



National Strategy and Multi-Year Action Plan for a Lead-Free Bangladesh (2026-2035)

Ministry of Environment, Forest and Climate Change, Bangladesh

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ACRONYMS

ABMEAB: Accumulator Battery Manufacturers & Exporters Association of Bangladesh

ADB: Asian Development Bank

BAPA: Bangladesh Poribesh Andolon

BAT: Benchmark Assessment Tool

BBP: Benzyl Butyl Phthalate

BBS: Bangladesh Bureau of Statistics

BCC: Behavior Change Communication

BELA: Bangladesh Environmental Lawyers Association

BEN: Bangladesh Environment Network

BEP: Best Environmental Practices

BFSA: Bangladesh Food Safety Authority

BFSN: Bangladesh Food Safety Network

BLL: Blood Lead Level

BLRV: Blood Lead Reference Value

BPMA: Bangladesh Paint Manufacturers Association

BSTI: Bangladesh Standards and Testing Institution

BUET: Bangladesh University of Engineering and Technology

CAB: Consumers Association of Bangladesh

CBOs: Community-Based Organizations

CD: Customs Duty

CDM: Clean Development Mechanism

CVD: Cardiovascular Disease

DBP: Dibutyl Phthalate

DEHP: Di(2-ethylhexyl) phthalate

DGHS: Directorate General of Health Services

DGME: Directorate General of Medical Education

DIBP: Diisobutyl Phthalate

DIFE: Directorate of Inspection for Factories and Establishments

DMC: Department of Mass Communication

DNCRP: Directorate of National Consumer Rights Protection

DOE: Department of Environment

DOICT: Department of Information and Communication Technology

DU: University of Dhaka

EIA: Environmental Impact Assessment

EMP: Environmental Management Plan

EPR: Extended Producer Responsibility

ESM: Environmentally Sound Management

FBCCI: Federation of Bangladesh Chambers of Commerce and Industry

GAHP: Global Alliance on Health and Pollution

GAELP: Global Alliance to Eliminate Lead Paint

GEF: Global Environment Facility

HBA: Home-Based Assessment

ICCM: International Conference on Chemicals Management

ICDDR,B: International Centre for Diarrheal Disease Research, Bangladesh

ICT: Information and Communication Technology

IEC: Information, Education, and Communication

IEE: Initial Environmental Examination

ILPPW: International Lead Poisoning Prevention Week

JICA: Japan International Cooperation Agency

KAP: Knowledge, Attitudes, and Practices

LAB: Lead Acid Battery

LDCs: Least Developed Countries

LGD: Local Government Division

MICS: Multiple Indicator Cluster Survey

MINCOM: Ministry of Commerce

MOA: Ministry of Agriculture

MOEFCC: Ministry of Environment, Forest and Climate Change

MOF: Ministry of Finance

MOFA: Ministry of Foreign Affairs

MOHFW: Ministry of Health and Family Welfare

MOIND: Ministry of Industries

MOLE: Ministry of Labor and Employment

MPEMR: Ministry of Power, Energy, and Mineral Resources (MPEMR)

NBR: National Board of Revenue

PBB: Polybrominated Biphenyls

PBDE: Polybrominated Diphenyl Ethers

PLF: Partnership for a Lead-Free Future

R&D: Research and Development

RCCE: Risk Communication and Community Engagement

RHD: Roads and Highways

ROHS: Restriction of Hazardous Substances

SAICM: Strategic Approach to International Chemicals Management

SBCC: Social and Behavior Change Communication

SD: Supplementary Duty

SDGs: Sustainable Development Goals

SEA: Strategic Environmental Assessment

SEM: Scanning Electron Microscopy

SID: Statistics and Informatics Division

SMEs: Small and Medium-Sized Enterprises

SMI: Survey of Manufacturing Industries

SVRS: Sample Vital Registration System

TOT: Training of Trainers

TSIP: Toxic Sites Identification Program

ULAB: Used Lead-Acid Battery

UNEP: United Nations Environment Programme

UNICEF: United Nations Children's Fund

UNIDO: United Nations Industrial Development Organization

VAT: Value Added Tax

WED: World Environment Day

WFSD: World Food Safety Day

WEEE: Waste Electrical and Electronic Equipment

WHO: World Health Organization

Executive Summary

Lead contamination remains a critical public health and environmental challenge in Bangladesh, posing severe risks to children, adults, pregnant women, workers, and vulnerable communities. The exposure pathways are diverse, ranging from informal industrial processes to consumer products such as informal used lead-acid battery recycling, aluminum cookware, ceramic food ware, lead-based paints, toys, and contaminated spices, food, water, and soil. Lead contamination causes elevated blood lead levels in children, which are linked to long-term health impacts, including cognitive impairment, behavioral problems, stunted growth and development, reduced productivity, and economic losses. Lead exposure is therefore both a human rights concern and a sustainable development priority. Lead is also dangerous for adults, including pregnant women. In adults, lead exposure contributes to cardiovascular disease, hypertension, kidney dysfunction, infertility, impaired immune function, while in pregnant women, it increases the risk of complications such as bleeding, terminated pregnancies, stillbirth, and premature birth.

The **National Strategy for a Lead-Free Bangladesh (2026–2035)** provides a coordinated, context-specific, evidence-based, and actionable framework to set a target of eliminating all sources of lead exposure by 2035. The strategy builds on existing knowledge by mapping relevant stakeholders, development partners, major exposure pathways, recent policy initiatives, and local and global best practices, and by strengthening the operationalization of the existing multisectoral steering committee under the Ministry of Environment, Forest, and Climate Change (MOEFCC). The National Strategy is anchored on eight strategic priority areas:

1. **Institutional Capacity Strengthening** – Ensuring effective governance, monitoring, enforcement, and coordination by enhancing the capacity of government agencies, private actors, and academic stakeholders.
2. **Surveillance and Identification of Sources and Exposure Pathways** – Mapping, assessing, and monitoring lead-contaminated products, hotspots, and high-risk sectors, informed by the blood lead level (BLL) and environmental surveillance, and home- and market-based assessments.
3. **Policy and Regulation** – Reviewing, analyzing, and updating existing laws, regulations, standards, and strengthening enforcement and compliance mechanisms for effective monitoring.
4. **Monitoring and Enforcement** – Establishing robust inspection, testing, and surveillance systems across supply chains through the coordinated efforts of the Department of Environment (DOE), Bangladesh Food Safety Authority (BFSA), Bangladesh Standards and Testing Institution (BSTI), Directorate of Inspection for Factories and Establishments (DIFE), Directorate General of Health Services (DGHS), and Customs authorities.

5. **Private Sector Engagement for Responsible Business Practices** – Promoting responsible business practices through incentives, standards, and the implementation of extended producer responsibility (EPR).
6. **Awareness, Behavior Change, and Education** – Launching nationwide risk communication and behavior change campaigns, supporting community-led prevention initiatives, and engaging government agencies, industry partners, youth groups, and mass media platforms – including electronic, print, and social media – for wider public reach.
7. **Research, Innovation, and Knowledge Management** – Advancing evidence-based research and innovation to inform and accelerate lead pollution mitigation across environmental, health, industrial, economic, and social sectors.
8. **Multisectoral Engagement, Coordination, and Collaboration** – Ensuring a harmonized approach that brings together environmental sector response, health systems response, food systems response, private sector response, and citizen engagement, and ensures collaborative actions across ministries, development partners, and civil society organizations.

The implementation of the strategy will be phased over the short (1–2 years), medium (3–5 years), and long-term (5+ years), with dedicated budgets, capacity-building initiatives, policy advocacy, research, and awareness-raising programs, and will be monitored through measurable targets. The strategy integrates lead control measures into national development plans, food, health and environmental regulations, and Sustainable Development Goals (SDGs).

By systematically reducing lead exposure, the strategy aims to build a whole-of-government and multi-stakeholder response to safeguard public health, especially children and vulnerable groups, protect the environment and ecosystems, stimulate green economic growth, and fulfill Bangladesh’s commitments under global environmental health agreements. Success will require adequate resources, transparent monitoring, timely enforcement, and active participation from all sectors of society.

1. Introduction

1.1. Background and Situation Analysis

Lead poisoning has emerged as one of the most significant yet preventable threats to human health and development worldwide. Lead is a highly toxic, persistent metal that remains in the environment for centuries and accumulates in the body over time. Children are especially vulnerable, absorbing more lead than adults and suffering serious, often irreversible neurological, cognitive, and physical harm even at very low levels of exposure (WHO, 2023). According to the WHO, no level of lead in the blood is safe. Globally, an estimated 800 million children - one in three, have blood lead levels at or above 5 µg/dL, the threshold at which WHO recommends investigation and action, making it a public health crisis of massive scale (Rees & Fuller, 2020). Lead exposure contributes to over 1.5 million deaths each year, mainly from cardiovascular disease, and more than 33 million disability adjusted life years, with newer analyses suggesting the true mortality burden could be as high as 5.5 million deaths annually (WHO, 2024; Larsen & Sánchez Triana, 2023).

The developmental and economic toll is profound: in 2019, young children worldwide lost an estimated 765 million IQ points due to lead exposure. A recent meta-analysis by the Center for Global Development (CGD) found that lead exposure may explain more than 20% of the learning gap between high-income and low and middle-income countries, demonstrating how widespread exposure undermines educational performance, economic mobility, and national competitiveness. These effects also translate into adverse education outcomes, including reduced school readiness, weaker foundational literacy and numeracy, lower learning achievement, poorer attendance, and increased risk of dropout, thereby undermining both education quality and equity. Global economic losses from lead exposure range from USD 977 billion to USD 6 trillion annually, with low and middle-income countries carrying the greatest burden (Larsen & Sánchez Triana, 2023).

South Asia experiences the highest prevalence of childhood lead exposure in the world, driven by rapid urbanization, legacy contamination, and widespread use of lead in industrial and consumer products (Rees & Fuller, 2020). The region accounts for a substantial share of global IQ losses and adult cardiovascular mortality linked to lead, making it not only a health concern but a major constraint on human capital formation, productivity, and long-term economic growth (Larsen & Sánchez Triana, 2023).

Within this regional context, Bangladesh faces one of the most severe burdens globally. National and modeled estimates indicate that 35.5 million children in the country have blood lead levels ≥ 5 $\mu\text{g/dL}$ (Rees & Fuller, 2020), with measured averages among Bangladeshi children reaching approximately 8 $\mu\text{g/dL}$, among the highest recorded worldwide (Ericson et al., 2021). Bangladesh ranks among the top countries for lead-related deaths, with an average population blood lead level of 6.83 $\mu\text{g/dL}$ (Ericson et al., 2021).

For the first time, Bangladesh has included lead and heavy metal analysis in the MICS 2025, making it the largest national survey of its kind in any low or middle-income country. The survey analyzed blood samples from over 11,000 children aged 12–59 months and more than 2,000 pregnant women, providing the most comprehensive national picture of lead exposure to date. The findings reveal a high and widespread burden: children had a mean blood lead concentration of 5.2 $\mu\text{g/dL}$, and pregnant women 2.5 $\mu\text{g/dL}$, with 38.3% of children and 7.5% of pregnant women recording elevated blood lead levels (≥ 5 $\mu\text{g/dL}$). Exposure cuts across socioeconomic groups, with 65% of children in Dhaka and more than half of children in the richest quintile recording elevated levels - highlighting that lead poisoning in Bangladesh is not confined to poorer households or specific locations, but is a nationwide threat affecting all segments of society.

Exposure during pregnancy is especially harmful. Lead stored in an expectant mother's bones from earlier exposures can be released during pregnancy, raising her blood lead levels and increasing the risk of miscarriage, stillbirth, premature birth, and low birth weight. These prenatal exposures compound long-term harm to the developing fetus, contributing to lifelong cognitive and developmental deficits and worsening intergenerational cycles of disadvantage.



Figure 1: Impact of lead-contamination from informal battery recycling on pregnant women and fetus

Lead exposure contributes to an estimated 20 million IQ points lost every year among Bangladeshi children under five, and up to 70% of intellectual disabilities are believed to be linked to lead poisoning (Larsen & Sánchez Triana, 2023). Evidence from Bangladesh also shows that each 1 $\mu\text{g}/\text{dL}$ rise in blood lead level increases the odds of stunting by 12% among children aged 2–3 years (Gleason et al., 2020). Adults are similarly affected, with an estimated 138,054 cardiovascular deaths annually attributable to lead exposure, adding significant pressure on health systems and national productivity (Larsen & Sánchez Triana, 2023).

The economic consequences are substantial, not only from lost earnings, reduced lifetime productivity, and premature mortality associated with elevated blood lead levels, but also from direct revenue losses. The predominantly informal used lead acid battery recycling sector alone is estimated to cost Bangladesh USD 91 million per year in lost tax revenue (SMEP, Pure Earth/Georgetown, 2023).

The persistence of lead in soil, dust, water, and the built environment means that without decisive action, children and adults will continue to be exposed for generations. The scale and consequences

of lead poisoning in Bangladesh, spanning health, education, nutrition, productivity, and environmental integrity - position it not only as a public health issue but as a national development priority requiring coordinated, whole-of-government action.

1.2. Major Sources of Lead Exposure

Lead exposure in Bangladesh stems from a diverse set of industrial activities and consumer products (Figure 2). Together, these pathways create widespread, chronic exposure for children and adults across both rural and urban settings. The most significant sources are summarized below.

Informal Used Lead-Acid Battery Recycling and Unsafe LAB/ULAB Management

Informal used lead-acid battery (ULAB) recycling is the single most consequential source of lead contamination in Bangladesh. Although formal lead-acid battery (LAB) manufacturing and recycling facilities exist, a substantial share of ULABs continues to be processed through informal, unregulated backyard smelting and recycling operations. More than 1,100 such sites operate across the country, often in or near densely populated communities.

Typical informal recycling activities—including manual breaking of battery casings, draining of acid, open-pit smelting of lead plates, and burning of waste materials—release substantial quantities of lead dust, fumes, and contaminated residues. These emissions contaminate surrounding soil, household dust, homes, play areas, workplaces, and agricultural land. Children living near such sites are especially vulnerable because they may ingest contaminated dust and soil through normal hand-to-mouth behavior, while workers face direct occupational exposure during dismantling, smelting, handling, and transport. Soil contamination near many informal and abandoned recycling sites may persist long after operations cease, creating long-term community exposure risks.

Although informal ULAB recycling remains the dominant source of lead contamination in Bangladesh, formal LAB manufacturing and recycling may also contribute to occupational and nearby community exposure when environmental standards, emission-control systems, waste-management practices, and worker protection measures are not adequately maintained. Strengthening compliance, traceability, occupational safety, and environmentally sound management across the entire LAB/ULAB value chain is therefore essential to reduce lead

exposure among workers, nearby communities, and children living around recycling and processing sites (World Health Organization [WHO], 2017; UNICEF & Pure Earth, 2020; United Nations Environment Programme [UNEP], 2024).

Jewelry Making and Gold Waste Processing

Artisanal jewelry production and small-scale gold waste recycling represent another important exposure pathway. These activities often use low-quality metal alloys containing lead, and the high-temperature soldering and smelting processes generate airborne lead particles. Investigations in Dhaka and Chittagong have found elevated lead levels in dust, ash, and processing residues in neighborhoods where these cottage industries operate (Sikder et al., 2017, Mazumdar et al., 2016). Because production commonly occurs within densely populated residential areas, entire communities including children are regularly exposed.

Pesticides and Agrochemicals

Although historical use of lead-based pesticides has declined, recent screenings in Bangladesh have detected heavy metals, including lead, in the majority of tested pesticides. This contamination is believed to stem from impurities in raw materials or deliberate adulteration to reduce costs. While studies have not consistently identified pesticides as a dominant source of lead exposure, findings indicate the need for stronger routine testing and regulatory oversight.

Food Contamination (Vegetables, Rice, Meat, and Milk)

Lead contamination in food is widespread in Bangladesh and is closely tied to environmental pollution, contaminated soils, industrial effluents, and adulterated or contaminated livestock feed. Multiple studies have documented that vegetables across the country contain elevated lead concentrations, with nearly one-third of samples from 64 districts exceeding Codex limits, indicating geographically widespread contamination not traceable to a single source. Rice grown in several sub-districts has also shown concentrations above national and international standards, particularly in areas where irrigation water may be affected by industrial discharge. Lead exposure through animal-source foods further compounds the dietary burden: in 2019, pasteurized milk samples from major brands were found to contain lead at up to five times the permissible limit, and studies of meat and poultry identified exceedances above allowable thresholds, with chicken showing the highest concentrations largely linked to contaminated feed inputs. Collectively, these

findings demonstrate that dietary pathways represent a substantial contributor to cumulative lead exposure in Bangladesh, underscoring the need for integrated food safety surveillance, agricultural soil remediation, and targeted interventions across feed, livestock, and crop value chains (Kumar et al., 2022; Nowar et al., 2024; Proshad et al., 2019).

Turmeric Adulteration

Turmeric adulteration with lead chromate has historically been one of Bangladesh's most significant dietary sources of lead exposure. Prior to 2019, lead chromate was widely added during polishing to enhance color, with samples in major districts showing levels hundreds of times above the national limit of 2.5 mg/kg (Forsyth et al., 2023). Studies documented direct links to elevated blood lead levels among pregnant women and children. Following enforcement and education efforts beginning in 2019, national monitoring between 2019–2021 showed a decrease in adulterated samples from 47% to 0% in major wholesale markets and polishing mills, though researchers stress that continuous surveillance is needed to maintain these gains and identify residual risks in smaller, less regulated local supply chains.

Aluminum Cookware

Locally produced aluminum cookware, often made from recycled scrap metal, can leach lead during cooking. Laboratory simulations have found detectable lead in food prepared using these pots, and research indicates that the vast majority of households regularly use aluminum utensils. Public awareness of the associated risks remains very low.

Lead-Based Paints

Although Bangladesh introduced a 90 ppm limit on lead in household paint in 2018, enforcement remains weak. Many paints sold on the market still exceed safe thresholds. Lead-based paints in homes and schools can release contaminated dust and flakes, particularly as buildings age or deteriorate.

Cosmetics and Traditional Products

Several widely used cosmetics and cultural products including kajal/surma, sindoor, and certain skin-lightening creams, have been found to contain high levels of lead. Exposure can occur through eye application, hand-to-mouth transfer, or accidental ingestion. Many products contain lead

despite being marketed as natural or medicinal, and consumers often cannot distinguish between safe and unsafe brands.

Amulets and Jewelry

Children commonly wear amulets, charms, and talismans that may contain high concentrations of lead. While research from Bangladesh is limited, international case studies demonstrate that mouthing or ingesting such items can cause acute lead poisoning. Given their widespread cultural use, this represents a potential but understudied exposure pathway.

Environmental Media (Soil, Water, and Air)

Lead contamination in soil and dust, particularly near smelting sites, industrial activities, busy roads, and shipbreaking zones, is a pervasive exposure route. Drinking water may also be affected by aging pipes or pump components. In addition, industrial and traffic-related emissions continue to contribute to airborne lead, especially in urban centers.



Figure 2: Sources of lead exposure

1.3. Lead Supply Chain

The lead supply chain in Bangladesh is dominated by informal actors, particularly in the collection and recycling of ULAB. Informal workshops operate with minimal oversight, using crude smelting techniques that emit toxic fumes and discharge contaminated effluents. **Figure 3** presents the main participants in Bangladesh's Lead-Acid Batteries (LABs) and Used Lead-Acid Batteries (ULABs) supply chains. While a few licensed recycling plants exist, they handle a fraction of the total battery waste due to cost and regulatory evasion. The lack of an Extended Producer Responsibility (EPR) framework allows producers and importers to externalize the costs of waste management (OECD, 2019). Traceability mechanisms for lead-containing products are weak, and safe substitutes for pigments, batteries, and cookware are yet to achieve large-scale adoption. This entrenches dependence on toxic inputs across multiple sectors. The installation of a battery tagging system and the implementation of revised tax and smelting fee payments to the government can increase demand for longer-lasting batteries, reduce lead emissions, and raise government revenue (SMEP, Pure Earth/Stanford, 2025).

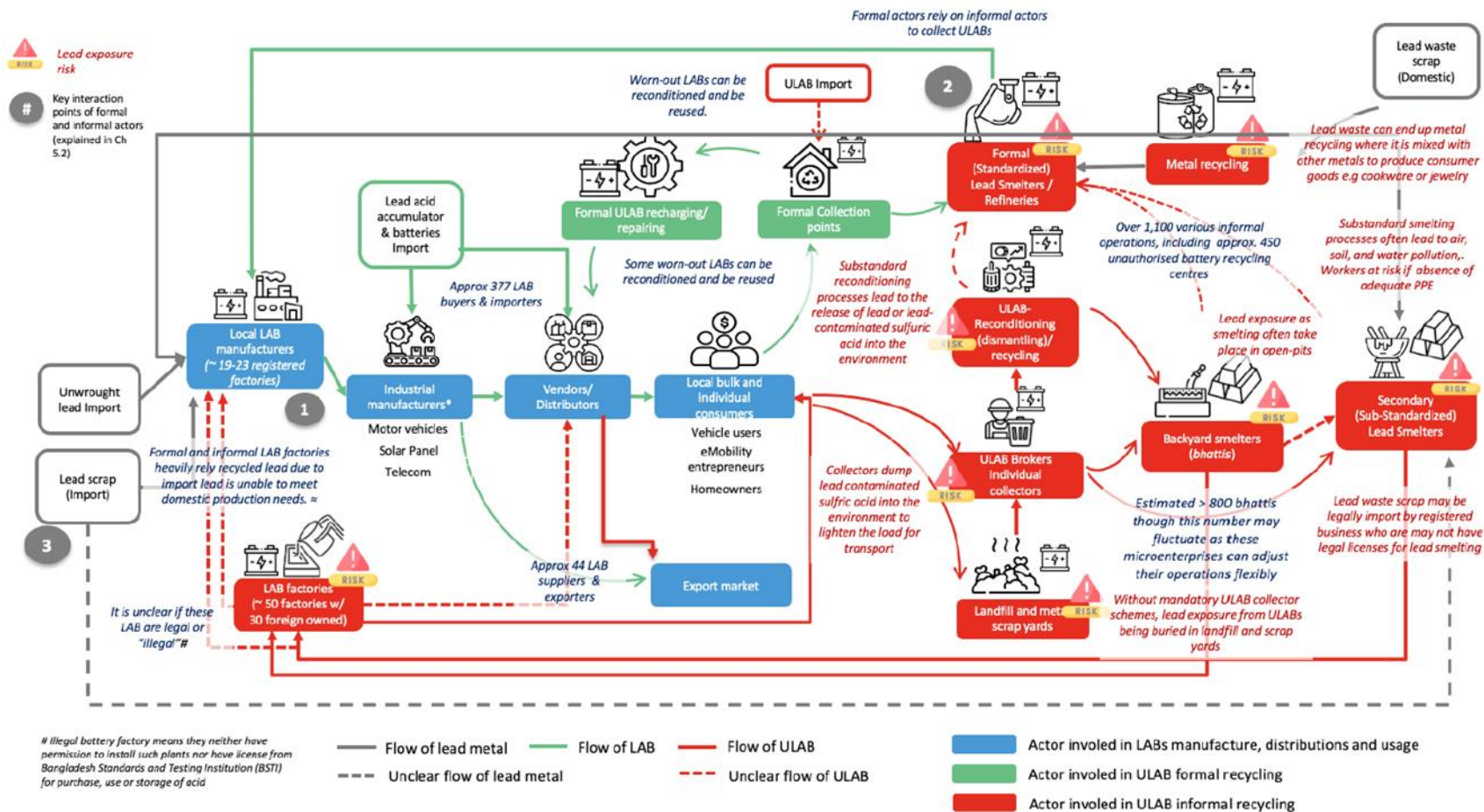


Figure 3. LABS/ULABS Supply Chain in Bangladesh (Source: Center for Child Rights and Business & UNICEF Report, 2024)

1.4. Governance and Regulatory Gaps

Bangladesh has enacted several relevant laws and policies, including the Bangladesh Environment Conservation Act (1995), the Environment Conservation Rules (2023), Hazardous Waste (e-waste) Management Rules (2021), and the Bangladesh Standards and Testing Institution Act (2018). Despite this, enforcement remains fragmented across multiple agencies with overlapping mandates. The DOE is responsible for regulating industrial emissions but lacks sufficient field resources and staff. BSTI sets standards for paints and food safety, but faces challenges in surveillance and compliance monitoring. Customs authorities monitor imports yet struggle to prevent the influx of substandard paints and cookware.

