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## Policy Brief:

# Reducing Childhood Lead Poisoning in Indonesia

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Lead is a highly toxic metal that occurs naturally, and its pervasive use by humans has exacerbated exposure and the harm it can cause. Lead is known to cause myriad acute and chronic effects including loss of appetite, constipation, abdominal colic, decreased IQ, behavioral problems, hearing and balance problems, encephalopathy, anemia, growth retardation, delayed sexual maturation, increased dental caries, cardiovascular disease, renal disease, convulsions, coma and death.

Human activities linked to lead poisoning include the formal and informal recycling of used lead acid batteries (ULABs), lead pigments in paint and batik coloring, coal-fired thermal power plants, artisanal and small-scale gold mining,[1] lead-contaminated soil from the combustion of leaded gasoline, discharge from industrial activities, and ship waste. In Indonesia, the primary known sources of lead exposure for children and adults are from lead-based paints and the recycling of ULABs.

Globally, it is estimated that lead poisoning affects one in three (up to 800 million) children.[2]

In Indonesia, it is estimated that more than 8 million children have blood lead levels above 5 micrograms per deciliter (µg/dL), a level which requires action.[2]

In this policy brief, we outline the problem of lead poisoning in Indonesia and make recommendations for actions that Indonesia can take in the following categories: ULABs, paint, recovery and remediation of lead-contaminated sites, and health and education.

### ULABs

The recycling of ULABs, and in particular informal recycling, is a key source of lead exposure for the workers and communities that run recycling facilities. There are several actions that government stakeholders can take to address the problem of unsafe and unlicensed recycling; this brief provides a number of recommended actions. Stronger policy is needed on ULAB management, starting with the extended producer responsibility mechanism, so that batteries from households, collectors, workshops, etc., are returned to formal/licensed smelting and prevented from entering the informal smelting sector. In the management of ULABs, law enforcement should be the last option in handling ULABs in the informal sector.

### PAINT

Lead in paint is another key source of exposure, particularly because Indonesia does not have mandatory limits on the use of lead in paint.

### RECOVERY AND REMEDIATION OF LEAD-CONTAMINATED SITES

This refers to how lead is generally regulated and used in Indonesia, as well as how lead contamination should be managed, for example, procedures for identifying lead-contaminated land, recovery methods, and the execution of recovery in accordance with applicable regulations.

### HEALTH AND EDUCATION

Lead exposure is a public health issue, and addressing it requires the collaboration and education of the public, including health professionals, caregivers and community members.

## CHILDHOOD LEAD EXPOSURE — A CONCERN THAT'S OFTEN IGNORED

According to the World Health Organization (WHO), there is no known safe level of lead exposure. There are also no effective treatments to reverse the neurodevelopmental effects of lead poisoning. Even levels of exposure previously thought to be safe have been shown to damage children's health and impair their cognitive development, causing lasting damage.

