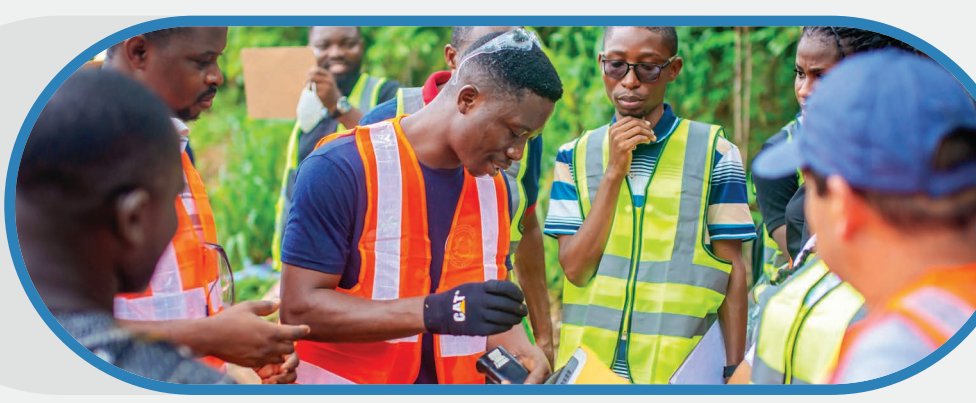
END CHILDHOOD LEAD POISONING

PARTNERSHIP FOR A LEAD-FREE FUTURE

# Mobilizing to End Childhood Lead Poisoning

## Year 1 Progress Update



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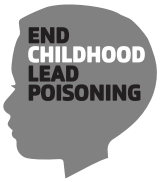


PARTNERSHIP FOR
A LEAD-FREE FUTURE

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## Year 1 Progress Update

# Acknowledgements

This report was produced by the Partnership for a Lead-Free Future (PLF) Secretariat, housed at UNICEF. The accomplishments presented here reflect the collective efforts of PLF partners, as well as contributions from governments and organizations around the world.

The report was drafted and compiled by Amy Cotter, with valuable input and expertise from Abheet Solomon at UNICEF. Many sections were contributed directly by partners, and we are deeply grateful to all those who shared their knowledge, experiences and insights in support of this work.

## Disclaimer

The statements in this report should not be taken as representing the official position or policies of UNICEF or any of the organizations that have contributed. Many inputs were submitted by partners and are presented on their behalf; they do not necessarily reflect the perspective of UNICEF.

The map in this document does not reflect a position on the legal status of any country or territory or the delimitation of any frontiers.

Suggestions and comments are welcome and may be sent to leadfreefuture@unicef.org.

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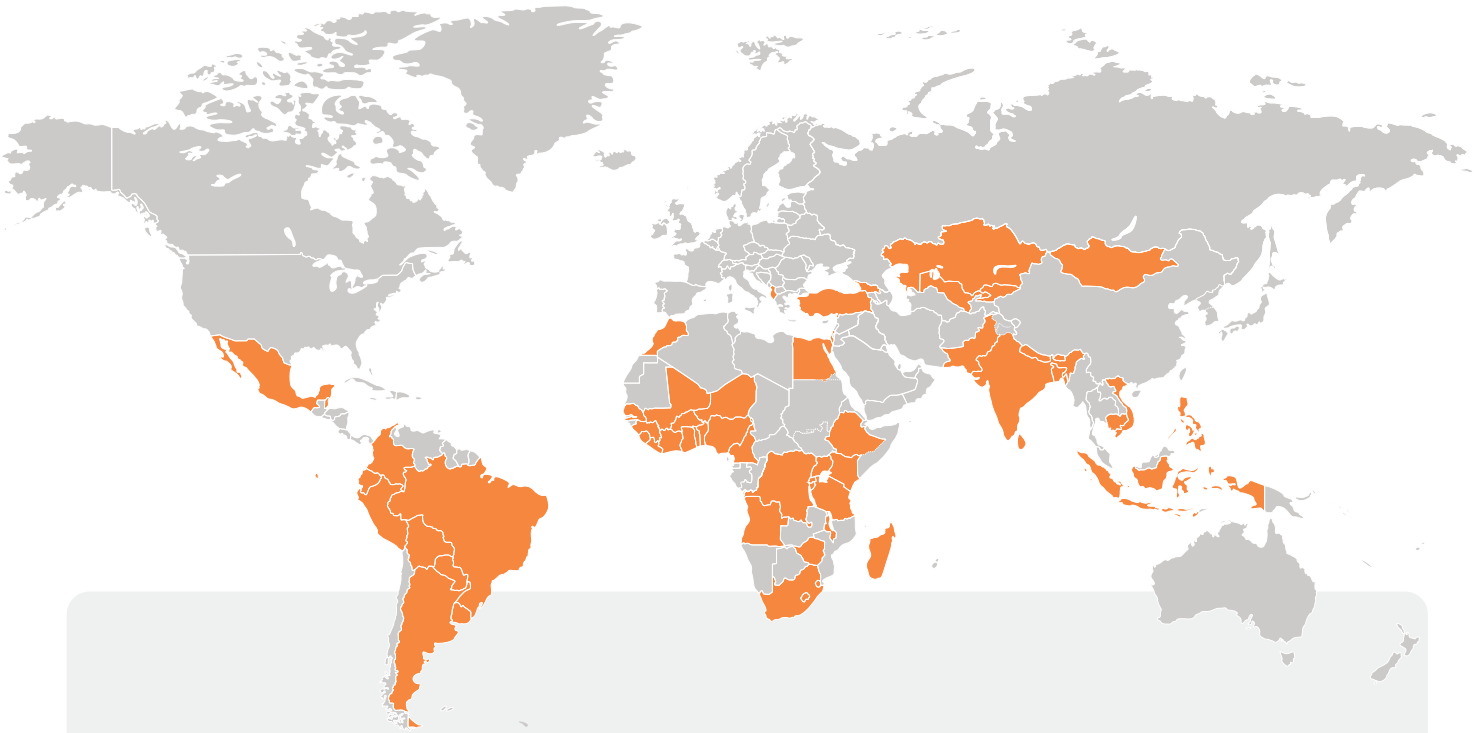
# Contents

# Executive summary

**In its first year, the Partnership for a Lead-Free Future (PLF) has established a strong foundation for coordinated global action to end childhood lead poisoning.** Governments have increased their focus on this preventable and tractable issue, while partners have expanded the evidence base through national blood lead surveys, environmental assessments, and research. The PLF has also grown to include additional governments, multilateral organizations, civil society groups, and philanthropic actors, broadening both its expertise and reach.

This progress has been supported by the PLF Secretariat, housed at UNICEF, which has focused on building knowledge, connecting partners, and catalysing action. Key outputs include the launch of leadfreefuture.org as a global knowledge hub, the first comprehensive map of lead-related activities worldwide, and continued development of the Toolkit to End Childhood Lead Poisoning. Regular convenings and technical exchanges have further strengthened collaboration, while new staff and governance structures ensure technical excellence and oversight.

Momentum in ending childhood lead poisoning is accelerating. More programmes are being launched across regions, and in the coming year more countries are expected to release data, strengthen policies and regulations, and make tangible progress in protecting children. Expanding research is generating evidence to guide these efforts, while global commitments and advocacy – such as the forthcoming global action plan on lead mitigation requested by the World Health Assembly – are reinforcing progress. Together, PLF partners are driving this work forward, building momentum toward a lead-free future for every child.



For the first time ever, the Partnership for a Lead-Free Future has mapped where lead activities are happening around the world. PLF partners are working in more than 55 countries to end childhood lead poisoning. View the map, and the projects, on leadfreefuture.org

# Letter from the Director of the PLF Secretariat

I am honoured to join the Partnership for a Lead-Free Future at such a critical moment as the incoming Director of the Secretariat. Childhood lead exposure is one of the most urgent and solvable challenges of our time. One in three children globally still has unhealthy levels of lead in their blood, undermining potential and causing lifelong damage. For children, the risks are everywhere – from toys and food items to household dust – and the impacts are irreversible: lost IQ, learning and earning potential, and lifelong health impacts.

And yet, we are not starting from scratch. Over the past year, we have seen a surge of momentum. Investments in preventing lead poisoning have increased tenfold since the launch of the PLF, new governments and organizations have joined the PLF, and global institutions are stepping up with stronger commitments and resolutions. From my years working across Africa, the Middle East, and most recently Pakistan, I know that global challenges must be met with local solutions. The Secretariat's role is to bring these pieces together – leveraging UNICEF's global reach, programmes and convening power while combining the skills, knowledge and expertise of our partners – so that countries have the support they need to end childhood lead poisoning by 2040.

This report highlights how progress is accelerating on multiple fronts. At the country level, governments are releasing new blood lead data – including national surveys from Bhutan, Bangladesh and Kyrgyzstan – while environmental surveillance efforts are informing stronger policies. At the global level, momentum has grown through milestones such as the World Health Assembly's landmark resolution committing to a shared vision for a lead-free world and the first coordinated steps towards a global action plan. Meanwhile, the research and academic community has advanced our understanding through the First Annual Research Conference on Global Lead Exposure and new findings on sources and solutions. These are just a few examples of the energy and leadership driving progress – you will find many more throughout this report.

Over the past year, the Secretariat has worked to strengthen collaboration and accelerate progress across the Partnership. We launched a new website featuring the first-ever global map of lead work – an invaluable tool for governments and advocates alike. Through dozens of webinars, country calls and partner exchanges, we have created spaces to share knowledge, align strategies and elevate promising practices. And with strong input from partners, we continue to develop the Toolkit to End Childhood Lead Poisoning, with four new technical tools, and many more in the pipeline, to help countries act faster and smarter.

The reality is clear: lead exposure is not a niche or vertical issue. It cuts across health, education, equity and climate resilience. At a time when there is much conversation as to how to invest in development goals and drive cost-effective outcomes, addressing lead stands out as one of the smartest, highest-value investments we can make.

I invite you to read this report with a sense of accomplishment. It is a reflection of your leadership, commitment and collaboration. Together, we are proving that ending childhood lead poisoning is not only necessary – it is achievable.

**Abdullah Fadil**
Partnership for a Lead-Free Future,
Secretariat Director

# Updates from the Secretariat

Over the past year, the Secretariat has worked to deliver on its core objectives: **building a central hub of knowledge and tools; strengthening connections across the Partnership; and catalysing action** to accelerate progress towards a world free of lead exposure.