Penalties under existing laws are often insufficient to deter repeat violations. Compared to international frameworks, Bangladesh lacks a comprehensive and enforceable regulation equivalent to the EU Restriction of Hazardous Substances (RoHS) directive or the U.S. Consumer Product Safety Improvement Act (CPSIA). This regulatory gap perpetuates weak accountability.

1.5. Institutional Capacity Gaps

Bangladesh's institutional response to lead contamination remains insufficiently developed. The Department of Environment (DOE) operates with limited human resources and constrained laboratory infrastructure. The World Bank (2018) reports that the DOE has 735 approved positions, equivalent to approximately 220,000 citizens per employee—compared with roughly 56,000 in the Philippines and 20,000 in Mexico. Staffing shortfalls are particularly acute at the divisional and district levels: divisional offices typically have 5–6 staff, while district offices generally have only 3 staff. These capacity constraints are mirrored in MoEFCC's financing envelope. The 2017 Country Investment Plan for Bangladesh estimated that USD 651.6 million would be required to achieve national objectives for reducing industrial pollution (MoEFCC, 2017); however, only about 10% of this financing is currently available.

Within the health sector, the Directorate General of Health Services (DGHS) has not yet integrated lead testing into primary health care or maternal and child health service packages. Furthermore, the absence of an institutionalized national blood lead surveillance system continues to constrain national health policy reforms and decisions. Prior to 2025, national health surveys did not incorporate biomonitoring of lead exposure. This capacity gap within the DGHS has limited the government's ability to monitor national exposure patterns and to develop the preventive and

clinical service delivery measures needed to address lead-related health risks. The Bangladesh Standards and Testing Institution's (BSTI) capacity to enforce standards is constrained by resource limitations and inadequate market surveillance mechanisms. The Bangladesh Food Safety Authority (BFSA), mandated to ensure public access to safe food, is also significantly under-resourced, with 372 staff employed across levels; one assessment indicates an operational requirement for an additional 595 upazila food safety inspectors and 541 laboratory officers to deliver its functions effectively. Local government institutions similarly lack adequate technical capacity in hazardous waste management. Civil society organizations—including Environment and Social Development Organization (ESDO) and Pure Earth, among others—contribute substantively to identifying data gaps and advancing advocacy; however, their work remains heavily donor-dependent. Collectively, this fragmented institutional landscape undermines coordination, weakens enforcement credibility, and constrains the scale-up of sustainable, system-wide interventions.

1.6. Labor and Occupational Dimensions of Lead Exposure

Lead pollution in Bangladesh is not only an environmental and public health issue; it is also a labor market, occupational health, and livelihoods issue. A significant share of lead exposure arises from work-related activities, particularly informal used lead-acid battery recycling, metal recovery, repair work, waste handling, smelting, and small-scale manufacturing conducted in or near residential areas. In these settings, occupational exposure rarely remains confined to workers alone. Lead dust and fumes can be carried into homes through clothing, skin, tools, and materials, while unsafe processing and disposal practices can contaminate surrounding households, neighborhoods, soil, dust, air, and water. As a result, children, pregnant women, and other community members may be exposed through direct participation in informal work, take-home contamination, or proximity to polluted environments.

These exposure pathways are closely tied to income generation and survival strategies for many vulnerable workers and households. For this reason, the transition to a lead-free Bangladesh must be pursued through a just transition approach that protects health while recognizing employment realities, supporting enterprise upgrading, and enabling workers and informal operators to adopt safer practices, technologies, and jobs. Such an approach should be aligned with relevant International Labour Organization (ILO) instruments, including the Lead Poisoning (Women and

Children) Recommendation, 1919 (No. 4), the Occupational Safety and Health Convention, 1981 (No. 155), and the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187). Integrating labor and occupational health considerations into the national response will help improve compliance, reduce resistance to regulation, prevent the displacement of hazardous activities into hidden markets, and strengthen the long-term effectiveness of enforcement, remediation, and source elimination.

1.7. Overall Implications

Taken together, the environmental, public health, institutional, and occupational dimensions of lead exposure underscore that Bangladesh is facing a multidimensional national crisis with profound consequences for human development, productivity, and long-term economic growth.

Lead exposure in Bangladesh undermines child development, adult health, learning outcomes, labor productivity, and environmental quality, while imposing significant social and economic costs on households, communities, and the nation as a whole. It also threatens education outcomes by impairing children's readiness to learn, weakening school participation and performance, and eroding the human capital base needed for inclusive and sustainable national development. Its effects are intergenerational, with serious implications for children's cognitive development, educational attainment, and future earning potential, as well as for maternal health, workforce well-being, and broader societal resilience. At the same time, the persistence of lead in soil, dust, water, air, food systems, and consumer products means that, without decisive intervention, exposure risks will continue to accumulate over time and remain embedded across both urban and rural settings.

The challenge is further compounded by weak enforcement, fragmented institutional mandates, limited technical and laboratory capacity, and the continued dependence on informal and poorly regulated production, recycling, and waste-handling systems. These structural weaknesses reduce the effectiveness of existing regulations, allow hazardous practices to persist, and constrain the government's ability to detect, prevent, and respond to exposure in a timely and coordinated manner. In sectors where lead-related activities provide income for vulnerable workers and households, the absence of safer alternatives and transition pathways also increases the likelihood that hazardous practices will continue or shift into less visible markets.

Achieving a lead-free future in Bangladesh will therefore require far more than isolated technical fixes or sector-specific interventions. It demands integrated policy reform, stronger institutional and laboratory capacity, mandatory standards, effective monitoring and enforcement, protection of workers and communities, environmentally sound management of lead-containing waste, and sustained investment in surveillance, remediation, behavior change, and safer alternatives. Only through a coordinated, multisectoral, and adequately resourced national response can Bangladesh reduce the long-term burden of lead exposure, protect present and future generations, and advance toward a healthier, safer, and more productive society.

1.8. Justification

Recognizing the unprecedented scale of the global lead poisoning crisis, UNICEF and international partners launched the Partnership for a Lead-free Future (PLF) in 2024 to mobilize coordinated, evidence-driven action and unite governments, technical agencies, and stakeholders behind a shared goal to end childhood lead poisoning by 2040. The PLF provides a global platform for political commitment, technical cooperation, and accelerated investment, galvanizing the whole-of-society response that this crisis demands.

Bangladesh is an active PLF member, signaling strong national leadership and a clear commitment to protecting children's health and the country's future human capital. Building on this commitment, the Ministry of Environment, Forest and Climate Change (MoEFCC), with technical support from the Multisectoral Steering Committee on Lead Poisoning Prevention, UNICEF, and collaboration across multiple government and nongovernment partners, led the coordination and development of this National Strategy and Multiyear Action Plan for a Lead-free Bangladesh. The documented scale of the burden, including widespread exposure among children and pregnant women, elevated blood lead levels, and profound developmental and economic losses, demonstrates unequivocally that incremental or fragmented actions are inadequate. Bangladesh now requires a comprehensive, system- and sector-wide national response that strengthens surveillance systems, tightens and enforces regulatory measures, eliminates major sources and exposure pathways, improves environmental management, and drives sustained public awareness and behavior change. Only a coordinated, high ambition approach will meaningfully reduce lead exposure, protect current and future generations, and unlock the country's full human capital potential.

The strategy deliberately adopts the term “*lead-free*”¹ to underscore the goal of complete elimination of lead from products, processes, and environments that pose risks to human health and ecosystems. The phrase goes beyond partial reduction or risk minimization and aligns with the vision of the MOEFCC, and global initiatives such as the Global Alliance to Eliminate Lead Paint (GAELP), the Partnership for a Lead-Free Future (PLF), and the WHO/UNICEF/Pure Earth’s shared vision for a lead-free future. By setting “lead-free” as the standard, the strategy emphasizes prevention at source, promotes innovation in safer alternatives, and provides a clear benchmark for regulation, monitoring, and enforcement. This terminology also ensures coherence with international trade standards and consumer expectations, positioning Bangladesh as a proactive country that protects children’s health, fosters sustainable industrial practices, and meets its commitments under the Sustainable Development Goals (particularly SDG 3 on health and SDG 12 on sustainable production and consumption). While acknowledging that trace background levels of lead may naturally exist in the environment, “lead-free” in this strategy denotes compliance with health-based permissible limits or maximum contaminant levels established for various matrices such as paint, food, water, soil, and air.

1.9. Process of Development

This strategy and accompanying multi-year action plan were developed through a structured, consultative, and evidence-informed process led by the Ministry of Environment, Forest and Climate Change (MOEFCC), with technical and financial support from UNICEF. The draft of the document was guided by UNICEF’s lead-related toolkit and associated programmatic guidance to ensure alignment with international good practice and an equity-focused approach. The approach followed a standard planning cycle—assess and scope, develop and refine, validate and prioritize, and finalize for implementation—to ensure the strategy is country-owned, technically robust, and implementation-ready.

Governance and coordination arrangements. The process was anchored in an officially constituted multisectoral steering mechanism under MOEFCC (established by formal order on 20 June 2024) to provide strategic direction, decision-making, and inter-ministerial alignment. A

¹ “Lead-free” refers to compliance with maximum contaminant levels (MCLs) or permissible limits set by national standards or international benchmarks (e.g., WHO guidelines, Codex Alimentarius standards, US EPA screening levels, or Basel/UNEP frameworks), recognizing that naturally occurring trace background concentrations of lead may still be present in environmental and product matrices.

Technical Working Group—bringing together MOEFCC, the Department of Environment (DOE), the Directorate General of Health Services (DGHS), UNICEF, Pure Earth, ESDO, and others—provided iterative technical review and quality assurance, ensured coherence across pillars, and strengthened feasibility, sequencing, and accountability across the action plan.

Phase 1: Scoping and evidence review (pre-consultation). The lead-free Bangladesh concept was initiated following a national consultation held in October 2023 during International Lead Poisoning Prevention Week, convening government, the private sector, development partners, academia, and civil society. Following the Steering Committee's decision to develop a National Strategy and Multi-Year Action Plan, a detailed development work plan was prepared and formally approved in December 2024. A consultant was engaged in 2025 and commenced the assignment through an inception meeting with MoEFCC on 24 March 2025 to confirm the scope, structure, outputs, and the consultation pathway. In parallel, a targeted desk review consolidated Bangladesh-specific and global evidence on priority lead sources, exposure pathways, health and economic impacts, and effective policy and program responses, triangulating stakeholder inputs and informing the initial problem framing and pillar architecture.

Phase 2: Drafting and iterative technical review. A zero draft was prepared and presented to the Steering Committee on 29 May 2025 for strategic guidance, followed by a subsequent review of an updated draft on 20 July 2025. In parallel, the core technical working group comprising UNICEF, Pure Earth, and ESDO convened multiple working sessions between April and September 2025 to refine the eight strategic pillars, stress-test proposed interventions, and expand the multi-year action plan—including timelines, deliverables, responsible authorities, indicative budgeting, and monitoring indicators—so that the document functions as a practical roadmap for delivery.

Phase 3: Multistakeholder consultation and validation. A national multi-stakeholder consultation workshop was held on 23 August 2025 to validate priorities, map key exposure pathways and hotspots, and confirm implementation roles across government, development partners, civil society organizations, and the private sector. Feedback from plenary and thematic discussions was consolidated and integrated into a revised draft, which was presented at the Steering Committee meeting on 2 December 2025 for further direction and alignment with national policy priorities.

Phase 4: Chapter review groups and final consolidation. During the final consultation workshop, participants reviewed the near-final draft through facilitated thematic working groups aligned with the strategy pillars and key implementation enablers. The group work focused on sharpening strategic logic, validating roles and responsibilities, reviewing feasibility and sequencing, and strengthening the linkage between strategic actions, deliverables, and the monitoring and evaluation framework. The thematic groupings included:

Group 1: Multisectoral engagement, coordination and collaboration; private sector engagement and resource mobilization from private sector.

Group 2: Institutional capacity strengthening; surveillance and identification of sources and exposure pathways.

Group 3: Policy and regulatory strengthening.

Group 4: Monitoring and enforcement; resource mobilization from government.

Group 5: Public awareness and education; research and innovation; resource mobilization from development partners.

Post-consultation finalization. Following the consultation(s), the draft was revised through multiple rounds to incorporate group recommendations, harmonize language and responsibilities across chapters, and finalize the multi-year action plan under each pillar. This final consolidation ensured that implementation modalities, phased timelines, and performance indicators are mutually reinforcing, enabling coordinated execution, performance tracking, and course correction during roll-out.

2. Vision and Mission

2.1. Vision: A Lead-Free Bangladesh

A lead-free Bangladesh where every child, family, and community is protected from the harms of lead exposure and empowered to thrive in a safe and sustainable environment.

2.2. Mission: To Eliminate Lead Exposure through Coordinated, Evidence-based Actions

To establish and operationalize an integrated, multisectoral national framework for the elimination of lead pollution and the prevention of lead exposure by strengthening existing systems, enforcing

environmental regulations, and enabling behavioral change through awareness, evidence-based policies, partnerships, and innovation.

2.3. Targets

- Reduction in blood lead levels
 - By 2030, reduce the proportion of children under 5 (6-59 months) with blood lead levels (BLL) above or equal to 5 µg/dL by 50% (baseline 38.3%, MICS 2025)
 - By 2035, reduce the proportion of children under 5 (6-59 months) with blood lead levels (BLL) above or equal to 5 µg/dL by 95% (baseline 38.3%, MICS 2025)

3. Strategic Objectives

Bangladesh's transition toward a lead-free future demands a coherent, multisectoral response rooted in scientific evidence, institutional reform, and whole-of-society engagement. The strategic direction outlined in this document is organized around eight mutually reinforcing pillars that together provide a comprehensive framework for eliminating lead exposure across all major pathways. These pillars reflect the country's commitment to safeguarding public health—especially that of children and other vulnerable populations—while promoting sustainable industrial development, strengthening regulatory systems, protecting workers and communities, and catalyzing innovation and private-sector action.

Each pillar represents a core strategic domain requiring coordinated national action, structured investment, and long-term commitment. Collectively, they respond to the urgent need to strengthen governance, enhance surveillance systems, modernize regulatory instruments, expand research and technological capacity, deepen community and stakeholder engagement, and improve implementation across both formal and informal sectors. The pillars also reinforce Bangladesh's alignment with global best practices and international frameworks, ensuring that lead mitigation becomes fully embedded within the country's broader development agenda.

This strategy will be implemented in line with a just transition approach. This means that lead elimination measures will be designed to maximize public health outcomes while ensuring fairness for workers, micro, small and medium-sized enterprises, and informal operators that may be affected by strengthened standards, market surveillance, and enforcement. In the Bangladesh context, this is particularly important because many high-risk lead exposure pathways are linked to livelihoods, informal production systems, and small-scale recycling, repair, and manufacturing activities. A just transition lens will therefore help ensure that risk reduction measures are both socially responsive and operationally sustainable.

The just transition approach will be operationalized through five commitments: (1) early identification of sectors, enterprises, and worker groups likely to be affected by lead elimination measures; (2) structured engagement with employers' and workers' representative organizations in the design, sequencing, and implementation of reforms; (3) transition support measures, including skills upgrading, safer technology adoption, and pathways for enterprise formalization; (4) monitoring indicators that track both exposure reduction and social outcomes, including worker

protection and livelihood stability; and (5) specific safeguards to prevent child labour displacement, income shocks, and unintended harm to vulnerable households as lead elimination measures are introduced.

Figure 4 illustrates the interconnected architecture of the eight pillars, which together provide the strategic foundation for achieving a lead-free Bangladesh and guiding action across ministries, agencies, development partners, industry bodies, academic institutions, civil society actors, employers, and workers' organizations.

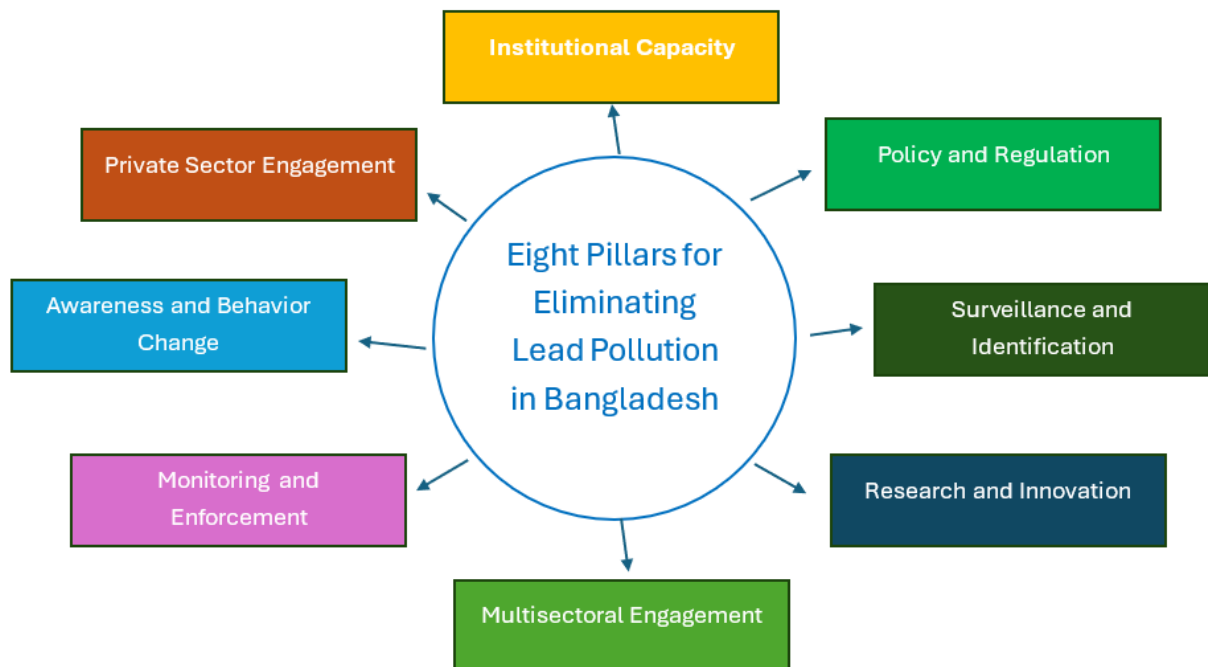


Figure 4. The Eight Pillars Guiding Bangladesh's Lead-Free Future

3.1. Institutional Capacity Strengthening

Strategic Objective

To strengthen institutional capacity across relevant government agencies, laboratories, regulatory bodies, and academic institutions, as well as local government structures, to ensure effective governance, monitoring, enforcement, and coordination in the elimination of lead pollution in Bangladesh.

Context

The effective implementation of a lead-free strategy requires a coordinated, multisectoral institutional response supported by adequate resources, clear mandates, and sustained technical capacity. While several ministries and agencies—including MoEFCC, DOE, BSTI, DGHS, and BFSA—have important roles in surveillance, regulation, enforcement, and service delivery, many continue to face constraints in infrastructure, human resources, laboratory systems, and inter-agency coordination. Institutional strengthening is therefore essential to enable effective governance, enforce standards, identify and respond to exposure risks, and support the implementation of Bangladesh’s national lead-free agenda.

A core element of this capacity agenda should be a robust national laboratory quality and regulatory science architecture for lead testing. This requires the establishment or designation of an ISO/IEC 17025-accredited National Lead Reference Laboratory, development of national analytical protocols for lead determination in environmental and biological samples, mandatory quality assurance and quality control systems for all lead-testing laboratories, method validation, metrological traceability, and a national proficiency testing programme. Technically competent scientific, accreditation, regulatory, and laboratory institutions—including the Bangladesh Accreditation Board, BSTI, BCSIR, BAEC, BFSA, DGHS/IEDCR, SRDI, DOE laboratories, universities, BAERA, and other relevant institutions—may support the development of laboratory quality systems, analytical validation procedures, regulatory inspection protocols, and certified training programmes for inspectors, analysts, and environmental regulators.

Institutional capacity for a lead-free Bangladesh must also encompass the labour and occupational dimensions of lead exposure. A significant share of lead risk arises in workplaces and informal economic activities, where workers may be exposed through production, recycling, repair, and

waste handling. Strengthening capacity—particularly within the Ministry of Labour and Employment (MoLE) and the Directorate of Inspection for Factories and Establishments (DIFE), in coordination with DOE, DGHS, and local government institutions—therefore requires the ability to prevent occupational exposure, align enforcement with worker protection measures, and support safer work and livelihood transitions. These gaps are especially pronounced in informal, small-scale, household-based, and unregistered operations, where exposure risks are often highest and oversight remains weakest. Addressing them will require integrated approaches that combine labour inspection, environmental enforcement, public health surveillance, and community-level outreach.