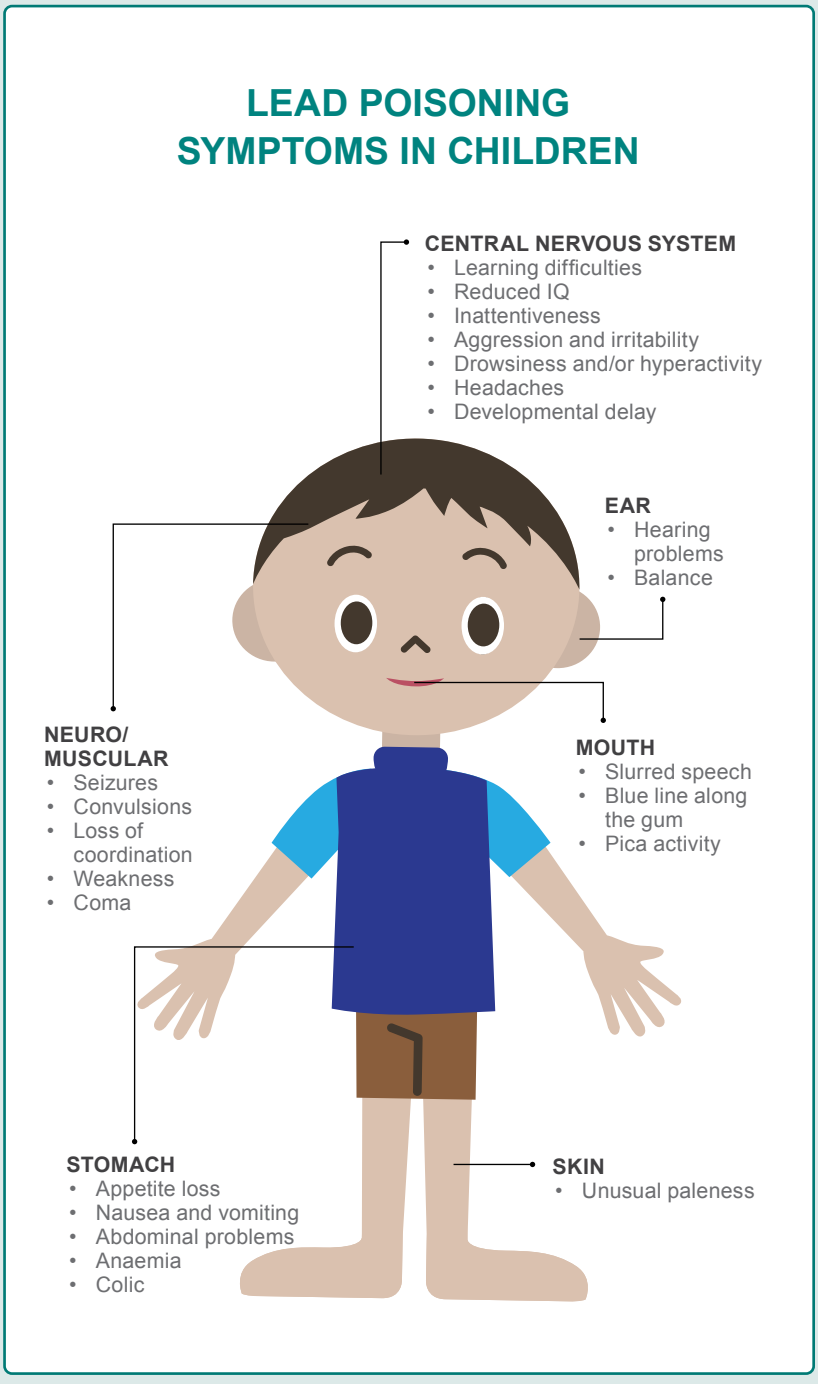



*Figure 1. UNICEF and Pure Earth. "The toxic truth: Children's exposure to lead pollution undermines a generation of future potential." (2020)*[2]


## Children are more vulnerable to lead exposure than adults for several reasons.

1. They absorb four to five times more of the lead that enters their bodies than do adults.[3]

2. Their relative intake of lead from a contaminated environment is higher, as they breathe, drink and eat more per unit of body weight than adults.[4]

3. Young children engage in hand-to-mouth activity and are closer to the ground, increasing the likelihood that they will ingest lead from soil or dust.

4. A child's brain grows at its fastest rate during the early years of life, when the blood-brain barrier is not fully developed. Neurological damage is often higher for children than for adults with similar levels of lead exposure.[5]

# LEAD AND CHILDHOOD IQ

Quantitatively, lead's impact on neurodevelopment is best reflected in its relationship with childhood IQ. The figure below shows the relationship between blood lead and IQ using data from seven different studies spanning multiple countries.[6] The decline in IQ is sharper at lower blood levels (<10 µg/dL), with no evidence of a threshold.

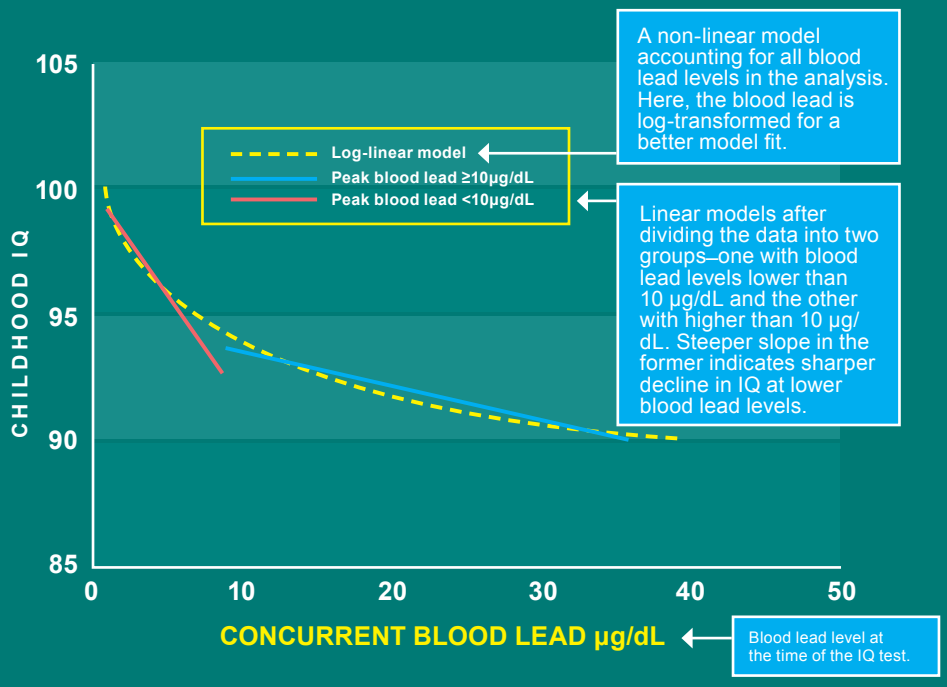



*Figure 2. IQ declines as blood lead level increases, with sharper decline at lower levels. Adapted from Lanphear, Bruce P., et al. "Low-level environmental lead exposure and children's intellectual function: an international pooled analysis." Environmental health perspectives 113.7 (2005): 894-899.(a)*

Not only are shifts in IQ consequential for a single child, but these changes also matter at a population level. When a population's exposure to lead is substantial, it can lead to an overall decline in intellectual abilities. In the figure below, for example, a five-point drop in population mean IQ translates to a 57% increase in the number of children falling into the "challenged" category.[7] In other words, the number of children with IQ<70 increases from 6 million to 9.4 million accompanied by a corresponding decrease in the number of children in the intellectually "gifted" group (IQ>130). Eventually, such population-level lead exposure can hamper children's performance in school and overall mental capabilities, and prevent them from fully contributing to society when they become adults.