## Building knowledge

The Secretariat is expanding a knowledge and resource hub to support country-led efforts, providing data, tools and evidence to guide action.

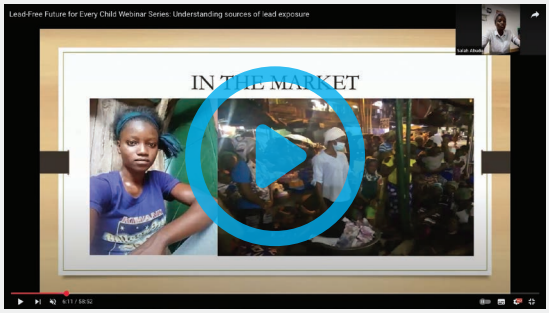
- **Launched leadfreefuture.org** as the central hub for information, featuring resources such as Bhutan's national blood lead survey, stories about issues like prenatal exposure in Ghana, and technical guidance from partners on topics including safe handling of used lead-acid batteries (ULABs, also known as waste lead-acid batteries).
- **First-ever global map** created, showing lead programmes worldwide overlaid with the latest Institute for Health Metrics and Evaluation (IHME) burden of disease data on blood lead levels and IQ loss. This tool supports government planning, enhances partner coordination and provides a new platform for advocacy.
- **Toolkit to End Childhood Lead Poisoning** launched as a practical resource to help countries build national capacity and act on lead exposure. Four tools have already been published – covering topics from assessing environmental exposure to providing clear public communication – developed collaboratively with input from 14 partners. The Toolkit combines global guidance, case studies and best practices, and is a resource for governments tackling lead. Each tool launch has been accompanied by associated webinars, featuring case studies and speakers from across nine countries, providing opportunities for knowledge exchange and practical insights to support implementation (see the Toolkit overview for further detail).

## Toolkit to End Childhood Lead Poisoning overview

View these tools, and future tools online:
https://www.leadfreefuture.org/toolkit/toolkit-end-childhood-lead-poisoning

### Tool 1: Understanding childhood lead poisoning levels and sources

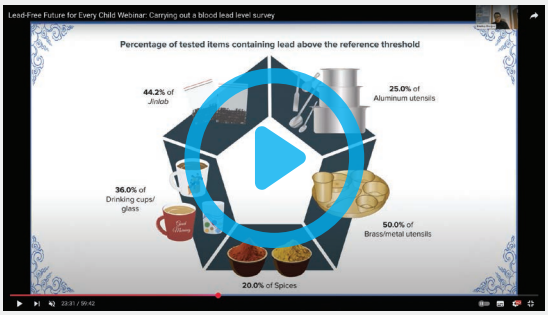
Introduces key concepts for assessing and mitigating childhood lead poisoning, with guidance on basic source mapping and institutional capacity.




Watch webinar
https://youtu.be/rlXINZwQuWo

### Tool 3: Assessing environmental lead exposure in resource-constrained settings

Outlines core concepts for conducting lead risk assessments where resources are limited, with suggested actions and considerations.




Watch webinar
https://youtu.be/9QXC7MBjEGI

### Tool 4: Developing a country strategy and action plan for a lead-free future for every child

Provides steps for governments to design multi-stakeholder strategies to eliminate childhood lead poisoning by 2040.


Watch webinar
https://youtu.be/SFqWBTtB6y4

### Tool 5: Clear communication to prevent and address childhood lead poisoning

Offers communication strategies tailored to policymakers, caregivers and the private sector, with real-world case examples.


Watch webinar
https://youtu.be/m1G7F1UY2HQ

## Connecting partners

The Secretariat supports coordinated action by strengthening networks, mobilizing new partners and creating platforms to share lessons.

- **Quarterly partner and country calls** have high attendance and are designed to drive conversation between and with country governments. Agendas include the sharing of new resources, updates on global developments such as the World Health Assembly resolution, and country presentations on best practices. Recent calls featured contributions from Bhutan, Ethiopia, Indonesia, Kenya, Malawi, Mali, the Philippines and Viet Nam.
- **PLF membership** has expanded to include additional governments, non-governmental organizations (NGOs) and philanthropic organizations. This growth increases the Partnership's influence and strengthens its collective expertise. Since the PLF launched, 9 additional governments have joined the Partnership, along with 11 new non-governmental members.

## Catalysing collective action

The Secretariat fosters collective action to close implementation gaps, align efforts and drive progress towards the shared goal to end childhood lead poisoning by 2040.

- **Implementing Partners Coordination Forum** launched to regularly bring together implementing partners to identify implementation gaps, coordinate global programming and share solutions across contexts.
- **Development of a road map** is underway to articulate how to achieve the 2040 goal, with interim targets that will align partners, clarify milestones and drive coordinated progress.

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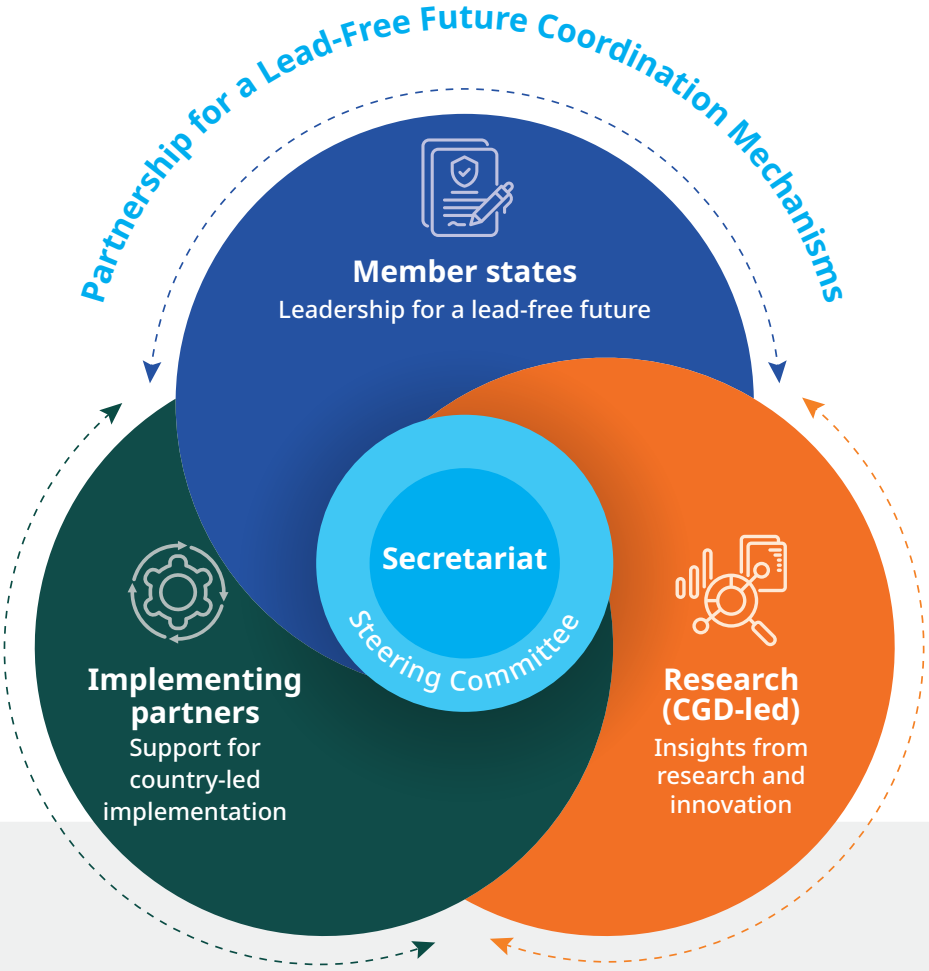
## Establishment of the Secretariat

In order to support this progress, the Secretariat has also focused on establishing a strong foundation for its own operations.

- **Steering Committee** convened regularly throughout the year to provide oversight, ensure strategic alignment with the PLF vision and strengthen collaboration among partners.
- **Governance structure** finalized to clarify roles, responsibilities and decision-making processes across the partnership.
- **New Director, Abdullah Fadil, appointed**, alongside the recruitment of leading technical experts on lead, bringing renewed leadership, expertise, and momentum to the Secretariat.




The PLF Secretariat, housed at UNICEF, brings together partners working to end childhood lead poisoning, serving as the central hub for coordination and collaboration. It is guided by a Steering Committee of multilateral organizations and key donors that provides oversight and strategic direction. Engagement is structured across three pillars – countries, research and implementation – ensuring diverse perspectives, evidence and local priorities are integrated into collective strategies and action.

# Progress and impact around the world

## Eastern and Southern Africa

© UNICEF/UNI729074/UNICEF Malawi

### Burundi

Burundi's Ministry of Commerce, Transport, Industry and Tourism has signed and gazetted a mandatory standard on lead paint. This followed a paint study conducted by the Burundi Bureau of Standards, the Ministry of Environment, Agriculture and Livestock, and the Lead Exposure Elimination Project (LEEP). The standard harmonizes with those of the East African Community, strengthening regional efforts to promote public health and children's futures.

*Submitted by LEEP*

### Malawi

In Malawi, the market share of manufacturers producing lead paint has dropped dramatically, from approximately 89 per cent in 2021 to 35 per cent in 2024. The remaining manufacturers are expected to be lead free by the end of 2025. This follows the Malawi Bureau of Standards' commitment to upholding their mandatory standard, efforts to increase local testing capacity and LEEP's industry outreach.

*Submitted by LEEP*

With UNICEF support, the Ministry of Health has built the capacity of environmental health officers in all districts and 4 central hospitals to create awareness on how to prevent environmental health exposure, including lead, as well as identify exposures and offer remedial solutions to environmental health concerns. This work strengthens Malawi's ability to address the long-term health, developmental and environmental impacts associated with lead.

*Submitted by UNICEF*

UNICEF is working with researchers at the Malawi University of Business and Applied Sciences to assess the extent of environmental exposures – including lead poisoning – affecting child health in selected districts in the country. The study is at its preliminary stage, and the results will be used to inform policies and future investments in lead mitigation.

*Submitted by UNICEF*

### Uganda

In Uganda, the International Association of Plumbing and Mechanical Officials (IAPMO) supported the University of North Carolina Water Institute in working with the Ministry of Water and Environment to develop and implement the country's first national strategy to eliminate lead in drinking water – setting the stage for nationwide prevention and safer water supplies.

