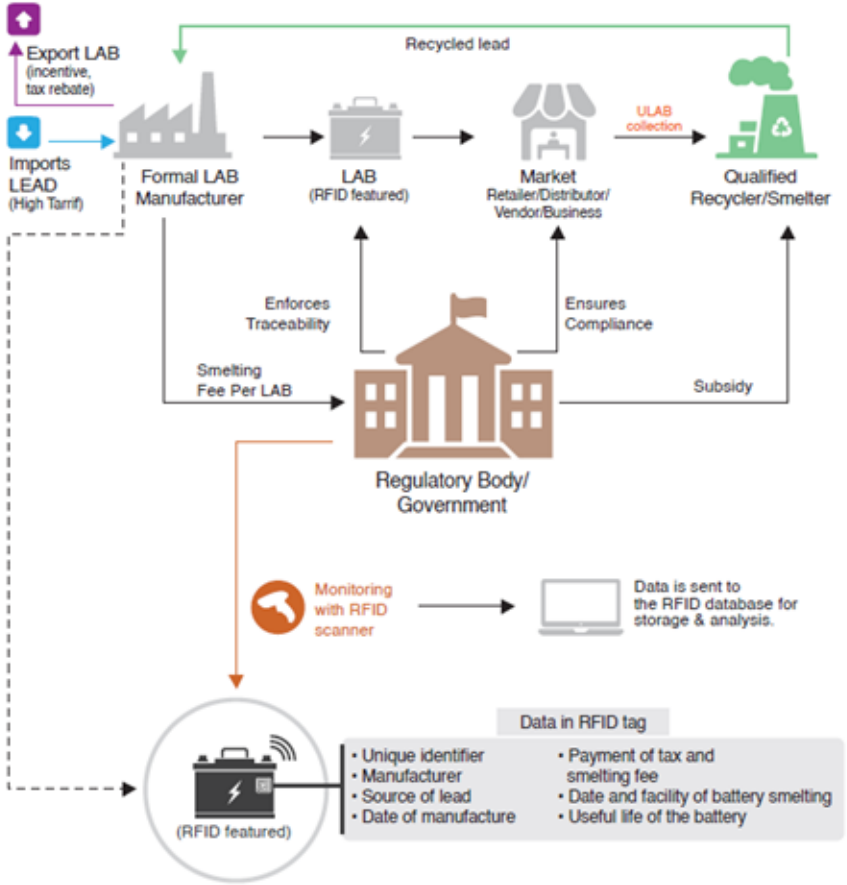
- After the **2015 battery import barrier**, imports of E3W lead-acid batteries dropped sharply, while domestic battery manufacturing and recycling increased.
- Pregnant women living **within 5 km of a battery-related lead-emitting site** experienced a **4-5 percentage point higher likelihood of terminated pregnancy** after the 2015 battery import barrier.
- Import-export data show a **steady buildup of lead in Bangladesh between 2014 and 2018**, indicating increased domestic circulation of lead through battery manufacturing and recycling.
- The study highlights that circular economy systems involving toxic materials can create **serious health risks** when regulation, enforcement, and safe recycling systems are weak.



Solutions: LAB Circular Economy

A safer circular economy depends on making formal, responsible recycling economically viable.

- **Formalize** battery-operated three-wheeler rickshaws and battery use
- **Register** vehicles, batteries, manufacturers, collectors, and recyclers
- Introduce **battery tagging and traceability** to reduce leakage into informal recycling
- Strengthen **battery quality, durability, warranty, and consumer information** standards
- Create **incentives** for qualified formal recyclers and safer smelting practices
- Use **fiscal tools** such as smelting fee / subsidy mechanisms to shift recycling toward the formal sector
- Enable **financing models** that support durable batteries and safer technology transition



Way Forward

The priority now should be coordinated implementation: safer batteries, safer recycling, and reduced lead exposure.

- Use evidence from market research, health analysis, and economic modeling to **inform policy decisions**
- **Strengthen coordination** among environmental, public health, fiscal, standards, industry, and financing sectors
- Translate the project findings and recommendations into a **Circular Economy Model Solution** for the lead-acid battery value chain
- Pilot **traceability, registration, formal collection, and incentive** mechanisms
- Improve **battery quality standards, warranty practices, and consumer protection**
- **Connect** environmental regulation with public health surveillance and response

Pure Earth
Social Channels & Contacts

For more information:
Website: www.pureearth.org
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"Together, We Can Solve Lead Pollution
Save Future Generations."

THANK YOU