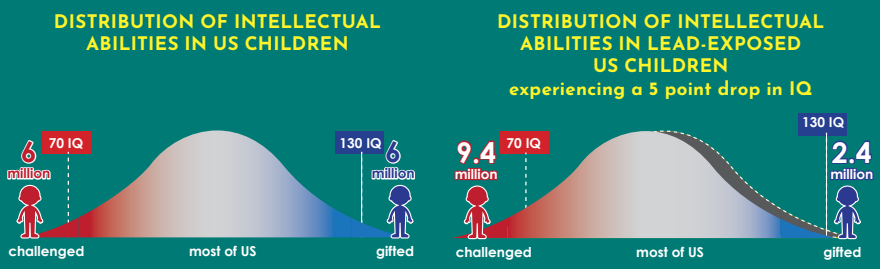


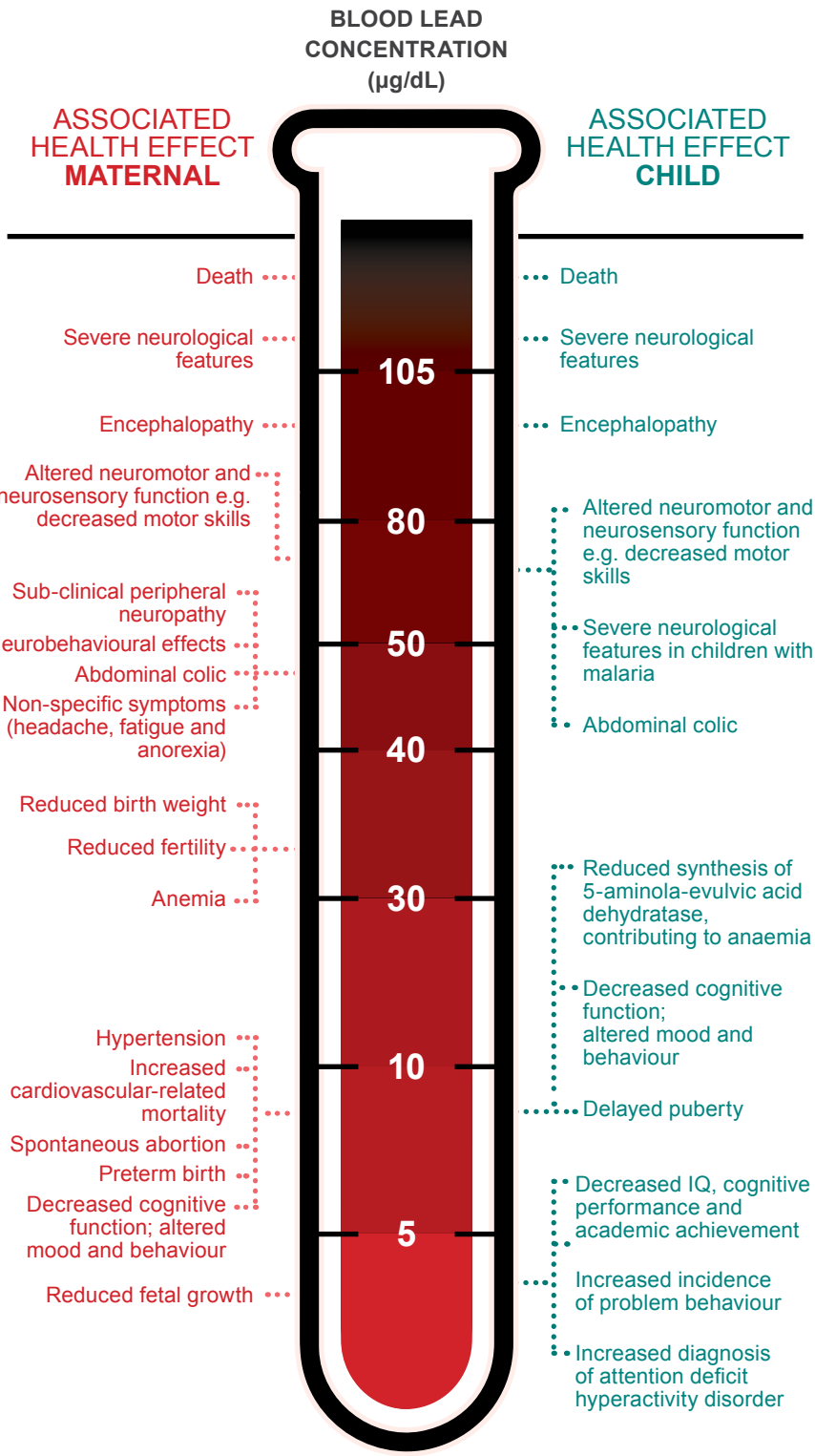

*Figure 3. Population level impacts of subtle shifts in individual IQ. Adapted from: Lanphear, Bruce P. "The impact of toxins on the developing brain." Annual review of public health 36 (2015): 211-230*

Children under 5 are at the greatest risk of suffering lifelong neurological, cognitive and physical damage and even death from lead poisoning.

In addition, adverse impacts of lead on child development can begin before birth. Even at maternal blood lead levels below 10 ug/dL, prenatal exposure is associated with increased risk of adverse outcomes, such as reduced fetal growth, low birth weight and preterm birth.

Adults and older children can suffer severe consequences from prolonged exposure to lead in food, water and the air they breathe, including increased risk of cardiovascular death and kidney damage in later life.[8] In short, lead poisoning will hinder children from realising their full potential, affecting them throughout their lives.

## MATERNAL AND CHILD HEALTH EFFECTS BASED ON LEVEL OF EXPOSURE TO LEAD



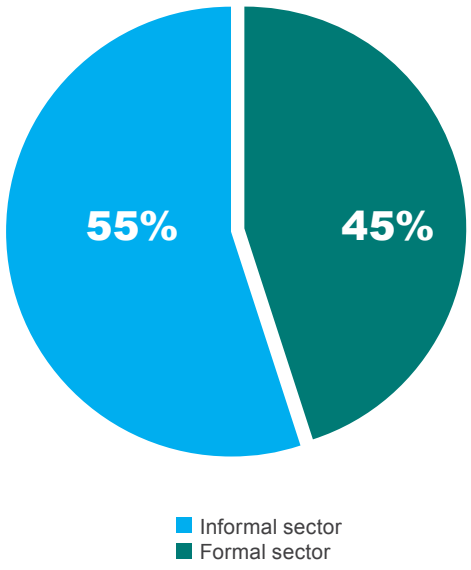

*based on maternal blood lead level
*Image adapted from WHO guideline for the clinical management of exposure to lead. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.*

# SOURCES OF LEAD POISONING IN INDONESIA


According to global studies,[9-12] the children of workers who recycle ULABs frequently have dangerously high blood lead levels. These children are readily exposed to lead dust when their parents inadvertently carry it home on their clothes, shoes, hair and bodies.[9-12] Several studies in Indonesia have found significant blood lead levels in children who spend a lot of time near roads or who live near lead smelting and recycling activities.[13-15]

