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Pure Earth: First-of-its-Kind Lead Contamination Study Shows High Levels of Lead in Consumer Goods and Foods Produced in Low- and Middle-Income Countries and Available Globally Including in the U.S.

- *Pure Earth’s “Rapid Market Screening (RMS)” study, the largest and most diverse of its kind to date, found high rates of lead contamination in metal and ceramic foodware, paint, cosmetics, and toys, posing potentially serious health risks to those exposed to them*
- *New World Bank research published in The Lancet Planetary Health reveals a dramatically greater burden and cost of lead exposure on IQ loss in children and on cardiovascular deaths in adults, six-fold greater than previously thought, and an estimated global cost of US\$6 trillion.*
- *Pure Earth unveils a seven-point action plan to address the lead contamination crisis and calls for increased investment to scale proven solutions.*

NEW YORK, NY, September 12, 2023— Pure Earth, an international nonprofit organization that leads in global toxic pollution identification and cleanup, announces findings from its global Rapid Market Screening (RMS) study of sources of lead contamination in more than 5,000 samples of consumer goods and food products across 25 low- and middle-income countries (LMICs). The most comprehensive global survey of lead contamination ever conducted, the RMS found high prevalence rates of lead exceeding reference levels, based on public health guidelines or regulatory standards, in metal foodware (52%), ceramic foodware (45%), various types of paint (11% to 48%), toys (13%), and cosmetics (12%). The findings support World Bank data published today in *The Lancet Planetary Health* indicating serious health risks from lead exposure.

Pure Earth President Richard Fuller, who also served as an advisor for the World Bank report, said, “Pure Earth’s RMS study and *The Lancet Planetary Health* report demonstrate that lead pollution knows no boundaries. While severe lead contamination is well documented in toxic hotspots that poison local communities in many LMICs, our research indicates that hundreds of millions of people have elevated blood lead levels due to continuous, long-term exposure to household lead sources increasing serious health risks across lifespans. More people are dying from cardiovascular disease caused by lead exposure than by cholesterol¹.”

“Both the Pure Earth RMS study and the World Bank report should serve as a wakeup call to public health officials and physicians around the world, especially cardiologists,” said Ana Navas-Acien, professor and Vice Chair of Research in the Department of Environmental Health Sciences at Columbia Mailman School of Public Health. “The data suggest that lead exposure levels should be considered when cardiovascular disease is presented and remediating efforts may be required to help best care for the patient, including eliminating or significantly reducing exposure to lead products that may be in the household.”

About Pure Earth’s RMS Study and the Lancet Planetary Health Report

For the RMS study, investigators collected and analyzed over 5,000 consumer and food products from 70 marketplaces across 25 countries.²

Overall, out of 5,010 household products and food samples analyzed, the RMS showed 18% had lead levels exceeding reference levels for the various product types. The report also includes the prevalence of lead contamination above reference levels for each product type, in each of the 25 countries, three Indian states, and by region.

A seven-point action plan is detailed in the report beginning with recommendations to expand blood lead level surveillance and home-based source assessments, then detailing strategies to get lead out of consumer products that are commonly contaminated. For example, there are some countries that are leading producers of Kohl eyeliners with high concentrations of lead. These products are bought by consumers all over the world via e-commerce retailers. To solve this widespread exposure, Pure Earth recommends going to the source, tracking contaminated products to their production facilities and then working with governments and producers to eliminate lead use. Efforts to eliminate lead in consumer products could have global impacts. This approach solved the widespread contamination of spices with lead chromate in Georgia and Bangladesh.

A full copy of the Pure Earth RMS report, “*Lead in Consumer Goods: A 25-country analysis of lead (Pb) levels in 5,000+ products and foods*,” is available [here](#).

Drew McCartor, Pure Earth Executive Director stated, “It is now clearer than ever that lead is the most damaging chemical pollutant to global public health. Despite this, we see very little public awareness, resources, and action. We simply cannot allow generation after generation of children to continue suffering from permanent brain damage and premature death as a result of this metal. It must be removed from all non-essential uses. There is no reason to continue allowing lead in our foods, spices, paints, cookware, toys, or any other product that could cause exposure. Solutions exist, and they must be prioritized.”