In addition to regulatory, enforcement, and occupational health functions, institutional capacity must also include clinical readiness to prevent, detect, and manage lead exposure, particularly among children and pregnant women. This requires the institutionalization of national clinical guidelines, the integration of blood lead screening into routine service delivery platforms, the availability of appropriate diagnostic capacity, functional referral pathways, and reliable supply chains for essential medicines and commodities. A strengthened clinical response system will also reinforce surveillance, improve the targeting of high-risk populations, and establish a more effective linkage between case detection, source investigation, and enforcement action.

Challenges and Gaps

Limited Technical, Analytical, and Surveillance Capacity

- Public institutions responsible for lead-related surveillance and control—including DOE, DGHS, BSTI, and other relevant agencies—continue to face significant constraints in laboratory infrastructure, equipment, and specialized human resources. These limitations reduce the reliability and scale of lead testing across environmental, food, biological, and consumer product matrices. In addition, integrated data systems that can link environmental monitoring, health screening, laboratory results, and enforcement actions remain absent or underdeveloped, weakening evidence-based decision-making and coordinated response.

Regulatory and Enforcement Deficits

- Institutional enforcement and monitoring capacity remain constrained by gaps in legal and regulatory frameworks, limited staffing, and weak field-level operational reach. Regulatory agencies often lack sufficient personnel, logistics, and digital systems to systematically inspect and monitor high-risk sectors, particularly informal markets, small-scale manufacturers, and unregulated recycling and smelting operations. These weaknesses reduce the credibility and effectiveness of compliance monitoring and enforcement.

Labour and Occupational Health Capacity Gaps

- Institutional capacity to address occupational lead exposure remains limited, particularly in workplaces and informal economic activities where workers are exposed through production, recycling, repair, dismantling, and waste handling. Occupational risks are not yet systematically identified, monitored, or addressed through labour inspection and occupational safety and health systems. Enforcement and remediation actions are also not consistently linked to worker protection measures, safer work practices, occupational health referral, or follow-up support. These gaps are especially acute in informal, small-scale, household-based, and unregistered operations, where exposure risks are often highest and oversight remains weakest. Institutions also have limited capacity to anticipate and manage the labour implications of lead elimination measures, including support for skills upgrading, safer task reassignment, enterprise formalization, and transition to safer livelihoods.

Inadequate Budget Allocation and Resource Mobilization

- Lead-related priorities have not yet been adequately reflected in the annual development plans and operational budgets of relevant ministries and agencies. Dedicated financing windows for lead-related research, institutional strengthening, surveillance, innovation, and lead-safe technologies remain limited. This underinvestment constrains both routine functions and the scale-up of longer-term system reforms required for effective implementation.

Low Awareness and Training Deficits

- Many public officials, inspectors, laboratory personnel, and technical staff lack up-to-date knowledge and training on the risks of lead exposure and on best practices for monitoring,

mitigation, enforcement, and risk communication. At the same time, academic and research institutions remain underutilized in generating evidence, supporting policy development, and building technical capacity across sectors. These gaps weaken the overall institutional ecosystem needed to sustain a national lead-free response.

Clinical Management Capacity Gaps

- Lead screening and clinical management are not consistently integrated into standard service delivery packages, including maternal, newborn, and child health platforms, which limits early detection and timely intervention. Few facilities are currently equipped to provide comprehensive care for moderate-to-severe lead toxicity and complex cases. Referral pathways from primary to tertiary care remain weak, contributing to delayed diagnosis and fragmented follow-up. In addition, hospital-based availability of BLL diagnostics, including both rapid and confirmatory testing, remains limited, while reagents and chelation medicines are not consistently forecasted, financed, and procured. Clinical screening data are also not systematically incorporated into digital reporting platforms or linked to environmental investigation and enforcement workflows.

Strategic actions		Major activities	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority
			Short-term activities	Mid and long-term activities										
3.1. Institutional Capacity Strengthening	3.1.1. Develop a sustainable group of technical personnel for the identification and remediation of lead sources (Infrastructure, logistics, HR, and Training)	3.1.1.1. Capacity building training on toxic site identification for DOE and relevant government organization personnel	x										Training Module and Report	Lead: MoEFCC, DOE, DIFE and Local Government Supporting Agency: Pure Earth
		3.1.1.2. Identify and list informal ULAB recycling facilities and support monitoring design through a working group	x										List of Informal recyclers identified (report)	Lead: MoEFCC, DOE, Co-lead: Ministry of Industries Supporting Agency: Pure Earth
		3.1.1.3. Screening of the active/abandoned informal ULAB recycling sites	x										Report on Informal ULAB recycling sites (both active & abandoned) with geo-location	Lead: MoEFCC, DOE, DIFE, and Local Government Supporting Agency: Pure Earth
		3.1.1.4. Development of a national ULAB database and sustainability plan	x										Geo-referenced Database of ULAB Recycling Facilities and Sustainability plan developed	Lead: MoEFCC, DOE Supporting Agency: Pure Earth
		3.1.1.5. Scale up capacity building training on toxic site identification for DOE and relevant government organization personnel		x	x	x	x	x	x	x	x	x	Training Report	Lead: MoEFCC, DOE, DIFE and Local Government Supporting Agency: Pure Earth
		3.1.1.6. Update the list of informal lead-acid battery recyclers		x	x	x	x	x	x	x	x	x	List of Informal recyclers identified report updated	Lead: MoEFCC, DOE Co-lead: Ministry of Industries Supporting Agency: Pure Earth
		3.1.1.7. Continue screening of the active/abandoned informal ULAB recycling sites		x	x	x	x	x	x	x	x	x	Updated database of informal ULAB recycling sites (both active &	Lead: MoEFCC, DOE, DIFE and Local Government

													abandoned) with geo-location	Supporting Agency: Pure Earth
	3.1.2. Set up testing facilities and mobile units for identification and remediation of lead sources	3.1.2.1. Establish a national reference laboratory and regional testing laboratories/facilities with modern equipment for analyzing blood samples		x	x	x	x	x	x	x	x	x	i) The country has at least one laboratory to test lead content in blood samples ii) The laboratory has its protocol for sample collection, transport, storage, and analysis following global practices	Lead: MOHFW, DGHS Supporting agencies: World Bank, ADB, UNICEF, JICA
		3.1.2.2. Establish specialized treatment centers for lead poisoning and provide training for healthcare professionals to handle lead-related cases		x	x	x	x						Establishment of specialized treatment centers	Lead: MOHFW, DGHS, IEDCR Supporting agencies: ICDDR,B
		3.1.2.3. Establish a national reference laboratory and regional testing laboratories/facilities with modern equipment for analyzing soil and agriculture-related samples, including fertilizer, irrigation water, and plant/crop samples where relevant.		x	x	x	x	x	x	x	x	x	i) The country has at least one laboratory to test lead content in soil samples ii) The laboratory has its protocol for sample collection, transport, storage, and analysis following global practices	Lead: Ministry of Agriculture, SRDI, and DOE Co-lead/supporting: BCSIR, universities, BSTI, BFSA, and relevant accredited laboratories
		3.1.2.4. Establish a national reference laboratory and regional testing laboratories/facilities with modern equipment for analyzing paints and other consumer products		x	x	x	x	x	x	x	x	x	i) The country has at least one laboratory to test lead content in paints and consumer products ii) The laboratory has its protocol for sample collection, transport, storage, and analysis following global practices	Lead: Ministry of Industries, BSTI Supporting agencies: World Bank, ADB, UNICEF
		3.1.2.5. Establish a national reference laboratory and regional testing laboratories/facilities with modern equipment for analyzing food samples		x	x	x	x	x	x	x	x	x	i) The country has at least one laboratory to test lead content in food samples ii) The laboratory	Lead: Ministry of Food, BFSA Supporting agencies: World Bank, ADB, UNICEF

													has its protocol for sample collection, transport, storage, and analysis following global practices	
		3.1.2.6. Establish a national reference laboratory and regional testing laboratories/facilities with modern equipment for analyzing air and water samples		x	x	x	x	x	x	x	x	x	i) The country has at least one laboratory to test lead content in air and water samples ii) The laboratory has its protocol for sample collection, transport, storage, and analysis following global practices	Lead: MoEFCC and DOE Supporting agencies: World Bank, ADB, UNICEF
		3.1.2.7. Establish a national reference laboratory and regional testing laboratories/facilities with modern equipment for analyzing batteries		x	x	x	x	x	x	x	x	x	i) The country has at least one laboratory to test lead content in batteries ii) The laboratory has its protocol for sample collection, transport, storage, and analysis following global practices	Lead: MOEFCC, DOE and BSTI Supporting agencies: World Bank, ADB, UNICEF
		3.1.2.8. Strengthen mobile testing units/facilities		x	x	x	x	x	x	x	x	x	Mobile testing units/facilities are established at least at the divisional level	Lead: DOE, BSTI, DOL, SRDI, DGHS, BFSA Supporting agencies: Pure Earth
		3.1.2.9. Establish battery testing facilities at ports		x	x	x	x	x	x	x	x	x	At least 25% of ports of entry have battery testing facilities	Lead: Ministry of Finance Co-lead: Bangladesh Customs, NBR
	3.1.3. Establish an organized waste management system	3.1.3.1. Establish centralized hazardous waste management system		x	x	x	x						Construction of landfills	Lead: Local Government Division Co-lead: Ministry of Land, MoEFCC
	3.1.4. Development of transition roadmap, guidelines, and SOPs for LAB/ULAB and remediation	3.1.4.1. Develop Roadmap, Environmentally Sound Management (ESM), and Standard Operating Procedure (SOP) for formal recycling of LAB	X										Roadmap, ESM, and SOP developed	Lead: MoEFCC and DOE Supporting agencies: ABMEAB, Pure Earth

		3.1.4.2. Develop a remediation guideline for cleanup activities at lead-contaminated sites	x										Remediation Guide developed and enforcement policy adopted (e.g., environmental clearance pre-requisite)	Lead: MoEFCC and DOE Supporting agencies: ABMEAB, Pure Earth
	3.1.5. Strengthen institutional capacity and human resource competencies for lead-safe operations	3.1.5.1. Conduct training programs for workers		X	X	X	X						Training programs held	Lead: MOHFW Co-Lead: MoLE, organizations working for labor rights
	3.1.6. Establish a centralized digital Lead Knowledge and Innovation Hub to store, disseminate, and visualize research outputs, policy documents, datasets, and technical tools.	3.1.6.1. Create an open-access, interactive, government-hosted portal for lead-related studies, GIS maps, dashboards, toolkits, etc., in collaboration with key research institutions and development partners.	x	X	X	X	X						Lead Knowledge and Innovation Hub operational	Lead: MOEFCC, MOHFW, DOE, MOST Supporting agencies: Pure Earth
		3.1.6.2. Develop interactive data visualization tools (e.g., infographics, heatmaps, and time-series charts) to communicate complex technical data to non-specialist audiences, including policymakers, journalists, educators, civil society, etc.		X	X	X	X						Interactive dashboards and infographics launched	Lead: DOE, DGHS, BCSIR, Universities Supporting agencies: Pure Earth
		3.1.6.3. Promote cross-platform accessibility and multilingual formats to increase usability across sectors and stakeholders.		X	X	X	X	X	X	X	X	x	Bilingual (Bangla–English) digital repository functional	Lead: MOEFCC, DOE, UNICEF Supporting agencies: ICT
	3.1.7. Institutionalize national clinical governance for lead case detection and case management	3.1.7.1. Develop and approve National Clinical Guideline for lead poisoning (children, pregnancy, adults, occupational), including BLL thresholds, follow-up schedule, referral criteria, and exposure investigation triggers	X										Guideline approved; dissemination package; update cycle established (e.g., every 3 years)	Lead: MoHFW, DGHS Co-lead: IEDCR Supporting agencies: Professional bodies (BCPS/BMA), medical universities, UNICEF/WHO, Pure Earth
		3.1.7.2. Create standard clinical tools (job aids, case definition, referral form,	X										Toolkits finalized; % of target facilities	Lead: DGHS Supporting agencies: IEDCR,

		discharge counseling, exposure history checklist) aligned with guideline											using standardized tools	MIS-DGHS, partners
		3.1.7.3. Establish tiered referral pathway (Upazila → District → Tertiary) and designate Lead Poisoning Focal Points in selected hospitals	X	X	X	X	X	X	X	X	X	x	Referral SOP issued; focal points assigned; functional referral network in priority divisions	Lead: DGHS (Hospital Services) Co-lead: Directorate General of Family Planning (where relevant) Supporting agencies: Tertiary hospitals/medical colleges
		3.1.7.4. Implement competency-based training (ToT + cascade) for clinicians, nurses, lab staff on detection, counseling, and clinical management	X	X	X	X	X	X	X	X	X	x	# ToT completed; # providers trained and certified; training integrated into CPD	Lead: DGHS Co-lead: Medical education wing / relevant institutes Supporting agencies: ICDDR,B, IEDCR, development partners
	3.1.8. Ensure health-system readiness for diagnosis, treatment commodities, and quality assurance	3.1.8.1. Deploy BLL testing capacity at priority facilities (point-of-care devices where appropriate + confirmatory lab pathway), including QA/QC and proficiency testing	X	X	X	X	X	X	X	X	X	x	# facilities providing BLL testing; QA/QC protocol implemented; turnaround time targets met	Lead: MOHFW, DGHS Co-lead: IEDCR Supporting agencies: accredited labs/partners
		3.1.8.2. Ensure chelation and supportive management readiness (quantification/forecasting, procurement, distribution, clinical pharmacy guidance)	X	X	X	X	X	X	X	X	X	x	National stock plan; chelation agents available at designated centers; zero stock-out months at priority sites	Lead: MOHFW Co-lead: DGDA, CMSD Supporting agencies: DGHS hospitals, partners
		3.1.8.3. Establish clinical audit and mentoring (case review boards, tele-mentoring/ECHO-style sessions, periodic supervision)		X	X	X	X	X	X	X	X	x	% of priority facilities completing quarterly case audits; mentoring sessions conducted	Lead: DGHS Supporting agencies: medical universities, tertiary hospitals, partners
		3.1.8.4. Standardize patient counseling + exposure reduction package (nutrition, hygiene, home risk mitigation, caregiver	X	X	X	X	X	X	X	X	X	x	Counseling materials approved; % of confirmed cases receiving	Lead: DGHS Co-lead: Health Education Bureau Supporting agencies:

		guidance), with referral link to source investigation											counseling + follow-up plan	MOEFCC/DOE, LGD, NGOs
	3.1.9. Integrate clinical lead poisoning into national health information and response workflows	3.1.9.1. Add lead case reporting module (suspected/confirmed, BLL bands, treatment given, follow-up) into facility reporting and national HIS (with geographic clustering flags)	X	X	X	X	X	X	X	X	X	X	Reporting module live; facilities reporting; routine dashboard produced	Lead: DGHS (MIS) Co-lead: IEDCR Supporting agencies: MOEFCC/DOE for linkage to hotspot response
		3.1.9.2. Define and operationalize clinical-to-environment “trigger protocol” (when a clinical case prompts household/community investigation and enforcement/referral)	X	X	X	X	X	X	X	X	X	X	Trigger SOP approved; # investigations initiated from clinical triggers; response time KPI	Lead: DGHS + MOEFCC/DOE (joint) Supporting agencies: LGD, city corporations, partners
	3.1.10. Strengthen institutional capacity to address labour and occupational dimensions of lead exposure	3.1.10.1. Establish and operationalize an inter-agency coordination mechanism among MoLE, DIFE, DOE, DGHS, local government institutions, and relevant authorities to address the labour and occupational dimensions of lead exposure, particularly in informal and high-risk sectors	X	X	X	X	X	X	X	X	X	X	Inter-agency coordination mechanism formally established; Terms of Reference (ToR) approved; Designated focal points nominated by relevant agencies; Annual joint workplan developed and updated; Regular coordination meetings held and documented	Lead: Ministry of Labour and Employment (MoLE) Co-lead: Directorate of Inspection for Factories and Establishments (DIFE), MoEFCC, DOE Supporting agencies: DGHS, Local Government Division (LGD), local administration, relevant development partners
		3.1.10.2. Develop institutional guidance and standard coordination protocols to ensure that labour and worker protection considerations are integrated into lead-related enforcement, remediation, and source-elimination measures.	X	X	X	X	X	X	X	X	X	X	Institutional guidance document developed and approved; Standard coordination protocol/SOP issued; Worker protection considerations incorporated into relevant enforcement and	Lead: MoLE and DIFE Co-lead: DOE, MoEFCC, DGHS Supporting agencies: LGD, local administration, Ministry of Industries (where relevant), development partners

													remediation procedures; Orientation or training completed for relevant public institutions; Number of agencies applying the protocol in lead-related operations	
		3.1.10.3. Build the capacity of relevant public institutions to assess labour implications, apply just transition principles, and support socially responsive implementation of lead elimination measures in high-risk and informal settings.	X	X	X	X	X	X	X	X	X	X	Capacity-building package or training module on labour implications and just transition developed; Relevant institutions trained on socially responsive implementation of lead elimination measures; Pilot approaches tested in selected high-risk sectors or locations; Lessons learned documented and recommendations generated for scale-up; Institutional framework for labour-sensitive implementation developed	Lead: MoLE Co-lead: DIFE, MoEFCC, DOE Supporting agencies: DGHS, Ministry of Industries, LGD, industry associations, worker/trade union platforms, development partners

3.2. Surveillance and Identification of Sources and Exposure Pathways

Strategic Objective

To systematically identify, characterize, and map the major sources, exposure pathways, and at-risk populations associated with lead contamination across environmental, occupational, and consumer domains in Bangladesh, thereby enabling targeted mitigation, regulatory action, and public health interventions.

Context

This strategic area focuses on building and institutionalizing the capacity of relevant government entities to accurately identify the sources and exposure pathways of lead across environmental, occupational, and consumer domains. In Bangladesh, lead exposure is driven by a complex set of both formal and informal sources, spanning industrial emissions, contaminated consumer products, and legacy environmental pollution. Key contributors include the recycling of ULAB, lead-containing paint, ceramics with lead-based glazes, adulterated spices like turmeric, electronic waste, and contaminated drinking water from lead-bearing plumbing or fittings.

Despite important contributions from MICS 2025 and Pure Earth-led hotspot investigations, Bangladesh still lacks a comprehensive, government-led national inventory of lead sources and exposure pathways. Effective source identification requires advanced analytical capacity, coordinated surveillance infrastructure, and robust data systems that can integrate blood lead levels, environmental sampling, and hotspot identification. Surveillance systems should also explicitly incorporate occupational exposure surveillance as part of the broader national lead surveillance architecture. Where feasible, this should include biological monitoring of workers in high-risk sectors and the integration of workplace, household, environmental, and health data to support source identification and corrective action. Accurate source mapping is foundational for directing enforcement actions, prioritizing remediation, and protecting vulnerable populations, especially children. Current national response mechanisms are limited by data fragmentation, underfunded surveillance systems, and weak coordination between environmental, health, and consumer protection authorities. The identification and analysis of sources and exposure pathways will serve as the cornerstone for targeted interventions aimed at gradually reducing and ultimately eliminating lead exposure in Bangladesh. Achieving this will require equipping key institutions with advanced analytical technologies (e.g., ICP-MS, XRF) and empowering the technical

workforce through specialized training on sampling design, sample and data collection, laboratory analysis, data interpretation, and environmental forensics.

Challenges and Gaps

Lack of a Centralized National Source Inventory

- Bangladesh DOEs not currently maintain an up-to-date, integrated database of lead sources across industrial, residential, commercial, and agricultural sectors.
- Prior investigations have been sporadic, donor-driven, and geographically limited, lacking institutional continuity or government ownership.

Insufficient Environmental and Biological Surveillance

- Regular monitoring of lead in soil, water, food, air, toys, cosmetics, and household dust is either absent or occurs through ad hoc projects.
- National blood lead level (BLL) screening is not integrated into routine health surveillance or child health programs.

Under-recognition of Informal and Legacy Sources

- Informal ULAB recycling, backyard smelting, and unregulated small-scale industries are often omitted from official pollution assessments.
- Legacy pollution sites, such as former lead smelters and contaminated agricultural zones, remain unremediated and poorly documented.

Weak Intersectoral Data Integration

- Environmental, public health, and industrial data relevant to lead sources are siloed, incompatible, or inaccessible for joint analysis.
- No institutionalized protocol exists for data sharing among ministries, laboratories, NGOs, and research institutions.

Limited Capacity for Risk Prioritization and Hotspot Mapping

- Existing GIS and laboratory infrastructure within the DOE, Ministry of Health, and allied agencies are underutilized for spatial risk mapping and exposure modeling.

- There is no formalized system for geo-referencing lead hotspots, prioritizing interventions, or tracking exposure pathways to vulnerable groups (e.g., children, pregnant women, and workers).

Absence of Product Surveillance and Market Inspection Mechanisms

- Routine lead content testing in consumer goods (e.g., toys, cookware, pigments, cosmetics) is minimal.
- BSTI and Customs authorities lack adequate technical tools, trained inspectors, and institutional mandates for comprehensive product safety testing at points of entry and in domestic markets.