It is not known exactly how many ULABs recycling sites in Indonesia are currently active, or where previously active sites have resulted in signficant lead contamination. It is estimated that there are 30 to 50 ULAB recycling sites in Greater Jakarta alone,[16] and more than 200 in Indonesia, the vast majority of which are informal and unregulated.[13] In an initial site assessment carried out in 2021–2022, the Institut Teknologi Sepuluh Nopember identified 95 lead-polluted sites spread across 11 provinces on Java and Sumatra. This includes the used battery smelter industry as well as hazardous waste transporters and processors, both licensed and unlicensed. This number is expected to increase with increasing demand for lead for energy storage. In addition, there are only five licensed ULAB recyclers in Indonesia, all of which are based on Java, which have the capacity to process 180,000 metric

## PROPORTION OF ULABs RECYCLED IN FORMAL AND INFORMAL SECTORS




*Source: Based on data from Pure Earth*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tons of ULABs, far below the estimated 400,000 metric tons of ULABs generated in Indonesia annually. As ULAB export is heavily regulated, it is estimated that the majority of these batteries are being processed through the informal sector, which often lacks effective safeguards to reduce lead exposure.

## Many ULAB recycling sites are located in communities and people who are close to the sites are potentially exposed to hazardous levels of lead on a daily basis causing a societal and economic burden that has yet to be properly assessed and quantified.

The New York University Division of Environmental Pediatrics estimates that lead exposure in Indonesia is responsible for a loss of US $37.9 billion per year, equivalent to 3% of Indonesia's gross domestic product (GDP).[17] Other studies show that for every dollar spent to reduce lead exposure, there is a 17- to 220-fold return in savings from future societal contribution.[18]

Another known and significant source of lead is paint. While most industrial countries have adopted laws to control the lead content of enamel decorative paints, existing regulations to limit the amount of lead in paint in Indonesia are voluntary and not mandatory. A 2021 study[19] conducted by Nexus3 Foundation found that the majority of paints sampled (73%) had lead content above 90 parts per million (ppm), the current international standard. Furthermore, 39% of decorative paint sampled in Indonesia had lead content at 10,000 ppm, more than hundredfold over the standard, which is considered extremely hazardous for both children and adults. The Ministry of Environment and Forestry (MOEF) is preparing a policy brief and facilitating an interministerial dialogue on regulating lead paint. A new Indonesian National Standard (SNI), SNI 8011:2022 (revision of SNI 8011:2014) regarding organic solvent-based decorative paint was released in May 2022, reducing the maximum content of lead in paint from 600 ppm to 90 ppm. However, the SNI is still a voluntary standard.

Indonesia classifies lead as a hazardous or toxic material *(Bahan Berbahaya dan Beracun)* or "B3" which is the legal term used for any substance classified as hazardous or toxic. Currently, although Government Regulation No. 74/2001 on B3 management does require a warning symbol for products containing hazardous substances, this law is not enforced and many paint manufacturers in Indonesia do not label their ingredients, including lead.

## In addition, some paints that had high levels of lead upon testing were marketed and labeled as lead-free.[20]

In addition to used lead acid batteries and paint, there could be other significant sources of lead in Indonesia. More research and study is needed to determine what these sources are.

# CURRENT MANAGEMENT OF LEAD AS A HAZARDOUS SUBSTANCE IN INDONESIA

There are several laws and regulations in Indonesia that govern the management of hazardous or toxic substances. The primary ones influencing lead management are the Job Creation Law No. 11/2020[21] and its derivative Government Regulation on Organization of Environmental Protection (G.R. No. 22/2021).[22] The Job Creation Law requires anyone who produces, carries, distributes, stores, uses, disposes, processes, piles and/or imports into Indonesia any B3 substance to apply proper management of the substance to prevent environmental damage or pollution. Anyone who produces toxic and hazardous waste, known as B3 waste, such as ULABs (see figure below), is responsible for carrying out the management of any B3 waste they produce. G.R. No. 22/2021 sets the management rules and test parameters for such waste.

## REGULATION OF ULABs AS B3 AND B3 WASTE

B3: *Bahan Berbahaya dan Beracun* (Toxic and Hazardous Materials)

