Lead is one of the most toxic and hazardous pollutants in the world, poisoning 1/3 of all children. Of the 800 million children with elevated lead levels globally, 275 Million are in India—which is 50% of all children in India.

Exposure to lead can cause:

- Brain damage, and cognitive and intellectual impairment in young children.
- Aggressive and violent behaviors in those exposed at young age.
- Heart and kidney damage in adults.

The estimated annualized GDP loss from lower economic productivity and reduced lifetime earnings is US$236 bn or 5% of GDP in 2012.

Lead is one of the most toxic and hazardous pollutants

Lead is a potent neurological and cardiovascular toxicant. In addition to death, research shows that exposure to lead causes other serious health issues including:

- Heart and kidney damage in adults.
- Permanent damage affecting a child's brain development and central nervous system. This causes reduced intelligence, attention deficit disorders, lower educational attainment, and autism.
- Anger management issues, and aggressive and violent behaviors in persons exposed early in life.
- Reduced lifetime earnings.

Although other toxic chemicals and heavy metals have known human health impacts, none are as well studied as lead, and thus their impacts to death and disability are not included in Burden of Disease analyses by WHO and IHME. Lead is responsible for 900,000 deaths per year, with over 230,000 of those deaths occurring in India. Rough expert estimates suggest that mercury may cause fewer than 10,000 premature deaths in India. Deaths from pesticides—most of which are the result of self-poisoning—are likely similar. Exposure to arsenic, which is naturally occurring, kills several tens of thousands of people in India each year. Other toxins of concern include PCBs, BFRs, PFAS, EDCs, asbestos, and chromium. None are currently known to have as large an impact on premature death and disability as lead.

Further, of the 900,000 annual deaths from exposure to lead, over 230,000 (or 26%) are in India alone. Taken together, the number of children impaired by lead, and the extent of premature mortality from exposures to lead, India bears the world’s greatest health and economic burden from this dangerous pollutant.

Geographic distribution of lead deaths expressed as a rate of death per 100,000 residents in 2018. The problem of lead pollution is most serious in southern India, particularly in Tamil Nadu.
While the phasing out of leaded petrol resulted in a consistent decline in lead contamination in the developed world, India has seen a 21% increase in deaths caused by lead exposure since 1990. A key source of exposure to lead in India arises from the informal or substandard recycling of used lead acid batteries (ULABs), which release lead dust and particles into neighborhoods, contaminating nearby schools, playgrounds and residences.

More than 50% of all batteries in India are estimated to be recycled in the informal sector. Interestingly, inspections reveal that many small and medium-sized licensed lead recyclers employ substandard, polluting practices, and are also cause for concern.

Of the nearly 500 toxic sites assessed by Pure Earth India, more than 80% were contaminated with heavy metals, and the majority were locations of unsafe, licensed lead-acid battery recycling operations. The move to electric vehicles will not resolve this problem as these vehicles still need lead-acid batteries to backup lithium-ion batteries.

Other products that are contaminated with lead are:
(a) Spices, especially turmeric, where lead chromate may be added to enhance the yellow color; (b) cosmetics, including sindoor, kajal, surma, bindi and amulets; and (c) artisanal metallic cookware, and toys.

The source for procuring lead for these unorganized sector manufacturers can be the informal battery processors.

The impacts of lead on physical and mental well-being has economic implications which have been estimated at around 1.20% of world GDP in 2011 (1.88% for the Asian region). It is estimated that diminished IQ in lead-poisoned children results in a loss of $236 billion in 2012 (5% of India’s GDP) in economic productivity every year. Another analysis estimates that India loses 5.21% of its potential annual GDP from the reduced lifetime earnings of individuals associated with IQ decrement from lead poisoning.

In addition, there is the incalculable cost of social instability in India as a result of childhood lead exposures.
TACKLING LEAD EXPOSURES:
A TOP NATIONAL PRIORITY

Given the significant impact on health, wellbeing and wealth, reducing India’s lead pollution should be an urgent and nationwide priority. As in other low- and middle-income countries (LMICs), effectively reducing lead exposures in India will yield manifold benefits: it will improve human health, protect children’s potential, enhance economic growth and development, and contribute to social harmony.

Corporate India, particularly those that are directly and indirectly (financiers) associated with lead, should take this up as a top priority under their CSR/ESG framework.

Given that there are several potential sources of exposure to lead in India, tackling them will involve tailored approaches. The menu of interventions in each state or city will depend on the principal exposure sources identified. The remedial measures required include:

- Regulation including abolition of GST on recycled battery to remove the arbitrage benefitting informal recyclers,
- Enforcement—removal of unauthorized battery processors and implementing strict guidelines for formal sector,
- Regulation and enforcement of producers of products, such as spices or cookware, which are poisoning consumers with lead,
- Public education and awareness-raising, and
- Clean-up of contaminated sites (paid for, to the extent possible, by the polluters).

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PURE EARTH HAS BEEN WORKING IN INDIA FOR OVER 15 YEARS

Pure Earth has been addressing public health issues stemming from chemical and heavy metal pollutants, especially lead.

Based in New Delhi, Pure Earth has a multi-faceted program addressing childhood lead poisoning, which entails the following components:

1. Two state-wide programs: Bihar and Tamil Nadu. Bihar is India’s poorest state and has a significant presence of unsafe battery recycling and adulterated spices, making it an important state in which to invest in solutions. Tamil Nadu ranks in the top three states with lead poisoned children. Pure Earth is working with these states to establish a framework of policies and state-wide programs endorsed by the national and state pollution control boards to reduce lead poisoning from a variety of sources and build demand for replication. To that end, Pure Earth will work with state and local officials to:

- Assess the extent and sources of lead exposures;
- Upgrade battery recycling practices and phase out informal/illegal ULAB recycling;
- Assess supply chains of spices and other food products and cookware;
- Build capacity to remediate high-risk sites that are contaminated with lead; and
- Implement policies and monitoring systems to ensure lead-free practices.

2. Development of policy recommendations with the national government including the revision of India’s Battery Management/Handling Rules and facilitating their enforcement;

3. Creation of a public education campaign to help families protect young children and to spur additional action on pollution.