

SOLVE POLLUTION. SAVE LIVES. PROTECT THE PLANET.





Pure Earth is a non-profit environmental health organization dedicated to protecting people and the environment from the harms of toxic pollution. Pure Earth advances its goals by collaborating with public, private, and civil society organizations to implement sustainable, cost-effective interventions with measurable impacts. Pure Earth's current priority is reducing lead and mercury poisoning in low-income and middle-income countries.

OUR MISSION

Pure Earth partners with governments, communities, and industry leaders to identify and implement solutions that stop toxic exposures, protect health, and restore environments.

We prioritize actions to protect the developing brains and bodies of children and pregnant women living in toxic hot spots. We work to stop the multigenerational cycle of poisoning that is endemic in many low- and middle-income countries.

OUR VISION

Pure Earth envisions a world where all, especially children, can live healthy lives and reach their full potential, free from exposure to toxic pollutants.

OUR FOCUS

Lead and mercury are two of the most prevalent pollutants in low- and middle-income countries, posing a greater risk than all other Top Ten Chemicals of Concern identified by the World Health Organization. Because of widespread exposure, both toxicants have a significant impact on the trajectory of societies, causing disability, death, IQ loss, increased violence, restricted futures for poisoned children, and cardiovascular disease in adults.



OUR CORE VALUES

Right to respect, dignity, and health. We believe all people have the right to be treated with respect, and to live with dignity and the highest attainable standard of health.

Collaboration and empowerment. We cannot achieve our mission alone, and we do not have a monopoly on good ideas. Our success depends on collaboration and communication with international, national, and local stakeholders, and on our ability to strengthen and learn from these groups.

Integrity and transparency. We aim to operate with the highest levels of honesty, ethical standards, and openness. We believe that transparency about successes, setbacks, strengths, limitations, and uncertainties improves our work and advances our mission.

Maximum impact. We are committed to maximizing, measuring, and reporting on our

impacts and cost-effectiveness to evaluate progress and continually learn and improve.

Technical excellence. We aim to ensure that technical excellence and the best available science are central to all decisions and activities.

Bias for action. We think big and value innovation, bold steps, and calculated risks.

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Scan the QR code to access the full report online with additional detail about the work of our country offices.





PURE EARTH LEADERSHIP TRANSITION

Dear friends,

AS WE CELEBRATE PURE EARTH'S 25TH ANNIVERSARY, we stand at a pivotal moment. Thanks to the work of Pure Earth and other trailblazers, leaders around the world are embracing our mission and major development agencies are joining the fight against toxic pollution. At the announcement of the *Partnership for a Lead-Free Future* at the UN General Assembly on September 23rd, 2024, First Lady Dr. Jill Biden joined leaders from the World Bank, UNICEF, USAID, UNEP, WHO, as well as philanthropic leaders such as the Gates Foundation and Open Philanthropy, to discuss lead poisoning. What a privilege, what an amazing success!

Pure Earth is now poised for new levels of growth and impact. Rich Fuller has been the driving force behind Pure Earth's founding, growth, and evolution. His vision and entrepreneurial talents have transformed Pure Earth from a mere idea in 1999 to a global leader with nearly 100 team members around the world, and his ability to turn ambitions into real-world change is astounding, showing that change at a global scale is possible. With this extraordinary foundation in place, it is a fitting moment for Rich to step down from the President post and pass the job onto the next generation. Rich will remain on staff, heading up special projects for Pure Earth, including research projects and the development of key strategies. Rich will advise and support the team as we grow into this new international paradigm.

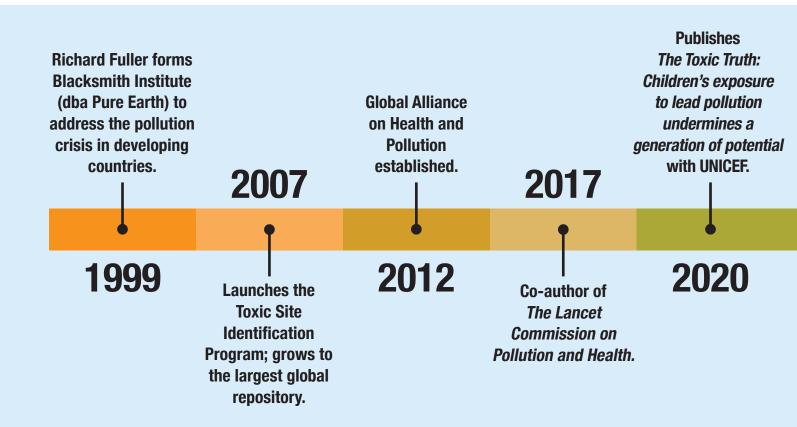
It is with great enthusiasm and confidence that the Board has confirmed Drew McCartor as the incoming President and Chief Executive Officer of Pure Earth. Through his 15 years of service to Pure Earth, Drew has shown himself to be an insightful, steady, and forward-looking leader. Drew has the full faith and support of Rich and the Board, as he leads Pure Earth into its next chapter. Together, Pure Earth's global teams will continue to make significant strides in protecting human health and the environment.

Opportunities to protect the health of the communities we serve have never been greater. Now is our time to shine, to achieve our goals. Let's do our work and show reductions in lead and mercury poisoning. With Drew and the amazing team of Country Managers (and all of you!) we can and will make a difference.