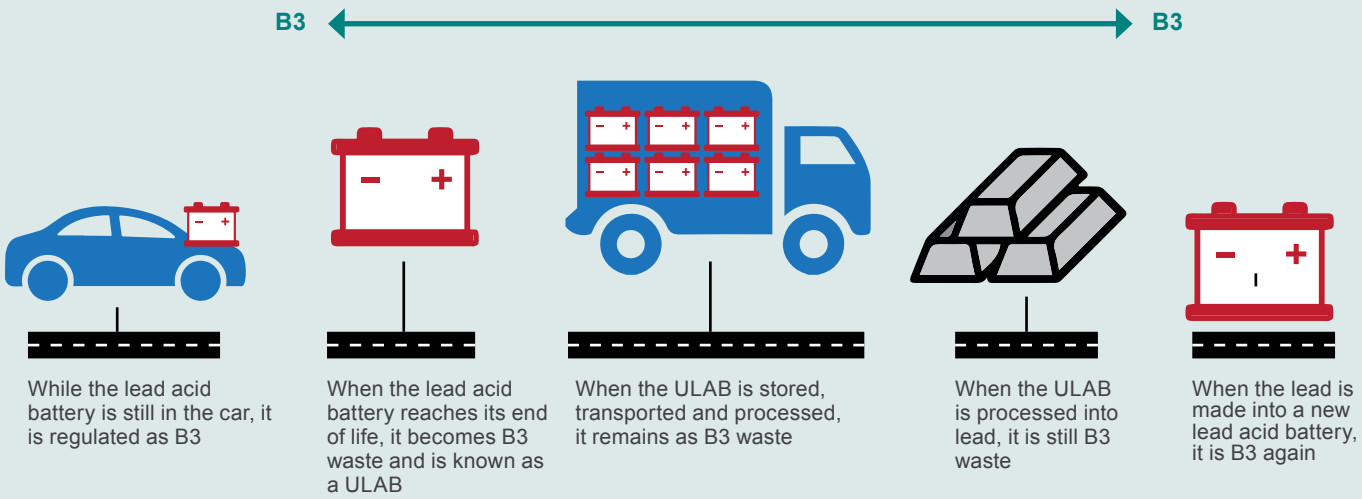


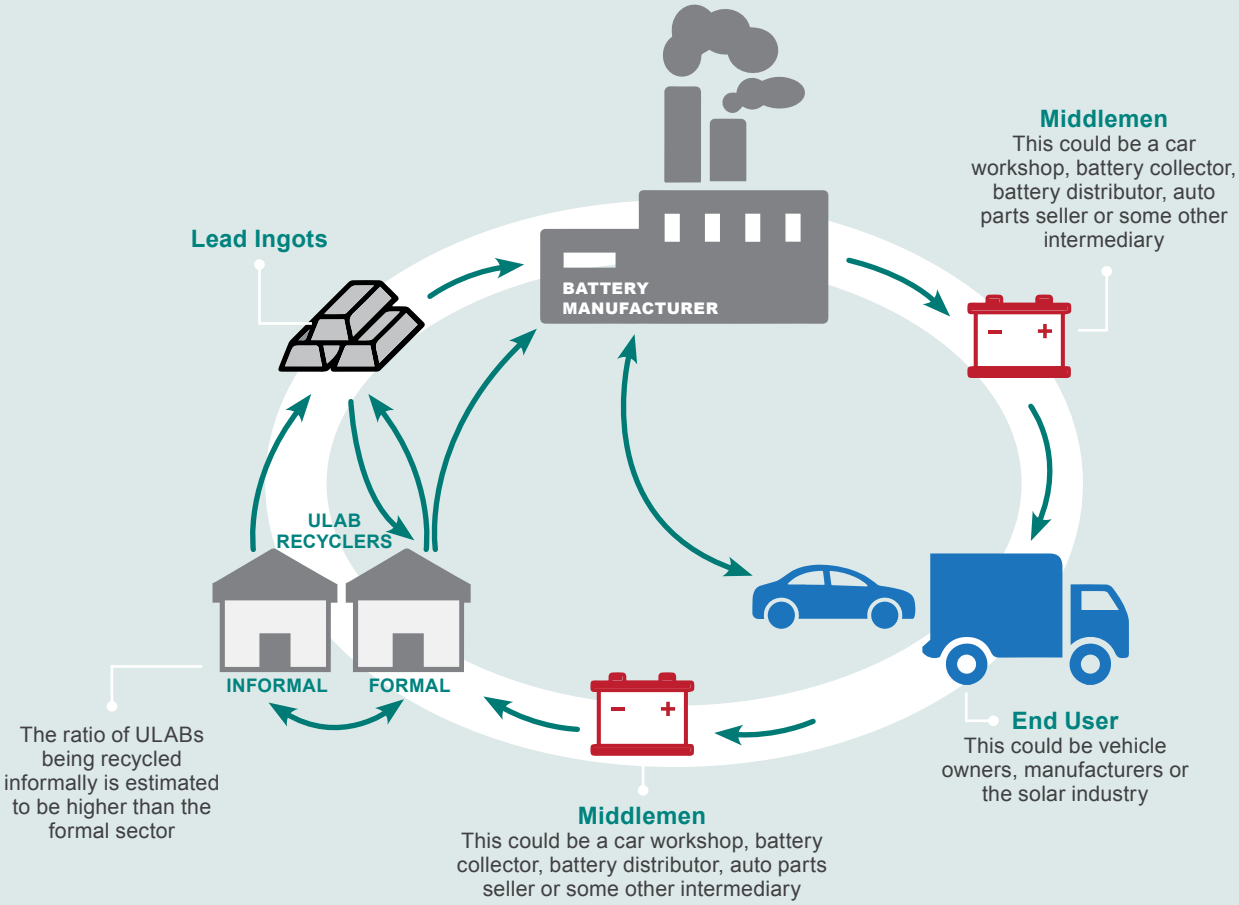

*Figure: Regulation of ULABs as B3 and B3 waste*
*Source: Vital Strategies*

Aside from these laws and regulations, there are approximately 50 national laws, regulations, standards, and other legal measures relevant to lead in paint and ULAB management. Furthermore, since 1993, Indonesia has been a signatory to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The Basel Convention requires Parties to fulfil three main pillars in order to protect human health and the environment: (1) minimizing the generation of hazardous and other wastes; (2) strictly controlling transboundary movements of hazardous and other wastes; and (3) environmentally sound management[23] of hazardous and other wastes. The convention requires that these requirements be incorporated into national legislation.

In addition, many facilities that recycle, collect or transport ULABs, particularly smaller ones, do not have the proper license and instead operate improperly under a micro, small and medium enterprise license, thus failing to have a hazardous waste management process in place. Even in properly permitted ULAB recycling facilities, advocates and government stakeholders acknowledge that there is a lack of routine monitoring and/or enforcement to ensure that standards are always met, so regulations are frequently broken, endangering the health of workers and people living nearby.[24]

Finally, the ULAB supply chain is dominated by several middlemen throughout the process (see image below). There is a need to engage with these middlemen, ensuring that they are properly registered and equipped with the knowledge and capacity to handle ULABs in an environmentally safe manner.