*Submitted by IAPMO*

# West and Central Africa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## Cameroon

Occupational Knowledge International worked with partners in Cameroon to test soil for lead contamination in and around the licensed lead battery recycling facilities in the port city of Douala. The results have indicated significant contamination at these sites. After the negative publicity and lots of pushback from the owner, the largest recycling plant agreed to close their facility and install pollution control equipment.

*Submitted by Occupational Knowledge International*

## Ghana

A national survey on lead and other heavy metal contamination in consumer products revealed alarming lead levels in the consumer items. The findings are guiding the Ghana Food and Drugs Authority to institute new regulatory and surveillance measures on consumer products to protect the public from food- and cosmetic-related lead poisoning.

*Submitted by UNICEF*

As part of advocacy on the harmful effects of lead poisoning, UNICEF developed over 10 multimedia products – including videos, written stories, social media cards and a Q&A – reaching more than 4 million people across digital platforms. These materials, covering topics such as lead exposure from white baked clay, the hidden dangers of kohl eyeliner, and a lead explainer video, sparked significant community engagement, contributed to a global call on risk communication to protect children from lead exposure, and were featured on leadfreefuture.org.

*Submitted by UNICEF*

The National Lead Technical Working Group was launched in Ghana to bring together stakeholders to make progress in reducing lead poisoning, hosted by Pure Earth.

*Submitted by UNICEF*

Pure Earth advanced its work in Ghana by conducting lead exposure assessments in 13 schools and testing 84 consumer products – primarily cookware and food – for lead contamination. The Coalition Against Lead Pollution continued to engage stakeholders and raise awareness in the most affected areas of Greater Accra in terms of ULAB informal management. An important milestone was the remediation of the legacy Bremang site in the Ashanti Region, led by the Suame Municipal Assembly with support from Pure Earth and the Environmental Protection Authority. Additionally, at the beginning of 2024, Pure Earth, the Ghana Health Service and the Center for Global Development started preparations for a randomized control trial in the Northern Region to evaluate the effectiveness of the cosmetics and cookware items-exchange programmes.

*Submitted by Pure Earth*

In Ghana, IAPMO supported the University of North Carolina Water Institute in completing the first national assessment of lead in rural drinking water systems, demonstrating that targeted supply chain changes can fully eliminate lead-containing parts, pipes and components.

*Submitted by IAPMO*

## Liberia

Liberia passed its lead paint regulations following work by the Environmental Protection Agency and the National Public Health Institute of Liberia, with support from LEEP. The regulations are in line with global best practices and will prevent lead exposure in homes, schools and other buildings for decades to come.

*Submitted by LEEP*

## Mali

With support from UNICEF and the World Health Organization (WHO), the Ministry of Public Health and Hygiene has mapped sites containing ULABs to guide future clean-up and regulatory actions. While potential risk sites have been visited, further analysis of environmental samples (i.e., water and soil) and biological samples is needed to assess the severity of contamination and inform treatment and management strategies.

*Submitted by Ministry of Public Health and Hygiene, Mali*

## Nigeria

A cooperation project on upgrading the ULAB recycling sector in Nigeria was completed. The ProBaMet project entailed systematic status-quo analysis, trainings, benchmark setting and outreach to regional and international stakeholders. Nigerian regulators and plant managers are now equipped with skills and materials to assess and improve ULAB recycling plants. Moreover, approximately 80 battery-using enterprises and international lead buyers committed to disposing of batteries and buying lead from best performing entities.

*Submitted by Oeko-Institut e.V.*

Legally-binding lead paint regulation was signed and gazetted in Nigeria. This followed awareness-raising carried out by Sustainable Research and Action for Environmental Development and funded by LEEP, as well as work by the National Environmental Standards and Regulations Enforcement Agency, the Standards Organisation of Nigeria and other government entities. This regulation will help protect Nigeria's population of over 230 million people from toxic exposure from new paint.

*Submitted by LEEP*

## Sierra Leone

Sierra Leone passed nationwide lead paint regulations, setting a maximum of 90 parts per million (ppm) in line with WHO recommendations. This marks the culmination of three years of collaborative work by the Environment Protection Agency of Sierra Leone, the Ministry of Environment and Climate Change, the Ministry of Trade and Industry, the Sierra Leone Standards Bureau, the National Public Health Agency, LEEP and the legal team of the Global Alliance to Eliminate Lead Paint.

*Submitted by the Ministry of Health and LEEP*

## Togo

An assessment of the level of exposure to environmental pollutants (i.e., lead, mercury, pesticides, and electrical and electronic waste) and their impacts on children is underway. This assessment focuses on analysing the main hazard factors and risks of heavy metal poisoning, highlighting their consequences to the health of children in Togo. The study will also help identify policy priorities in environmental health through strengthening evidence and coordinating partners.

*Submitted by Ministry of Environment, Togo*

The Ministry of Environment is undertaking an effort to raise awareness among workers and staff at battery recycling plants. This activity helps to show people the impacts and dangers of lead contamination and encourage decision makers to take the necessary measures to protect the population from lead poisoning.

*Submitted by Ministry of Environment, Togo*

## Economic Community of West African States (ECOWAS)

With financial support from the European Union, the United Nations Environment Programme (UNEP) is currently implementing a project to address lead and endocrine disrupting chemicals as part of its broader initiative entitled Chemicals, Environment, and Health: Accelerating Transition Towards a Toxic-Free Planet. The project aims to develop and pilot a package of technical support and response measures in selected ECOWAS countries to prevent or mitigate risks linked to lead – including from ULABs – throughout its life cycle.

*Submitted by UNEP*

# Europe and Central Asia


## Georgia

In Spring 2024, Georgia completed the pilot of its lead surveillance programme, launched in late 2023 in the Adjara and Imereti regions to collect regionally representative data. Blood test results showed a significant drop in lead prevalence since 2018 – from 85 per cent to around 20 per cent in Adjara and from 61 per cent to around 20 per cent in Imereti. Environmental sample analysis indicated that water is not a likely source of lead exposure, though further investigation is needed to identify and address the main sources.

*Submitted by UNICEF*

At the end of 2024 and beginning of 2025, the Lead Surveillance System was expanded to a third region – Tbilisi, the capital of Georgia. While the analysis of the environmental and household samples is underway, the results of the blood tests in the three regions confirmed the declining trend in lead poisoning. The results also showed, however, that lead exposure remains a problem in the country and further rigorous investigation of the sources is vital.

*Submitted by UNICEF*

In August 2025, the third round of lead surveillance was launched to cover three new regions (making six in total) covering more than half of the country, with the aim to expand it nationally next year. The current round will generate more data to inform policies and interventions to eliminate lead exposure in children.

*Submitted by UNICEF*

## Ireland

Over the course of the past 12 months, the Government of Ireland has prepared and shared an internal briefing paper on the harmful effects of lead poisoning with suggestions around the type of measures that can be taken to prevent and treat exposure. An online seminar was held to discuss the briefing paper with our network of health advisers, and towards the end of this year the Government will be seeking specific updates on any actions or discussions that have taken place locally which may serve as relevant updates to the discussion.

*Submitted by Department of Foreign Affairs and Trade, Ireland*

## Kyrgyzstan

As part of the Strengthening Health Systems to Reduce Lead Exposure programme, Kyrgyzstan completed the country's first-ever national blood lead survey, testing 1,103 children and conducting 188 home-based assessments, utilizing an X-ray fluorescence (XRF) analyser and 6 portable blood lead level analysers provided by Pure Earth. Investigations in schools, markets and homes revealed that lead-based paint remains one of the most important sources of exposure, with concentrations reaching up to 202 times the established safe limits. Pure Earth and the Ministry of Health are developing a clinical manual on lead poisoning and establishing the country's first national reference lab for heavy metals testing, including the installation of inductively coupled plasma mass spectrometry (ICP-MS) equipment. Related communications efforts received national media coverage and social media impact and were accompanied by well-received educational campaigns in schools and health centres.

*Submitted by Pure Earth*

# Middle East and North Africa


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## Egypt

Phase 2 of the Protection of Women and Children from Impacts of Lead Poisoning project was launched in Egypt by the Coptic Evangelical Organization for Social Services' Local Development Unit in partnership with Pure Earth, bringing together 70 experts, officials and stakeholders to advance efforts on medical surveys, community workshops and sustainable lead reduction policies.

*Submitted by Pure Earth*


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# South Asia


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## Bangladesh

In Bangladesh, the 2025 Multiple Indicator Cluster Survey (MICS) included for the first time nationwide blood heavy metal and anaemia testing. With support from UNICEF, the Bangladesh Bureau of Statistics collected blood samples from 11,594 children and 2,099 pregnant women, along with 11,529 soil samples and geographic information system (GIS) coordinates for hotspot mapping. The initiative will help identify contamination sources through home-based assessments and market surveys, guiding targeted environmental health actions by relevant Government authorities.

*Submitted by UNICEF*

In Bangladesh, a multisectoral steering committee was established under the Ministry of Environment, Forest and Climate Change. Bringing together eight ministries, nine departments, private business associations, development partners and NGOs, the platform is helping coordination and collaboration efforts towards achieving a lead-free Bangladesh. This platform has become a central hub for knowledge and experience sharing among government, private sector and development partners. It facilitates coordinated efforts and joint actions to address lead contamination nationwide. Notably, it has guided the development of the Strategy for a Lead-Free Bangladesh and the accompanying Multi-Year Plan of Action (2025–2035) to achieve a lead-free Bangladesh.

*Submitted by UNICEF*

During International Lead Poisoning Prevention Week 2024, UNICEF led a nationwide campaign in Bangladesh, mobilizing over 1,700 youth across 34 districts through rallies, policy dialogues and a national youth exhibition with policymakers. The campaign helped to train 2,123 schoolchildren, engaged 623 secondary students in debate competitions, involved 1,308 local influencers and reached more than 40,000 children and youth, strengthening advocacy, raising awareness and fostering youth's action towards a lead-free Bangladesh.

*Submitted by UNICEF*

With UNICEF's technical support and leadership from the Ministry of Environment, Forest and Climate Change, a national advocacy workshop brought together 282 stakeholders from 16 government agencies, universities, NGOs and international organizations to tackle childhood lead and heavy metal exposure. The workshop highlighted the inclusion of blood lead and heavy metal testing in MICS 2025, leading to consensus on priority exposure sources, a standardized assessment approach and an action plan for source identification. As a result, the collaboration informed the MICS 2025 follow-up strategy by developing a draft source identification protocol and communication guideline, strengthening multisectoral coordination and laying the foundation for a comprehensive national response to environmental health threats.