- H

Ethan Sawyer CHAIR, BOARD OF DIRECTORS

PURE EARTH CELEBRATES KEY MILESTONES IN 25 YEARS OF SOLVING POLLUTION

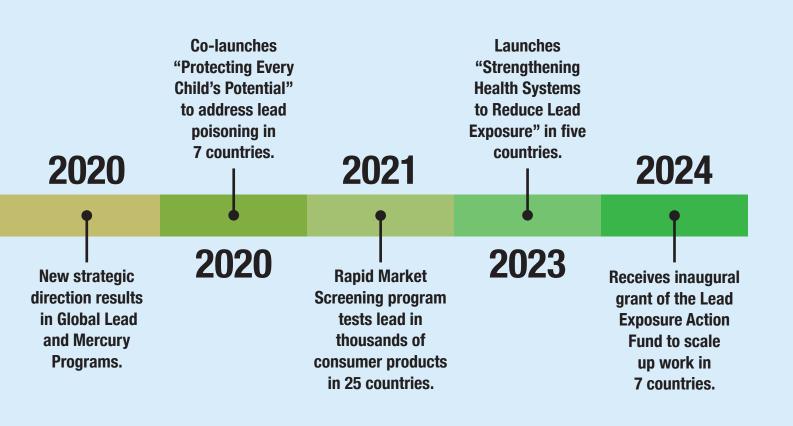


LOOKING AHEAD

Reduce Lead-poisoned Children by 50% by 2040

Pure Earth's future involves scaling its impact by sharing knowledge and intervention strategies with a broader community. With the aim to reduce lead-poisoned children by **50**% by 2040 ("50 by 40"), Pure Earth calls on governments, corporations, civil society groups, and communities to join this mission.

Our research shows that the most effective solutions use policybased approaches to impact as many people as possible. In Bangladesh, where **60**% of children suffer from lead poisoning,



Pure Earth estimates that **\$3 million** invested in time-tested interventions can impact **1 million children** at a cost of roughly **\$3** per child.

We are now in a phase where awareness of lead and mercury challenges is rapidly growing, and global actors are actively seeking solutions. Drawing on decades of experience and data, Pure Earth can save lives at a lower cost than ever, creating brighter futures for millions of children worldwide.

PURE DEARTH SiverCircle

In recognition of our 25th anniversary, Pure Earth is proud to introduce the SILVER CIRCLE—a distinguished group of individuals and organizations who have played a crucial role in our successes and are dedicated to our mission's future.

We are grateful to our Silver Circle Co-Chairs—Paul Brooke, Conrad Meyer, Ethan Sawyer, and Charlotte Triefus—and our members for their unwavering support in solving pollution, saving lives, and protecting the planet.

Join our community of thousands helping to solve pollution!







Subscribe to Pure Earth's Newsletter



SILVER CIRCLE MEMBERS

Alicia Ogawa **American Spice Trade Association Brilliant Earth Charlotte Triefus and Lloyd Zuckerberg Clarios Foundation Conrad and Sarah Meyer David and Leona Hunter Ethan and Emrah Sawver** Gloria Janata/TogoRun **Jascha Hoffman Giving Fund** John and Felicia Hendrix **Kathryn Huarte and Sheldon Kasowitz Meridian Bioscience** Paul Roux Roux Samantha and Scott Zinober **Troy Hysmith** William Talbott Hillman Foundation



GLORIA 'GLO' JANATA, JD Silver Circle and Pure Earth Board Member

"Pure Earth's outstanding team works tirelessly to help stop disease-causing pollution, including the devastating effects of lead and mercury poisoning. I'm proud to support this vital work and grateful to Rich Fuller and the team for their leadership and dedication to protecting our health and the health of the planet."



CONRAD MEYER Silver Circle Member and Pure Earth Board Chair Emeritas

"When I support Pure Earth, it's like giving myself a gift: the gift that comes with the satisfaction of knowing that I've helped millions of people in lower income countries impacted by the pernicious effects of lead and mercury poisoning. It's one of the best gifts I can think of."



"Brilliant Earth's mission is to create a more transparent, sustainable, compassionate, and inclusive jewelry industry. We have been proud partners with Pure Earth for many years now, supporting artisanal and small-scale gold miners (ASGM) in Madre de Dios, Peru to mine safely without mercury, to reforest land devastated by mercury used in ASGM, and to achieve their Fairmined certification in support of fair-trade gold."

MAKING A LEAD-FREE FUTURE A REALITY



PURE EARTH CELEBRATES LAUNCH OF THE PARTNERSHIP FOR A LEAD-FREE FUTURE AT THE UN GENERAL ASSEMBLY

We were honored to attend the launch of the Partnership for a Lead-Free Future (PLF) at the UN General Assembly on September 23rd, 2024. The PLF is a public-private partnership dedicated to tackling this neglected yet solvable issue affecting one-in-two children in lower-income countries.

The PLF kicked off in 2024 with **26 member countries**, **38 partner organizations**, including Pure Earth, and **\$150 million** in funding, with the ambition to end childhood lead poisoning in developing nations by 2040.

At the event hosted by USAID and UNICEF, an array of global leaders articulated the scale of the problem, the urgent need for action to protect children, and the range of effective interventions ready to be scaled up to end lead poisoning.

"As the leader of the world's largest development agency and the head of one of the world's biggest philanthropies, never in our careers have we seen such a compelling, low-cost opportunity to make such a massive impact on a major global killer."