Strategic actions		Major activities	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority
			Short-term activities	Mid and long-term activities										
3.2. Surveillance and Identification of Sources and Exposure Pathways	3.2.1. Assess prevalence of lead poisoning and identify sources and hotspots	3.2.1.1. Collection and analysis of blood samples from children and pregnant women through the Multiple Indicator Cluster Survey (MICS)	x										Data of the Blood Lead Level (BLL) study	Lead: BBS, SID Co-lead: MOHFW/DGHS/IEDCR, ICDDR,B Supporting agency: UNICEF
		3.2.1.2. Collection and analysis of soil samples from households of children through the Multiple Indicators Cluster Survey	x										Soil sample analysis report and lead source identified	Lead: BBS, SID Co-lead: MOHFW/DGHS/IEDCR, ICDDR,B, SRDI, MoA Supporting agency: UNICEF
		3.2.1.3. Home-based assessment for identification of lead in different household products and surfaces linked to MICS	x										Lead-containing products and surfaces identified	Lead: DOE, MoEFCC Co-lead: IEDCR, BBS, SID, BSTI, ICDDR,B Supporting agency: UNICEF
		3.2.1.4. Collection and analysis of food items and food contact materials from markets linked to MICS and risk assessment	x										Lead-containing products in the markets of the hotspots identified	Lead: BFSa, Ministry of Food Co-lead: MOHFW/DGHS/Institute of Public Health, IEDCR, BBS, SID, BSTI, Mol, ICDDR,B Supporting agency: UNICEF
		3.2.1.5. Community-based monitoring and screening of soil, water, and products used in households, along with the appliances	x										Report	Lead: DOE, MoEFCC Co-lead: IEDCR; BBS, SID; BSTI, Ministry of Food, ICDDR,B Supporting agency: UNICEF, ESDO and BAN Toxics
		3.2.1.6. Develop a centralized national lead monitoring database and GIS-based contamination mapping system integrating environmental, biological, occupational, product-testing, laboratory, and remediation data, with risk categorization of contaminated sites and exposure pathways.	x	x	x	x	x	x	x	x	x	x	National lead monitoring database operational; GIS contamination map developed; number of hotspots classified by risk category; annual contamination mapping report.	Lead: MoEFCC, DOE; Co-lead: DGHS, BSTI, BFSa, MoLE/DIFE; Supporting: ICT Division, BAERA, universities, Pure Earth
	3.2.2. Follow-up and screening	3.2.2.1. Continuation of BLL survey through MICS					x					x	MICS data on lead and other relevant heavy metals generated	Lead: BBS, SID Co-lead: MOHFW/DGHS/IEDCR/ICDDR,B Supporting agency: UNICEF
		3.2.2.2. Follow up on children with BLL >5 µg/dL identified through MICS 2025	x	x	x	x	x	x	x	x	x	x	All children with BLL >5 µg/dl received follow-up care	Lead: MOHFW/DGHS/IEDCR/ICDDR,B Supporting agency: UNICEF
		3.2.2.3. Regular screening and follow-up of high-risk industrial workers to ensure occupational health and safety		x	x	x	x	x	x	x	x	x	5% of the high-risk industries have a regular screening and follow-up program for workers	Lead: Ministry of Industries, Ministry of Labor, MoHFW, MoEFCC Co-Lead: Business Associations, DGHS, DOE, DoL, DIFE Supporting agency: DPs
		3.2.2.4. Continuation of environmental surveillance through Home-Based Assessment (HBA) for identification of sources		x	x	x	x	x	x	x	x	x	A nationwide HBA study is conducted	Lead: DOE, Co-lead: DGHS, IEDCR, ICDDR,B Supporting agency: UNICEF

		3.2.2.5. Continuation of environmental surveillance through market survey and testing foods from local farms		x	x	x	X	x	x	x	x	x	A nationwide market survey is conducted	Lead: BFSA Co-lead: IPH, BSTI, ICDDR,B Supporting agency: UNICEF
		3.2.2.6. Follow-up on community-based monitoring and screening of food, soil, water, air, and household products		x	x	x	x	x	x	x	x	x	Report	Lead: DOE Co-lead and Supporting: ICDDR,B, MoA, DAE, SRDI
	3.2.3. Remediation of MICS hotspots and abandoned ULAB sites	3.2.3.1. Remediation of MICS (soil) hotspots		x	x	x	x						At least 50 of lead contaminated household remediated, and report generated	Lead: DOE, MOEFCC Co-lead/Supporting: Pure Earth, MoA/SRDI where contaminated agricultural soil or crop-production areas are involved
		3.2.3.2. Post blood lead level testing in the remediated household under MICS (soil) hotspots		x	x	x	x						BLL report with % of reduction	Lead: MOHFW/DGHS/IEDCR Co-lead: Pure Earth
		3.2.3.3. Remediation of abandoned informal ULAB recycling toxic sites		x	x	x	x	x	x	x	x	x	No. of lead contaminated site remediated and report generated	Lead: DOE, MOEFCC Co-lead: Pure Earth
		3.2.3.4. Blood lead level testing in the abandoned informal ULAB recycling toxic sites		x	x	x	x	x	x	x	x	x	BLL report with % of reduction	Lead: MOHFW/DGHS/IEDCR Co-lead: Pure Earth
	3.2.4. Supply chain analysis of consumer products	3.2.4.1. Supply chain analysis of consumer products (e.g., batteries, aluminum cookware, ceramic food ware, toys, etc.)	x	x	x	x	x						Supply chain analysis conducted, and report generated	Lead: Ministry of Industries, Ministry of Food, ICDDR,B Co-lead: BSTI, BFSA Supporting agency: DPs, Pure Earth
	3.2.5. Establish occupational lead exposure surveillance through mandatory BLL testing, a national registry, and referral/compensation linkages	3.2.5.1. Roll out annual/biannual BLL screening for workers in lead-related industries and establish a national occupational lead exposure registry (minimum dataset + confidentiality safeguards).	x	x	x	x	x						BLL screening protocol issued	Lead: MoLE & DIFE (workplace program governance) Co-lead: MoHFW/DGHS (clinical referral + follow-up), IEDCR (surveillance/analytics where relevant) Support: BSTI/DOE (coordination for source control), accredited labs, industry/employer associations, trade unions, DPs
		3.2.5.2. Standardize lab pathway and QA: use/expand labs aligned with ISO/IEC 17025 for blood lead and relevant environmental testing for reliability and comparability.	x	x	x	x	x	x	x	x	x	x	# workers screened/year; coverage rate in prioritized sectors- Registry operational (dashboard + reporting cadence)	Lead: MoLE & DIFE (workplace program governance) Co-lead: MoHFW/DGHS (clinical referral + follow-up), IEDCR (surveillance/analytics where relevant) Support: BSTI/DOE (coordination for source control), accredited labs, industry/employer associations, trade unions, DPs
		3.2.5.3. Define inspection-to-medical referral workflow: confirm elevated BLL → clinical referral (OSH clinics/industrial health centers/public hospitals) → rehabilitation/follow-up and return-to-work guidance.	x	x	x	x	x	x	x	x	x	x	% elevated BLL cases receiving referral + follow-up	Lead: MoLE & DIFE (workplace program governance) Co-lead: MoHFW/DGHS (clinical referral + follow-up), IEDCR (surveillance/analytics where relevant) Support: BSTI/DOE (coordination for source control), accredited labs,

														industry/employer associations, trade unions, DPs
		3.2.5.4. Institutionalize worker protection measures: confidential complaint/reporting mechanism; strengthen recognition of lead poisoning as an occupational disease and link cases to compensation/social protection pathways (including future NSIS options).	x	x	x	x	x	x	x	x	x	x	# participating labs meeting ISO/IEC 17025-aligned QA/QC	Lead: MoLE & DIFE (workplace program governance) Co-lead: MoHFW/DGHS (clinical referral + follow-up), IEDCR (surveillance/analytics where relevant) Support: BSTI/DOE (coordination for source control), accredited labs, industry/employer associations, trade unions, DPs
		3.2.5.5. Publish annual “workplace lead risk” analytics (sectoral trends, compliance hotspots) and feed findings to regulatory updates and targeting of inspections.	x	x	x	x	x	x	x	x	x	x	Annual occupational lead risk report published	Lead: MoLE & DIFE (workplace program governance) Co-lead: MoHFW/DGHS (clinical referral + follow-up), IEDCR (surveillance/analytics where relevant) Support: BSTI/DOE (coordination for source control), accredited labs, industry/employer associations, trade unions, DPs

3.3. Policy and Regulation

Strategic Objective

Establish an integrated, coherent, and enforceable policy and regulatory framework to eliminate lead from all relevant sources in Bangladesh, including incentivizing lead-free alternatives, strengthening enforcement capacity, and ensuring accountability across sectors to protect public health and the environment.

Context

The policy landscape requires harmonization of sectoral laws, establishment of strong monitoring systems, and introduction of fiscal policies to catalyze the shift toward sustainable production and consumption practices. Despite the existence of several sector-specific regulations, the current legal framework remains fragmented, weakly enforced, and insufficient to address the scale of the problem.

This strategic area aims to establish a strong, unified policy and regulatory framework to end lead pollution in Bangladesh by targeting all major sources, from production and import to recycling and disposal. By setting clear regulatory objectives for each lead source, such as paints, batteries, toys, cookware, and cosmetics, and food-contact materials, and aligning these with enforcement systems and incentive structures, this strategic area will create conducive conditions to protect vulnerable populations, meet national commitments, and achieve global alignment with best practices.

Challenges and Gaps

Fragmented legal framework

- Existing laws like the Environment Conservation Act (1995), National Environment Policy (2018), and BSTI's 90 ppm standard (2018) cover only specific sources (e.g., decorative paints) but are not monitored properly.
- Critical areas such as industrial paints, toys, cosmetics, and food-contact materials remain unregulated.

Lack of comprehensive legislation and guidelines

- Bangladesh lacks a unified and comprehensive national legislation that addresses all major sources of lead exposure, leaving critical sectors outside regulatory control.
- There are no standard operating procedures (SOPs) for industries to provide clear guidelines and ensure accountability to follow compliance.

No fiscal incentives or disincentives

- A flat 15% VAT (excluding additional taxes) applies to both lead-containing and lead-free products.
- There is no green tax, tax holiday, Extended Producer Responsibility (EPR), buy-back policy, or rebate to promote safer alternatives, making lead-free production cost-prohibitive for many SMEs.
- Informal industries often exploit existing regulatory systems by evading VAT/Tax and producing low-quality products.

Fragmented institutional governance

- Multiple agencies—including MoEFCC, DOE, BSTI, NBR, and MoHFW—share complementary responsibilities for lead management. Establishing a dedicated lead authority or national task force would further strengthen coordination and ensure more consistent implementation.

Gaps in standards and regulatory coverage

- Industrial paints, plastic toys, jewelry, cookware, imported products, and recycled goods lack mandatory lead reference values.
- The lack of mandatory third-party testing, labeling requirements, and transparent certification processes further weakens regulatory control.
- Although the 2021 Lead-Acid Battery Rules (SRO 45a) exist, they do not effectively cover informal recyclers or ensure occupational safety standards.

Low awareness and dissemination of knowledge and information

- Regulations are not widely communicated to local producers, consumers, importers, or recyclers.

- Public awareness of lead risks and rights to safe products remains limited, weakening demand for enforcement.

Strategic actions		Major activities	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority
			Short-term activities	Mid and long-term activities										
3.3. Policy and Regulation	3.3.1. Develop and Enact a Comprehensive National Lead Control Act	3.3.1.1. Draft a unified law covering all major lead sources (paints, batteries, toys, cookware, cosmetics, jewelry, food-contact materials, plumbing, e-waste, etc.).	x										Draft National Lead Control Act prepared for stakeholder consultation.	Lead: MOEFCC/DOE Co-Lead: Ministry of Industries, Ministry of Commerce, Ministry of Health & Family Welfare, BSTI, BFSA Supporting Agencies: UNICEF, ESDO, Pure Earth, ICDDR,B
		3.3.1.2. Establish legal provisions for mandatory lead limits, testing, labeling, certification, and penalties.		x	x	x							Legal provisions incorporated into the National Lead Control Act and accompanying regulations.	Lead: MOEFCC/DOE Co-Lead: BSTI, MOHFW, MOI, BFSA, NBR Supporting Agencies: UNICEF, Pure Earth, ICDDR,B
		3.3.1.3. Mandate industry compliance through SOPs and reporting.	x	x	x	x	x						Sector-specific SOPs are issued, and a mandatory reporting system is established for all regulated industries.	Lead: Mol, BSTI Co-Lead: MoEFCC/DOE Supporting Agencies: Industry Associations (BPMA, ABMEAB), Pure Earth, UNICEF
	3.3.2. Establish the standards for industrial paints	3.3.2.1. Submission of a draft policy guideline for a standard in industrial paint	x										Policy Guideline	Lead: BSTI, Mol Supporting Agency: UNICEF, ESDO, BPMA
		3.3.2.2. BPMA will submit a report on industrial paint reformulation to BSTI	x										Report	Lead: Ministry of Industries, BSTI, and BPMA Supporting Agency: ESDO and UNICEF
		3.3.2.3. Consultative workshop with stakeholders and paint manufacturers to finalize the standards and formulation for industrial paint	x										Workshop Recommendations and Report	Lead: Ministry of Industries, BSTI, and BPMA Supporting Agency: ESDO and UNICEF
		3.3.2.4. Submit a draft document to modify and develop a standard for industrial paint	x										Draft Document authorized by BSTI	Lead: Ministry of Industries, BSTI, and BPMA Supporting Agency: ESDO and UNICEF
		3.3.2.5. Endorsement and adoption of standards in industrial paint, epoxy enamel, epoxy primer, epoxy resin, and powder coating		x	x	x	x						Standards and regulations endorsed	Lead: Ministry of Industries, BSTI, and BPMA
		3.3.2.6. Review and update BSTI regulations for decorative paint		x	x	x	x						Existing regulations reviewed, updated, and endorsed	Lead: Ministry of Industries, BSTI, and BPMA

		3.3.2.7. A monitoring framework will be developed for the existing regulations through a consultative process		x	x	x	x						Monitoring framework developed	Lead: Ministry of Industries, BSTI, and BPMA
		3.3.2.8. Enforcement of the updated paint standard		x	x	x	x						25% of paint manufacturers will comply with the updated standard	Lead: Ministry of Industries, BSTI, and BPMA
		3.3.2.9. Identification of non-compliant paint manufacturers		x	x	x	x						Percentage of non-compliant manufacturers identified and legal notice served	Lead: Ministry of Industries, BSTI, and BPMA
	3.3.3. Lead paint screening and testing	3.3.3.1. Informal Paint Manufacturers and lead paint products identification and listing		x	x	x	x						Situation Analysis Report	Lead: MOEFCC/DOE Co-lead: Pure Earth
		3.3.3.2. Lead paints and leaded toys screening and testing from informal manufacturers		x	x	x	x						Report	Lead: MOEFCC/DOE Co-lead: Pure Earth
		3.3.3.3. Assess transboundary movement of lead paint		x	x	x	x						Country situation report	Lead: MOEFCC/DOE Co-lead: Pure Earth
	3.3.4. Review, introduction, and amendment of import duties, VAT, and other fiscal instruments on lead-containing products to discourage use and promote safer alternatives	3.3.4.1. Preparing draft documents on Legislation/Standards on existing VAT/Tax Schemes in Lead products in Bangladesh	x										Reports	Lead: ESDO and UNICEF
		3.3.4.2. Draft Policy Brief on tax reforms, including a green tax on lead-containing products	x										Policy Brief	Lead: ESDO and UNICEF
		3.3.4.3. Coordinating with NBR to identify VAT/Tax products	x										Identification of VAT/Tax products imported	Lead: MoEFCC/DOE, Ministry of Finance, Ministry of Industry, Ministry of Commerce Co Lead: ESDO and UNICEF
		3.3.4.4. Launch and disseminate the documents through a National Consultative Workshop	x										Workshop Report	Lead: MoEFCC/DOE, Ministry of Finance, Ministry of Industries, Ministry of Commerce Co-Lead: ESDO and UNICEF
		3.3.4.5. Reduce import duties on lead-free raw materials		x	x	x	x						Amendment of rules/regulations/guidelines	Lead: Ministry of Finance Co-lead: National Board of Revenue (NBR)
		3.3.4.6. Provide subsidies and financial support		x	x	x	x						Amendment of rules/regulations/guidelines	Lead: Ministry of Finance Co-lead: National Board of Revenue (NBR)
		3.3.4.7. Develop and disseminate Policy Recommendations based on the supply chain and Lead Acid Battery Circular Economy	X										Policy Recommendations Workshop Report	Lead: MoEFCC and DOE Co-lead: NBR, MoI Supporting Agency: Pure Earth

		3.3.4.8. Impose revised VAT/tax policies for Lead Acid-Battery (e.g., fixed fee/tax per lead acid-battery, reduced lead import/export tax, etc.)		x	x	x	x						Amendment of rules/regulations/guidelines	Lead: National Board of Revenue (NBR), Ministry of Finance Co-lead: BSTI, DOE Supporting Agency: Pure Earth
	3.3.5. Develop and update policies and regulations on lead	3.3.5.1 Establish the maximum permissible limit for lead in soil	X	X									New/Amendment of rules/regulations/guidelines	Lead: MoEFCC/DOE, Ministry of Agriculture Co-Lead: Ministry of Industries, BSTI Supporting Agency: Pure Earth
		3.3.5.2 Introduce safe disposal guidelines for lead-contaminated soil	X	X	X	X	X						New/Amendment of rules/regulations/guidelines	Lead: MOEFCC/DOE, Co-Lead: Ministry of Industries
		3.3.5.3 Development of a lead-contaminated site remediation guideline	X										Remediation Guideline	Lead: MOEFCC/DOE, Supporting Agency: Pure Earth
		3.3.5.4. Introducing safe disposal guidelines for waste generated by industries		X	X	X	X						Training programs held	Lead: MOEFCC/DOE, Co-lead: City Corporation
		3.3.5.5. Develop incentives for domestic manufacturers (e.g., fiscal subsidies, import duty exemptions, green tax, take-back schemes, etc.) to adopt and mass-produce verified lead-free products and phase out contaminated raw materials and processing techniques.		x	x	x	x						Government incentive scheme approved and implemented for verified lead-free manufacturers	Lead: MOI, NBR Co-lead: MOEFCC, BSTI
	3.3.6. Introduce Mandatory Third-Party Testing, Labeling, and Certification	3.3.6.1. Require all high-risk products to undergo accredited third-party lead testing.		x	x	x	x						Third-party accredited testing system operational for all high-risk products.	Lead: BSTI Co-Lead: MOI, MOEFCC/DOE, BFSa, DGHS, Supporting Agencies: UNICEF, ESDO
		3.3.6.2. Implement clear labeling for lead content compliance.			x	x	x	x	x				Mandatory lead content labeling system implemented across regulated product categories.	Lead: BSTI Co-Lead: MoI, MOEFCC/DOE, BFSa, Consumer Rights bodies Supporting Agencies: UNICEF
		3.3.6.3. Create a public online compliance registry.				x	x	x	x	x			National online registry of compliant and non-compliant products publicly accessible.	Lead: BSTI, MOEFCC/DOE Co-Lead: ICT Division, MOI, BFSa, NBR Supporting Agencies: Pure Earth, UNICEF

3.4. Monitoring and Enforcement

Strategic objective

To strengthen the national monitoring, inspection, and enforcement ecosystem to ensure compliance with lead-related regulations across all relevant sectors, supported by adequate institutional capacity, traceability systems, and mechanisms for identifying, remediating, and preventing lead contamination.

Context

Bangladesh requires a robust and coordinated monitoring and enforcement system to effectively implement and uphold lead-related regulations. Weak monitoring infrastructure, fragmented responsibilities, limited traceability, and inadequate field-level oversight undermine regulatory compliance. A strengthened enforcement mechanism, supported by trained personnel, updated technologies, and effective coordination, is essential to ensure safe production, handling, import, transport, recycling, and disposal of lead-containing materials and products.

The widespread use of lead in informal recycling, contaminated consumer products, lead-based paints, and emissions from unregulated industries has made lead exposure a major public health concern in Bangladesh, particularly for children. Although national standards and regulations are in place, enforcement, compliance, and resources remain a challenge. The strategic area focuses on strengthening monitoring, surveillance, and enforcement mechanisms across key sectors, including health, environment, food, agriculture, trade, and industry. Enforcement should be implemented in a sequenced and risk-based manner that prioritizes the most hazardous exposure pathways and the highest-risk sectors while reducing immediate risks and avoiding unintended harm to livelihoods. In sectors with large informal segments, this approach should be accompanied by clear compliance pathways and transition support to reduce the likelihood that hazardous activities shift into more hidden and unsafe settings. Effective surveillance of lead pollution requires regular and systematic analysis of lead levels in environmental media, such as soil, water, air, and food, as well as blood lead level (BLL) testing in humans, particularly among children and pregnant women who are most vulnerable. To address these, it is essential to establish a national biomonitoring system focused on vulnerable populations, especially children, to assess exposure levels, trends, and health impacts. Additionally, mapping and monitoring lead pollution hotspots

and implementing comprehensive environmental surveillance will enable early detection and targeted mitigation efforts. National surveys such as the multiple indicator cluster survey (MICS) can be leveraged alongside the development of a monitoring framework, lead traceability, and extended producer responsibility models for the formal battery sector. These models would require a centralized data platform to integrate multi-sectoral data for timely, evidence-based planning, decision-making, and budgeting for lead mitigation at all administrative levels.

It is important to distinguish between environmental surveillance and an environmental monitoring system within the national lead-free framework. Although the terms are often used interchangeably, they serve complementary but distinct purposes.

Environmental Surveillance refers to the systematic and continuous collection, analysis, and interpretation of data to detect risks, track trends, and inform public health action (World Health Organization [WHO], 2010). In the context of lead, surveillance links environmental measurements with human exposure indicators such as blood lead levels (BLLs). Sentinel site surveillance, community biomonitoring, and integration into health surveys (e.g., MICS, DHS) form the foundation of this approach. Surveillance thus provides early warning and helps identify vulnerable populations and hotspots (Prüss-Ustün et al., 2019).

Environmental Monitoring System, by contrast, is a regulatory and technical process of periodic measurement of pollutants in environmental media and consumer products against established standards. It ensures compliance and accountability. For lead, this includes routine testing of paint, spices, toys, water, soil, and air conducted by accredited laboratories or regulatory agencies (DOE, BSTI, BFSA). Monitoring is narrower in scope, but it provides the data backbone for enforcement, product recalls, and penalties (UNEP, 2020).

Monitoring systems supply standardized data, which feed into the broader surveillance framework. Surveillance then contextualizes this information with human health outcomes, ensuring that monitoring results translate into risk mitigation and preventive interventions. Together, they form the evidence base for enforcement and policy adjustments.

Challenges and Gaps

Insufficient enforcement of existing regulations and standards

- Regulatory frameworks exist but lack consistent implementation and follow-up, particularly at subnational levels and in informal sectors.

Inadequate laboratory capacity and surveillance coverage

- Few accredited labs in Bangladesh have the capacity to test for lead in various media (soil, water, blood, consumer products), and this is leading to data and information gaps and delays in enforcement planning and implementation. No government health institution has an accredited lab that can test human blood lead levels.

Inadequate data and a lack of real-time information systems

- Data on lead exposure sources and affected populations are sector-specific and not routinely collected or shared across agencies or monitored through centralized management and information systems such as DHIS2.