*Submitted by UNICEF*

## Bhutan

The first-ever National Blood Lead Level Survey in Bhutan 2024 has revealed concerning levels of lead exposure among children, highlighting a significant public health risk. Seventy-five per cent of children tested and more than half (58.9 per cent) of pregnant women had a blood lead level of 3.5 micrograms per deciliter or higher. Lead poisoning was found across all districts, in both rural and urban areas and households of all income levels. The findings provide critical evidence to guide the development of Bhutan's National Lead Prevention Strategy and prompt urgent action to eliminate environmental sources of lead. For full survey results, see https://moh.gov.bt/wp-content/uploads/2025/02/National-Blood-Lead-Level-Survey.pdf.

*Submitted by UNICEF*

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## India

A study by Pahlé India Foundation in Meghalaya is assessing blood lead and haemoglobin levels in children (1–6 years) and their mothers across all districts, in coordination with the Health and Family Welfare Department and Meghalaya Early Childhood Development Mission. The initiative aims to determine the extent of lead exposure in a region with potential environmental risks, with findings expected to inform evidence-based policies and targeted interventions. The research will also examine links between lead exposure and health concerns such as anaemia, and will be followed by an environmental assessment to identify lead sources.

*Submitted by Pahlé India Foundation*

A multicentric study led by the All India Institute of Medical Sciences and Pahlé India Foundation is assessing blood lead levels in children across seven states in India to understand the prevalence and impact of lead exposure on cognitive and mental health. This is vital as India lacks standardized, large-scale data on paediatric lead exposure, despite its known links to reduced IQ, behavioural disorders and long-term health risks. The findings will support the development of national surveillance systems and evidence-based policy to mitigate lead exposure in children.

*Submitted by Pahlé India Foundation*

The Directorate General of Health Services, Government of India, has mandated the establishment of a National Reference Laboratory to standardize the blood lead reference value, with Pahlé India Foundation as the technical partner. This is a crucial step to ensure uniformity and accuracy in blood lead level testing across the country. It will enhance national surveillance systems, guide clinical interventions and inform regulatory standards to reduce lead exposure.

*Submitted by Pahlé India Foundation*

In Bihar, through a partnership with Pure Earth and the Mahavir Cancer Institute and Research Centre, statewide blood lead testing and risk factor screening were completed among young children and pregnant women. Findings have been disseminated to government partners to help establish baseline blood lead levels and identify risk factors of lead exposure among children and pregnant women.

*Submitted by Vital Strategies*

In Tamil Nadu, the Sri Ramachandra Institute of Higher Education and Research, Vital Strategies and Pure Earth – with approval and oversight from the Department of Health and Family Welfare – tested 769 children and pregnant women for blood lead levels and conducted 55 household assessments. In Maharashtra, the team donated six LeadCare II analysers and testing kits to local health authorities and launched extensive training programmes. With the leadership of the Maharashtra Public Health Department and through partnership with Vital Strategies, over 100 health-care workers were trained, and efforts began to conduct blood lead tests among children and integrate this data into the existing information system. A broader scale of training for health professionals is also under development.

*Submitted by Pure Earth*

# East Asia and the Pacific


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## Cambodia

A national sub decree was passed to establish regulations to control and reduce the amount of lead in paint products manufactured, imported, distributed and sold in Cambodia in order to protect human health and the environment, particularly focusing on the health of children, who are most vulnerable to lead exposure. The measure establishes a national standard (90 ppm) that aligns with international health protection norms.

*Submitted by Ministry of Health, Cambodia*

UNEP is supporting the Ministry of Environment of the Royal Government of Cambodia to conduct rapid market surveys for paints and toys, enact national lead paint legislation and prepare a baseline assessment of ULAB management at national level.

*Submitted by UNEP*

## Indonesia

UNICEF has supported the Government of Indonesia in launching its first National Guideline on Clinical Management of Lead Poisoning for children and pregnant women, in collaboration with WHO. UNICEF supported the development of a risk-based training module, which is now embedded in the national training system. UNICEF will support a nationwide Training of Trainers programme for ministry officials, paving the way for scale-up. This lays the foundation for institutionalizing lead poisoning management across health systems, and improving early detection, treatment and surveillance that can protect future generations from the harmful effects of lead exposure.

*Submitted by UNICEF*

After months of extensive preparation, the first phase of a blood lead surveillance pilot in Indonesia – part of the Strengthening Health Systems to Reduce Lead Exposure project – has officially begun. The pilot, initiated by Yayasan Pure Earth Indonesia and Vital Strategies in collaboration with the Ministry of Health and the National Research and Innovation Agency (BRIN), is collecting and integrating data into the SIKELIM national health platform on the prevalence of blood lead levels in Indonesian children. To date, blood lead level tests have been collected for over 1,100 children aged 12 to 59 months, across 12 locations in Indonesia; 175 household assessments have been completed in six regions; over 60 health-care workers have been trained; and donations of four LeadCare II analysers have been coordinated with BRIN and the Ministry of Health, strengthening national laboratory capacity. Yayasan Pure Earth Indonesia has developed and deployed information, education and communication materials, co-led awareness campaigns with the Ministry of Health, and collected video footage and interviews to produce a suite of educational videos for national dissemination throughout 2025.

*Submitted by Pure Earth*


© Vital Strategies

Researchers at Yayasan Pure Earth Indonesia examined lead contamination in metallic cookware used in educational institutions, analysing 43 samples from 11 foster homes in the Special Capital Region of Jakarta and West Java. Over half (51 per cent) contained lead above 100 ppm, and two thirds of tested samples showed leachable lead above 0.01 ppm. A supply chain investigation across 12 locations in Jakarta, Central Java and West Java found that 60 per cent of cookware originated from informal sources and 40 per cent from formal ones, with aluminium sourced from both bauxite mining and recycled scrap metal. A policy review revealed the absence of regulations setting lead content standards for metallic cookware.

*Submitted by Pure Earth*

The preparation of the National Guidelines for Medical Services is underway in collaboration with professional organizations, including the Indonesian Medical Association, the Indonesian Paediatric Association and other experts. In May 2025, the National Guidelines for Clinical, Community and Environmental Management of Lead Exposure in Children and Pregnant Women were introduced to the public.

*Submitted by Ministry of Health, Indonesia*


## Philippines

In the Philippines, Pure Earth and the Valenzuela city government piloted a blood lead level screening programme in September 2024, initially focusing on children with disabilities. It was the first city-led blood lead level screening in the country and was built upon the first inclusion of blood lead levels in the Philippines' Expanded National Nutrition Survey in 2021. It is expected to be institutionalized as a policy and programme of the city, a model that other localities can replicate in addressing childhood lead exposures.

*Submitted by Pure Earth*

In the Philippines, the Inter-Agency Committee on Environmental Health (IACEH) is working to establish a technical working group to address lead exposure among children and pregnant women. On 16 May 2025, the Department of Health convened an inter-agency meeting of the IACEH, where the Partnership for a Lead-Free Future initiative was discussed. The IACEH is a multisectoral body with representatives from the Departments of Environment and Natural Resources, Agriculture, Science and Technology, and Trade and Industry, as well as civil society organizations.

*Submitted by Department of Health, Philippines*

## Asia-Pacific Economic Cooperation (APEC)

An international road map to eliminate lead in drinking water and address product safety has been initiated with participation from Chile, China, Indonesia, Malaysia, Philippines, Republic of Korea, Singapore, Taiwan Province of China, Thailand, the United States and Viet Nam. This effort, supported by seven co-sponsoring economies, is an outcome of the APEC 2005 Summit where IAPMO and the United States first proposed coordinated action on these issues.

*Submitted by IAPMO*

# Latin America and Caribbean


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## Dominican Republic

In the Dominican Republic, a research project will be conducted with the objective of measuring blood lead levels in children under 6 years of age. The results will serve as a basis for making decisions related to the early detection of lead in blood.

*Submitted by Ministry of Public Health and Social Assistance, Dominican Republic*

## Guatemala

RTI International tested drinking water at 113 households for per- and polyfluoroalkyl substances, known as PFAS, and 20 metals including lead across Guatemala City. Of those tested, 63 per cent of homes exceeded the Guatemalan maximum permissible limit for at least one metal, with lead and arsenic being the most commonly found. This study led to citywide water system changes, and materials were shared with families to change their drinking water habits to reduce exposure.

*Submitted by RTI International*

## Mexico

In Mexico, Occupational Knowledge International worked with partners to identify chemical suppliers of lead compounds used in the pottery, paint and plastics industries. The report investigated the feasibility and availability of safer alternatives and is being used to inform a multi-stakeholder effort to draft lead paint regulations.

*Submitted by Occupational Knowledge International*


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# North America


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## United States

In October 2024, the US Environmental Protection Agency (US EPA) issued two final rules to reduce lead exposure. The first strengthens standards for lead paint dust in pre-1978 housing and childcare facilities, lowering reportable dust-lead levels to the lowest reliably measurable limits (see www.epa.gov/lead/hazard-standards-and-clearance-levels-lead-paint-dust-and-soil-tsca-sections-402-and-403). The second requires all US drinking water systems to identify and replace lead pipes within 10 years, with stricter testing, lower action thresholds and improved public communication on lead risks and pipe replacement plans. (see www.epa.gov/ground-water-and-drinking-water/lead-and-copper-rule-improvements)

*Submitted by US EPA*

In April 2025, in support of the PLF, US EPA released an informational video for low- and middle-income countries (LMICs) on how whole-of-government approaches can be used to reduce lead exposure in children. The video (available at www.youtube.com/watch?v=4w0rLn2IbA4) highlights the approach utilized by the US President's Task Force on Environmental Health Risks and Safety Risks to Children by describing opportunities and challenges in leveraging expertise across government.

*Submitted by US EPA*

In June 2025, the US EPA co-authored Tool #5: Clear communication to prevent and address childhood lead poisoning (available at www.leadfreefuture.org/tool-5-clear-communication-prevent-and-address-childhood-lead-poisoning), which is part of the PLF Toolkit to End Childhood Lead Poisoning. The Toolkit is intended to increase national capacity in LMICs to reduce the burden of lead exposure in children. US EPA provided examples of risk communication efforts and partnerships and described how they may be adapted for use in LMICs.