—Samantha Power, Administrator, USAID and Alexander Berger, CEO, Open Philanthropy

SPEAKERS INCLUDED:

Dr. Jill Biden First Lady of the United States

Excelentísimo Señor Luis Rodolfo Abinader Corona Presidente de la República Dominicana

His Excellency Mr. Lazarus McCarthy Chakwera President of the Republic of Malawi and Commander-in-Chief of the Malawi Defence Force

His Excellency Mr. Ramchandra Paudel President of Nepal

Inger Andersen Executive Director, UN Environment Programme

Ajay Banga President World Bank

Alexander Berger CEO of Open Philanthropy

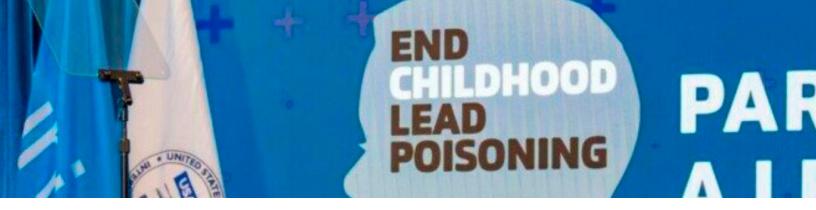
Aliko Dangote Dangote Foundation

Dr. Tedros Adhanom Ghebreyesus Director-General, World Health Organization

Samantha Power Administrator, USAID

Catherine Russell Executive Director, UNICEF

Anita Zaidi President of Gender Equality, Gates Foundation



WE ARE BEYOND GRATEFUL to USAID Administrator Samantha Power for recognizing and championing this issue on the global stage, and to Open Philanthropy for their belief in and support of our work. In a policy briefing at the World Economic Forum's Annual Meeting in Davos in January 2024, Administrator Power noted "never in my career have I seen an opportunity ... to deliver such a powerful blow to such an invisible killer for such a relatively small amount of funding."

On the heels of the formation of the PLF, Open Philanthropy launched the Lead Exposure Action Fund (LEAF), a collaborative fund to accelerate progress toward eliminating lead exposure through strategic grants for measurement, mitigation, and mainstreaming.

As a recipient of a new LEAF grant, Pure Earth will measure and mitigate lead exposure in 7 countries and Indian states, targeting sources such as spices, ceramics, cosmetics, metal cookware, and lead-acid batteries. Select projects include working with the Indian government to eliminate lead in spices in Bihar, Jharkhand and Uttar Pradesh; the first randomized controlled trial replacing lead-contaminated products in households, and interventions to address contaminated cosmetics and metal cookware in Ghana; and addressing unsafe lead acid battery recycling in Indonesia.

We heartily congratulate our fellow inaugural grantees—the Center for Global Development, Pahle India Foundation, Lead Exposure Elimination Project, and World Health Summit, and look forward to years of impactful collaborations.

Drew McCartor PRESIDENT & CEO

RACK

Rich Fuller

"This grant from the Lead Exposure Action Fund (LEAF) is a game changer, but still is a fraction of the funding required. We are hopeful that our LEAF grant will leverage the additional private and public resources needed to accelerate and expand our critical lead mitigation activities targeting some of the world's most impacted communities."

---Carol Sumkin, Vice President of Development, Pure Earth

PROGRAMMATIC SOLUTIONS

Focal CountriesWatch List Countries

LEAD

Globally, lead exposure kills at least **1.5 million** people each year, with most deaths in lowand middle-income countries. Childhood lead poisoning affects **1 in 3 children worldwide**. Over **90%** of these children live in low- and middle-income countries.

Pure Earth's Global Lead Program has been instrumental in elevating lead exposure as a priority for action by governments, policymakers, major funders, and other national and global actors.

Pure Earth is working to address lead poisoning in these focal countries: Bangladesh, Colombia,

Georgia, Ghana, India, Indonesia, Kyrgyzstan, Mexico, Peru, and the Philippines.

Priority countries on a "watch list" due to high levels of lead poisoning include Egypt, Nigeria, and Pakistan. These remain a priority for program expansion if and when additional resources are secured.

Our goal is to measurably and sustainably reduce lead pollution and poisoning where we work and to encourage and enable increased action by other stakeholders in the global health and development sphere.



5-PHASE APPROACH

Pure Earth's Global Lead Program strategy is designed around a framework of five core elements that apply in all countries. This 5-phase approach was informed by our years of experience implementing over 50 projects in multiple countries to mitigate lead exposure.

1 / Health Surveillance

Conduct baseline blood lead level (BLL) testing and analysis to understand prevalence, severity and location of exposure.

2 / Source Analyses

Measure likely sources in homes, markets and toxic sites where people have elevated lead levels, to determine the most significant sources of exposure.

3 / Source-specific Interventions

Design and implement a range of interventions to reduce exposures and the use or release of lead in products and industrial processes.

4 / Communications

Disseminate findings and recommendations to inform and build support with governments and funders for action.

5 / Institutional Strengthening

Enhance the capabilities of government institutions to plan, implement, and sustain effective public health programs to reduce lead poisoning.

Top to bottom: **Bangladesh**: blood lead study; **India**: XRF soil testing; **Bangladesh**: water sampling; **Ghana**: CD Esmond Quansah with media; **Ghana**: MOU signing event

KEY ACCOMPLISHMENTS



Pure Earth and our partners have made significant strides in combating lead poisoning worldwide, improving the health and well-being of communities affected by lead pollution.

RESULTS / 2020–2023



GLOBAL REACH 35 projects

led by Pure Earth in 31 countries to assess and prevent lead poisoning from a variety of sources, including spices, pottery, cookware, cosmetics and contaminated sites from used lead acid battery recycling.



HEALTH SURVEILLANCE **11,676 tests**

of blood lead levels administered in Bangladesh, Ghana, India, Indonesia, Mexico, and the Philippines.



HOUSEHOLD ASSESSMENTS 907 homes

assessed for lead exposure sources through 8 Home-Based Assessments in Bangladesh, Georgia, Ghana, India, Indonesia, and the Philippines.



