PURE EARTH

SUPPORT PURE EARTH'S
Expansion in Asia

Protect children at scale in one of the world's most lead-affected regions

Pure Earth is working with governments to scale proven interventions across Asia that reduce lead exposure, strengthen public health systems, and drive long-term health and economic progress, with $10M needed to complete the expansion.

Lead Exposure in Asia: Magnitude and Impact

One billion children worldwide are estimated to have elevated blood lead levels (BLLs) of ≥5 µg/dL, with nearly half living in South Asia and a substantial share in East and Southeast Asia.[1] Lead exposure contributes to an estimated 3.5–5.5 million deaths annually—primarily from cardiovascular disease—and carries a global economic cost of approximately $6 trillion (7% of GDP).[2] Asia bears a disproportionate share of this burden due to its large population and high exposure prevalence, with nearly half of all affected children concentrated in **Bangladesh**, **India**, and **Pakistan**.[3]

- **India bears the world's highest health and economic burden of lead poisoning**, with an estimated 275 million children[4] (over 30%) having BLLs ≥5 µg/dL.[5] Studies indicate that 40–60% of children in sampled populations have elevated BLLs, reflecting widespread exposure rather than isolated hotspots.[6] Combined with its large population, this high prevalence results in the greatest total burden globally.[7]
- **Bangladesh has among the highest prevalence of lead exposure in Asia**. With a smaller population than India, findings from the 2025 national survey found that 38% of children (age 1-5) and 7.5% of pregnant women in Bangladesh have BLLs ≥5 µg/dL.[8] In Dhaka alone, 65% of children have elevated BLLs.[9] Exposure is systemic and population-wide in certain areas, as well as having large-scale food-chain contamination.[10] Bangladesh stands out globally for documented food-based exposure affecting entire populations combined with high informal industry exposure.
- **Indonesia has a high burden linked to industrial exposure**. Indonesia is a significant contributor to the global lead burden due to its large population and is among the highest-burden countries in Southeast Asia. A recent study found that 20% of children under 5 have BLLs ≥5 µg/dL, with high regional variability across the country.[11] Studies show 30–50% of children in Indonesia with elevated BLLs are in toxic hotspots, with exposure being clustered and more severe in these areas. In Indonesia, exposures are less widespread than in other countries in South Asia, but extreme in affected communities.[12] Notably, there is a clear link between industrial activity and exposure clusters, making it a priority for targeted interventions.

Key Sources of Exposure in Asia

Lead sources are everywhere. Some are obvious, such as cookware, paint, toys, water pipes, or old batteries. Others are less visible: contaminated soil, spices and cosmetics, unsafe recycling of car batteries, or dust in homes. In Asia, contaminated food and water, cookware, unregulated paints, and informal batteries are the main sources of lead exposure. Families living in poorer and marginalized communities often face the highest levels of exposure.

- **Crop and food contamination**
  Research by Pure Earth's Innovation Lab suggests that crop and food contamination could be the largest global driver of lead poisoning in Asia, expected to be predominantly driven by industrial air emissions (which can be addressed). A detailed desk review of lead sources and national diet surveys showed that food is a significant global source of lead exposure, and the key source of exposure in most Asian countries. The upstream sources of lead are not well understood and are grounds for further research; isotopic analysis is required to determine those origin sources.

- **Cookware**
  Cookware continues to be a main source of lead poisoning in the region. In India especially. In Tamil Nadu, Pure Earth successfully led the first-of-its-kind primary mapping of aluminum cookware manufacturers across **Tamil Nadu**. At the request of the Bureau of Indian Standards (BIS), mapping was undertaken to systematically identify cookware manufacturers and assess their BIS certification.[13] Of 38 districts, 20 were mapped, with 117 aluminum cookware manufacturers identified. Of identified manufacturers, 89% lacked BIS certification. The data creates a strong foundation for engagement with manufacturers for the BIS to drive manufacturer sensitization, capacity building, and adherence to set lead level standards in manufactured cookware.

- **Used Lead-Acid Batteries (ULABs)**
  Used lead-acid battery management in Asia is a critical environmental and health challenge, with a high percentage of recycling occurring in substandard and informal facilities in countries like **China**, **India**, **Indonesia**, and **Bangladesh**. These unsafe, often unregulated sites cause significant soil and water pollution, prompting initiatives to transition to environmentally sound, formal recycling practices. Informal battery recycling is a major contributor to elevated BLLs in **India**, **Pakistan**, and **Bangladesh**.[14]

- **Lead-adulterated spices—South Asia**
  Lead-adulterated spices are a significant and often overlooked source of lead exposure in South Asia, particularly for children. This refers to spices contaminated—intentionally or unintentionally—with lead compounds during processing, most commonly turmeric adulterated with lead chromate ($PbCrO_4$), a pigment used to enhance color and mask poor quality. This practice has been documented across **Bangladesh**, **India**, **Pakistan**, and **Nepal**.