*Submitted by US EPA*

The Northwestern University Center for Synthetic Biology is working on a project that directly contributes to the development of novel technology that will make lead testing more accessible to the general public, thereby promoting environmental justice and equity. It can also eventually guide identification of priority areas for lead pipe replacement. The demonstration that cell-free biosensors can be used by non-experts will serve as a major milestone in the field of synthetic biology, and will hopefully spur additional development of biosensors for a broad range of targets in water, soil, food and human health.

*Submitted by Northwestern University Center for Synthetic Biology*

# Global

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In support of Open Philanthropy's Lead Exposure Action Fund, Global Development Incubator (GDI) developed eight detailed country reports centred on the current state of information about lead poisoning measurement and mitigation efforts, an identification of the stakeholders operating in each landscape and potential strategic opportunities for investments. The GDI team is now considering incubating three new strategic efforts focused respectively on adulteration of turmeric in South Asia, lead poisoning measurement and ULAB recycling.

*Submitted by GDI*

A systematic approach and toolkit were developed to assess laboratory and health system capacity to establish blood lead surveillance in a country/location. The assessment has been conducted in five LMICs in partnership with Pure Earth. Findings have been used to inform government-led working groups on the design of blood lead surveillance systems.

*Submitted by Vital Strategies*

The Clinton Health Access Initiative (CHAI) has completed landscape assessments across four countries – China, Ethiopia, India and Nigeria – and global markets, identifying promising opportunities to build on growing government attention to lead and to leverage an expanding ecosystem of partners. In each country, governments expressed a need for strategic support to translate initial momentum into strong, evidence-based systems for policy development and governance that maintain government leadership. In addition, complementary early-stage market landscaping has highlighted practical, high-potential entry points for market-based action, including reducing the frequency of ULAB recycling and incentivizing shifts to lead-free paint additives. Together, these assessments point to key opportunities for coordinated public- and private-sector interventions to dramatically reduce lead exposure.

*Submitted by CHAI*

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# Research spotlight

In June, the Center for Global Development hosted the first of three planned annual research conferences on global lead exposure, bringing together researchers and policymakers for two days of presentations and discussions. **The conference was organized around the themes of impacts, sources and solutions**, and featured 26 oral presentations of novel research, bookended by panels with senior decision makers from key multilateral institutions and grant making organizations, as well as several poster presentations. Here are some highlights:

© Center for Global Development

## Impacts

The Institute for Health Metrics and Evaluation now estimates that lead is the eighth largest cause of death in their modelling, leading to 3.45 million deaths in 2023, a substantial increase from the 1.5 million estimated in the 2021 edition of their Global Burden of Disease study; however, this revised figure is still lower than the 5.5 million annual deaths estimated by researchers at the World Bank.[1]

New papers demonstrate further causal evidence for the cognitive impacts of lead exposure. Berkhout et al. found that children in Indonesia living within 3 km of a toxic site lose an average learning equivalent of three years of schooling due to exposure.[2] Using observational data, Ericson and Brown identified annual lead-attributable productivity losses to be worth $305 billion to $499 billion in LMICs alone.[3]

## Sources

New source attribution research highlights substantial variation in the contribution of sources to population exposure across settings, including evidence that urban agriculture may be an emerging risk factor in Kenya.[4] ULAB recycling consistently emerged as a significant concern in multiple study populations, including in Dhaka, Bangladesh (Forsyth et al.); recent research by Lee Crawfurd and colleagues also suggests that it may account for a substantially larger portion of global lead exposure than previously recognized.

1 Larsen, Bjorn, and Ernesto Sánchez-Triana, 'Global Health Burden and Cost of Lead Exposure in Children and Adults: A health impact and economic modelling analysis', *Lancet Planetary Health*, vol. 7, no. 10, October 2023, pp. e831–e840.

2 Berkhout, Emilie, et al., 'Lead Exposure and Cognitive Skills in a Developing Country: Evidence from toxic sites in Indonesia', *ADB Economics Working Paper Series*, No. 774, April 2025.

3 Ericson, Bret, and Mary Jean Brown, 'Lead-Attributable Productivity Losses in Low- and Middle-Income Countries', *Health Economics, Policy and Law*, published online 3 July 2025.

4 Hoffman, Vivian, et al., 'Heavy Metal Contamination in Urban Agriculture: Evidence from Nairobi', First Annual Research Conference on Global Lead Exposure, Washington, D.C., 3–4 June 2025.

## Solutions

Nationally or regionally representative blood lead level surveys have been either fielded or are planned in Bhutan, Bangladesh, India and Kyrgyzstan.

Work on elimination of lead in consumer products continues to produce results, leading to significant declines in the prevalence of lead paint in Malawi[5] and lead adulteration in spices in Bangladesh, Punjab[6] and Georgia. In Georgia, removal of lead from spices likely contributed to the dramatic reduction since 2018 of blood lead levels in the most affected regions.[7]

By contrast, solutions to environmental/occupational exposure and proximity to industry are more complex, requiring further research. On battery recycling, Jarrell, Lazarus and Vargas[8] describe how Brazil's 2005 tax incentives drew activity into a few formal plants, making it easier to introduce reverse-logistics rules and ultimately formalize the sector. In more informal markets like Bangladesh, Kundu, Plambeck and Wang[9] suggests that increased use of longer-lasting batteries could reduce recycling frequency and associated exposure.

© Center for Global Development

## Research gaps

There remains an urgent need for additional representative data on blood lead levels to help policymakers understand the scale and distribution of the problem. Equally, source attribution research is needed in a greater variety of contexts, to allow for more tailored prioritization of action against sources. Finally, more work is needed on realistic approaches to regulate and enforce policies that reduce lead exposure in resource-constrained settings, which lack the capacity for monitoring and enforcement present in high-income countries.

5 Zimba, Chifundo Colleta, et al., 'Lead Exposure Risks, Testing Capacity and Mitigation Strategies in Malawi', First Annual Research Conference on Global Lead Exposure, Washington, D.C., 3–4 June 2025.

6 Anwar, Usman, Muhammed Shakeel Sadiq Jajja and Jenna E. Forsyth, 'All That Glitters Is Not Turmeric: Understanding turmeric lead chromate adulteration in Pakistan', First Annual Research Conference on Global Lead Exposure, Washington, D.C., 3–4 June 2025.

7 Bainduri, Milena, et al., 'Assessment of Blood Lead Levels in 2–7-Year-Old Children in Poti, Georgia, 2023: A pilot study of environmental lead exposure sources', *Environmental Research*, vol. 278, 1 August 2025, art. 121708.

8 Jarrell, Mikey, Nathan Lazarus and David L. Vargas, 'Brazilian Battery Boom: Tax breaks as anti-pollution policy', mikeyjarrell.com, 17 June 2025.

9 Kundu, Amrita, Erica Plambeck and Qiong Wang, 'Retailers' Informational Role in an Informal Circular Economy', Research Paper No. 5295159, Georgetown University McDonough School of Business, Washington, D.C., 4 July 2025.

# Global momentum

**The following highlights showcase a range of exciting events from the past two years that advanced progress towards ending childhood lead poisoning.** These examples are drawn from partner inputs – and given the diverse nature of our partners and the places in which they work, the inputs span international, regional and national contexts. As such, they represent a varied compilation rather than a standardized or comprehensive list.

### January 2024

#### World Economic Forum

Davos, Switzerland

In 2024, Georgia's then Prime Minister Irakli Garibashvili publicly recognized the joint efforts of the Government of Georgia and UNICEF to combat childhood lead poisoning during a high-level panel discussion hosted by the then Administrator of the United States Agency for International Development (USAID).

### July 2024

#### 'Towards a Coordinated, Multi-sectoral Lead Management Approach in Low- and Middle-Income Countries: Consultations in Africa region' (English)

Webinar

UNEP and US EPA organized online consultations on lead sources and management. The aim of the consultations was to explore the feasibility of a coordinated, multisectoral approach by national governments in LMICs to manage sources of lead exposure. Full materials are available at www.unep.org/events/webinar/towards-coordinated-multi-sectoral-lead-management-approach-low-and-middle-income.

## August 2024

### 36th Annual Conference of the International Society for Environmental Epidemiology

Santiago, Chile

Vital Strategies organized a children's environmental health session with government partners from Peru. This session shared key achievements and learnings from the national blood lead surveillance effort in Peru in 2022 with the global environmental health research community. Conference programme available at https://iseeconference.org/august-26-2024-monday/.

## September 2024

### Partnership for a Lead-Free Future Launch

New York, United States

At the United Nations General Assembly in September 2024, UNICEF and USAID formally launched the Partnership for a Lead-Free Future, the first-ever global public-private initiative dedicated to ending childhood lead poisoning in LMICs by 2040.

### Lead Focused Reception at United Nations General Assembly

New York, United States

Vital Strategies co-hosted a reception event with the Center for Global Development and Pure Earth during the September meeting of the United Nations General Assembly in New York to facilitate high-level conversations on global actions to reduce lead exposure.

## October 2024

### 'Lead Exposures in Children's Environmental Health'

Webinar

US EPA coordinated an online public webinar with US federal, state, local and other partners, entitled 'Lead Exposures in Children's Environmental Health'. The webinar raised awareness of non-mainstream sources of lead exposure in the United States such as cosmetics, ceremonial/religious powders, spices, cookware and aviation gasoline. Many children exposed to lead from these sources are immigrants or refugees from LMICs. To access or contribute resources to the US EPA online compilation of educational and outreach materials available in multiple languages highlighting risks from a variety of cultural and religious products that may contain heavy metals such as lead and mercury, visit www.epa.gov/children/heavy-metals-cultural-products.

### 'El impacto del plomo en el aire interior y en la salud de los niños'

Webinar

US EPA hosted a Spanish-language public webinar entitled 'El impacto del plomo en el aire interior y en la salud de los niños' ('The Impact of Lead on Indoor Air and Children's Health') in partnership with the US Centers for Disease Control and Prevention and the US Department of Housing and Urban Development. A recording is available at https://espanol.epa.gov/cai/seminarios-web-sobre-la-calidad-del-aire-interior.

### ‘Lead Paint Law Compliance and Enforcement’

Webinar

In collaboration with UNEP, US EPA presented guidance on compliance and enforcement issues for lead paint laws at the ‘Lead Paint Law Compliance and Enforcement’ webinar. This webinar aimed to enhance the understanding of the enforcement recommendations and tools explored in the guidance, and facilitated a dialogue between stakeholders through the presentation of country case studies. The governments of Guyana, Kenya and Viet Nam provided case studies, sharing experiences in implementing lead paint laws in their countries.