5,800+ samples

of spices, paints, cosmetics, cookware, and other foods and products from 415 marketplaces in 25 countries analyzed for lead-contamination.



SITE ASSESSMENTS



assessed for contamination, including 217 new sites added to the Toxic Sites Identification Program database.



87,350 sq meters

of land contaminated with lead from used lead-acid battery recycling remediated through 4 projects in Bangladesh and India.



AWARENESS RAISING

79 events around the world organized to raise

awareness of lead pollution, including webinars, briefings, and outreach events.





Ghana: Pure Earth's International Women's Day Event. Photo: Pure Earth

PARTNERING WITH GOVERNMENTS TO REDUCE LEAD EXPOSURE

Pure Earth Bangladesh, UNICEF, and The Ministry of Environment, Forest and Climate Change (MoEFCC) signed an MOU to adopt a multi-sector committee to oversee policy gaps in lead mitigation and policy framework, to enhance better monitoring of lead.

Pure Earth Ghana, the Ghana Health Service, and UNICEF signed a Declaration of National Action to Reduce Lead Poisoning in Ghana, with 12 recommendations for taking action against lead exposure.

Pure Earth Indonesia signed a cooperation agreement with the Ministry of Health's Directorates of Environmental Health and Public Health. PE Indonesia also worked with the Ministry of Environment and Forestry and the Tegal Regency Government to create a remediation plan in Pesarean Village, Central Java, which was contaminated with lead. After the remediation, Pesarean Village will transform into a religious tourism destination.

Pure Earth Peru joins The National Center for Epidemiology, Prevention and Disease Control (CDC Peru) of the Ministry of Health (Minsa), and Vital Strategies in a joint effort to strengthen epidemiological surveillance of lead exposure in Peru. By signing a "Memorandum of Understanding" in Lima in 2024, these three entities seek to strengthen information systems, train health professionals, and generate evidence for public policies.



Studying lead levels in fish in Bangladesh. Photo: Pure Earth

GROUNDBREAKING SOURCE ANALYSIS

Pure Earth Bangladesh completed a pilot study of lead levels in fish, setting the stage for a larger, countrywide study of lead levels in fish and vegetables.

Pure Earth Indonesia, with the Bandung Institute of Technology, conducted detailed assessments of 3 sites: Pesarean, Cinangka, and Cinangneng, taking over 6,100 soil samples. Pure Earth has conducted field assessments of more than 170 sites in Indonesia, most contaminated with lead. In Mexico, over 28 homes and workshops were assessed, with 77 soil measurements in 6 workshops.

Pure Earth Peru held multiple rounds of training for government officials on toxic site identification. To date, 105 contaminated sites have been identified, including 29 with lead.

IMPACTFUL SOURCE-SPECIFIC INTERVENTIONS: LEAD

Pure Earth Ghana, the Ghana Health Service, and UNICEF signed a **Declaration of National Action to Reduce Lead Poisoning** in Ghana. It contains 12 recommendations for taking action against lead exposure.

Pure Earth Mexico and partners created the Centro de Recursos Especializados para Alfareros (CREA) for potters seeking to become lead-free. This virtual resource center provides videos, guides, and other useful resources on the process of making lead-free pottery such as glazes, kilns, and financial literacy. The website is continuously updated with new videos and resources. Pure Earth Mexico has also established ten Women's Circles in three states across Mexico. With family health assessments, technical training and support to market their lead-free pottery, the Circle of Women (Circulo de Mujeres) project helps grow the women's businesses while safeguarding the health and tradition of their families and future generations.



Girls drinking from lead-free pottery in Mexico. Photo: Pure Earth



COOKWARE: METAL & CERAMICS

Contaminated consumer goods, such as cookware and food products, affect millions of people in nearly every country in the world. Despite this, contaminated products are severely under-investigated and poorly understood. Pure Earth's screening program of consumer products found in marketplaces in more than 25 low-and middle-income countries documented that 52% of the metallic foodware samples, primarily made from aluminum, and 42% of ceramic foodware samples, were contaminated with high levels of lead.

Most LMICs' regulatory frameworks to ensure cookware is free of lead and other toxic materials are inadequate or non-existent. Governments simply don't have the capacity to assess and monitor manufacturers, supply chains, and distributors, critical for enforcement of any new or existing regulations and policies. Governments need urgent assistance in setting safety standards for cookware, assessing and monitoring supply chains, and building enforcement capacities.

In addition, further research needs to be conducted around the properties and leachability associated with cookware as well as mitigation strategies.

To that end, Pure Earth is launching research studies and cookware initiatives engaging public and industry stakeholders in the following locations:

Andean Region: Peru, Colombia
India: Tamil Nadu, Uttar Pradesh, Maharashtra

\$4,900,000 [Total Budget 2024–2026]
\$3,400,000 [Funding needed]
\$1,500,000 [Funds raised as of Fall 2024]



COSMETICS

Lead turns up in cosmetics as a contaminant; often it is added intentionally because it accentuates colors and helps products resist moisture. Dozens of countries have developed strict controls of lead in cosmetics, but in many low- and middle-income countries, regulations to limit lead exposure either do not exist lack enforcement.

In 12 out of 27 countries, over 10% of cosmetics tested exceeded reference levels of 2 parts per million (ppm), including every country tested in the Middle East, North Africa, and Southeast Asia.

In our 2023 representative blood lead level survey conducted in Ghana, a high prevalence of lead poisoning was found in the Muslim-majority region of Northern Ghana. Contaminated eyeliner, locally known as "Chilo," was identified through Home Based Source Assessments as a priority contributor to exposure. Some samples were 100% lead.