Pure Earth's Reach and Progress in the Region

- **In Bangladesh**, we are working in close partnership with government agencies, including the Ministry of Environment, Forest, and Climate Change (MoEFCC). Through a tripartite MoU with the MoEFCC and the Department of Environment, Pure Earth is part of a strategic alliance to advance lead pollution prevention through 2030. Our role in Bangladesh spans from identifying sources of lead in consumer products and assessing toxic sites, to conducting health screening and building the technical capacity of the government.
- Key areas of progress have been in data collection and surveillance, as the country recently launched one of the first large-scale national surveys, including blood lead testing through a Multiple Indicator Cluster Surveys (MICS) in 2025. Progress includes an overall shift from fragmented studies to national-level evidence, enabling targeting hotspots and policy action. Through remediation efforts, we have significantly reduced lead exposure in affected communities, protecting children and future generations. We are also working closely with researchers from icddr,b, ESDO, and Georgetown University, to uncover new information about lead exposure sources, economic and market incentives, as well as policy review and revision.
- **Pure Earth Indonesia** directly supports the Government of Indonesia, including the Ministry of Environment (MoE) and the Ministry of Health, through research, technical interventions, policy recommendations, public education, and capacity building. Under the leadership of the Ministry of Human Development and Culture, a Technical Working Group is developing a National Action Plan for a Lead-Free Indonesia. This working group continues to raise awareness about lead exposure and its sources with both government and at-risk communities. Current projects include strengthening health systems within Indonesia to test blood lead levels, implement clinical practice guidelines in line with international standards, and assess lead exposure sources to reduce and prevent lead poisoning.

- **Pure Earth has been active in India** since 2006. Pure Earth and its local partners have conducted thousands of blood lead level tests of children under five years of age and pregnant women. We have also conducted risk mitigation clean-ups of legacy sites, identifying 716 contaminated sites so far. We have completed rapid screening assessments at more than 500 of these sites. Pure Earth has also conducted several risk-reduction projects across India and has engaged with the government on a variety of pollution issues including current interventions to address lead adulteration in turmeric and other spices.

- The team is working with the Government of **Maharashtra** to conduct statewide blood lead level testing and source assessment across 7 districts. Phase two of this project is to institutionalize the mitigation of lead exposure by strengthening the health system. The team is also working with the Food Safety and Standards Authority of India (FSSAI) to tackle the issue of lead in spices. At present we are working across 8 states in India, with plans to reach 10 states by the end of 2026. Including: **Bihar**, **Jharkhand**, **Tamil Nadu, Maharashtra**, **Karnataka**, **Gujarat**, **Madhya Pradesh**, **Delhi, Assam**, and **Rajasthan**.

- **In the Philippines**, the team has partnered with government and other organizations to identify and tackle toxic pollutants through assessments of contaminated sites, pilot remediations, multi-stakeholder coordination, education, and industrial process reviews since 2008. With Pure Earth's support, Valenzuela City passed an Exposure Prevention and Child Protection Ordinance and are now conducting their own blood lead surveillance and household-based assessments for lead exposure sources. To date, over 150 toxic sites have been assessed. In addition to these assessments, Pure Earth has worked in communities, where ULAB recycling is prevalent—developing healthcare capacity for lead-poisoned children and implementing remediation projects in homes, gardens, and community spaces.

In the next two years, Pure Earth will expand in the region, with plans to support the governments of **Bhutan**, **Nepal**, **Pakistan**, and **Vietnam**. With our partners, we will generate nationally representative blood lead level data, where it doesn't already exist, identify the most harmful and preventable sources of exposure, and implement targeted interventions, from regulatory reforms and safer production practices to environmental remediation.

Strategic Expansion

With funding through **The Audacious Project**, a TED initiative bringing together some of the world's most influential philanthropists to fund bold, proven solutions, Pure Earth will combat lead poisoning at an unprecedented pace. We are expanding our **5-phase approach** into over 20 low-and middle-income countries in Asia, Africa, and Latin America to protect 500 million children from lead exposure.

This expansion is built upon 25 years of field experience, working with governments, and strategic funding partnerships, including Coefficient Giving, Takeda Pharmaceuticals, Clarios Foundation, and The French Facility for Global Environment (FFEM).

Now, with anchor commitments from Bloomberg Philanthropies and the Audacious Project totaling $128M of a $154M initiative, Pure Earth is moving forward with full implementation but continuing to fundraise to close this gap. This entails "deepening" our footprint across Asia and globally in 7 geographies that have already completed blood lead level surveys and source assessments and expanding our approach into an additional 13 geographies. Also, a LEAD Hub will be designed, building a global lead data repository with the Institute for Health Metrics and Evaluation, the World Health Organization, and the Partnership for a Lead-Free Future.