Inadequate inspections and compliance checks

- Routine market surveillance and industrial inspections are limited by inadequate human resources, inequitable distribution of relevant staff across the country, inadequate technical skills, and insufficient budget.

Lack of deterrents

- Penalties for non-compliance are often minimal or poorly enforced due to regulatory gaps, thereby reducing the incentive for industries and retailers to adhere to lead regulations.

Strategic actions		Major activities	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority
			Short-term activities	Mid and long-term activities										
3.4. Monitoring and Enforcement	3.4.1. Establish a monitoring system to ensure compliance	3.4.1.1. Adoption and implementation of Environmentally Sound Management (ESM) and Standard Operating Procedure (SOP) by the formal LAB industry		x	x	x	x						Monitoring report on ESM and SOP implementation	Lead: MOEFCC, DOE, MoI Supporting Agency: Pure Earth
		3.4.1.2. Training on contaminated site remediation guideline for DOE and Battery Industries		x	x	x	x						Training Report	Lead: MoEFCC, DOE Co-lead: Local Government Division (LGD) Supporting agency: Pure Earth, ABMEAB
		3.4.1.3. Increase resources (human, financial, etc.) for regulatory bodies		x	x	x	x						Monitoring report	Lead: MoEFCC, DOE Co-lead: BSTI, MoI, BFSa, DNCRP
		3.4.1.4. Introduce stricter penalties for non-compliance		x	x	x	x						Imposition of a penalty for non-compliance	Lead: MoEFCC, DOE Co-lead: BSTI, MoI, DNCRP, DIFE, MOLE Supporting agency: Pure Earth
		3.4.1.5. Capacity Building		x	x	x	x						Training and Workshops	Lead: Personnel from the relevant Government agencies (such as police, customs, DOE, etc.) Supporting agency: Pure Earth
		3.4.1.6. Establish a National Coordination Committee		x	x	x	x						Meeting Report New Policy/Strategy/Act, etc., developed	Lead: MoEFCC Co-lead: Ministry of Health and Family Welfare, Ministry of Finance, Ministry of Commerce, Ministry of Food, Ministry of Foreign Affairs, Ministry of Agriculture, Ministry of Law, Justice and Parliamentary Affairs, Ministry of Labor and Employment, Ministry of Home Affairs, Local Government Division, DNCRP
		3.4.1.7. Establish district-level informal ULAB activity monitoring committee		x	x	x	x						Meeting Report	Lead: MoEFCC, DOE Co-lead: Ministry of Law, District Administrations, DC office, ABMEAB, DIFE Supporting agency: Pure Earth
		3.4.1.8. Implement a lead-acid battery tagging system with available tracking technologies for effective monitoring and enforcement		x	x	x	x						Battery tracking system/technology developed	Lead: MoI, BSTI, MoST Supporting agency: Pure Earth, ABMEAB, DNCRP
		3.4.1.9. Standardization of Battery		x	x	x	x						Battery standardized	Lead: MoI, BSTI, MoEFCC, DOE Supporting agency: Pure Earth, DNCRP
	3.4.2. Establish a monitoring framework and lead traceability technology	3.4.2.1. Develop a monitoring framework and lead traceability technology model to establish a control point for DOE monitoring and enforcement		x	x	x	x						Monitoring Framework developed and Traceability Technology/Model in place	Lead: MoEFCC, DOE Supporting Agency: Pure Earth

		3.4.2.2. Review of existing environmental policies (e.g., E-Waste, SROs, ECR, etc.)	x										Policy Gap Analysis and Recommendation Report	Lead: DOE, MoEFCC Supporting Agency: Pure Earth
		3.4.2.3. Designing an EPR model for the formal battery sector	x										EPR developed	Lead: DOE, MoEFCC, LGED, MoLGRD&C Co-lead: Ministry of Industry, Ministry of Commerce, ABMEAB Supporting Agency: Pure Earth
	3.4.3. Pilot remediation at an abandoned ULAB site	3.4.3.1. Remediation of a pilot site of a lead-contaminated site	X										Lead-contaminated site remediated, and a report generated	Lead: DOE, MOEFCC Supporting Agency: Pure Earth and Khulna University
		3.4.3.2. Blood lead level measurement at a pilot lead-contaminated site	x										Blood Lead Level (BLL) study report	Lead: DOE, MOEFCC Supporting Agency: Pure Earth and BSMMU
		3.4.3.3. Home-based assessment at a pilot lead-contaminated site	x										Home-Based Assessment (HBA) report	Lead: DOE, MOEFCC Supporting Agency: Pure Earth
	3.4.4. Institutionalize lead-specific OSH governance, compliance protocols, and risk-based enforcement in lead-using industries	3.4.4.1. Update labour rules/OSH guidelines to embed lead risk controls: PEL, hierarchy of controls (engineering controls, dust suppression, ventilation), PPE requirements, safe handling/storage/disposal, recordkeeping, worker right-to-know, and ISO-aligned management system principles (without mandating certification).	x	x	x	x	x	x	x	x	x	x	- Lead provisions inserted into labour rules/OSH guidance (gazette/official circulars)	Lead: MoLE (policy), DIFE (implementation/enforcement) Co-lead: MoEFCC/DOE (joint operations/environment interface), relevant sector regulators (as applicable) Support: ILO/DPs, industry associations, worker/trade union platforms
		3.4.4.2. Adopt and operationalize a lead-risk inspection checklist and sector-specific inspection guidance (battery recycling/manufacturing, smelting, paint/pigment, shipbreaking, ceramics/glass, e-waste).	x	x	x	x	x	x	x	x	x	x	Lead inspection checklist + sector guidance approved and used nationally- Risk-based inspection protocol approved and applied	Lead: MoLE (policy), DIFE (implementation/enforcement) Co-lead: MoEFCC/DOE (joint operations/environment interface), relevant sector regulators (as applicable) Support: ILO/DPs, industry associations, worker/trade union platforms
		3.4.4.3. Implement a risk-based inspection and enforcement framework (sector risk categorization + compliance history + vulnerability indicators) and deploy specialized inspector cadre for chemical/lead hazard inspections.	x	x	x	x	x	x	x	x	x	x	# lead-focused inspections/year;	Lead: MoLE (policy), DIFE (implementation/enforcement) Co-lead: MoEFCC/DOE (joint operations/environment interface), relevant sector regulators (as applicable) Support: ILO/DPs, industry associations, worker/trade union platforms
		3.4.4.4. Execute corrective action pipeline: improvement notices → time-bound CAPs → follow-up verification → penalties for repeat violations; conduct joint operations with DOE/local administration for unauthorized high-risk operations.	x	x	x	x	x	x	x	x	x	x	# enforcement actions/year; % corrective actions closed within agreed timelines	Lead: MoLE (policy), DIFE (implementation/enforcement) Co-lead: MoEFCC/DOE (joint operations/environment interface), relevant sector regulators (as applicable) Support: ILO/DPs, industry associations, worker/trade union platforms

3.5. Private Sector Engagement for Responsible Business Practices

Strategic Objective

To promote responsible, lead-free business practices by strengthening mandatory standards, improving compliance and supply-chain transparency, supporting the shift from informal to formal operations, and emphasizing true public–private partnership, co-designing solutions, aligning incentives with business value, and offering predictable multi-year support to encourage sustained private-sector leadership in eliminating lead exposure.

Context

The private sector is a major leverage point for eliminating lead exposure in Bangladesh, as market dynamics and supply-chain practices shape risks across both formal and informal actors. Significant gaps—weak enforcement, fragmented oversight, and heavy reliance on informal labor—continue to drive lead contamination in sectors such as battery recycling, paint and pigment manufacturing, metalworks, cookware, ceramics, and micro-industries.

Within this landscape, the private sector both contributes to and can substantially reduce lead pollution. Progress will require stronger compliance frameworks, effective incentives, and improved traceability systems, alongside a genuine partnership model where industry works together with the government to design standards, transition pathways, and monitoring mechanisms. Safer, lead-free business practices also bring clear advantages for private firms—including better market opportunities, lower legal and financial risks, and stronger customer trust—which can strengthen motivation for private-sector leadership in reducing lead exposure.

Supply-chain analysis reinforces the need for deeper engagement with private actors across production, trade, and recycling. Past interventions, such as efforts to address lead-contaminated turmeric, demonstrate the value of incentive-driven and shared-accountability approaches. A predictable, multi-year incentive structure is therefore critical to support long-term investments in reformulation and safer technologies.

Product manufacturing companies, particularly those operating in lead-relevant or high-risk value chains, should be encouraged to allocate a portion of their corporate social responsibility (CSR), sustainability, or ESG resources to support public awareness, community outreach, applied research, product safety testing, and innovation for lead-free alternatives.

Private sector engagement should also include targeted transition support for micro, small and medium-sized enterprises and informal operators that may face higher adjustment costs in shifting to lead-free inputs, production processes, and waste management practices. This should be complemented by practical, sector-specific skills development linked to enterprise upgrading, safer technologies, and compliance with emerging standards.

Addressing lead exposure requires a full value-chain approach that includes informal actors and considers both domestic and international trade flows. Stronger coordination and improved import/export controls are essential to close regulatory gaps and prevent harmful informal practices from being reinforced. By aligning corporate practices with public health goals—and involving industry in designing, evaluating, and monitoring reforms—the private sector can drive sustained progress toward a lead-free Bangladesh for children and communities..

Challenges and Gaps

Competitive market pressure promoting low-cost, substandard operations

- Businesses face strong pressure to offer the cheapest products, often pushing them toward low-cost materials that contain or introduce lead into the production process. Eliminating lead or transitioning to safer technologies is perceived as costly, especially when competitors cut corners without facing consequences. The lack of a clear business case for lead-free products further reduces incentives for companies to invest in safer alternatives.

High adjustment costs for smaller enterprises

- Micro, small and medium-sized enterprises and informal operators often face disproportionately high costs in shifting to lead-free inputs, production processes, and waste management practices, while also having limited access to technical guidance, testing services, and affordable finance.

Skills gaps constraining transition

- Many enterprises and workers lack practical skills related to lead-free production, safer handling of materials, waste management, and quality assurance, limiting their ability to comply with standards even where awareness of regulatory requirements exists.

Limited incentives and high perceived costs of compliance

- Firms—particularly SMEs—have little motivation to adopt safer practices due to limited market demand for lead-free products, short-term or insufficient incentives, and limited access to supportive financing. Without predictable, multi-year incentives, companies are reluctant to invest in costly improvements such as reformulation, safer equipment, or traceability systems.

Restricted engagement in regulatory design and monitoring

- Many private-sector actors experience regulations as externally imposed rather than collaboratively developed. Limited opportunities to co-design measures, contribute to monitoring, or shape evaluation processes reduce ownership and weaken compliance. This results in regulations being seen as burdens rather than shared solutions.

Weak enforcement and limited consequences for irresponsible practices

- Enforcement of existing guidelines—such as ULAB collection and waste-management requirements—remains inconsistent. As penalties are rarely applied, substandard operators continue to function with minimal risk. Some pigment suppliers and ULAB handlers operate without licenses or certifications, and regulators lack complementary long-term incentives that could encourage sustained compliance.

Lack of transparency and traceability in supply chains

- Regulators struggle to monitor sourcing, production processes, and safety standards due to fragmented data and limited visibility across complex value chains such as pigments, metals, and LAB/ULAB flows. Insufficient industry participation in designing traceability systems further weakens data quality and makes enforcement more difficult.

Informal sector dominance and market gaps that undermine enforcement

- The significant presence of informal operators—particularly in battery recycling, cookware, and pigment distribution—operate outside formal oversight. Illegal manufacturers supply products that enter legal markets, creating loopholes that undermine enforcement. Without structured mechanisms to engage informal actors and support their transition into compliance, regulators cannot achieve market-wide accountability.

			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority
Strategic actions		Major activities	Short-term activities	Mid and long-term activities										
3.5. Private Sector Engagement for Responsible Business Practices	3.5.1. Develop and enforce mandatory corporate responsibility standards for lead-free operations	3.5.1.1. Draft and adopt Lead-Free Business Practice Guidelines aligned with national and international standards (e.g., WHO, UNEP).	x										National Lead-Free Business Practice Guidelines (published and disseminated).	Lead: DOE, MoEFCC, Co-lead: BSTI, Ministry of Industries
		3.5.1.2. Establish sector-specific compliance checklists for LABs, pigments, paints, and lead-containing products.	x										Sector-specific compliance toolkits.	Lead: BSTI, Mol Co-lead: DOE, MoEFCC
		3.5.1.3. Introduce mandatory certification and labelling for lead-free products.	x										National lead-free certification mark/logo.	Lead: BSTI, Mol Supporting Agency: UNICEF
		3.5.1.4. Integrate lead-related compliance in company licensing and renewal processes.	x										Lead-related compliance integrated into company licensing and renewal processes	Lead: BSTI, Mol
		3.5.1.5. Adopt SOPs/guidelines for farming in lead-contaminated soil	x										SOPs/guidelines formulated and adopted	Lead: Ministry of Agriculture
	3.5.2. Establish public–private co-design platforms for lead-free standards and compliance mechanisms	3.5.2.1. Create sector-specific codesign working groups (LAB/ULAB, pigments/paints, cookware/ceramics, metalworks etc)		x									At least 4 sectoral working groups established and meeting quarterly	Lead: Mol, BSTI; CoLead: DoE, Supporting: Industry Associations (Battery, Paint etc), DPs
		3.5.2.2. Co-develop technical guidelines and transition pathways. (Standards, reformulation guides, compliance protocols, due diligence templates etc)					x						A minimum of 2 co-developed technical guidelines per sector validated by BSTI/DoE	Lead: Mol, BSTI; Co-Lead: DoE, Supporting: Industry Associations (Battery, Paint etc), DPs
		3.5.2.3. Institutionalize joint monitoring and annual public–private review mechanisms. (Annual review forums, joint monitoring indicators, shared evaluation reports etc)				x	x	x	x	x	x	x	Annual public–private regulatory review report published and maintained	Lead: Mol, BSTI; Co-Lead: DoE, Supporting: Industry Associations (Battery, Paint etc), DPs
	3.5.3. Establish economic incentives and penalties to shift market behavior	3.5.3.1. Introduce tax rebates, VAT exemptions, or import duty reductions for lead-free inputs and technologies.	x										Government gazette on fiscal incentives for lead-free production.	Lead: National Board of Revenue (NBR), Co-lead: MoEFCC, Ministry of Commerce (MoC), Ministry of Finance (MoF)
		3.5.3.2. Set financial penalties and market access restrictions for non-compliant businesses.	x										Penalty framework and enforcement guidelines.	Lead: BSTI, Mol
		3.5.3.3. Pilot green procurement policies prioritizing lead-free suppliers in public sector purchases.	x										Public procurement policy circular, including a lead-free preference clause	Lead: BPMA, IMED
	3.5.4. Implement multi-year incentive programs to support business transition to lead-free production	3.5.4.1. Design and launch a multiyear incentive framework. (Tax incentives, concessional loans, grants/vouchers, procurement preferences etc)			x								Multi-year national incentive package approved and operational	Lead: MoF, Mol; CoLead: Bangladesh Bank, DoE, Bangladesh EZA

														(where relevant); Supporting: Industry Associations, ADB & DPs
		3.5.4.2. Pilot incentive packages in priority sectors. <i>(E.g., battery recycling, pigments/paints, cookware/ceramics)</i>					x						At least 50 firms enrolled in pilot incentive schemes	Lead: MoF, Mol; CoLead: Bangladesh Bank, DoE, Bangladesh EZA (where relevant); Supporting: Industry Associations, ADB & DPs
		3.5.4.3. Scale financial support programs through national financing windows. <i>(Credit lines, investment facilities, SME-focused support etc)</i>							x				At least 3 financing windows (credit/grant/transition support) launched and serving firms	Lead: MoF, Mol; CoLead: Bangladesh Bank, DoE, Bangladesh EZA (where relevant); Supporting: Industry Associations, ADB & DPs
	3.5.5. Strengthen traceability and transparency in lead-related supply chains	3.5.5.1. Develop a digital supply chain tracking platform for LABs, pigments, and paints.	x										Functional national lead supply chain database.	Lead: BSTI, Mol Co-lead: MoC, MoEFCC, Bangladesh Chemical Industries Corporation (BCIC), Industry associations (e.g., Battery Manufacturers' Association of Bangladesh, Paint Manufacturers' Association)
		3.5.5.2. Require companies to submit annual supply chain due diligence reports.	x										Annual sector-specific transparency reports.	Lead: DOE, MoEFCC Co-Lead: BSTI, Mol
		3.5.5.3. Partner with industry associations to publish voluntary sustainability disclosures.	x										Training modules on supply chain mapping.	Lead: DOE, MoEFCC Co-Lead: BSTI, Mol
	3.5.6. Formalize and integrate informal sector actors into regulated systems	3.5.6.1. Map informal lead-related businesses (battery recycling, pigment trading, autorickshaw, etc.)	x										Comprehensive registry of informal lead-related businesses.	Lead: DOE, MoEFCC Co-lead: Molnd, BRTA, RHD, PD, Local Government Division (LGD).
		3.5.6.2. Provide formalization packages – simplified registration, training, and microcredit access.	x										Memoranda of Understanding (MoUs) between the government, private sector, and informal actors.	Lead: SMEF, Mol
		3.5.6.3. Create public-private partnerships (PPPs) to integrate informal recyclers into compliant facilities.	x										Number of informal businesses transitioned to formal, compliant operations.	Lead: LGD Co-lead: DOE

		3.5.6.4. Provide targeted transition support packages for micro, small and medium-sized enterprises and informal operators, including technical assistance on lead-free inputs and processes, supplier transition guidance, and access to affordable testing services.	x	x	x	x	x	x	x	x	x	x	Transition support package/framework developed; Number of MSMEs and informal operators receiving technical assistance; Guidance materials on lead-free inputs and processes developed and disseminated; Number of enterprises accessing affordable testing support; Pilot implementation report and scale-up recommendations produced	Lead: Ministry of Industries (Mol) Co-lead: SME Foundation (SMEF), BSTI, DOE Supporting agencies: FBCCI/industry associations, development partners, testing laboratories, NGOs
		3.5.6.5. Engage business associations and supply-chain lead firms to support enterprise upgrading, disseminate good practices, and reduce compliance costs for smaller enterprises.	x	x	x	x	x	x	x	x	x	x	Partnership mechanism with business associations and lead firms established; Number of sector-specific guidance sessions/workshops conducted; Good practice notes or supplier guidance materials produced; Number of enterprises reached through business association-led support; Compliance support initiatives documented in annual progress reports	Lead: Mol Co-lead: DOE, BSTI, MoEFCC Supporting agencies: FBCCI, BPMA, battery and other sectoral associations, larger lead firms, development partners
		3.5.6.6. Develop and deliver practical, sector-specific training on lead-free production, safer material handling, waste management, and quality control for workers, supervisors, and technicians, linked to enterprise upgrading and compliance pathways.	x	x	x	x	x	x	x	x	x	x	Sector-specific training modules developed; Number of workers, supervisors, and technicians trained; Number of training sessions delivered through industry associations/local providers; Training completion records and participant certificates issued; Evidence of training linked to enterprise upgrading or compliance milestones	Lead: Ministry of Industries (Mol) Co-lead: Technical and Vocational Education and Training (TVET) institutions / relevant training providers, BSTI, DOE Supporting agencies: industry associations, SMEF, local training providers, development partners
	3.5.7. Promote industry-led voluntary commitments and consumer awareness	3.5.7.1. Launch a Lead-Free Bangladesh Business Coalition with voluntary pledges.	x										Coalition charter and member roster	Lead: MoEFCC Co-lead: Federation of Bangladesh Chambers of Commerce & Industry (FBCCI), BSTI, NGOs, and development partners (UNICEF, UNEP, WHO).
		3.5.7.2. Develop a national consumer awareness campaign on lead-free products.	x										Nationwide media and outreach campaign materials	Lead: BSTI, Mol

														Co-Lead: DOE, MoEFCC
		3.5.7.3. Recognize and award “Lead-Free Champions” among private sector actors	x										Annual Lead-Free Business Awards	Lead: MoEFCC Co-Lead: Mol
		3.5.7.3. Encourage product manufacturing companies to allocate a portion of CSR, sustainability, or ESG funds to lead-related awareness, community outreach, applied research, product safety testing, and innovation for lead-free alternatives	x	x	x	x	x	x	x	x	x	x	CSR/ESG financing guideline developed; number of companies contributing CSR/ESG resources; annual CSR-supported awareness and research activities documented; number of industry-supported research or innovation projects funded	Lead: MoEFCC, Mol; Co-lead: BSTI, DOE, FBCCI; Supporting agencies: sectoral business associations, universities, research institutions, UNICEF, Pure Earth, development partners

3.6. Awareness, Behavior Change and Education

Strategic Objective

To enhance population-wide understanding of risks and dangers of lead exposure and promote the appropriate prevention and mitigation practices through structured, evidence-based, and nationally coordinated strategic social and behaviour change communication interventions, ensuring that individuals, households, workers, and communities are informed, empowered, and actively participating in the transition toward a lead-free Bangladesh.

Context

Lead exposure poses severe and irreversible health risks, especially to children under five, including neurodevelopmental damage, reduced IQ, and increased risk of cardiovascular and kidney diseases. Yet, public awareness about lead exposure sources, health impacts, and preventive measures remains critically low in Bangladesh.

Effective social and behavior change interventions are indispensable components of a national lead elimination strategy. The WHO and UNICEF emphasize Risk Communication and Community Engagement (RCCE) as an essential pillar for addressing environmental health threats. A well-informed public can drive demand for lead-safe products, report hazardous practices (e.g., informal battery recycling), and influence policy through civic participation. Bangladesh has already demonstrated that targeted food-safety enforcement, paired with risk communication, can deliver rapid public-health wins. A notable example is the Bangladesh Food Safety Authority (BFSA)-led response to turmeric adulteration, where coordinated market surveillance, public notices, and enforcement actions—particularly focused on major wholesale hubs—helped disrupt the use of lead chromate to artificially enhance turmeric colour. Evidence from market monitoring indicates a step-change improvement: the share of turmeric samples with detectable lead declined sharply from ~47% in 2019 to 0% by 2021, signalling effective compliance shift across the supply chain (Suhrawardy, 2023).