To that end, Pure Earth is conducting research including a supply-chain analysis of chilo eyeliner in Ghana and possibly Nigeria to identify how contaminated products enter the region and spread, and assist Ghana's government to develop and enforce effective consumer product safety policies and regulations.





USED LEAD-ACID BATTERIES (ULAB)

Approximately 86% of the total global consumption of lead is for the production of lead-acid batteries. Lead-acid batteries are recognized as a reliable and low-cost power storage technology, used in both electric and gas vehicles, as well as with renewable resources, such as wind and solar energy. Given that renewable energy sources play an increasingly critical role in the effort to mitigate climate change, the demand for lead-acid batteries will grow along with the risk of potential lead exposure, particularly in low- and middle-income countries.

Unlike the U.S. and Europe, where more than 95% of lead from ULABs is safely recycled, it is estimated that in LMICs, around 50% of used lead-acid batteries are recycled in the informal sector, where environmental standards and worker protections are often inadequate, leading to severe lead contamination.

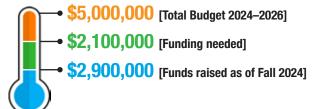
To date, Pure Earth conducted Blood Lead Level (BLL) surveys in ULAB affected areas of Bangladesh, Indonesia and Ghana.

Pure Earth and partners catalogued 534 contaminated sites from lead acid battery recycling in 34 countries affecting 1.2 million people. Pure Earth and local partners conducted more than 10 ULAB site cleanups including Colombia, Dominican Republic, Senegal, India, Vietnam and Bangladesh. BLL reductions ranging from 30%–72% were documented.

Properly managing the ULAB waste stream is more urgent and relevant than ever, requiring research, regulation, remediation, and improvement of a large and growing inventory of sub-standard, unsafe recycling operations.

To that end, Pure Earth is launching multi-faceted initiatives involving supply chain analyses, ULAB regulatory reviews, building the capacity of government officials to assess and cleanup ULAB sites, and develop and enforce effective regulations which could include the following geographies:

- East Africa (Tanzania, Kenya, Uganda)
- Ghana
- Peru/Colombia
- Indonesia



PROGRAMMATIC SOLUTIONS

MERCURY

Mercury is particularly dangerous to young children, fetuses, and pregnant women. The mercury released into the environment knows no borders and contaminates rivers and oceans, fish and other marine animals, and eventually the global food chain.

Mercury from artisanal and small-scale gold mining (ASGM) has eclipsed coal combustion as the largest source of mercury pollution in the world. ASGM activity releases an estimated **1,000 tons of mercur**y into the environment annually. Up to 20% of the world's gold comes from this highly polluting mining method. Pure Earth's Toxic Sites Identification Program (TSIP) has worked with **over 400 investigators in nearly 50 countries to identify and assess over 500 sites** around the world where exposure to mercury threatens the health of the population. Investigators assess contaminated sites, undertake environmental sampling and collect health data using a rapid assessment tool called the Initial Site Screening (ISS) protocol. This protocol was developed based on US EPA protocols.

Pure Earth's Global Mercury Program strategy focuses on decreasing mercury emissions to the environment from the main source of pollution— ASGM—and reducing human exposures, with an emphasis on the most severely affected populations, namely miners and surrounding communities.

SUPPORT THE TRANSITION OF MINERS TO MERCURY-FREE TECHNIQUES:

- Promotion by governments (policy and regulatory recommendations).
- Awareness and community education among miners and their families.
- Training on mercury-free mining techniques (technical capacity for transition).
- Testing of new technologies.
- Market-based activities that:
 - 1. Increase demand for mercury-free gold;
 - 2. Offer other incentives to produce or purchase mercury-free gold;
 - **3.** Ensure a low-friction market for mercury-free gold transactions.
- Other activities that guarantee responsible miners an economically advantageous future (including actors in the jewelry industry, the main user of gold).

MANAGE SITES CONTAMINATED WITH MERCURY:

- Toxic Site Identification Program (TSIP). This includes environmental assessments, health risk assessments, and database management of contaminated sites.
- Tailings and mercury waste management (cleanup and disposal).
- Reforestation, biochar fixation, and phytoremediation methods.
- Community awareness and education as well as risk communication activities.

Top to bottom: Training miners in mercury-free techniques; **Ghana:** Pure Earth launch of the Mercury Impact Assessment Study Project in Accra; **Colombia:** Assessing an abandoned gold mining site for mercury contamination; Training gold processors to improve their end product.

KEY ACCOMPLISHMENTS





Peru: Pure Earth, Brilliant Earth and AMATAF at reforestation location.

First Mining Communities Achieve Fairmined Certification in the Amazon

Pure Earth trains artisanal and small-scale gold miners in safe and profitable mercury-free mining techniques to reduce their exposure to mercury and minimize mercury released into the environment. To date, Pure Earth has **trained over 1500 miners**, including many women, to go mercury-free.

Four mining concessions of the Association of Artisanal Miners Tauro Fatima (AMATAF), located in Madre de Dios (Peru), have achieved a significant milestone by being the first to obtain Fairmined certification in the Amazon. This was part of a project developed by Pure Earth and the Alliance for Responsible Mining, with the support of the global jewelry company Brilliant Earth.

This remarkable achievement not only demonstrates that it is possible to have responsible mining in these areas but also opens a path towards the establishment of the first Fairmined certified gold supply chain in the Amazon, thanks to the support of jewelry companies such as Brilliant Earth, who provide markets for responsible gold extracted without using mercury.