Published on September 12, 2023, *The Lancet Planetary Health* paper showed the level of harm due to lead exposure is greater than previously thought. Specifically, based on data from 2019, the report showed:³

- Children under five years old worldwide lost **765 million IQ points**. Those living in LMICs lost 729 million IQ points, an **average loss of 5.9 IQ points per child**. This IQ point loss is 80% greater than previously estimated.⁴

- 5.5 million adults died from cardiovascular disease (CVD) due to lead exposure; this is **six times greater** than the 2019 estimate by the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD).
 - Previous estimates included CVD deaths only from lead-mediated high blood pressure
 - The new mortality calculation is based on the lead's estimated effects on CVD deaths caused by factors other than high blood pressure, e.g., damage to the heart and arteries due to atherosclerosis and increased incidence of stroke
- About **90% of CVD deaths and 95% of IQ point loss due to lead exposure were in LMICs**
- The global financial cost of lead exposure was US\$6 trillion, **equivalent to 7% of global GDP**. In LMICs, these costs accounted for more than 10% of GDP, or twice as high as in High Income Countries (HICs).
- More than three-fourths of the economic cost (77%) was due to CVD deaths and associated income loss from premature mortality; nearly one-fourth of the economic cost (23%) was due to estimates of lower future income caused by IQ loss

Amplifying Pure Earth's call for increased investment, lead author of *The Lancet Planetary Health* article and former World Bank environmental economist Bjorn Larsen said, "This study indicates that the damaging health effects from lead exposure are even greater than we previously thought, and that they come at a very high economic cost, especially in low- and middle-income countries. Consequently, improved quality of blood lead level measurements, lead exposure identification, research, policies, and practices are urgently needed to address that burden."

"The donor community needs to examine global health priorities and begin investing in solutions to lead poisoning that are more aligned with the scale of its impact," urges Fuller. "Also, development agencies investing in education, maternal and child health, heart disease and stroke, need to consider how damage from lead exposure may be undermining those investments. Currently the spend on lead within development aid is a pittance - around \$10 million, in contrast to nearly \$10 billion for HIV and over \$2 billion for malaria, both of which have much lower casualty rates. It's clear there needs to be a rebalancing among aid agencies globally."

Benefit cost analyses soon to be published find the return on investment for all types of interventions on lead mitigation are showing strong results. Each dollar spent on lead-contaminated spice mitigation may return over \$20,000 in benefit. Leaded paint regulation and halting leaded glazes in ceramics are also showing returns that are one thousand-fold. Even remediation of the worst toxic sites yields returns of up to 20-fold.

The Lancet Planetary Health report can be accessed [here](#).

About Pure Earth

Pure Earth is a leading nonprofit organization dedicated to saving and improving lives and protecting the planet by reducing disease-causing pollution in low- and middle-income countries. Since its inception in 1999, Pure Earth and its field teams have completed more than 120 projects in 27 countries using best-in-

class science, analytics, and engineering practices to identify toxins and teach communities how to improve soil, water, and air quality with pragmatic, cost-effective solutions. Pollution is the largest environmental cause of death and disease in the world, stealing 9 million lives each year, and disabling hundreds of millions of children. Pure Earth prioritizes actions that protect the developing brains and bodies of children and pregnant women with a specific emphasis on lead and mercury exposure. Partnering with governments, communities, and industry leaders, Pure Earth aims to elevate pollution as a global priority, create sustainable change, and support a healthier future. www.pureearth.org

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For embargoed access to the reports, appendices, data sets and visualizations, please see:

<https://www.pureearth.org/rmsmedia/>

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References

- 1) Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Human Resources for Health 1990-2019. Seattle, United States of America: Institute for Health Metrics and Evaluation (IHME), 2023.
- 2) Pure Earth's Rapid Market Screening program was conducted in 27 study locations, including: Armenia; Azerbaijan; Bangladesh; Bolivia; Colombia; Egypt; Georgia; Ghana; the Indian states of Maharashtra, Tamil Nadu, and Uttar Pradesh; Indonesia; Kazakhstan; Kenya; Kyrgyzstan; Mexico; Nepal; Nigeria; Pakistan; Peru; the Philippines; Tajikistan; Tanzania; Tunisia; Türkiye; Uganda; and Vietnam
- 3) Larsen B, Sanchez-Triana E. Global health burden and cost of lead exposure in children and adults: a health impact and economic modelling analysis. *Lancet Planet Health*. 2023;vol 7. doi: [https://doi.org/10.1016/S2542-5196\(23\)00166-3](https://doi.org/10.1016/S2542-5196(23)00166-3)
- 4) Attina TM, Trasande L. Economic costs of childhood lead exposure in low- and middle-income countries. *Environ Health Perspect* 2013; 121: 1097–102.