### 2nd World Conference on Health and Social Sciences, Special event for Lead Poisoning Prevention Week

Jakarta, Indonesia

A side event on lead poisoning prevention was hosted during the Binawan World Conference on Health and Social Sciences, offering participants a focused discussion on addressing lead exposure within the global health and social science discourse. The conference website is available at https://wchss.binawan.ac.id/.

## November 2024

### Inter-sectoral Expert Webinar on Lead Pollution and Exposure in G20 Countries

Webinar

The US EPA collaborated with Group of Twenty (G20) members to organize a webinar, hosted by the World Bank, for G20 government representatives from the environment, health and development tracks and technical experts to share knowledge and discuss options to prevent and reduce lead pollution and exposure in G20 countries with a focus on LMICs. Attendees included relevant stakeholders that are affected by lead pollution or active in lead pollution prevention and reduction. A webinar report and the webinar presentations were circulated among G20 members and attendees.

### ‘Towards a Coordinated, Multi-sectoral Lead Management Approach in Low- and Middle-Income Countries: Consultations in Africa region’ (French)

Webinar

UNEP and US EPA organized online consultations on lead sources and management. The aim of the consultations was to explore the feasibility of a coordinated, multisectoral approach by national governments in LMICs to manage sources of lead exposure. Full materials are available at www.unep.org/events/webinar/towards-coordinated-multi-sectoral-lead-management-approach-low-and-middle-income.

## May 2025

### American Institute for Medical and Biological Engineering (AIMBE)

Chicago, United States

The Northwestern University Center for Synthetic Biology demonstrated lead testing methods at a regional AIMBE convening at the University of Illinois Chicago in May 2025. This event allowed the Center’s work to be showcased to AIMBE members, local policymakers and their staff, strengthening existing partnerships and forming new connections.

### World Health Assembly

Geneva, Switzerland

The Seventy-eighth World Health Assembly in May 2025, which adopted Resolution 78.27 on galvanizing global support on lead, recognizes the global commitment to address lead exposure, including the new Partnership for a Lead-Free Future, and mandates the WHO Director General to submit a draft global action plan on lead mitigation to the Eightieth World Health Assembly in 2027. The full text of the resolution is available at https://apps.who.int/gb/ebwha/pdf_files/WHA78/A78_R27-en.pdf.

### HoD Forum on the Asian Development Bank (ADB) Strategy to Address Lead Pollution

Manilla, Philippines

The HoD Forum on the ADB Strategy to Address Lead Pollution, held on 29 May 2025, advanced the commitment of ADB to sustainable, cost-effective lead mitigation in Asia and the Pacific. It built shared understanding of lead's impacts, explored integration into operations and fostered cross-sector collaboration, resulting in agreed priority actions, identified programmatic entry points and stronger internal alignment to support developing member countries in addressing lead contamination.

### 'Sources of Lead Pollution and Impacts to City Dwellers in Uganda'

Webinar

The Global Alliance on Health and Pollution (GAHP), with support from the Canton Geneva, hosted a webinar on combating lead pollution in low-resource settings. The session explored sources of lead exposure, its health impacts and effective advocacy strategies, engaging professionals, policymakers and community leaders, with key contributions from Youth Advocacy and Development Network (YADNET) Uganda and GAHP Chair Raymond Ruyoka.

## June 2025

### Bloomberg Philanthropies launches new initiative to address global lead poisoning

Asia, Africa, South America

In June, Bloomberg Philanthropies launched the Bloomberg Philanthropies Lead Poisoning Prevention Initiative to address an enormous and often overlooked public health challenge: lead poisoning. The initiative will support partners to expand blood lead testing and surveillance; identify major sources of lead and support clean-up of sites; and support governments to strengthen regulations on key sources of lead poisoning.

### First Annual Research Conference on Global Lead Exposure

Washington, D.C., United States

The Center for Global Development hosted the inaugural First Annual Research Conference on Global Lead Exposure on 3–4 June 2025, convening researchers, policymakers, funders and implementers – both in person and virtually – to present interdisciplinary research and inform global strategies for combating childhood lead poisoning.

### ULAB Recycling Reform Action Lab

Washington, D.C., United States

On 5 June 2025, GDI convened stakeholders for a ULAB Recycling Reform Action Lab in Washington, D.C. The workshop brought together over 30 researchers, implementers and funders to build on the group's collective expertise and identify where there is alignment and opportunity for collective action to eliminate unsafe ULAB recycling in LMICs.

### Open-ended Working Group (OEWG) of the Global Framework on Chemicals (GFC)
Punta del Este, Uruguay

Under the GFC, GAHP – supported by Ghana, Mexico, Nigeria, Paraguay, Peru, Uganda and Uruguay – submitted a conference room paper at the first meeting of the OEWG, proposing lead pollution be recognized as a global 'Issue of Concern'. This would expand the focus beyond lead in paint to address all major sources of exposure, such as ULABs, consumer products and legacy lead in soil, among others. This proposal is aligned with the 2025 World Health Assembly resolution to develop a global action plan on lead mitigation. The full text of the proposal to the OEWG is available at https://wedocs.unep.org/bitstream/handle/20.500.11822/47962/2510255E-CRP.1.pdf?sequence=1&isAllowed=y.

## July 2025

### Consultation on multisectoral lead management in Asia-Pacific region
Virtual, Asia-Pacific

UNEP, with support from the European Union and the Ministry of Environment of Japan, hosted a consultation on multisectoral lead management in Asia-Pacific region. The event brought together stakeholders from across the region to discuss strategies, policies and collaborative actions for reducing lead exposure and promoting safer environments.

### Inclusive, Sustainable, Prosperous and Resilient (INSPIRE) Health Systems in Asia and the Pacific Health Forum: Lead Session
Manila, Philippines

The session highlighted the health sector's role in eliminating lead poisoning in Asia-Pacific, showcasing regional best practices and strategies for multisectoral collaboration. Participants were briefed on the burden, sources and interventions, leadership entry points and how to build networks for ongoing cooperation.

### 'Towards a Coordinated, Multi-sectoral Lead Management Approach in Low- and Middle-Income Countries: Consultations in Asia-Pacific region
Webinar

UNEP and US EPA organized this online consultation on lead sources and management, with financial support from the European Union and the Ministry of Environment of Japan. The aim of the consultations was to explore the feasibility of a coordinated, multisectoral approach by national governments in LMICs to manage sources of lead exposure. Full materials are available at www.unep.org/events/webinar/towards-coordinated-multi-sectoral-lead-management-approach-low-and-middle-income-0.

## August 2025

### Eliminating Lead in Drinking Water: Focus on sub-Saharan Africa
Stockholm, Sweden

At World Water Week in Stockholm, IAPMO and partner organizations hosted a session to begin discussing a regional roadmap to eliminate lead in drinking water in Africa. The event explored the nature and sources of lead pollution in the environment and highlighted relevant policy, practice and programmatic options for preventing, monitoring and managing this global hazard.

# List of current partners

## Governments

Armenia
Bangladesh
Bhutan
Cambodia
Cameroon
Canada
Dominican Republic
Ethiopia
Georgia
Ghana
Guinea
Indonesia
Ireland
Japan
Kenya
Malawi
Mali
Mongolia
Morocco
Nepal
Nigeria
Norway
Philippines
Sierra Leone
Slovenia
Tanzania
Togo
Uganda
United States (US EPA, Centers for Disease Control and Prevention, New York City Department of Health and Mental Hygiene)
Viet Nam
Yemen

## Civil society

Center for Global Development (CGD)
Clinton Health Access Initiative (CHAI)
Dalberg
Early Childhood Development Action Network (ECDAN)
Global Alliance on Health and Pollution (GAHP)
Global Development Incubator (GDI)
Human Rights Watch (HRW)
ICF
Institute for Health Metrics and Evaluation (IHME)
International Association of Plumbing and Mechanical Officials (IAPMO)
International Pediatric Association (IPA)
International Pollutants Elimination Network (IPEN)
Lead Exposure Elimination Project (LEEP)
Mercer University
Northwestern University Center for Synthetic Biology
Occupational Knowledge International (OK International)
Oeko-Institut
Pahlé India Foundation
Pure Earth
Resolve to Save Lives
RTI International
Stanford University
University of Nevada (Department of Environmental and Global Health)
Vital Strategies
World Economic Forum

## Multilateral organizations

Asian Development Bank (ADB)
United Nations Children's Fund (UNICEF)
United Nations Environment Programme (UNEP)
United Nations Institute for Training and Research (UNITAR)
World Bank
World Health Organization (WHO)

## Foundations and private sector

Aliko Dangote Foundation (ADF)
American Spice Trade Association (ASTA)
Bloomberg Philanthropies
Children's Investment Fund Foundation (CIFF)
Clarios Foundation
Conrad N. Hilton Foundation
Gates Foundation
Homeworld Collective
Open Philanthropy
P150
Renaissance Philanthropy
Rockefeller Philanthropy Advisors (RPA)

# Annex: Publications from PLF partners

For more resources, please visit the PLF Knowledge Library to peruse and submit relevant materials.

### 'Assessment of Blood Lead Levels in 2–7-Year-Old Children in Poti, Georgia, 2023: A pilot study of environmental lead exposure sources'

Blood lead levels in children significantly decreased in Poti, Georgia between 2018 and 2023. Environmental lead in spices, dust, soil and paint was assessed in selected households; spice lead concentrations declined markedly, reflecting successful regulatory measures, while persistent lead sources in soil and dust highlight the need for targeted interventions.

Bainduri, Milena, et al., 'Assessment of Blood Lead Levels in 2–7-Year-Old Children in Poti, Georgia, 2023: A pilot study of environmental lead exposure sources', *Environmental Research*, vol. 278, 1 August 2025, art. 121708.

### Global Best Practices for Eliminating Lead Poisoning: Lessons for India

This report identifies and analyses successful international efforts to mitigate lead exposure such as Mexico's elimination of lead in pottery, Ghana's e-waste regulation reforms and Bangladesh's crackdown on lead-based paints and batteries. Drawing on these examples, the brief outlines practical, adaptable strategies for India, focusing on regulatory strengthening, multisectoral collaboration, surveillance mechanisms and community-level awareness to accelerate progress towards a lead-free future.

Bhushan, Indu, and Ridhima Vohra, *Global Best Practices for Eliminating Lead Poisoning: Lessons for India*, Pahlé India Foundation, New Dehli, August 2024.