Leading the Way to a Greener, Healthier Future in Mining Communities

Our latest research addresses the environmental and health impacts of over **300,000 small-scale mining operations** in Colombia, exploring how homemade copper plates, armed with an electrolytic layer of silver, are revolutionizing tailings treatment, **removing up to 85% of mercury.**

The International Journal of Sustainable Energy and Environmental Research recently published the study *Homemade copper-silver plates as an alternative for cleaning mercury-contaminated tailings from artisanal and small-scale gold mining in Colombia*, which includes the results and innovative techniques to mitigate mercurycyanide contamination and lead the way for a greener, healthier future in mining communities.

THOUGHT LEADERSHIP

RESEARCH PUBLICATIONS

Through our research initiatives, Pure Earth raises awareness and furthers scientific knowledge about the issues of lead and mercury pollution. Since our inception in 1999, Pure Earth's research has focused on our geo-referenced database of over **3,000 sites in about 50 countries**, and on quantifying the health impacts and economic burden of toxic pollution in low- and middle-income countries.

Pure Earth partners with academic institutions for collaboration to further our research aims. These ongoing efforts strengthen Pure Earth's technical capacities, making us more effective and providing added expertise and greater reach than we could achieve alone.

2023/2024 Publications & Reports

Evidence of turmeric adulteration with lead chromate across South Asia, Forsyth et al. *Science of the Total Environment*. November 2024.

Determinant Factors of Children's Blood Lead Levels in Java, Indonesia, Mansyur et al. *The International Journal of Hygiene and Environmental Health*. August 2024.

A Snapshot of Lead in Consumer Products Across Four US Jurisdictions, Porterfield et al. *Environmental Health Perspectives*. July 2024.

Assessment of prevalence of elevated blood lead levels and risk factors among children and pregnant women in Bihar, India. Lu et al. *Environmental Research*. July 2024.

Structured expert judgement approach of the health impact of various chemicals and classes of chemicals. Marti et al. *PLOS ONE*. June 2024.

Lead Exposure at Homes as Modifying Factors of Blood Lead Levels Among Young Children in Bihar, India. Nash et al. SSRN. June 2024.

Rapid Market Screening to assess lead concentrations in consumer products across 25 low- and middle-income countries. Sargsyan et al. *Scientific Reports*. April 2024.

Homemade copper-silver plates as an alternative for cleaning mercury-contaminated tailings from artisanal and small-scale gold mining in Colombia. Rodriguez et al. March 2024. The burden of diseases and risk factors in Bangladesh, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. GBD 2019 Bangladesh Burden of Disease Collaborators. *Lancet Global Health*. December 2023.

Rapid Assessment of Mercury Contaminated Sites. Ortega-Ramierz et al. Revista Facultad de Ingeniería Universidad de Antioquia. October-December 2023.

Invited Perspective: An Argument for Changing the Reporting Units for Lead in Blood. Caravanos et al. Environmental Health Perspectives. September 2023.

A Horizon Scan to Support Chemical Pollution-Related Policymaking for Sustainable and Climate Resilient Economies. Kupka et al. *Environmental Toxicology* and Chemistry. June 2023.

Bovine Lead Exposure from Informal Battery Recycling in India. Ferraro et al. *Springer Nature*. May 2023.

Child lead exposure near abandoned lead acid battery recycling sites in a residential community in Bangladesh: Risk factors and the impact of soil remediation on blood lead levels. Chowdhury et al. *Environmental Research*. March 2023.



Access Pure Earth research papers.



Pure Earth, Tauw and Lumetallix researchers comparing methods of lead detection. Photo: Pure Earth

The research team concluded that when developing lead poisoning prevention programs with community involvement, a combination of the three techniques sodium rhodizonate, Lumetallix, and the handheld XRF analyzer or conventional laboratory analyses—would enhance the effectiveness of investigations in resourceconstrained environments.



Watch the team conducting field research in India.

FIELD-TESTING LOW-COST LEAD DETECTION METHODS

There is a need for low-cost, accessible lead detection technologies to scale up site assessment and mitigation efforts. The TAUW Foundation, Pure Earth, and Lumetallix conducted research in Tamil Nadu, India evaluating over a dozen methods to detect lead in soil. Current detection methods, such as handheld X-Ray Fluorescence (XRF) analyzers, though effective, are very expensive, require specialized training, thus limiting their accessibility.

The project report, *The Assessment Of Lead Detection Methods In Tamil Nadu India And Beyond*, details the investigation beginning with an evaluation of 13 potential low-cost lead detection methods, selecting four for further testing: ferric ferrocyanide (Prussian Blue), sodium rhodizonate, RGB Image Recognition, and Lumetallix. Following laboratory and field tests, two methods, sodium rhodizonate and Lumetallix, were the most effective.

The research team concluded that when developing lead poisoning prevention programs with community involvement, a combination of the three techniques—sodium rhodizonate, Lumetallix, and the handheld XRF analyzer or conventional laboratory analyses—would enhance the effectiveness of investigations in resource-constrained environments.

RAISING AWARENESS

With communications operations established in several Pure Earth offices, awareness of the issues and the impact of our work is reaching millions more people.