While past awareness efforts by NGOs, media, and development partners have highlighted specific issues (e.g., lead in paint, turmeric adulteration, or battery recycling), these initiatives remain episodic, fragmented, and not embedded within institutional communication frameworks. Schools also represent an important frontline platform for prevention, awareness, and early response.

Through child-focused and parent-focused risk communication, reinforcement of safe behaviours, and linkages with health and environmental follow-up in hotspot areas, the education system can help translate lead awareness into sustained community-level action. Moreover, influencers such as teachers, religious leaders, journalists, and local leaders remain underutilized for adequate awareness for informed action and decision-making. There is a need for a nationally coordinated social and behavior change strategy, led by government agencies with support from media, civil society, and academic institutions, to shape public understanding of risks, behavior, build trust, and support policy enforcement, surveillance, and remediation activities.

Challenges and Gaps

Low Risk Perception Among General Public and Stakeholders

- Most individuals are unaware of lead as a ‘silent’ toxin, its long-term health effects, or its presence in common products and environments.
- Communities living near high-risk sites (e.g., informal smelters, ULAB recycling areas) often lack knowledge or motivation to avoid exposure.

Fragmented and Project-Based Behavior Change Communication

- Awareness activities to date have been largely donor-driven, sporadic, and geographically limited.
- There are no centralized or sustained social and behavior change communication interventions under the Ministry of Environment or Health.

Absence of a National RCCE Framework on Lead

- Risk communication is not institutionalized within public health or environmental governance structures.
- The roles of key agencies (e.g., DOE, DGHS, and BSTI) in communicating lead risks remain undefined and uncoordinated.

Limited Use of Culturally and Linguistically Tailored Messaging

- Available behaviour change communication messages IEC (Information, Education, and Communication) materials are often generic and not language, target audience and socio culturally contextualized.
- Messaging frequently lacks specificity regarding behaviors that can reduce exposure (e.g., safe storage, cooking practices, product choices).

Weak Engagement of Key Influencers and Media Platforms

- Teachers, religious leaders, healthcare providers, and journalists are underutilized as community messengers for behavior change.
- Social media, community radio, and local government networks remain untapped as delivery channels for lead-related messaging.

Limited Public Pressure and Advocacy

- Civil society, parent groups, consumer rights bodies, and student associations are not systematically mobilized to engage in driving advocacy or monitoring the implementation of lead policies.
- Without informed citizen demand, enforcement of lead-related regulations remains weak.

Strategic actions		Major activities	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority
			Short-term activities	Mid and long-term activities										
3.6. Awareness, Behavior Change and Education	3.6.1. Develop and Implement a National Risk Communication and Community Engagement (RCCE) and Social and Behavioral Change Communication (SBCC) Strategy on Lead	3.6.1.1. Draft and adopt a national RCCE and SBCC framework integrating lead exposure into health and environmental communication agendas.	x										National RCCE and SBCC framework on lead drafted, validated, and officially adopted.	Lead: DOE, Ministry of Information and Broadcasting, DGHS Co-Lead: BFSa, ESDO, Pure Earth, UNICEF, ICDDR,B
		3.6.1.2. Define roles and responsibilities for MoEFCC, MoHFW, DOE, BSTI, MoI, ABMEAB, BFSa, and other stakeholders.	x										Roles and responsibility matrix for all lead-related stakeholders finalized and approved.	Lead: DOE, MoEFCC Co-Lead: MoHFW, DGHS, BSTI, MoI, BFSa, ABMEAB Supporting: ESDO, Pure Earth, ICDDR,B, UNICEF
		3.6.1.3. Establish a central RCCE coordination unit.	x										The Central RCCE Coordination Unit is established with TORs, staffing, and operational workflow.	Lead: DOE, MoEFCC Co-Lead: MoHFW, DGHS, Ministry of Information and Broadcasting Supporting: BFSa, ICT Division, UNICEF, ESDO, Pure Earth
	3.6.2. Develop and update the messages on sources of lead, health and environmental impact, solutions, and actions	3.6.2.1. Develop and update the messages on sources of lead, health and environmental impact, solutions, and actions to be taken to minimize lead exposure; and finalize through stakeholder consultation	x										Set of messages developed	Lead: DOE, Ministry of Information and Broadcasting, DGHS in collaboration with BFSa, MoWCA, MoY&S, ESDO, Pure Earth, UNICEF, ICDDR,B
	3.6.3. Develop a national message dissemination strategy	3.6.3.1. Develop a message dissemination strategy to share through electronic media, newspaper, social media, billboards/signage in hotspots, mobile messaging, etc., suitable channels, and identify the effective media outlets and formats (documentary, animation, case studies, etc.) to share them	x										Message dissemination strategy developed	Lead: DOE, Ministry of Information and Broadcasting, DGHS, in collaboration with BFSa, MoWCA, MoY&S, ICDDR,B, ESDO, Pure Earth, UNICEF
	3.6.4. Youth Group engagement	3.6.4.1. Engage youth groups in different events during different day observances (Earth Day, World Environment Day, International Lead Poisoning Prevention Week- ILPPW, etc.)	x										Number of youth groups engaged at different events (event reports)	Lead: DOE, DGHS in collaboration with ESDO, Pure Earth, UNICEF, ICDDR,B
		3.6.4.2. Organize ToT for youth leaders on lead poisoning, health hazards, and prevention, including engaging the communities	x										500 youth leaders (at least one from every upazila) received ToT	Lead: DOE, DGHS, MoY&S, MoWCA Supporting Agency: Pure Earth

		3.6.4.3. Support youth groups to organize training for grassroots-level youth and youth groups, awareness campaigns at the national and sub-national levels	x									# of campaigns supported by youth leaders # of training conducted by youth leaders who received ToT	Lead: DOE, DGHS, MoY&S, MoWCA Supporting Agency: Pure Earth
		3.6.4.4. Develop an online platform where all the training modules, awareness messages, IEC materials, and interactive response mechanisms will be available	x									* An online platform is developed * An interactive online training module is developed	Lead: MoEFCC, MoHFW, MoI, MoY&S, DOE, DGHS, ICT division
		3.6.4.5. Engage youth groups to raise awareness in hotspots identified during HBA and market survey	x									# of youths engaged	Lead: DOE, DGHS, MoY&S, MoWCA. Supporting agency: Pure Earth
		3.6.4.6. Organize awareness programs in collaboration with the local government	x									# of awareness programs held	Lead: MoEFCC Co-lead: Union Parishad, Zilla Parishad, Local DOE, and City Corporation
	3.6.5. Awareness and capacity building in industries	3.6.5.1. Enhance the capacity of the health support team of different industries on lead poisoning prevention	x									15% of the relevant industries have the capacity to address lead poisoning as an occupational health hazard	Lead: Ministry of Industries, Ministry of Labor Co-Lead: MoHFW, MoEFCC, Business Associations, DGHS, DOE, DoL, DIFE Supporting agency: DPs
		3.6.5.2. Awareness program for the health support team of different industries on lead poisoning prevention	x									25% of the relevant industries have an awareness program to address lead poisoning as an occupational health hazard	Lead: Ministry of Industries, Ministry of Labor Co-Lead: MoHFW, MoEFCC, Business Associations, DGHS, DOE, DoL, DIFE Supporting agency: DPs
	3.6.6. Strengthen school-based lead awareness and safe learning environments	3.6.6.1. Introduce age-appropriate lead-related content, materials, and practical prevention messages into the national curriculum and co-curricular activities		x	x	x	x					Lead-related content and practical prevention materials incorporated into the national curriculum and co-curricular guidance.	Lead: Ministry of Education Co-Lead: NCTB Supporting Agency: Pure Earth
		3.6.6.2. Orient and engage classroom teachers and school leaders in hotspot areas to support lead awareness, safe school-level practices, and referral linkages with relevant local services		x	x	x	x					Teachers and school leaders oriented; awareness activities and safe school-level practices implemented in schools in hotspot areas.	Lead: Ministry of Education
	3.6.7. Observe World Environment Day (WED), Earth Day, Women's Day, Children's Day, World Health Day, World Food Safety Day, ILPPW	3.6.7.1. Organize a seminar, policy dialogue, rally, or photo exhibition during WED, ILPPW, World Food Safety Day, and Earth Day	x									Number of events organized (report)	Lead: MoEFCC, DOE, DGHS in collaboration with BFSa, ICDDR,B, ESDO, Pure Earth, UNICEF, and other stakeholders

	3.6.8. Social Media Campaign	3.6.8.1. Continue regular social media campaign on lead poisoning prevention	x										# of people reached and engaged	Lead: MoEFCC, DOE, DGHS in collaboration with BFSa, ICDDR,B, ESDO, Pure Earth, UNICEF, and other stakeholders
		3.6.8.2. Social media campaign during different day observances (Earth Day, World Environment Day, International Lead Poisoning Prevention Week- ILPPW, etc.)	x										# of people reached and engaged	Lead: MoEFCC, DOE, DGHS in collaboration with BFSa, ICDDR,B, ESDO, Pure Earth, UNICEF, and other stakeholders

3.7. Research, Innovation, and Knowledge Management

Strategic Objective

To promote a coordinated research and innovation ecosystem that identifies lead exposure sources, advances affordable testing and remediation solutions, strengthens evidence for regulation, and supports sustainable, circular economy approaches through collaboration and safe recycling.

Context

This strategic area positions research, innovation, and knowledge management as core pillars in the fight against lead pollution. Evidence from the past decade shows that lead exposure in Bangladesh is widespread and disproportionately affects children, workers, and low-income communities. Key exposure risks include informal lead-acid battery recycling, contaminated turmeric and spices, lead-based paints, glazed ceramics, cookware, and food products from polluted zones. In addition, older buildings and structures constructed before the adoption of lead-use restrictions may still contain lead-based paints and therefore require systematic screening and remediation using context-appropriate, internationally informed protocols. Despite these risks, research on lead exposure pathways remains limited, fragmented, and underfunded.

There is an urgent need for innovation. Priorities include low-cost and accessible testing kits for laboratories and community workers, alternative technologies and safer recycling models for industries, as well as circular economy solutions that recover resources without harming health or the environment. Food testing in high-risk areas—especially rice, fish, vegetables, and spices—remains underexplored, despite being a major pathway of exposure.

Innovation must extend beyond technology to encompass governance, interoperable data systems, enforcement tools, behavioral change strategies, and low-cost monitoring mechanisms. Implementation research and real-time data generation, analysis and dashboards—should be mainstreamed into the national response. Public and private research institutions, academia, civil society, and industry all have critical roles to play. Meanwhile, regional and global partnerships can provide technologies, case studies, and resources that Bangladesh can adapt to its specific context.

At the institutional level, universities and research institutes have strong technical capacity but limited engagement in lead-focused studies, which are often donor-driven. Dedicated research

grants, a national coalition, and knowledge management strategies are absent. Establishing these mechanisms is essential to ensure that research findings feed into policy reforms, regulatory updates, and public awareness.

To be effective, the research, innovation and knowledge management agenda must align with national development plans, research agenda, regulations, and investment strategies. As part of dissemination and engagement at various levels, Lead Knowledge Hubs at national, division, upazila levels and community levels, supported by integrated digital data platforms could serve as a central anchor for coordination, evidence, data and knowledge sharing for transparency, learning and accountability. .

Challenges and Gaps

Limited national data and research on exposure, burden and Knowledge, Attitude and Practices (KAP)

- No population-based surveys, research, and studies on blood lead levels (BLL).
- Routine environmental monitoring of soil, air, water, and consumer products in both urban and rural areas is absent.

Weak evidence informed policies and programming

- Limited coordination between various stakeholders such as academic institutions, regulators, and industry in evidence informed policies and programming.
- There are no systematic platforms for sharing knowledge, data and research findings and recommendations for evidence informed policy, community and stakeholder engagement and programming.

Underdeveloped health surveillance, research and situation monitoring mechanisms

- National surveys and facility-based data systems rarely capture indicators of lead exposure or health impacts.
- -related IQ reductions, disability amongst others..
- Limited capacity of Health professionals to detect and manage patients.

Limited and outdated research and studies on various lead related issues

- Fragmented and outdated research for example linkages between lead and malnutrition, stunting, or cognitive development, studies on economic losses from lead
- Few large-scale studies quantify economic losses from lead-related IQ reduction, learning disability, or productivity decline.
- Cost-benefit analyses of interventions—such as remediation, product substitution, or regulatory reforms—are missing, limiting evidence for investment cases.

Lack of locally developed technologies

- Most detection tools and remediation solutions are imported and expensive, restricting scalability.
- Minimal investment has gone into low-cost field kits, sensors, or safe substitutes for lead chromate pigments and heavy-metal glazes.

Insufficient investment and frameworks for research

- Domestic funding for lead-related research is negligible.
- No dedicated national framework or roadmap exists to guide priority research areas, partnerships, or expected outcomes.

Poor knowledge management systems

- Pilot initiatives in mitigation are seldom evaluated or documented, preventing lessons for replication and scaling.
- No centralized repository exists to consolidate local innovations, data, and lessons learned.

Barriers to adoption of innovation

- Weak incentives discourage private sector actors from innovating or adopting lead-free alternatives.
- Regulatory gaps and market-entry hurdles hinder the scale-up of innovative safer, cleaner technologies.

Limited community-engagement

- Communities are rarely engaged in designing or validating research, reducing contextual relevance and uptake.

- Indigenous knowledge, informal sector dynamics, and local social norms are seldom integrated into research and intervention design.

Strategic actions		Major activities	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority
			Short-term activities	Mid and long-term activities										
3.7. Research, Innovation and Knowledge Management	3.7.1. Facilitate the establishment and strengthening of national research and academic capacity to generate multidisciplinary evidence on lead, including sources, toxicology, public health impacts, socio-economic impacts, remediation technologies, etc.	3.7.1.1. Identify and support leading universities and research institutes to conduct dedicated research on lead and heavy metal pollution.	x										List of universities/institutes selected and funded for lead research	Lead: Ministry of Science and Technology (MoST) Co-lead: Universities, BCSIR, DOE, ICDDR,B, Pure Earth
		3.7.1.2. Formalize partnerships between the government and academia for co-developing a National Lead Research Agenda.	x										National Lead Research Agenda and signed MoUs between ministries and academia	Lead: MoST, Co-lead: MoEFCC, University Grants Commission (UGC)
		3.7.1.3. Facilitate regional and global knowledge exchange and capacity-building/strengthening programs with international research institutions.	x										Number of exchange programs, workshops, and joint research initiatives completed	Lead: MoST Co-lead: MoFA, Universities, Development Partners (UNICEF, WHO), ICDDR,B, Pure Earth
		3.7.1.4. Promote interdisciplinary and inter-institutional research collaborations focusing on linkages between lead exposure and health, education, labor productivity, and economic development, especially targeting under-researched areas.	x										Collaborative research publications, policy briefs, and data repositories developed	Lead: Universities and Research Institutes Co-lead: MoEFCC, DGHS, ICDDR,B, Ministry of Planning
	3.7.2. Promote innovation in the development and dissemination of affordable, scalable, and context-specific lead-free alternatives, testing kits, and remediation technologies.	3.7.2.1. Support the design and prototyping of low-cost, portable lead testing kits for field-level applications, including XRF alternatives, household screening tools, and water/soil testing kits suitable for use by community health workers and the DOE enforcement team.	x	x	x	x	x						Prototypes of validated, portable lead-testing kits available for use by DOE and community health workers	Lead: BCSIR, Universities Co-lead: DOE, DGHS, UNICEF, ICDDR,B, Pure Earth
		3.7.2.2. Establish mechanisms/programmes for applied R&D in lead-free alternatives for spices, ceramics, toys, paints, etc.	x	x	x	x	x						List of R&D projects completed and new product formulations verified lead-free	Lead: MoST, BCSIR, Universities Co-lead: MoI, BSTI, ICDDR,B, Pure Earth
		3.7.2.3. Develop technical guidance materials, traceability matrices, standard operating procedures (SOPs), EPRs, training modules, etc., on the safe use and maintenance of transformational technologies to ensure uptake by industrial stakeholders, frontline workers, government inspectors, and community-level actors.		x	x	x	x						Published technical manuals, SOPs, and training modules for regulators and industries	Lead: DOE, MoI, BSTI Co-lead: Pure Earth
		3.7.2.4. Organize innovation expos to pilot, test, and scale up context-appropriate lead-free technologies.		x	x	x	x	x	x	x	x	x	Annual or biennial national innovation expo organized and documented	Lead: MoST, MoEFCC Co-lead: UNICEF, Private sector associations, ICDDR,B, Pure Earth
	3.7.3. Facilitate academic-industry-policy partnerships to bridge the research-to-action gap and institutionalize lead-related research	3.7.3.1. Facilitate a collaboration mechanism between academia and regulatory bodies (e.g., MoEFCCC, DOE, MoI, BSTI, MoHFW, DGHS, etc.) to provide technical evidence and policy advice on regulatory thresholds, compliance protocols, and product standards based on emerging scientific evidence.	x										Joint technical committees established and policy briefs generated	Lead: MoEFCC, MoST Co-lead: BSTI, DGHS, DOE, Pure Earth

	uptake into national policy, regulation, and industrial reform.	3.7.3.2. Incentivize industry-sponsored research through tax rebates, recognition awards, or access to green financing for companies that co-invest with universities in developing or piloting safer materials, cleaner technologies, and lead-free production innovations.		x	x	x	x	x	x	x	x	x	Approved fiscal and recognition mechanisms encouraging industry co-funding	Lead: MoI, NBR, MoF
		3.7.3.3. Integrate research translation mechanisms into national policy-making cycles, ensuring that scientific findings on lead exposure and mitigation are reviewed and referenced during environmental, health, and industrial policy updates.		x	x	x	x						Inclusion of lead research findings in policy updates and regulatory reviews	Lead: Ministry of Planning, MoEFCC, MoHFW
		3.7.3.4. Facilitate partnership between academic institutions and lead-exposed industries (e.g., battery, cookware, pigment, paint) for shared research on industrial reform pathways, including occupational exposure mitigation, waste handling, and green technology transition.		x	x	x	x	x	x	x	x	x	Signed MoUs and pilot demonstration projects completed	Lead: MoI, MoST, Universities, Industry associations
	3.7.4. Expand national surveillance and epidemiological studies, surveys, and other major/population based data collection activities to strengthen the evidence base on health and developmental impacts of lead, especially on children, pregnant women, and vulnerable populations.	3.7.4.1. Institutionalize blood lead level (BLL) testing within national household surveys and health surveillance systems.	x										BLL indicators integrated into MICS, DHS, and national surveillance	Lead: DGHS, BBS Co-lead: MoHFW, UNICEF
		3.7.4.2. Design and implement sentinel site surveillance systems in urban-industrial hotspots and high-risk rural districts (e.g., areas with known ULAB operations, turmeric adulteration, contaminated cookware use, etc.) to monitor community-level lead exposure and health effects.	x	x	x	x	x						Sentinel site surveillance system operational in priority districts	Lead: DGHS, DOE, Co-lead: ICDDR,B, Pure Earth
		3.7.4.3. Conduct nationally representative epidemiological studies on the cognitive, physical, and behavioral impacts of lead exposure on children, using standard tools such as developmental milestone tracking, IQ assessments, and behavioral screening.		x	x	x	x						National reports and peer-reviewed publications	Lead: DGHS, Universities, BCSIR
		3.7.4.4. Launch cohort studies to track the impact of prenatal and early childhood lead exposure on long-term growth, educational performance, economic outcomes, and analyze long-term cognitive, behavioral, and nutritional impacts of chronic lead exposure.						x	x	x	x	x	Cohort datasets and longitudinal analyses completed	Lead: DGHS, ICDDR,B, Universities
		3.7.4.5. Perform cross-country comparative studies to benchmark Bangladesh's progress and burden against regional peers and to adopt best practices in exposure tracking, data collection, and intervention prioritization.		x	x	x	x	x	x	x	x	x	Comparative reports and regional publications produced	Lead: MoHFW, MoFA, Universities, UNICEF, Pure Earth
		3.7.4.6. Strengthen health facility reporting systems to track clinical lead poisoning cases and geographic clustering.	x	x	x	x	x						Updated health information system incorporating lead case reporting	Lead: DGHS, MIS-HFW, DOE
	3.7.5. Undertake robust economic analyses and cost-benefit studies to inform investment prioritization, mitigation planning, and multisectoral budgeting for lead pollution control.	3.7.5.1. Perform cost-benefit and return-on-investment (ROI) analyses for major lead mitigation strategies (such as remediation of contaminated sites, ULAB formalization, adoption of lead-free alternatives, etc.), highlighting fiscal efficiency and social returns.	x	x	x	x	x						Published a national cost-benefit analysis report	Lead: Ministry of Planning, MoEFCC, MoF, Pure Earth
		3.7.5.2. Conduct national cost-of-inaction assessments quantifying the economic burden of lead exposure, including lost IQ points, productivity losses, healthcare costs, and long-term human capital impacts	x										Cost-of-inaction report highlighting GDP and productivity losses	Lead: Ministry of Planning, MoEFCC, Universities
		3.7.5.3. Develop a national investment case for lead pollution mitigation in line with the country's development policies, focusing on high-impact interventions in industrial regulation,		x	x	x	x						Investment case document endorsed by the government	Lead: MoEFCC, UNICEF, MoF, Pure Earth