## ULAB SUPPLY CHAIN IN INDONESIA




*Note: This diagram has not included import and export of ULABs and lead. The majority of ULAB production and consumption takes place in Indonesia.*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# RECOVERY AND REMEDIATION OF LEAD-CONTAMINATED SITES

Pollution control and restoration of environmental functions is the responsibility of anyone who produces, collects, transports, utilizes, processes, stores or disposes of B3 waste that pollutes and/or damages the environment.[25] Polluters must carry out countermeasures by informing the surrounding community, isolating the pollution, and terminating sources of pollution, among other corrective actions.[26] The Minister of Environment and Forestry, governor, regent or mayor in accordance with their respective authorities may appoint a third party to carry out the recovery process at the expense of the polluter by using pollution prevention funds or using guarantee funds for the restoration of environmental functions.

If a site is contaminated by sources or polluters that cannot be identified ('non-institutional' pollution), then its recovery is carried out by the minister, governor, regent/mayor in accordance with their respective authorities, in parallel with a process of finding the party responsible for the pollution and law enforcement against those who are not willing to stop pollution.[25] In such a case, non-institutional remediation must meet the following requirements:

- At the location to be restored there are no activities that can pollute the environment again;
- The relevant local government states that the location meets the provisions for pollution caused by unidentifiable source and/or polluter;
- The minister, governor or regent/mayor shall form a Recovery Working Team which will select a priority recovery location in accordance with the risk analysis of land contaminated with B3 waste.
- The Recovery Work Team will prepare an Environmental Function Recovery Plan document to be submitted to the MOEF for review and approval.

MOEF has developed a roadmap and priority locations for recovery of lands contaminated with B3 waste in Pesarean Village, Adiwerna District, Tegal Regency for the fiscal year of 2021-2023. Implementation of the roadmap is in accordance with priority 6 of the National Development Agenda 2020-2024 related to environmental development.

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Based on identification and inventory activities in 2014-2021, MOEF has developed a database of lands contaminated with B3 waste that contains approximately 5,500,000 m2 of land contaminated by B3 with an estimated total volume of 5,900,000 tons of contaminated soil and B3 waste. MOEF has managed to clean up around 28,000 tons by seeking to adopt a comprehensive recovery approach taking into account technical, environmental, social and economic aspects.

# WHAT CAN INDONESIA DO?

There are various policy actions that decision-makers, national and sub-national government agencies, nongovernmental organizations, civil society, the health sector and other stakeholders can initiate. These recommended solutions are listed in the table below. A prioritization exercise should be done so that these solutions can be incorporated into a workplan encompassing multiple stakeholders. As childhood lead poisoning prevention requires coordination and policy strengthening across sectors, the government should establish an inter-agency coordination mechanism or committee to facilitate coordination among agencies in the health, environment, trade and industry, finance, and labor sectors.

| USED LEAD ACID BATTERY RECYCLING |
|---|
| 1. **Incentivize and encourage ULAB recyclers to register and comply with laws.** The government should ensure that formal and informal recyclers comply with the laws. This can be achieved by simplifying the permitting process, regular monitoring and establishing inter-agency institutional arrangements for ensuring compliance. |
| 2. **Consider fiscal policies to incentivize compliance.** For example, the government could offer tax breaks or subsidies to companies that comply with regulations, and negative economic sanctions for those that are non-compliant. |
| 3. **Update the technical specifications for ULAB recycling.** In order to fully comply with the Basel Convention and its technical guidelines on environmentally sound management of ULABs, as well as the potential future revisions, Indonesia should issue new technical requirements for recycling ULABs in accordance with international public health and environmental best practices.[30] The government should also monitor compliance with other elements of the regulations such as use of personal protective equipment in ULAB recycling. |
| 4. **Implement mandatory ULAB emission limits.** The government should enact and enforce limits for effluent of lead-contaminated materials and other sources of lead pollution resulting from recycling ULABs by issuing regulations consistent with the Environmental Protection and Management Law (No. 32/2009), the Job Creation Law (No.11/2020), the Governmental Regulation on Organization of Environmental Protection and Management (G.R. No.22/2021), the Trade Law (Law No. 7/2014), and the Industrial Affairs Law (No. 3/2014). |
| 5. **Monitor and disclose lead emissions.** The government should conduct regular monitoring of lead releases and lead concentrations in soil, water and air. This information should be made publicly available, especially to affected communities. |
| 6. **Facilitate and encourage multi-sectoral action plans to address informal ULABs recycling.** At subnational and community levels with national-level support for monitoring, evaluation and reporting on implementation and impact. |
| 7. **Establish an extended producer responsibility (EPR) mechanism for ULABs.** The government should work with battery, vehicle and spare parts manufacturers and importers, automobile repair shops, and formal ULAB recyclers, to develop an EPR policy and mechanism that considers the entire life cycle of the ULAB. A mandatory EPR with a traceability component could resolve issues pertaining to informal supply and ensure that ULABs are returned to battery manufacturers for safe processing. |
| 8. **Direct multi-sectoral funds towards the prevention of contamination from ULAB recycling.** Prevention is carried out through formalization of informal smelters and/or smelter professions. Formalization of informal lead smelters can be done by relocating the smelters to locations that meet the spatial layout, forming a cooperative legal entity and providing assistance with environmentally friendly smelting equipment. The formalization of smelters can be facilitated by the Ministry of Industry (MOI), the Ministry of Cooperatives and Small and Medium Enterprises (MOCSME) and the Regional Government through the Trade and Industry Office or the Cooperatives and Small and Micro Medium Enterprises Service. Transfer of profession for former lead smelters can be carried out using various alternative financing by relevant Ministries such as the Ministry of Villages, MOCSME, Ministry of Manpower, MOI, and Local Government (e.g., using Village Funds), through entrepreneurship trainings, Job Training Centers and other programmes. |

9. **Provide clear guidance to the community on where they can recycle their ULABs and obtain safely refurbished batteries** by mandating and providing signage in automobile repair shops and retail battery outlets. Appropriate information labels on the treatment of battery waste can also be placed directly on the batteries.