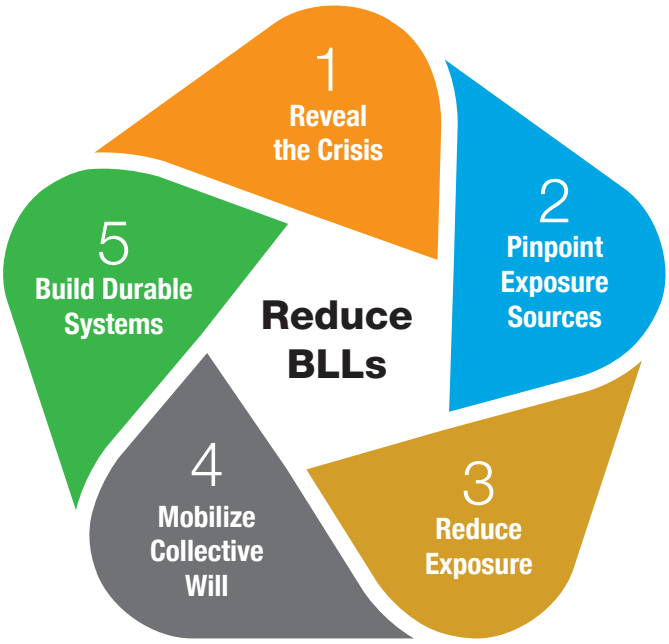
Transformational Funding Opportunity

The progress already made in Asia demonstrates that with coordinated policy action, strengthened surveillance systems, and targeted interventions, meaningful reductions in exposure are achievable. Sustained investment and government ownership will be critical to scaling these solutions, closing data and regulatory gaps, and ensuring that lead mitigation becomes an enduring component of public health systems. Without urgent and continued action, the region risks undermining gains in health, education, and economic development.

With substantial commitments already secured, we are now seeking to close the remaining $26 million funding gap, with a request of $10 million to support our programming in Asia. This additional support will allow us to further expand throughout the region and work toward a Lead-Free Asia. All contributions will be multiplied many times over; every dollar contributed will be matched 5X over through **The Audacious Project**.

INVESTMENT: 2026–2033	$154M TOTAL PROGRAM	$128M* SECURED	$26M GAP

*Anchor Funding Commitments: Bloomberg Philanthropies and the Audacious Project



Our Commitment to Impact and Sustainability

We integrate lead mitigation into national health and regulatory systems so that countries can sustain impact long after our support ends. We exit when governments and local partners can sustain progress, indicated by: BLL decline, with at least a 20% reduction; national systems are in place to monitor, prevent, and clinically respond to lead poisoning; governments allocate sustained funding and coordinate action across sectors; and when enforceable standards limit lead in consumer products and the environment. This approach ensures lasting health gains, stronger maternal and child outcomes, and scalable impact.

END NOTES

1. UNICEF & Pure Earth (2020). **The Toxic Truth**.
2. World Bank. (2023). **A World Without Lead: Paving the Path to a Healthy, Productive Future**. *Larsen, B., & Sánchez-Triana, E.* (2023). Global economic costs of lead exposure (World Bank analysis). GBD 2019 Risk Factors Collaborators / The Lancet Planetary Health (2023). Estimates of mortality attributable to lead exposure.
3. UNICEF & Pure Earth (2020); **UNICEF regional summaries**.
4. Global Burden of Disease Study 2023 (GBD 2023); **Lead Exposure Estimates 1990–2023**. Seattle, United States: Institute for Health Metrics and Evaluation (IHME).
5. Ibid
6. Rakesh Kumar et al., 2022 **Assessment of Lead Impact on Human and India's Response**. 2022.
7. CSIR–NITI Aayog. (2022). **Assessment of Lead Impact on Human and India's Response.**
8. Bangladesh Bureau of Statistics (BBS) & UNICEF (2025). **Bangladesh Multiple Indicator Cluster Survey 2025:** Preliminary Report.
9. Ibid
10. **Forsyth et al.** (2019), **The Toxic Truth**; *Environmental Research*; Pure Earth field studies
11. Forthcoming: **Lead Exposure in Indonesia, Results of the National Household Lead Survey** (World Bank 2026).
12. **World Health Organization; Pure Earth program data; World Bank (2021)**
13. Which is their license to produce aluminum cookware as per set lead level standards, as well as their commitment to factory inspections and sample testing, and adherence to strict production quality control measures.
14. **Ericson et al.** (2016); WHO

EXPANDING PURE EARTH'S
5-Phase Approach:

1. **Reveal the Crisis** by implementing nationally representative BLL surveys revealing the true prevalence, severity, and distribution of exposure.
2. **Pinpoint Exposure Sources** by conducting in-depth exposure source assessments to understand how people are getting poisoned.
3. **Reduce Exposure** by targeting mitigation efforts on the most critical sources of exposure.
4. **Mobilize Collective Will** by educating communities, policymakers, peer organizations, and funders on the health and economic toll of lead; and
5. **Build Durable Systems** by embedding policies and practices into routine government operations, including national BLL monitoring, training health workers, and strengthening enforcement capacity, to ensure sustained reduction of lead exposure over time.

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