- Pure Earth was prominently featured in an opinion piece by Nicholas Kristof in *The New York Times*. The article, titled "*Will This New U.S. Project Make the World's Children Smarter?*," brings additional national attention to the urgent global crisis of childhood lead poisoning—a cause we have long championed.
- Pure Earth led a global effort to disseminate both *The Lancet Planetary Health Journal* published, "Global health burden and cost of lead exposure in children and adults: A health impact and economic modelling analysis," by Bjorn Larson and Ernesto Sánchez-Triana, PhD and our Rapid Market Screening results. Country level breakdown of the data resulted in media coverage in several nations.
- Pure Earth, the World Bank, and CGD co-hosted a briefing, "Groundbreaking Analysis of the World's Top Toxin: Lead," on the World Bank's new estimates of annual deaths caused by leadrelated cardiovascular disease, the findings of Pure Earth's global study of 5000+ consumer items; and CGD's working paper on lead exposure and learning outcomes.
- Pure Earth Bangladesh and the Lead-Safe Bangladesh Coalition carried out a joint media campaign, to disseminate *The Lancet Planetary Health* and Pure Earth's RMS study results, and publish 10 action points.
- Pure Earth, Institute of Environment and Eco-Development, Vital Strategies, and Mahavir Cancer Institute and Research Center convened a conference, "Understanding Lead Poisoning Prevalence and Solutions in Bihar," to share BLL survey and HBA results with state-level stakeholders.

ADDITIONAL MEDIA COVERAGE

Over 90 major media articles about Pure Earth and lead issues were published in 40 countries between 2020–2024, with top tier coverage from organizations such as Vox, Agence France Presse (global wire service), *Daily Mail, Medscape, Science Alert, The Daily Star, The Manila Times,* Financial Express Healthcare, and *Environmental Health News.*

In India, Pure Earth was featured in more than 400 media hits, including Times of India, Down To Earth, The Print, Deccan Chronicle, and Financial Express.

In Ghana, Pure Earth was featured in more than 70 media hits and opinion pieces, including Business & Financial Times, Africa Spy, Joy Online (The Multimedia Group), and Graphic Online.

CONGRESSIONAL & PRESIDENTIAL ADVOCACY EFFORTS

Pure Earth continues to engage with House and Senate offices on resolutions expressing concern about lead exposure globally. Sen. Duckworth and Sen. Booker co-chair the Senate Lead Task Force. In July 2024, the U.S. house introduced H.Res 1350, *Expressing concern about the elevated levels* of lead in one-third of the world's children and the global causes of lead exposure, and calling for the inclusion of lead exposure prevention in global health, education, and environment programs abroad.

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2023 FINANCIAL STATEMENT

Consolidated Statement of Financial Position

Years Ended December 31, 2022-2023

	2023	2022
ASSET		
Current Assets		
Cash and Cash Equivalents	2,925,974	7,225,471
Grants Receivable	4,515,426	1,459,830
Pledges Receivable	235,890	200,000
Other Receivable	_	319,718
Prepaid Expenses & Other Current Assets	345,885	525,002
Total Current Assets	\$8,023,175	\$9,730,021
Grants Receivable-Non-current, net	4,376,696	5,038,601
Pledges Receivable-Non-current, net	-	91,860
Property & Equipment, net	300,319	409,186
Right of Use Asset, net	203,962	356,250
Security Deposit	38,809	27,486
Total Assets	\$12,942,961	\$15,653,404
LIABILITIES AND NET ASSETS		
Current Liabilities		
Accounts Payable	502,561	253,261
Accrued Expenses & Other Payables	228,638	353,106
Lease Liabilities-Current	191,846	173,851
Total Current Liabilities	\$923,045	\$780,218
Lease Liabilities-Non-Current	8,557	166,869
Total Liabilities	\$931,602	\$947,087
Net Assets		
Without Donor Restriction	1,830,191	1,514,059
With Donor Restriction	10,181,168	13,192,258
Total Net Assets	\$12,011,359	\$14,706,317
Total Liabilities and Net Assets	\$12,942,961	\$15,653,404