## PAINT

1. **Set mandatory lead limits for paint.** The government should enact compulsory limits on the lead content of paint at a maximum of 90 ppm through a ministerial regulation or other nationally applicable law. All lead-based paint that exceeds that limit should be removed from retail and wholesale outlets. The government should adopt and issue lead paint reformulation guidelines from the United Nations Environment Programme (UNEP)[31] and request paint producers to adopt the guidelines.
2. **Prohibit the importation of lead pigments.** The Ministry of Trade and Ministry of Finance (responsible for customs and excise) should limit importation of lead pigments or raw lead materials. Alternatively, Indonesia could increase tariffs on raw materials and other pigments containing lead to encourage use of non-lead-based options.
3. **Require disclosure of lead in paint.** The government should issue and enforce clear rules that require producers to label paint that contains lead and, if necessary, warn consumers of its danger. Currently, although Government Regulation No.74/2001 on B3 management does require a warning symbol for products containing hazardous substances (B3), this law is not enforced and many paint manufacturers in Indonesia do not label their ingredients, including the use of lead. In addition, some paints that had high levels of lead upon testing were marketed and labeled as lead-free. Regulations on labeling can be introduced in tandem with stricter paint standards as suggested above in the first recommendation for paint.
4. **Educate consumers of the dangers of using lead paint.** Awareness among end-consumers (households, schools, industries, municipality governments, government procurement entities) on the dangers of using paint that contains lead should be raised until regulatory actions take effect.

## LEAD USE AND REMEDIATION

1. **Limit lead use.** In the upcoming revision of Government Regulation 74/2001, the government should include lead in the category of "restricted for use," and specify which limited products and under what conditions lead is permitted.
2. **Improve the transparency of the government's enforcement activities.** Adequately disclose to the public its enforcement activities, such as inspections, permits, approvals and denials, any finding of environmental damage or pollutants, any corrective action demanded, and the outcomes of recovery efforts. The threat of public disclosure has been found to be an effective deterrent for companies skirting regulatory requirements. Disclosure may also strengthen public participation in preventing lead pollution and engender trust in the law enforcement system.
3. **Control illegal trade.** As a signatory to the Basel Convention, Indonesia should strengthen regulations governing the illegal traffic of B3 waste to better prevent and punish illegal traffic, confiscate illegal hazardous waste, and dispose of illegal waste in an environmentally responsible manner.
4. **Create an inventory of lead-contaminated sites.** The central government should make a priority list of lands contaminated by lead on a national scale while the provincial/district/city governments make a list of regional priorities. Such effort can be supported with data collection from non-government stakeholders.
5. **Remediate lead-contaminated sites and direct innovative funding for remediation.** Remediation efforts need to be continued and increased. To prevent ongoing and future exposure, the government should review all possible methodologies for lead-contaminated site remediation and select among them the most cost-effective approach to reaching a remediation standard. The government can also provide a guideline for the remediation of lead-contaminated sites and the removal of lead paint from specific structures such as houses, schools or playgrounds. In addition to existing funding sources, recovery of


contaminated lands can be supported by other sustainable funding (from lead tax, enforcement sanctions, direct funding), the Environmental Fund Management Agency (BPDLH), corporate social responsibility and other non-binding assistance according to regulations.

6. **Study the sources of lead.** To effectively reduce lead exposure in Indonesia, it is recommended to do a comprehensive study to identify the significant sources and uses of lead in Indonesia.

## HEALTH AND EDUCATION

1. **Educate health workers.** There is an acute lack of understanding among health personnel, including physicians, nurses and lay health workers, about the health consequences of lead exposure as well as preventive and curative approaches. Medical curriculum training for personnel and students should educate about sources of lead, lead exposure, and preventive and curative actions so they can properly assess exposure, diagnose lead poisoning, or advise on treatment and exposure avoidance.
2. **Improve health monitoring in villages where there is ULAB recycling.** The Ministry of Health (MOH) should lead the development of a national guideline for the clinical management of lead exposure in Indonesia, which can be based on the recently released WHO clinical guidance.[32] These guidelines will help health care professionals at the village level decide who should be tested for lead exposure, and the blood lead level threshold for referring cases to relevant health authorities.
3. **Improve surveillance and reporting on lead exposure.** MOH, in collaboration with MOEF and other relevant ministries, should collect and report information on environmental, health, economic and social impacts of lead exposure in the short and long term. MOH should launch a lead surveillance program to estimate children's blood lead levels and identify leading risk factors for high exposure. Given how lead affects human health, particularly that of children, Indonesia's laboratory capacity to measure blood lead levels should be increased to enable more frequent blood lead level testing during pediatric visits, or have testing incorporated into medical check-ups, especially for children, and pregnant and lactating women. Furthermore, surveillance of lead in soil, water, and air should be strengthened at the local level including through building capacities of government and laboratories and securing sustainable surveillance and disclosure budgets.
4. **Launch public awareness campaigns.** The public and government officials need more information about lead exposure and its effects on the environment and human health. The campaigns should involve the private sector, universities, public, community, women, young people, community/religious leaders and other nongovernment stakeholders in communicating about the importance of environmentally sound lead management and health interventions to prevent lead poisoning.

# PROTECTING EVERY CHILD'S POTENTIAL: SUPPORTING LEAD POISONING REDUCTION IN INDONESIA

As part of a global partnership, UNICEF, Pure Earth International and Clarios Foundation launched the Protecting Every Child's Potential (PECP) programme.[33] In Indonesia, the PECP collaborates closely with MOEF and MOH, with technical support from Vital Strategies and other partners. PECP welcomes collaboration with other ministries and organizations, with the goal of assisting the Indonesian government at the national and subnational levels in strengthening actions and developing tools to reduce lead exposure among children, particularly from improper ULAB recycling and lead in paint.