		health surveillance, product reformulation, public awareness, etc.												
		3.7.5.4. Develop an economic modeling framework for simulating long-term savings and public health benefits under different lead mitigation policy scenarios (e.g., with and without EPR enforcement, mandatory BLL testing, product labeling, formal vs informal lead recycling, etc.).		x	x	x	x	x	x	x	x	x	Modeling framework and policy simulation tool published	Lead: Ministry of Planning, MoEFCC, Universities
	3.7.6. Promote behavioral science research	3.7.6.1. Support participatory action research in urban and rural hotspots to co-identify exposure sources and community-led solutions.	x	x	x	x	x						Participatory research reports and local action plans	Lead: DOE, Universities, CBOs
		3.7.6.2. Develop and deploy citizen science tools (e.g., mobile apps, self-test kits, etc.) for real-time monitoring and awareness.		x	x	x	x						Mobile apps or self-testing tools deployed in pilot communities	Lead: Universities, DOE, Private Tech Firms, Pure Earth
		3.7.6.3. Engage community-based organizations (CBOs), youth groups, religious leaders, cultural figures, local influencers, and women's networks in the co-creation of research questions, data collection tools, and interpretation of findings relevant to lead exposure and its health impacts.	x	x	x	x	x						Stakeholder engagement records and participatory datasets	Lead: MoEFCC, MoWCA, Local Government Division (LGD)
		3.7.6.4. Pilot citizen science initiatives, such as community-led soil, water, turmeric, or paint testing using simplified lead screening kits, to raise awareness and expand the evidence base through locally driven data.	x	x	x	x	x						Citizen science pilot projects completed and data visualized	Lead: DOE, DGHS, Universities
		3.7.6.5. Promote gender-sensitive and disability-inclusive research approaches, ensuring that the perspectives of women, caregivers, children, persons with disabilities, and elderly populations are systematically captured in studies.		x	x	x	x	x	x	x	x	x	Inclusion framework for gender and disability indicators	Lead: MoWCA, DGHS, Universities
		3.7.6.6. Document indigenous practices, risk perceptions, and community coping mechanisms for culturally sensitive intervention design.		x	x	x	x						Database and policy briefs on indigenous knowledge systems	Lead: DOE, Universities, Local NGOs
	3.7.7. Align national lead research priorities with global environmental health and climate resilience frameworks and embed findings into national development plans and sectoral strategies.	3.7.7.1. Integrate research findings into the implementation of the National Strategy for a Lead-Free Bangladesh, EPR Guidelines, National Urban Health Strategy, etc.		x	x	x	x						Research findings referenced in national policy instruments	Lead: MoEFCC, Ministry of Planning, Mol, ICDDR,B, Pure Earth
		3.7.7.2. Map and cross-reference Bangladesh's lead-related research focus with global frameworks, including the World Health Organization (WHO) Chemicals Roadmap, the Global Alliance to Eliminate Lead Paint (GAELP), UNEP's Strategic Approach to International Chemicals Management (SAICM), SDGs, etc.	x	x	x	x	x						Mapping report and alignment matrix completed	Lead: MoEFCC, MoST, MoFA, Pure Earth
		3.7.7.3. Ensure research outputs directly inform updates to BSTI product standards, industrial guidelines, and fiscal policy instruments (e.g., tax incentives for lead-free products).		x	x	x	x	x	x	x	x	x	Updated BSTI product standards and fiscal guidelines	Lead: BSTI, NBR, Mol
		3.7.7.4. Advocate for mainstreaming lead risk reduction in all Environmental Impact Assessments (EIAs), Strategic Environmental Assessments (SEAs), and sectoral planning guidelines for new industrial, transportation, waste management, or urban housing projects.		x	x	x	x	x	x	x	x	x	Revised EIA/SEA guidelines incorporating lead criteria	Lead: DOE, MoEFCC, MoP
		3.7.7.5. Foster global South-South cooperation through partnerships with countries undertaking similar lead policy reforms (e.g., India, Indonesia, Ghana, Mexico, Georgia) to		x	x	x	x	x	x	x	x	x	Regional cooperation agreements and co-authored outputs	Lead: MoFA, MoEFCC, MoST, UNICEF, Pure Earth

		harmonize methodologies, leverage regional best practices, and co-develop joint knowledge products.												
	3.7.8. Develop R&D facilities	3.7.8.1. Establish R&D facilities for lead-free alternatives	x										R&D facilities established	Lead: Ministry of Science and Technology, Universities Co-lead: BFSA, ICDDR,B, Pure Earth
		3.7.8.2. Collaborating with academic institutions	x	x	x	x	x						MoU signed between the ministry and academic institutions	Lead: Ministry of Science and Technology, Universities Co-lead: UGC, ICDDR,B, Pure Earth
	3.7.9. Conduct follow-up and screening research and studies to support evidence-based decisions	3.7.9.1. Using chemical forensics tools (isotope ratio analysis and scanning electron microscopy) to ascertain lead sources contributing to dust, soil, and air particulate matter in Bangladesh	x	x	x	x							Report and article published in a peer-reviewed journal	Lead: icddr,b Co-lead: Stanford University
		3.7.9.2. Identify sources of lead contamination in aluminum cookware and identify lead-free metal cookware alternatives available		x	x	x	x						Analysis conducted, report submitted, policy recommendation, and publication in the journal	Lead: icddr,b and Collaborator: Ministry of Industry and BSTI, etc.
		3.7.9.3. National source identification and lead burden studies focusing on the food chain (including staple food, i.e., rice)	x	x	x	x	x						Collaborative research outcome, Report, and Articles published	Lead: BFSA, DOE Co-lead and Supporting: MoA, DAE, SRDI, agricultural universities

3.8. Multisectoral Engagement, Coordination, and Collaboration

Strategic Objective

Operationalize the existing multisectoral steering committee under the MOEFCC to serve as the central coordination body for achieving a lead-free Bangladesh, with clearly defined Terms of Reference (ToR), stakeholder-specific objectives aligned to thematic areas, and a time-bound action plan to guide implementation and track progress.

Context

This component focuses on strengthening the functionality of the existing multisectoral steering committee under MoEFCC to coordinate and drive the national agenda for a lead-free Bangladesh. Lead mitigation requires whole-of-government and whole-of-society action across environmental regulation, health systems, industrial processes, product standards, waste management, research, and consumer protection. The multisectoral steering committee comprises relevant government ministries and departments, as well as development partners and non-governmental stakeholders. This coordination architecture should also ensure structured participation of education authorities, including the Ministry of Primary and Mass Education (MoPME), the Directorate of Primary Education (DPE), and the National Curriculum and Textbook Board (NCTB), given the implications of lead exposure for children's learning, school environments, and school-based prevention efforts. Multisectoral coordination mechanisms should include structured and regular engagement with employers' and workers' representative organizations, particularly in sectors where lead elimination measures will affect production, recycling, repair, and informal work. Social dialogue can help identify implementation bottlenecks early, inform the sequencing of enforcement and transition measures, and strengthen the design of responses that are both technically feasible and socially acceptable. Each stakeholder is expected to take ownership within their mandate to identify and assess lead sources, monitor exposure pathways, reform policies and regulations, conduct awareness and advocacy efforts, promote research and innovation, and leverage available resources. Effective coordination will ensure the alignment of efforts, clear role delineation, pooling of resources, sharing of data across agencies, and collective accountability towards eliminating lead exposure from all key sources.

Challenges and Gaps

Weak coordination and engagement practices

- Lack of an operationalized common platform, shared planning tools, and performance tracking systems to ensure collective accountability.
- Lack of sharing sector-specific data/reports/results by stakeholders to ensure collaborative monitoring and enforcement.
- Lack of a unified platform bringing together local and global NGOs, civil society, and activists to act as a ‘watchdog’ over government action on lead pollution control and to help fill persistent gaps.

Fragmented Mandates and Weak Coordination Mechanisms

- Lead pollution is addressed by multiple agencies with overlapping mandates but weak operational coordination.
- While a central inter-ministerial national steering committee now exists, operational coordination mechanisms remain nascent.

Limited clarity on roles, responsibilities, and sectoral mandates

- Inadequate understanding among stakeholders about their specific roles in addressing lead exposure.
- Absence of sector-specific plans with time-bound and aligned activities.

Funding and resource constraints

- No dedicated or earmarked financial resources within sectors to support lead mitigation activities.
- Limited capacity to mobilize and leverage domestic and external resources for coordinated action.
- Unavailability of a common fundraising platform.

Fragmented implementation and policy landscape

- Some sectors demonstrate progress in source identification and research, while others remain inactive or unaware of the need to take action for further investigation or mitigation.

- Existing regulations are often siloed, not harmonized across ministries, and lack alignment with a multisectoral approach.

Strategic actions		Major activities	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	KPI / Deliverables	Responsible authority(ies)*
			Short-term activities	Mid and long-term activities										
3.8. Multisectoral Engagement, Coordination, and Collaboration	3.8.1. Formation and functionalization of the multisectoral steering committee, technical committee, and working groups to coordinate the Lead-Free Bangladesh Strategy.	3.8.1.1 Establish the multisectoral steering committee under the leadership of MOEFCC as the custodian of the lead-free strategy document	x										Multisectoral steering committee formed	Lead: MoEFCC, DOE Co-lead: MINCOM, MOA, MOF, MOFA, MOHFW, MOIND, MOLE, MoPME, DPE, NCTB, UNICEF, WHO, ESDO, Pure Earth, ICDDR,B
		3.8.1.2. Convene multisectoral steering committee meetings to form technical committees and working groups to spearhead i) technical review and development of specific strategic areas; ii) implementation of strategy directives	x										Technical committee and working groups formed	Lead: MoEFCC, DOE Co-lead: UNICEF, WHO, ESDO, Pure Earth, ICDDR,B
		3.8.1.3. Conduct dissemination workshops on the country report on children’s environmental health with a focus on lead poisoning (MICS BLL+ dissemination by BBS and IEDCR, Market Survey report dissemination by BFSa, HBA dissemination by DOE, dissemination of a handbook for medical graduates on the Children’s Health and the Environment, etc.)	X										Every year, at least one national workshop is conducted, and a report is shared	Lead: MoEFCC, DOE Co-lead: ESDO, UNICEF, Pure Earth
		3.8.1.4. National consultation and consensus on phase-out roadmap for lead in paints and informal ULAB	x										Consensus statement/position document	Lead: DOE, BSTI, Mol, MoEFCC Co-lead: Paint & Battery Associations, Pure Earth
		3.8.1.5. Joint policy advocacy for VAT/Tax incentives for lead-free alternatives	x										Policy briefs or official submission to NBR	Lead: MoEFCC, MoF, NBR, Civil Society, UNICEF, Pure Earth
		3.8.1.6. Institutionalization of regular coordination meetings and annual review of the strategy implementation progress		x	x	x	x	x	x	x	x	x	Meeting minutes, annual progress reports	Lead: MoEFCC, DOE, Development Partners, Civil Society
		3.8.1.7. Cross-border collaboration on the regional movement of used batteries and regional efforts for standard harmonization		x	x	x	x	x	x	x	x	x	Regional agreements or joint statements	Lead: MoEFCC, MoFA, SAARC and other regional bodies
	3.8.2. Define roles & responsibilities of the multisectoral steering committee, technical committee, and working groups	3.8.2.1. Define mandates of the multisectoral steering committee, technical committee, and working groups to establish a clear governance framework	x										Official orders and TORs for committees	Lead: MoEFCC
		3.8.2.2. Prepare sector-specific responsibilities linked to Action Plan targets	x										A national Sector-Specific Responsibility Matrix (SSRM) is in place	Lead: MoEFCC Co-Lead: All relevant line ministries
		3.8.2.3. Institutional MoU between MoEFCC and MoHFW for joint health-environment surveillance and response	x										Signed MoU and joint surveillance plan	Lead: MoEFCC, MoHFW, DGHS, DOE
	3.8.3. Develop a National Multisectoral Action Plan for Lead Elimination	3.8.3.1. Align sector-specific objectives with national strategic pillars.	x										Sector-specific alignment framework approved by MoEFCC and circulated to all ministries.	Lead: MoEFCC Co-Lead: All line ministries (MoHFW, DOE, DGHS, Mol, BSTI, BFSa, NBR, LGD)

														Supporting agencies: ESDO, Pure Earth, UNICEF
		3.8.3.2. Prepare time-bound, measurable sectoral action plans.	x										Sectoral action plans finalized with timelines, KPIs, and ministry responsibilities.	Lead: MoEFCC Co-Lead: All line ministries (MoHFW, DOE, DGHS, MoI, BSTI, BFSA, NBR, LGD) Supporting agencies: ESDO, Pure Earth, UNICEF
		3.8.3.3. Integrate sectoral plans into ministry work programmes.	x										Lead elimination activities incorporated into annual work plans of all relevant ministries.	Lead: MoEFCC Co-Lead: All line ministries (MoHFW, DOE, DGHS, MoI, BSTI, BFSA, NBR, LGD)
	3.8.4. Establish a Lead-Free Bangladesh Coordination and Information Platform	3.8.4.1. Develop a digital platform for sharing data, disseminating knowledge products, scheduling meetings, and tracking progress.	x										Operational digital coordination portal with data dashboards and document repository.	Lead: MoEFCC Co-Lead: DOE + all ministries providing data Supporting agencies: Pure Earth
		3.8.4.2. Upload sectoral reports, regulations, and monitoring results.		x	x	x	x	x	x	x	x	x	Regularly updated repository of reports, regulations, and monitoring outputs uploaded to platform.	Lead: MoEFCC Co-Lead: DOE + all ministries providing data Supporting agencies: Pure Earth
		3.8.4.3. Enable public access to non-sensitive information.		x	x	x	x	x	x	x	x	x	Public-facing portal section providing open access to approved non-sensitive information.	Lead: MoEFCC Co-Lead: DOE + all ministries providing data Supporting agencies: Pure Earth
	3.8.5. Institutionalize Joint Monitoring, Review, and Learning Mechanisms	3.8.5.1. Conduct quarterly multi-agency review meetings.	X	x	x	x	x	x	x	x	x	x	Quarterly meeting minutes and action-tracking logs documented and circulated.	Lead: MoEFCC Co-Lead: DOE, DGHS, BSTI, MoI, MoC, NBR, LGD
		3.8.5.2. Implement a performance tracking framework with KPIs.	X	x	x	x	x	x	x	x	x	x	Performance tracking system operational with KPI reports generated annually.	Lead: MoEFCC Co-Lead: DOE, DGHS, BSTI, MoI, MoC, NBR, LGD
		3.8.5.3. Publish annual “State of Lead Pollution Mitigation” progress reports.	x	x	x	x	x	x	x	x	x	x	Annual national report on lead mitigation progress published and disseminated.	Lead: MoEFCC Co-Lead: DOE, DGHS, BSTI, MoI, MoC, NBR, LGD
	3.8.6. Mobilize and Pool Resources for Lead Elimination	3.8.6.1. Establish a common funding platform for multisectoral initiatives.	x										Common funding mechanism established with governance and disbursement modalities.	Lead: MoEFCC Co-Lead: MoF, MoC, NBR
		3.8.6.2. Leverage domestic and international financing.		x	x	x	x	x	x	x	x	x	Financing mobilized from domestic and development	Lead: MoEFCC

													partners to support priority actions.	Co-Lead: MoF, MoC, NBR
		3.8.6.3. Facilitate joint funding proposals by multiple ministries.	x										Multi-ministerial funding proposals submitted to national and international financing windows.	Lead: MoEFCC Co-Lead: MoF, MoC, NBR
	3.8.7. Build Stakeholder capacity for coordinated action	3.8.7.1. Organize training in multisectoral planning, data sharing, and resource mobilization.	x										Training modules delivered; participant completion reports documented.	Lead: MoEFCC Co-Lead: DOE, MoHFW/DGHS, BSTI, Mol, LGD
		3.8.7.2. Facilitate cross-sector exposure visits and workshops.	X										Cross-sector exposure visits and learning workshops completed with reports.	Lead: MoEFCC Co-Lead: DOE, MoHFW/DGHS, BSTI, Mol, LGD
		3.8.7.3. Develop a coordination handbook for all stakeholders.	x										Coordination handbook published and disseminated to all relevant agencies.	Lead: MoEFCC Co-Lead: DOE, MoHFW/DGHS, BSTI, Mol, LGD
	3.8.8. Harmonize Policies and Regulations Across Sectors	3.8.8.1. Review sectoral regulations for gaps and overlaps.	X										Regulatory gap analysis report completed and shared with all relevant ministries.	Lead: MoEFCC Co-Lead: DOE, MoHFW/DGHS, Mol, BSTI, BFSa, MoC, NBR
		3.8.8.2. Align policy reforms with a unified multisectoral approach.	X										Cross-sector alignment report endorsed by MoEFCC and participating ministries.	Lead: MoEFCC Co-Lead: DOE, MoHFW/DGHS, Mol, BSTI, BFSa, MoC, NBR
		3.8.8.3. Integrate lead elimination objectives into broader environmental and public-health policies.	x										Lead elimination provisions incorporated into environmental, health, and industry policy instruments.	Lead: MoEFCC Co-Lead: DOE, MoHFW/DGHS, Mol, BSTI, BFSa, MoC, NBR
	3.8.9. Ensure that youth, civil society, and the private sector are part of a national platform or alliance	3.8.9.1. Establishment of a national platform or alliance to engage youth, civil society, private sector for awareness, behavior change, and accountability	x										Platform launched and operational	Lead: MoEFCC, MoYS, Co-lead: NGOs, UNICEF, Pure Earth, DPs, research organizations
		3.8.9.2. Organize a multisectoral summit or lead forum bringing government, private sector, media, academia, and development partners		x	x	x	x	x	x	x	x	x	National Lead Summit event held	Lead: MoEFCC Co-lead: Mol, MoHFW Supporting agencies: WHO, UNICEF, Pure Earth,
		3.8.9.3. Operationalizing Lead Safe Bangladesh coalition, bringing global partners to act on mitigating lead pollution	X	X	X	X	X	X	X	X	X	X	Platform operationalized	Lead: DOE, DGHS, Pure Earth

4. Implementation Framework

4.1. Stakeholder Mapping and Implementation Modalities

Lead exposure in Bangladesh originates from various sources, necessitating the involvement of multiple stakeholders to better assess the issue and develop coordinated strategies. Unlike single-sector problems, lead exposure is a cross-cutting issue that spans environment, health, industry, commerce, agriculture, food safety, infrastructure, and consumer protection. Stakeholders include government ministries and agencies, semi-government and research institutions, private sector and industry, civil society organizations, NGOs, and development partners. Government bodies at both the local and national levels, covering the health and environmental sectors, are primarily responsible for tackling lead poisoning in Bangladesh. Without systematic governmental monitoring, research organizations can make significant contributions by quantifying blood lead levels and identifying sources. On the other hand, non-governmental and community groups are expected to assist in reaching populations affected by lead exposure and those who use products containing lead. Private sector and industry involvement are also necessary to revise practices contributing to community lead exposure.

Given the background, eliminating lead exposure in Bangladesh requires a whole-of-society approach. As stakeholders bring different mandates, competencies, and constituencies, their roles often overlap, making coordination essential. Below is a detailed description of how each group can contribute to the implementation of a lead-free strategy.

Effective implementation requires clearly defined roles and responsibilities. Each stakeholder has unique mandates and comparative advantages that, together, ensure a whole-of-government and whole-of-society approach. Below, stakeholder-specific roles are elaborated, along with the accountability mechanisms.

Government Ministries and Agencies

Government agencies hold the regulatory, policy, and enforcement mandates that are essential for systemic change. They provide the legal backbone for action and ensure compliance across economic sectors.

- **The Ministry of Environment, Forest and Climate Change (MOEFCC)** is the apex custodian of this strategy. Its comparative advantage lies in convening power and its mandate over environmental policies. It ensures that Pb reduction is not treated as an isolated issue but mainstreamed into climate action, pollution control, and sustainable development frameworks. Without MoEFCC's leadership, multisectoral collaboration would remain fragmented.

As the custodian ministry, MOEFCC chairs the Multisectoral Steering Committee and ensures alignment with environmental priorities. It will lead the resource mobilization from the national budget, coordinate inter-ministerial action, and report progress to Parliament and development partners. MOEFCC will also host the National Lead Knowledge Hub to integrate data and provide transparency.

- **Department of Environment (DOE)** functions as the primary enforcement arm for environmental rules. Its monitoring and clearance authority allows it to prevent pollution at the source. DOE's role is particularly critical in managing informal sectors (e.g., backyard battery recycling), which are otherwise challenging to regulate.

DOE is the focal agency for environmental monitoring, enforcement, hotspot identification, and remediation. It will maintain a national registry of contaminated sites, publish annual pollution reports, and coordinate with divisional offices. DOE will also implement remediation at 10 priority hotspots by 2029.

- **The Ministry of Health and Family Welfare (MOHFW) and the Directorate General of Health Services (DGHS)** bring the health dimension to the forefront. Unlike many other environmental hazards, lead has a direct and irreversible impact on child development, cognitive functioning, IQ, and broader public health outcomes. DGHS is uniquely positioned to integrate lead screening, follow-up, and counseling into routine maternal, newborn, and child health programs, thereby transforming lead mitigation from a specialized concern into a mainstream public health priority.

MOHFW leads biological monitoring, health surveillance, and case management. It will integrate blood lead level testing into national health surveys, establish sentinel sites, and build the capacity of health professionals. An annual budget will be earmarked under the Health Sector Programme for testing, surveillance, and treatment.

- **The Ministry of Primary and Mass Education (MoPME), the Directorate of Primary Education (DPE), and the National Curriculum and Textbook Board (NCTB)**, i.e., the education sector has an important role in protecting children's learning and reducing exposure risks within school environments. The Ministry of Primary and Mass Education (MoPME), the Directorate of Primary Education (DPE), and the National Curriculum and Textbook Board (NCTB) can support the integration of lead awareness into curricula and co-curricular activities, teacher orientation and school-level prevention practices, and the promotion of lead-safe standards for school infrastructure, water, sanitation, furniture, and learning environments. Through school-based management and local education planning mechanisms, the education sector can also help extend prevention messaging to parents and communities, particularly in identified hotspot areas.
- **The Ministry of Industries (MOIND) and the Department of Inspection for Factories and Establishments (DIFE)** play pivotal roles in safeguarding industrial compliance and worker health. Addressing the Pb issue involves transforming production systems, with MoInd's regulatory authority playing a key role. DIFE complements this mandate by monitoring workplace conditions and protecting workers in small-scale and informal factories, many of whom remain highly vulnerable to unsafe Pb-handling practices.

MOIND will engage industries in phasing out lead-containing products and promote cleaner production. It will oversee EPR schemes, ensuring industries co-finance waste management.

DIFE will inspect factories and informal workshops to enforce occupational health standards. By 2026, it will recruit 200 inspectors and train them to cover 3,000 facilities annually.

- **Bangladesh Standards and Testing Institution (BSTI) and Bangladesh Food Safety Authority (BFSA)** serve as gatekeepers of consumer protection. BSTI ensures that products meet safety standards before reaching consumers, while BFSA safeguards the food chain. Together, they can drastically reduce exposure pathways from food, cookware, packaging, and household items.

BSTI will revise and enforce product standards, particularly for paints, toys, and ceramics. It will accredit laboratories and conduct market surveillance, funded by a dedicated annual

budget. BSTI will also manage certification schemes and launch a lead-free product labeling system by 2028.

BFSa will regulate and monitor lead in food and contact materials. It will expand food testing labs, conduct routine market inspections, and coordinate recalls.

- **The National Board of Revenue (NBR) and the Ministry of Finance (MOF)** hold some of the most powerful yet underutilized policy levers: fiscal incentives and disincentives. By making unsafe practices more expensive and safer alternatives cheaper, they can influence market behavior far more effectively than regulatory enforcement alone.