### 'Potential Lead Exposure from Aluminum Cooking Pots in Lower and Middle-Income Countries'

This study analysed aluminium cooking pots from 25 LMICs, finding that total and leachable lead levels were proportional, with cast pots leaching more than wrought pots. Modelling indicated that using these pots could significantly raise blood lead levels. Results highlight the need for leaching tests that reflect real-world cooking conditions to better assess exposure risks.

Binkhorst, Gordon, et al., 'Potential Lead Exposure from Aluminum Cooking Pots in Lower and Middle-Income Countries', *Journal of Hazardous Materials*, vol. 492, 15 July 2025, art. 138134.

### 'Understanding Water Security in Greater Chicago'

In April 2025, the Northwestern University Center for Synthetic Biology launched an innovative educational zine about the centre's lead research study. This comic-style publication, written at a ninth-grade reading level, makes the research accessible to diverse audiences. The zine details the study's development and impacts, and has been distributed to educators, policymakers, environmental leaders and community members in the study areas.

Bly, Vanessa, and Siyuan Feng, 'Understanding Water Security in Greater Chicago,' Northwestern University Center for Synthetic Biology, Evanston, Ill., 2025.

### Childhood Blood Lead Surveillance in Bihar

Led by Vital Strategies in partnership with Pure Earth and the Mahavir Cancer Institute, this report presents the first statewide study in Bihar documenting blood lead levels among children under 5 and pregnant women, revealing widespread elevated exposure and offering recommendations to strengthen prevention efforts.

Chandan, Ambrish Kumar, et al., *Childhood Blood Lead Surveillance in Bihar*, Vital Strategies, New York, June 2024.

### 'Cumulative Population Blood Lead Levels'

A new tool, the cumulative population blood lead level (alternately the 'lead burden index'), combines average blood lead levels with population size, and thus can act as an indicator of gross intellectual impairment or cardiovascular disease and can be used to estimate the burden of lead in differing countries or regions and from differing sources of lead exposure.

Fuller, Richard, et al., 'Cumulative Population Blood Lead Levels', *BMJ Global Health*, vol. 10, no. 3, March 2025, art. 018145.

### 'Managing and Disposing Used Lead Acid Batteries – ULABs: Experience in MERCOSUR'

GAHP highlighted the serious problem of lead pollution caused by the informal management of ULABs during the International Solid Waste Association Global Conference 2025. The organization emphasizes the importance of adopting circular economy principles and extended producer responsibility as effective strategies to address lead pollution. GAHP highlights existing local capacities and technologies to enhance material recycling and the recovery of ULAB components, thereby promoting sustainable and safer management practices.

Global Alliance on Health and Pollution, 'Managing and Disposing Used Lead Acid Batteries – ULABs: Experience in MERCOSUR' presented to the International Solid Waste Association Global Conference 2025, 6 January 2025.

### 'Towards a Broader Approach to Lead: Expanding the scope beyond lead in paint'

GAHP submitted a conference room paper with technical information to call for lead to be recognized as an 'Issue of Concern' under the Global Framework on Chemicals. Supported by seven countries, the paper advocates for a broader inclusion of multiple sources of lead exposure beyond paint, such as ULABs, consumer products, legacy lead in soil and others.

Global Alliance on Health and Pollution, 'Towards a Broader Approach to Lead: Expanding the scope beyond lead in paint', Conference room paper submitted to the First meeting of the Open-ended Working Group of the Global Framework on Chemicals, UNEP/GFC/OEWG.1/CRP.1, 24 June 2024.

### Poisonous Profit: Lead waste mining and children's right to a healthy environment in Kabwe, Zambia

This report documents how unsafe mining and processing of lead-contaminated waste near Kabwe has exposed children to extreme lead risks, with over 95 per cent exhibiting elevated blood lead levels – highlighting a severe violation of children's right to a healthy environment.

Human Rights Watch, *Poisonous Profit: Lead waste mining and children's right to a healthy environment in Kabwe, Zambia*, UNICEF, New York, March 2025.

### ‘Assessment of Prevalence of Elevated Blood Lead Levels and Risk Factors among Children and Pregnant Women in Bihar, India’

The study reports widespread elevated blood lead levels in both groups, underscoring an urgent need for comprehensive lead poisoning prevention strategies.

Lu, Yi, et al., ‘Assessment of Prevalence of Elevated Blood Lead Levels and Risk Factors among Children and Pregnant Women in Bihar, India’, *Environmental Research*, vol. 259, 15 October 2024, art. 119528.

### ‘Determinant Factors of Children’s Blood Lead Levels in Java, Indonesia’

This cross-sectional study assessed blood lead levels in children aged 12–59 months from four communities near ULAB recycling sites and a control area, finding significantly elevated levels in exposed areas. Key risk factors were identified, highlighting the urgent need for soil remediation. The results call for prompt medical intervention, ongoing monitoring and further research into lead exposure pathways.

Mansyur, Muchtaruddin, et al., ‘Determinant Factors of Children’s Blood Lead Levels in Java, Indonesia’, *International Journal of Hygiene and Environmental Health*, vol. 261, August 2024, art. 114426.

### National Guidelines for Clinical, Community and Environmental Management of Lead Exposure in Children and Pregnant Women

These guidelines from Indonesia provide a comprehensive framework for addressing lead exposure in vulnerable populations in the country. The guidelines serve as a national reference for health-care providers, public health professionals and policymakers to prevent, detect and manage lead exposure among children and pregnant women – two groups most at risk of the toxic effects of lead.

Ministry of Health of the Republic of Indonesia, *National Guidelines for Clinical, Community and Environmental Management of Lead Exposure in Children and Pregnant Women*, Ministry of Health, Jakarta, 2024.

### Bhutan National Blood Lead Level Survey 2024

The first National Blood Lead Level Survey in Bhutan revealed that 76 per cent of children aged 1–6 years have elevated blood lead levels (□3.5 µg/dL), with an even higher proportion (86 per cent) found among children in monastic institutions. Additionally, 59 per cent of pregnant or breastfeeding women showed elevated lead levels, posing risks to their health and their children’s development. This widespread problem affects all regions and socio-economic groups, impacting both rural and urban households.

Ministry of Health, Royal Government of Bhutan, National Blood Lead Level Survey 2024. Ministry of Health, Thimphu, 2024.

### ‘Lead Exposure in Homes as Modifying Factors of Blood Lead Levels among Young Children in Bihar, India’

The assessments in this report identified a high prevalence of elevated lead levels in metal food ware and spices among households tested in the state of Bihar. Researchers found a positive and statistically significant association between lead levels in spices collected in homes and elevated blood lead levels among Bihari children.

Nash, Emily, et al. ‘Lead Exposure in Homes as Modifying Factors of Blood Lead Levels among Young Children in Bihar, India’, *Environmental Monitoring and Assessment*, vol. 197, no. 8, August 2025, art. 967.

### ‘Airborne Lead Exposures during Artisanal Lead Mining and Gold Ore Processing in Zamfara, Nigeria’

This was the first publication to provide exposure data for artisanal lead mining that is taking place in many countries around the world. This study reports on the results of 47 air samples, including 32 from gold ore processing sites and 15 from lead mining sites. The results indicate that underground miners were exposed to airborne lead at a mean concentration of 0.48 mg/m3, approximately 10 times the US Occupational Safety and Health Administration permissible exposure limit.

Nota, Manti M., et al., ‘Airborne Lead Exposures during Artisanal Lead Mining and Gold Ore Processing in Zamfara, Nigeria’, *Journal of Occupational and Environmental Hygiene*, published online 5 May 2025.

### Partnership for Responsible Battery and Metal Recycling (ProBaMet): Project summary report

The report gives an overview of the current ULAB recycling landscape in Nigeria, including its environmental, health and safety status. It further lays out ongoing technical, regulatory and market-driven efforts and policy recommendations for structural upgrades. Although recommendations are tailored to the Nigerian context, they can be applied more broadly to other LMICs that are facing similar challenges in the ULAB recycling sector.

Oeko-Institut, Platform Lead of WVMetalle, SRADev Nigeria and Alliance for Rural Electrification, *Partnership for Responsible Battery and Metal Recycling (ProBaMet): Project summary report*, Oeko-Institut, SRADev Nigeria and Platform Lead, Freiburg, Lagos and Berlin, 31 May 2025.

### Lead Poisoning: A review of the Indian legal framework and international frameworks

This legal review examines the existing policy and regulatory frameworks addressing lead poisoning in India and benchmarks them against international standards and conventions. It identifies key gaps in enforcement, surveillance and inter-agency coordination, and provides legal and institutional recommendations to strengthen India’s response to lead exposure.

Pahlé India Foundation, *Lead Poisoning: A review of the Indian legal framework and international frameworks*, Pahlé India Foundation, New Delhi, August 2024.

### Learnings from the International Convening on Lead Poisoning in India, 2024: Status, challenges and way forward

This report summarizes key insights from the 2024 international convening on lead poisoning in India, which brought together policymakers, researchers, civil society and international partners. It captures the current status of lead exposure, highlights implementation challenges and outlines a collaborative road map for national action, regulatory reform and enhanced surveillance.

Pahlé India Foundation, *Learnings from the International Convening on Lead Poisoning in India, 2024*: Status, challenges and way forward, Pahlé India Foundation, New Delhi, August 2024.

### Understanding the Used Lead-Acid Battery Recycling Ecosystem in India

This report investigates the structure, practices and risks associated with the ULAB recycling ecosystem in India, covering both formal and informal sectors. It highlights major gaps in enforcement, unsafe handling practices and environmental health impacts, while offering practical policy recommendations to promote safer, transparent and sustainable recycling systems.

Pahlé India Foundation, *Understanding the Used Lead-Acid Battery Recycling Ecosystem in India*, Pahlé India Foundation, New Delhi, August 2024.

### Blood Lead Surveillance of Children and Pregnant Women in Tamil Nadu

This Vital Strategies report presents the first statewide surveillance findings, showing that 39 per cent of children under 6 had blood lead levels above 5 µg/dL, with risk factors including recent home renovations, proximity to lead-related industries, and certain flooring types, and emphasizes the need for routine surveillance and monitoring of these risk factors.

Pimplé, Yatin, et al., *Blood Lead Surveillance of Children and Pregnant Women in Tamil Nadu*, Vital Strategies, New York, April 2025.

### Childhood Lead Exposure Prevention: Assessment Of blood lead surveillance capacity – Maharashtra, India

This report from Vital Strategies in collaboration with Pure Earth evaluates the state's laboratory and public health infrastructure to support a comprehensive, statewide childhood blood lead surveillance system and offers recommendations for capacity strengthening and surveillance implementation.