The programme also seeks to raise awareness among targeted communities and the public about the harmful health effects of lead poisoning and how to avoid them. Furthermore, PECP will promote clinical guidance and capacity building for health workers, particularly those working in high-risk areas, on the prevention, care, diagnosis and management of lead poisoning. The programme will thus contribute to the Government of Indonesia's Medium-Term Development Plan (RPJMN 2020-2024) National Priority 6 to strengthen the environment and increase resilience to disaster and climate change, local government's development plans, as well as the realization of healthy environments under MOEF and MOH's strategic plans.

The first year of the programme has focused on information gathering and learning on lead in Indonesia, including a legal review, stakeholder consultations, desktop research and field visits. The programme also carried out a study on the identification of lead-polluted sites and an analysis of ULAB supply chain and trade flow. The findings will serve as a reference for the development of risk reduction activities and policy recommendations to the government on the establishment of environmentally sound management of ULAB recycling in Indonesia.


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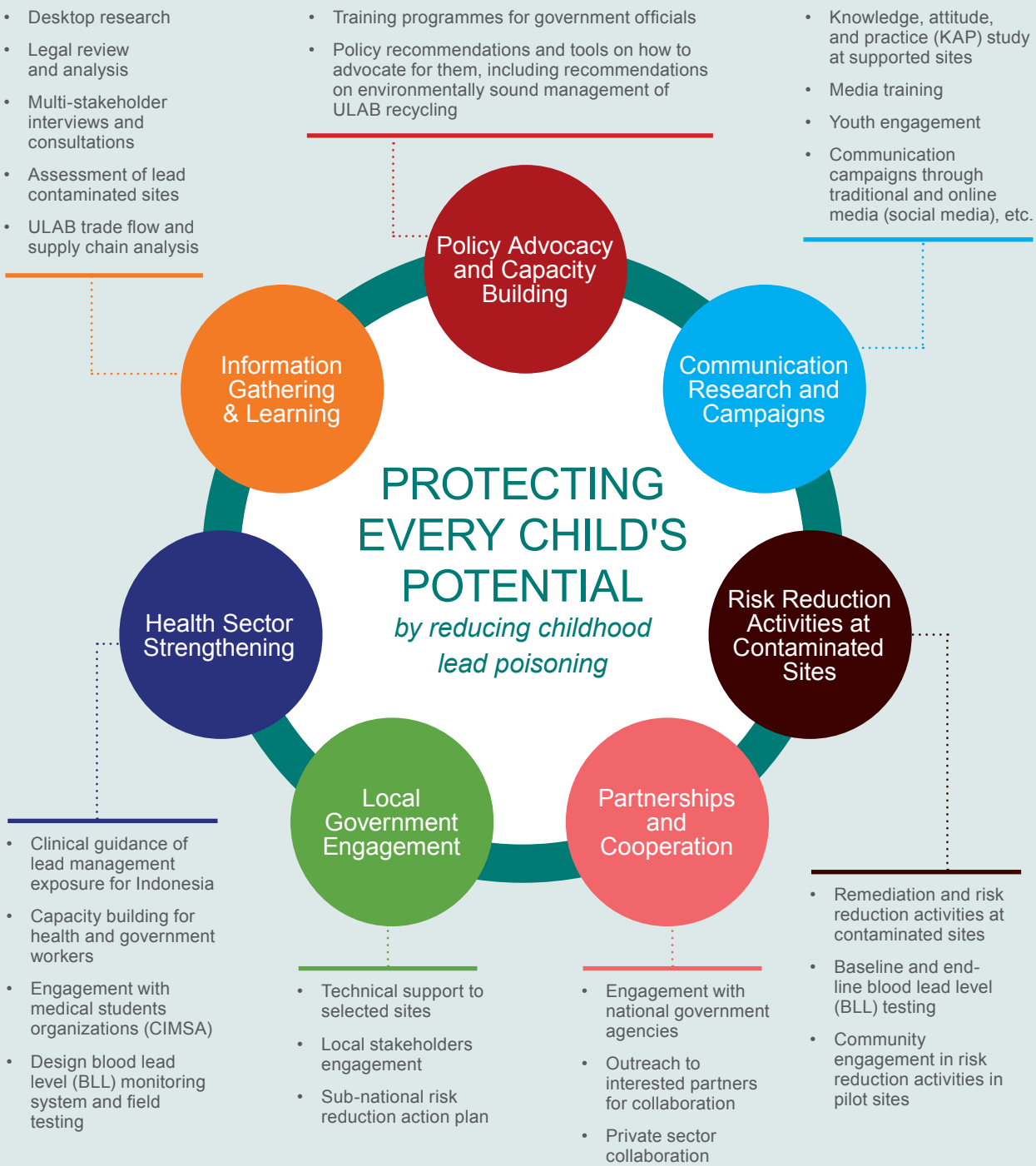
## PROGRAMME OVERVIEW




Lead poisoning is a serious and growing problem in Indonesia, and is particularly dangerous for children, who are most vulnerable to the harmful effects of lead exposure. The main sources of lead poisoning in Indonesia are used lead acid batteries and paint. Nonetheless, through proper regulation, technical expertise, economic mechanisms, and public health and education measures, it is possible to greatly reduce the risk of lead poisoning to children and adults. Many countries have successfully reduced the harmful health effects of lead poisoning; there are opportunities for Indonesia to do the same.

# ENDNOTES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22 The regulation amended some articles contained in the Government Regulation on Environmental Economic Instruments (G.R. No. 46/2017), Procedures and Requirements for Management of Hazardous and Toxic Waste (Ministry of Environment and Forestry Regulation No. 6/2021), and Implementation of the Trade Sector (G.R. No. 29/2021).

23 The Basel Convention defines environmentally sound management of hazardous and other wastes as "taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes."

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