Consolidated Statement of Activities

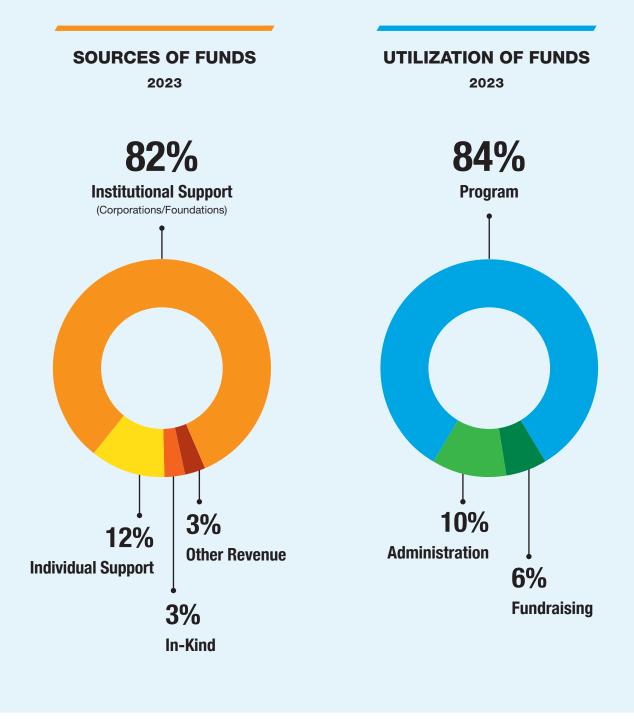
Years Ended December 31, 2022-2023

		2023			2022	
	Without Donor Restrictions	With Donor Restrictions	Total	Without Donor Restrictions	With Donor Restrictions	Total
REVENUE & SUPPORT						
Grants	_	4,178,717	4,178,717	_	8,088,821	8,088,821
Contributions	280,206	262,450	542,656	308,610	505,793	814,403
Fundraising Income, net of cost of direct benefit to donors of \$138,932 and \$108,704	361,340	-	361,340	422,975	-	422,975
In-Kind Contributions	161,069	_	161,069	266,112	_	266,112
Net assets released from restrictions	7,535,424	(7,535,424)	_	8,042,473	(8,042,473)	_
Total Revenue & Support	\$98,338,039	\$(3,094,257)	\$5,243,782	\$9,040,170	\$552,141	\$9,592,311
OPERATING EXPENSES						
Program	6,771,352	_	6,771,352	6,938,581	_	6,938,581
Administration	808,117	_	808,117	937,431	-	937,431
Fundraising	509,671		509,671	528,302	—	528,302
Total Operating Expense	\$8,089,140	\$—	\$8,089,140	\$8,404,314	\$—	\$8,404,314
Excess of Revenue & Support over Operating Expenses	\$248,899	\$(3,094,257)	\$(2,845,358)	\$635,856	\$552,141	\$1,187,997
NONOPERATING ACTIVITES						
Employee Retention Credit	_	_	_	319,718	_	319,718
Other Income	96,339	83,167	179,506	23,900	_	23,900
Foreign Currency Translation Adjustment	(29,106)	_	(29,106)	40,259	_	40,259
Change in Net Assets	\$316,132	\$(3,011,090)	\$(2,694,958)	\$1,019,733	\$552,141	\$1,571,874
Net Assets – Beginning	\$1,514,059	\$13,192,258	\$14,706,317	\$494,326	\$12,640,117	\$13,134,443
Net Assets—Ending	\$1,830,191	\$10,181,168	\$12,011,359	\$1,514,059	\$13,192,258	\$14,706,317

Consolidated Statement of Cash Flows

Years Ended December 31, 2022-2023

	2023	2022
OPERATING ACTIVITIES		
Change In Net Assets	(2,694,958)	1,571,874
Adjustments to Reconcile Change in Net Assets to Net Cash from Operating Activities		
Depreciation	144,059	118,003
Bad Debts	20,914	115,360
Discount on Grants Receivable	67,653	438,526
Discount on Pledges Receivable	(8,140)	8,140
Amortization of Right of Use Asset	207,203	192,388
Change in Operating Assets & Liabilities		
Grants Receivable	(2,461,344)	(1,304,607)
Pledge Receivable	64,110	(146,833)
Other Receivable	319,718	(319,718)
Prepaid Expenses & Other Current Assets	158,203	52,945
Security Deposit	(11,323)	(1,233)
Account Payables	249,300	(2,072)
Accrued Expenses & Other Payables	(124,468)	124,958
Lease Liabilities	(195,232)	(207,918)
Net Cash Used by Operating Activities	\$(4,264,305)	\$524,453
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchases of Property & Equipment	(35,192)	(110,561)
Net Change in Cash & Cash Equivalents	\$(4,299,497)	\$413,892
CASH AND CASH EQUIVALENTS		
Beginning of Year	\$7,225,471	\$6,811,579
End of Year	\$2,925,974	\$7,225,471





Pure Earth is accredited with observer status by The United Nations Environmental Programme Governing Council/Global Ministerial Environment Forum, giving Pure Earth an entry point into policy dialogue with UNEP.

EVENTS



2023 BENEFIT

Evidence to Impact—Celebrating Progress on Pollution and Children's Health

In October 2023, Pure Earth held our Annual Benefit at The Current at Chelsea Piers in New York City.

The 2023 Honorees were:

Green Benefactor Award RUBÉN KRAIEM Senior Counsel,

Covington and Burling LLP

Impact Award

IRIS VAN DER VEKEN Executive Director, The Watch and Jewellery Initiative 2030



2024 FORCE OF NATURE CELEBRATION

International Women's Day

In March 2024, we held our International Women's Day Force of Nature Celebration at Affirmation Arts in New York City.

The 2024 Honorees were:

ANDREA JOSÉ CASTRO Founder, CEO and Creative Director of Casa Collab

ALLISON CHARALAMBOUS Vice President, Responsible Sourcing + Sustainability, Brilliant Earth

VILMA CONTRERAS President, AMATAF Mining Association, Peru

GRACIELA MONTAÑO Executive Chef and Founder, Aura Mexican Cooking, Mexico





WORLSAMESBOUP PURE CARTH CCD

Groundbreaking Analysis of the World's Top Toxin: Lead Thursday September 14th, 2023 Breakfast Briefing, 9am ET

Speakers

Rachel Silverman Bonnifield, CGD Richard Fuller, Pure Earth Dan Kass, Vital Strategies Bjorn Larsen, World Bank Emily Nash, Pure Earth Ana Navas-Acien, Mailman School of Public Health Ernesto Sanchez-Triana, World Bank Abheet Solomon, UNICEF Angela Bandemehr, US EPA

Agenda

8:45 - 9:15am ET Registration & Breakfu

Impacts on Heart Health & IQ, Sources of Exposure, and Solutions

Briefing by the authors of a groundbreaking World Bank analysis soon to be published in The Lancet Planetary Health with new estimates of the global health burden, IQ loss, and economic costs of lead poisoning.

Pure Earth will release findings from the largest survey of lead levels in consumer goods in low- and middleincome countries, with data from ~5,000 items from markets across 25 countries, highlighting trends and areas of concern.

Finally, a panel of experts will discuss a roadmap for solutions in the near and long term.

RESEARCH BRIEFING

Impacts on Heart Health & IQ, Sources of Exposure, and Solutions

In September 2023, Pure Earth in partnership with the World Bank and Center for Global Development (CGD), held a research briefing at the Joseph Durst Center in New York City. Researchers presented their findings on lead and cardiovascular disease published in *The Lancet Planetary Health* journal, along with the results of Pure Earth's groundbreaking 25-country study of lead in consumer products.



SOLVE POLLUTION. SAVE LIVES. PROTECT THE PLANET.





GET INVOLVED TODAY!

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