Pimplé, Yatin, et al., *Childhood Lead Exposure Prevention: Assessment of blood lead surveillance capacity – Maharashtra, India*, Vital Strategies, New York, April 2024.

### Progress Report on the Federal Lead Action Plan: December 2018–April 2024

In 2024, US EPA and federal partners published a progress report on the Federal Action Plan to Reduce Childhood Lead Exposures and Associated Health Impacts. The report provides an update on the status of actions outlined in the plan, such as efforts to reduce exposures to lead in paint, dust, drinking water, soil, food, consumer products and air pollution.

President's Task Force on Environmental Health Risks and Safety Risks to Children, *Progress Report on the Federal Lead Action Plan: December 2018–April 2024*, Washington, D.C., 2024.

### 'A Participatory Science Approach to Evaluating Factors Associated with the Occurrence of Metals and PFAS in Guatemala City Tap Water'

A study of tap water in Guatemala City found arsenic above permissible limits in 34 per cent of samples, lead in 9 per cent and PFAS in 19 per cent, highlighting health risks from untreated contaminants and the need for improved water treatment and public engagement.

Redmon, Jennifer Hoponick, et al., 'A Participatory Science Approach to Evaluating Factors Associated with the Occurrence of Metals and PFAS in Guatemala City Tap Water', *International Journal of Environmental Research and Public Health*, vol. 19, no. 10, May 2022, art. 6004.

### Childhood Lead Exposure Prevention: Assessment of blood lead surveillance capacity – Colombia

This Vital Strategies report assesses the country's infrastructure and readiness to establish a national surveillance system to monitor children's blood lead levels – as required under Law 2041 – and inform policies to prevent and mitigate lead exposure.

Rodriguez-Lopez, Jesica, et al., *Childhood Lead Exposure Prevention: Assessment of blood lead surveillance capacity* – Colombia, Vital Strategies, New York, July 2024.

### 'Blood Lead Levels in Children 5 to 7 Years of Age from the Republic of Georgia: A feasibility study on lead surveillance using volumetric absorptive microsampling'

The report presents the initial findings from the lead surveillance programme piloted in two western regions of Georgia from September 2023 to April 2024 with support from UNICEF.

Rylander, Charlotta, et al., *'Blood Lead Levels in Children 5 to 7 Years of Age from the Republic of Georgia: A feasibility study on lead surveillance using volumetric absorptive microsampling', Environmental Health Perspectives*, vol. 133, no. 5, May 2025, art. 057003.

### 'Rapid Market Screening to Assess Lead Concentrations in Consumer Products across 25 Low- and Middle-Income Countries'

In 25 LMICs, researchers tested 5,007 consumer products and found high lead levels in 51 per cent of metal foodware, 45 per cent of ceramics and 41 per cent of paints. The findings show that lead exposure sources in these markets are diverse and protections are inadequate. Rapid Market Screening offers a simple, effective way to identify high-risk products.

Sargsyan, Aelita, et al., 'Rapid Market Screening to Assess Lead Concentrations in Consumer Products across 25 Low- and Middle-Income Countries', *Scientific Reports*, vol. 14, April 2024, art. 9713.

### Children's Environmental Health Assessment Report of Cambodia

This assessment is the first of its kind in Cambodia and aims to identify priority areas for additional research, policy actions and regulations, and institutional capacity building to improve children's environmental health in Cambodia, particularly through better prevention and mitigation of exposure to environmental health risks

UNICEF Cambodia and the Ministry of Health of the Royal Government of Cambodia, *Children's Environmental Health Assessment Report of Cambodia*, UNICEF and Ministry of Health, Phnom Penh, 2024.

### Perception to Action

This report offers insights into how caregivers and children perceive environmental health hazards – insights that are essential for designing effective social and behaviour change interventions enhancing children's environmental health awareness.

United Nations Children's Fund, *Perception to Action: A social and community listening study to track behavioural narratives on air pollution, extreme heat and lead exposure in Bangladesh, Brazil, Indonesia, India and Senegal*, UNICEF, New York, July 2025

### All Ages Lead Model, Version 3.1

In August 2025, US EPA made available version 3.1 of the All Ages Lead Model, a tool that estimates the effect of lead exposures from media such as air, water, food, dust or soil on lead concentrations in blood, bone and other human tissues from birth to 90 years of age. The All Ages Lead Model provides a significant advancement in how risk assessors and risk managers can evaluate the impact of possible sources of lead in specific human exposure scenarios. Version 3.1 updates include a peer-reviewed respiratory module for estimating blood lead concentrations and body lead burden associated with exposures to lead-laden aerosols.

United States Environmental Protection Agency, All Ages Lead Model, Version 3.1, digital application, US EPA, Washington, D.C., 6 August 2025.

### EPA research publications

US EPA researchers and their collaborators publish research results in a host of peer-reviewed scientific journals and reports. Recent publications target several priority lead research areas, including blood lead level modelling and mapping, child and adult soil and dust ingestion rates, lead and drinking water exposures and controls, and US EPA and cross-federal agency coordination to reduce lead exposure.

United States Environmental Protection Agency, 'Lead (Pb) Research: Scientific publications,' US EPA, Washington, D.C., 6 August 2025, accessed 8 September 2025.

### 'The Chalkboard'

In January 2025, US EPA created a new website called The Chalkboard to summarize recent US EPA or US EPA-funded scientific publications on children's environmental health topics.

United States Environmental Protection Agency, 'The Chalkboard: Recent EPA children's health research updates', US EPA, Washington, D.C., 24 July 2025, accessed 8 September 2025.

### 'When It Comes to Lead in Water, New Biosensing Technology Can Reveal What the Eyes Cannot See and What the Rules Do Not Yet Stop'

The Northwestern University Center for Synthetic Biology published a peer-reviewed paper in the journal Aqua in June 2024, highlighting how biosensor technology can revolutionize water quality monitoring and regulation. The study demonstrates that rapid, at-home tests based on biosensors can be used by non-experts to generate cheaper and faster results than traditional laboratory techniques, potentially increasing testing frequency and sample sizes. This innovation has significant implications for improving compliance monitoring, establishing more protective standards and empowering underrepresented communities by making inequities in lead exposure more visible, ultimately contributing to better public health outcomes.

Weinstock, Robert, et al., 'When It Comes to Lead in Water, New Biosensing Technology Can Reveal What the Eyes Cannot See and What the Rules Do Not Yet Stop', *Aqua: Water infrastructure, ecosystems and society*, vol. 73, no. 6, June 2024, pp. 1205–1210.

### Galvanizing Global Support for a Lead-Free Future

This advocacy resource underscores a global commitment – through a World Health Assembly resolution – to eliminate lead exposure by spurring governments to phase out lead in paint and pipes, bolster health systems and monitor children's lead levels effectively.

World Health Organization, Galvinizing global support for a lead-free future, Resolution from the Seventy-eighth World Health Assembly, WHA78.27, 27 May 2025.

### Lead in Drinking-Water: Health risks, monitoring and corrective actions

Lead is a priority chemical hazard that should be included in national drinking-water quality standards and monitored as part of drinking-water quality surveillance. This document provides practical guidance to support the assessment and management of lead contamination in drinking-water supplies. Stepwise guidance is provided to support action when elevated lead concentrations are detected in drinking water. The brief also explains why lead in drinking water is an important issue and discusses sources of lead exposure in water supplies.

World Health Organization, *Lead in Drinking-Water: Health risks, monitoring and corrective actions*, Technical brief, WHO, Geneva, 2022.

### Awareness Campaign and Promotion of Social and Behavioural Change on Lead Poisoning in Bihar and Jharkhand

This report documents Pahlé India Foundation's community-based awareness campaign aimed at reducing lead exposure through behavioural change in the high-risk regions of Bihar and Jharkhand. It outlines the use of participatory workshops with grassroots health and child welfare organizations to build capacity, improve risk communication and drive collective action against lead poisoning.

Yadav, Jyoti, Ankita Srivastava and Surabhi Santosh, *Awareness Campaign and Promotion of Social and Behavioural Change on Lead Poisoning in Bihar and Jharkhand*, Pahlé India Foundation, New Delhi, April 2024

# Hear from the experts

### ‘How lead affects children and lifelong health’

Howard Hu, professor of population and public health sciences at the University of Southern California, examines how lead impacts children and lifelong health. He explains the life-course paradigm, where lead exposure can start in the womb and move transgenerationally. Because of its insidiouseffects, the best solution to end childhood lead poisoning is prevention.

Watch video: https://youtu.be/CtCdl_Tc5kQ


### ‘How to test for lead in the environment’

Jack Caravanos, clinical professor of environmental health sciences at New York University, and Bret Ericson, adjunct professor of environmental health sciences at New York University, share a tutorial on how to use a portable X-ray fluorescence (XRF) analyser to test for lead in the environment.

Watch video: https://youtu.be/koEebEptpIY


### ‘Methods of addressing lead-contaminated environments’

Gordon Binkhorst, a senior technical advisor at Pure Earth, explains different ways to clean up environments contaminated by lead. He discusses the differences between remediation and risk mitigation techniques, as well as different strategies that could be applied.

Watch video: https://youtu.be/7NUZkJLnAKA


### ‘Using multiple lines of evidence to identify priority lead sources’

Jenna Forsyth, PhD, is a research scientist with the Stanford University School of Medicine and is affiliated with the King Center on Global Development, the Woods Institute for the Environment and the Doerr School of Sustainability. She shares some findings from her research on lead exposure in Bangladesh and how she used multiple lines of evidence in order to find the primary sources of lead harming the community.

Watch video: https://youtu.be/QExCO7IwLtA


### ‘New York City works to end childhood lead poisoning’

Paromita Hore, the Director of Environmental Exposure Assessment and Education at the New York City Department of Health and Mental Hygiene, shares how New York City has developed a lead surveillance system that reveals how children in the city are being exposed to lead.

Watch video: https://youtu.be/qxUCfRw8VII

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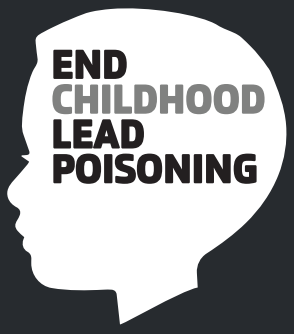


# PARTNERSHIP FOR A LEAD-FREE FUTURE

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