MoF and NBR will introduce green taxes and VAT exemptions to incentivize lead-free production. They will also earmark penalties for a Lead Pollution Control Fund.

- **The Ministry of Commerce (MINCOM)** plays a critical role in ensuring that Bangladesh remains competitive in global markets. As an increasing number of countries restrict or ban leaded paints and lead-containing products, harmonization with international standards has become essential for safeguarding export opportunities.
- **The Directorate of National Consumer Rights Protection (DNCRP), under the Ministry of Commerce,** plays a critical role in ensuring that products marketed and sold in Bangladesh meet safety standards and do not harm consumers. In the context of lead-free initiatives, DNCRP can act as a watchdog to prevent the sale of contaminated food, toys, paints, ceramics, and cosmetics, while also raising consumer awareness and addressing complaints related to lead exposure. Their enforcement power complements regulatory agencies like BSTI and DOE, while directly linking consumer rights with environmental health.
- **The Ministry of Agriculture (MOA)** brings an agricultural dimension often overlooked in Pb strategies. Lead-contaminated soils and irrigation water transfer the hazard directly into food. Farmers are frontline actors, and agricultural extension services play a crucial role in promoting the use of soil amendments and safe cultivation practices.
- **The Ministry of Power, Energy, and Mineral Resources (MPEMR)** plays a preventive role by controlling smelting and mining practices. Without its oversight, legacy contamination will continue.

- **Local Government Division (LGD)** translates the strategy into action on the ground. Local governments can mobilize communities, regulate small informal recyclers, and enforce rules at the municipal level where most exposures occur.

LGD will lead awareness, monitoring, and enforcement at the upazila level. It will allocate an annual budget for local campaigns, inspections, and training for municipal staff.

- **Roads and Highways (RHD)** represents the infrastructure sector, ensuring that large-scale public works are conducted safely, avoiding hazardous materials. Their procurement rules can singlehandedly eliminate demand for lead-based paints in construction.

- **Department of Mass Communication (DMC)** provides the megaphone for the strategy. Without public awareness, regulations remain abstract. Its comparative advantage is national reach, enabling uniform messaging from rural areas to urban centers.

DMC will implement nationwide public awareness campaigns across television, radio, and digital platforms. It will translate technical information, including BLL survey results, into accessible messages with the objective of reaching at least 80% of the population by 2030.

- **Ministry of Foreign Affairs (MOFA)** brings the international dimension: negotiating technical support, funding, and compliance with treaties. Lead is a transboundary issue, and Bangladesh's voice on global platforms matters.

MOFA will coordinate regional cooperation through SAARC and other platforms, align standards, and prevent illegal trade.

- **Bangladesh Bureau of Statistics (BBS) and Statistics and Informatics Division (SID)** are critical for measurement. Without reliable data on exposure levels, hotspots, and population health impacts, the strategy cannot be effectively monitored or course-corrected.

BBS will integrate lead modules within MICS, HIES, and other routine national surveys. The collected data will be used for national reporting and policy monitoring. These findings will be consolidated into detailed reports that will guide national policy discussions, fulfil international reporting requirements, and provide a foundation for evidence-based decisions in public health and social development initiatives.

Semi-Government and Research Institutions

These institutions provide **science, evidence, and technical solutions** that underpin regulatory action.

- **Universities** generate independent evidence and build human capital. Research institutions, such as the University of Dhaka (DU), the Bangladesh University of Engineering and Technology (BUET), and agricultural universities, can lead innovation in soil remediation, exposure assessment, and community interventions. They also ensure a pipeline of trained professionals (engineers, chemists, doctors, environmental scientists) who can sustain implementation over decades.
- **Bangladesh Council of Scientific and Industrial Research (BCSIR)** anchors laboratory testing and research on safe substitutes. Its comparative advantage is applied science that directly supports industries in transitioning away from lead.
- **International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)** bridges science and health. With its global reputation, it can generate high-quality evidence linking lead exposure to adverse outcomes in child growth, anemia, and neurodevelopment. Such evidence not only influences national policy but also mobilizes global support and funding.

Universities will lead applied research, secure grants, and contribute evidence to policy. They will also host exchange programmes with global partners.

Private Sector and Industry

The private sector is both part of the problem and part of the solution. Industries are major sources of lead exposure, but they are also engines of innovation and investment.

- The **lead-acid battery sector** is the single most significant contributor to lead exposure in Bangladesh. Formal manufacturers, importers, and recyclers must modernize their recycling systems, invest in safer technologies, and comply with EPR regulations. Meanwhile, informal recyclers must be gradually integrated into safer, regulated systems to prevent massive disruptions to their livelihoods.

- **The paint and pigment industries** have already been shown to contribute significantly to childhood lead poisoning. With BSTI standards now in place, compliance and labeling are urgent. By shifting to lead-free alternatives, Bangladesh can access growing export markets.
- **Ceramics and cookware producers** are both health and economic actors. Unsafe glazes pose a threat to local consumers and undermine export competitiveness. Transitioning to lead-free glazes is thus both a health and trade imperative.
- The **agro-processing sector**, especially in the production of turmeric and spices, has drawn global attention. Preventing adulteration with lead chromate is crucial to restoring trust in Bangladeshi exports and protecting domestic consumers.
- **E-waste recyclers** pose both risks and opportunities. Informal dismantling practices expose entire communities, but with formalization and investment, the e-waste sector could become a safe and profitable green industry.
- **Construction and infrastructure firms** can shift demand away from lead-based paints and materials through compliance with public procurement standards.
- **Industry associations (FBCCI, chambers, trade groups)** provide platforms for collective action. They can mobilize members, share knowledge, and reduce compliance costs for Small and Medium-sized Enterprises (SMEs) by developing voluntary codes of practice.

Industries will shift supply chains, comply with EPR, and co-finance remediation. Battery, paint, and ceramics sectors will be prioritized.

Civil Society Organizations, I/NGOs, and Development Partners

Civil society and I/NGOs play the role of watchdog, advocate, support in building capacity, and mobilizer of citizens, while development partners provide finance, global expertise, and legitimacy.

- **Pure Earth** is a prominent international non-profit organization that has been operating in Bangladesh since 2011, dedicated to addressing toxic pollution with a particular emphasis on identifying and mitigating lead exposure. Its work includes BLL testing in children and

adults, revealing widespread elevated exposure across multiple districts. Investigations have traced the sources to informal ULAB recycling, contaminated turmeric, lead-soldered cookware, and high-lead paints. Through its global Toxic Sites Identification Program (TSIP), Pure Earth has mapped over 290 lead-contaminated hotspots, providing the first systematic evidence base for national action. It has piloted targeted interventions, including the cleanup of four lead-contaminated sites, and trained government and industry stakeholders on the Benchmark Assessment Tool (BAT) to improve environmental performance and compliance. The organization has also been raising awareness around safer practices in high-risk communities. With global technical expertise in developing and implementing technical protocols on lead assessment and mitigation, hotspot clean-up, and strengthening advocacy efforts through media campaigns and engaging youth and lead-safe coalition members, Pure Earth is a trusted partner in Bangladesh, combining evidence, advocacy, and awareness to drive progress toward a lead-free future.

- **The Environment and Social Development Organization (ESDO)** is a non-profit, non-governmental action-research organization established in 1990, based in Bangladesh, dedicated to environmental protection, biodiversity conservation, and policy advocacy to promote sustainability and environmental justice. As a pioneer of environmental advocacy in Bangladesh, ESDO played a catalytic role in the 2002 polythene ban and has since continued to advance youth engagement, livelihood enhancement, and environmental education through participatory, inclusive modalities. The organization has championed national initiatives, including the lead-free paint standard, mercury-free dentistry, zero-waste village models, and emerging e-waste policy frameworks. ESDO has decades of experience in advocacy for lead-free paint. Its success in shaping policy demonstrates the power of civil society to set agendas.
- **Bangladesh Poribesh Andolon (BAPA)** is a prominent civil society organization established in 2000 to promote environmental protection in Bangladesh. The organization addresses issues including biodiversity loss, water and air pollution, and climate change. Activities include advocating for conservation laws and raising awareness about environmental challenges. BAPA mobilizes citizens on a large scale. It transforms technical issues into public campaigns, ensuring that the lead remains on the national agenda.

- **Bangladesh Environment Network (BEN)** connects the diaspora and amplifies Bangladesh's voice internationally, mobilizing expertise and resources. Established in 1998, BEN mobilizes non-resident Bangladeshis and international partners to address environmental concerns in Bangladesh and globally. BAPA originated from an international conference initiated by BEN. Panels within the BEN study and make policy recommendations on topics such as household and industrial waste, urbanization, water contamination, energy, and legal aspects of environmental management.
- **Bangladesh Environmental Lawyers Association (BELA)** has contributed to legislative changes and regulatory reforms, particularly concerning shipbreaking practices, through advocacy and legal action. BELA uses the courts to enforce environmental rights. Litigation is often the last resort when enforcement fails, and BELA ensures accountability.
- **The Consumers Association of Bangladesh (CAB)** is a non-governmental, not-for-profit organization that promotes consumer rights and interests through information dissemination, monitoring, complaint handling, campaigns for safe products, and advocacy for ethical practices. CAB empowers consumers to demand safe products. Without consumer demand, the industry has little incentive to change. CAB's role is thus to create market pressure for compliance.
- **The Bangladesh Food Safety Network (BFSN)** was established in 2011 by the CAB and FAO's Food Safety Project. BFSN addresses food safety by engaging in education, monitoring, product testing, advocacy, research, and community mobilization.
- **B-SAFE Foundation** was founded in 2009. B-SAFE works within the agriculture and food sector to improve food safety and nutrition in Bangladesh.
- **Community-based organizations (CBOs) and media outlets** provide the final bridge to citizens. Awareness at the grassroots level is critical for behavior change (e.g., avoiding unsafe cookware and not purchasing adulterated turmeric).
- **Development partners (ADB, GEF, UNICEF, UNIDO, WHO, World Bank)** ensure Bangladesh benefits from international knowledge, financing, and technology transfer. They help fill resource gaps, build institutional capacity, and connect the national strategy

to global initiatives such as the Global Alliance to Eliminate Lead Paint (Lead Paint Alliance).

- **Regional cooperation and coordination.** To address the subregional challenges of lead poisoning, Bangladesh is committed to protecting its own population and to cooperating and coordinating with other countries in the subregion to share experiences and support each other in remedial actions.

I/NGOs will deliver community campaigns, citizen science initiatives, advocacy, and build capacity and provide technical assistance. Donor funding is expected for grassroots activities.

Development partners are committed to supporting the government over the next decade with targeted funding aimed at establishing a lead-free Bangladesh. For instance, the Asian Development Bank (ADB) will enhance testing capabilities by facilitating the procurement of advanced laboratory equipment and necessary consumables. The World Bank is set to allocate resources toward remediation programs. UNICEF and WHO will assist with surveillance activities, while organizations such as the Global Environment Facility (GEF) and the International Labour Organization (ILO) are committed to supporting innovative projects.

4.2. Monitoring and Evaluation (M&E) framework

Monitoring and Evaluation (M&E) will ensure accountability, track progress, and guide mid-course corrections. It will be overseen by the MoEFCC and funded with an annual budget.

Pillar 1. Institutional Capacity Strengthening

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible entities	Means of Verification	Frequency
1.1 Develop a sustainable cadre of technical personnel for identifying and remediating lead sources (infrastructure, logistics, HR, training)	Number of certified technical personnel trained on lead identification & remediation	<10	≥500 trained personnel	MoEFCC, DOE, DIFE	<i># certified technical personnel trained:</i> Training attendance sheets; competency assessment results; ToT/certification registry; training completion certificates; training report (including agenda, modules, photos).	Annual
	Number of lead-remediation training programs conducted	Very limited	≥200 trainings delivered	MoEFCC, DOE, MoHFW	<i># lead-remediation training programs conducted:</i> Training calendar; training reports; signed participant lists; pre-/post-test results; training procurement/financial records; partner completion memos.	Annual
1.2 Establish national testing facilities and mobile units for	Number of accredited labs for lead testing (environmental + biological)	2 labs	≥10 accredited labs	BSTI, DGHS, DOE, BFSA	<i># accredited labs for lead testing:</i> ISO/IEC 17025 accreditation certificates; lab audit reports; equipment commissioning reports;	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible entities	Means of Verification	Frequency
identification and remediation					proficiency testing results; lab SOPs/QA-QC manuals; lab service logs.	
	Number of mobile testing units deployed nationwide	0	≥20 units deployed	DOE, DGHS	# <i>mobile testing units deployed</i> : Asset register; deployment orders; route plans; field testing logs; calibration logs; monthly utilization reports; geo-tagged activity reports.	Annual
1.3 Establish an organized national waste management system for lead-containing waste	Number of hazardous-waste collection points and licensed disposal units	Few, informal	≥30 collection points + ≥10 licensed facilities	MoEFCC, LGD, DOE	# <i>collection points + licensed disposal units</i> : Licensing/authorization letters; site inspection reports; disposal manifests; hazardous waste tracking records; site commissioning/operation reports.	Annual
	Number of local authorities implementing lead-safe waste protocols	Minimal	≥100 LGIs implementing protocols	LGD, DOE	# <i>local authorities implementing lead-safe waste protocols</i> : LGI circulars/SOP adoption letters; training records; supervision checklists; compliance reports; meeting minutes of local committees.	Annual
1.4 Develop transition roadmap,	National transition roadmap for	None	Roadmap finalized by 2027	MoEFCC, MoI, DOE	<i>Roadmap prepared and adopted</i> : Official approval memo/circular; published	One-time + annual review

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible entities	Means of Verification	Frequency
guidelines, and SOPs for LAB/ULAB and site remediation	LAB/ULAB prepared and adopted				roadmap document; dissemination workshop minutes; stakeholder consultation report.	
	Number of remediation SOPs and technical guidelines approved	None	≥15 SOPs/guidelines approved	DOE, MoEFCC	<i># remediation SOPs/technical guidelines approved:</i> Approved SOP/guideline documents; gazette/circular notifications (if applicable); dissemination records; implementation checklists.	Annual
1.5 Strengthen institutional capacity and HR competencies for lead-safe operations	Number of officials trained in lead-safe practices, monitoring, and enforcement	Limited	≥1,500 officials trained	MoEFCC, DOE, MoHFW, BSTI	<i># officials trained:</i> Training rosters; certificates; course reports; learning assessment results; HRD/CPD integration letters.	Semi-annual
	Number of agencies with functional lead-safe operation units	Few	≥12 agencies with established units	MoEFCC, Line Ministries	<i># agencies with functional lead-safe units:</i> Office orders establishing units; TORs; staffing lists; annual workplans; budget line evidence; quarterly performance reports.	Annual
1.6 Establish a centralized digital Lead Knowledge and Innovation Hub	Lead Knowledge Hub developed and fully operational	Not established	Hub fully functional and accessible	MoEFCC, DOE, ICT Division	<i>Hub operational:</i> Portal launch note; hosting contract/GoB hosting memo; admin/user access logs; uptime/maintenance logs; governance SOPs.	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible entities	Means of Verification	Frequency
	Number of datasets, research outputs, and tools uploaded to the Hub	None	≥200 resources uploaded	MoEFCC, DOE, Academia	# datasets/research/tools uploaded: Repository analytics; upload logs; metadata index; quarterly content curation reports; link to datasets/tools catalogue.	Annual
1.7 Clinical governance for lead case detection and management	(i) National clinical guideline approved + dissemination package + update cycle established; (ii) Standard clinical tools finalized and adopted in target facilities; (iii) Tiered referral SOP issued and focal points assigned; (iv) # providers trained/certified; ToT completed; CPD integration	Limited/not standardized	Guideline + tools institutionalized nationwide; referral network functional in priority divisions; ≥1,000 providers trained/certified (or set your preferred national target)	MoHFW/DGHS circulars; training reports; facility supervision checklists; referral SOP	MoHFW/DGHS circulars; approved guideline document; dissemination and orientation reports; standardized clinical tools/job-aids package; referral SOP; focal point assignment letters; CPD/ToT records; supervision checklists.	Annual (training), quarterly (facility compliance)
1.8 Health-system readiness (diagnosis, commodities, QA)	(i) # facilities providing BLL testing + QA/QC protocol + TAT targets met; (ii) National stock plan; chelation available at designated centers;	Limited/ad hoc	BLL testing scaled to priority facilities; uninterrupted commodity availability at designated centers; routine clinical audit	QA/QC logs; DGHS facility reports; CMSD/DGDA stock reports; audit minutes; counseling job-aids	BLL QA/QC logs; proficiency testing results; facility testing registers; turnaround-time dashboard; CMSD/DGDA stock records; LMIS reports; stock-out tracker; clinical audit minutes; mentoring session	Quarterly

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible entities	Means of Verification	Frequency
	zero stock-out months at priority sites; (iii) % priority facilities completing quarterly case audits; mentoring sessions conducted; (iv) Counseling materials approved; % confirmed cases receiving counseling + follow-up plan		mechanism operating		logs; counseling tools distribution records.	
1.9 HIS integration + clinical-to-environment trigger protocol	(i) Lead case reporting module live; facilities reporting; routine dashboard produced; (ii) Trigger SOP approved; # investigations initiated from clinical triggers; response time KPI	Not integrated	HIS module operational + reporting compliance achieved in priority facilities; trigger protocol routinely used with measurable response time	DHIS2/MIS dashboards; trigger SOP; investigation registers; joint response minutes	DHIS2/MIS module screenshots/exports; reporting completeness dashboards; trigger SOP; case investigation registers; joint response minutes; referral-to-environment response tracker; time-to-response KPI reports.	Quarterly
1.10 Strengthen institutional capacity to address labour and occupational dimensions of lead exposure	(i) Inter-agency coordination mechanism formally established, with approved ToR, designated focal points, and annual joint workplan;	Not established / fragmented coordination	Coordination mechanism operational; protocol institutionalized and applied; relevant institutions	MoLE, DIFE, MoEFCC, DOE, DGHS, LGD	Official orders/ToR; focal point nomination letters; joint workplans; meeting minutes; approved guidance/protocol documents; training reports; pilot reports; institutional framework documentation	Annual, with quarterly progress tracking for coordination meetings and protocol application

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible entities	Means of Verification	Frequency
	(ii) Institutional guidance and coordination protocol/SOP approved and applied in lead-related enforcement and remediation operations; (iii) Number of relevant institutions trained on labour implications and just transition; (iv) Number of pilot approaches tested in high-risk and informal settings; (v) Institutional framework for labour-sensitive implementation developed.		trained; pilot approaches completed in priority sectors/locations; labour-sensitive implementation framework in place			

Pillar 2. Surveillance and Identification of Sources and Exposure Pathways

Priority Action	Key Indicator	Baseline (2026)	Target (2030)	Responsible Entities	Means of Verification	Frequency
2.1 Assess the prevalence of lead poisoning and identify sources and hotspots	Number of national and subnational assessments completed (BLL, environmental sampling, hotspot mapping)	Fragmented, incomplete	≥5 national assessments + full hotspot mapping completed	DGHS, DOE, MoEFCC, MICS/DHS, Research Organizations	<i># assessments completed:</i> MICS/DHS lead module datasets; survey reports; lab result databases; GIS hotspot maps; published assessment reports; technical briefs.	Annual
	Number of hotspots identified, geo-referenced, risk-categorized, and publicly reported	<10; fragmented hotspot registry and no centralized risk-categorized database	≥50 hotspots mapped, geo-referenced, risk-categorized, publicly reported, and updated annually	DOE, DGHS, MoEFCC, Local Government, ICT Division; supporting: research organizations and relevant technical institutions	<i># hotspots identified and publicly reported:</i> DOE hotspot registry; centralized national lead monitoring database; GIS dashboards; geo-referenced hotspot maps; risk categorization reports; annual hotspot update report; public	Annual, with database/GIS updates as data become available

Priority Action	Key Indicator	Baseline (2026)	Target (2030)	Responsible Entities	Means of Verification	Frequency
					disclosure postings; district validation meeting minutes.	
2.2 Conduct follow-up and screening of exposed individuals and communities	Number of individuals screened through targeted community-based or facility-based efforts	No systematic screening	≥100,000 individuals screened in high-risk areas	DGHS, MoHFW	# <i>individuals screened</i> : Facility screening registers; CHW screening logs; lab test databases; referral records; screening campaign reports.	Semi-annual
	Number of follow-up visits to high-risk households/communities	No structured follow-up	Structured follow-up conducted in all identified hotspots	DGHS, Community Health Workers	# <i>follow-up visits</i> : Follow-up visit forms; community visit logs; case management cards; CHW supervision checklists; hotspot household follow-up tracker.	Quarterly
2.3 Remediate MICS-identified hotspots and abandoned ULAB sites	Number of MICS hotspots remediated to national safety thresholds	0	≥10 hotspots fully remediated	DOE, MoEFCC, LGD	# <i>hotspots remediated</i> : Remediation completion reports; pre/post soil/dust test results; third-party	Annual

Priority Action	Key Indicator	Baseline (2026)	Target (2030)	Responsible Entities	Means of Verification	Frequency
					verification results; photo documentation; community sign-off; closure certificates.	
	Number of abandoned ULAB sites assessed and remediated	Several sites identified, but untreated	All identified ULAB sites remediated or under remediation plans	DOE, MoI, MoEFCC	# <i>hotspots remediated</i> : Remediation completion reports; pre/post soil/dust test results; third-party verification results; photo documentation; community sign-off; closure certificates.	Annual
2.4 Conduct supply chain analysis of high-risk consumer products	Number of product categories assessed for contamination risks (spices, cookware, toys, paints, cosmetics, jewelry, etc.)	Limited product categories assessed	≥10 product categories analyzed comprehensively	BSTI, BFSA, DOE, Research Organizations	# <i>product categories assessed</i> : Study protocol; sampling frames; lab test reports; market survey datasets; risk assessment outputs; supply chain mapping reports.	Annual

Priority Action	Key Indicator	Baseline (2026)	Target (2030)	Responsible Entities	Means of Verification	Frequency
	Number of supply chain risk reports produced and disseminated	None	≥5 detailed supply chain traceability reports	BSTI, BFSA, MoI	# risk reports produced: Published traceability reports; dissemination workshop minutes; policy briefs; stakeholder feedback records.	Annual
2.5 Occupational lead exposure surveillance and registry	(i) BLL screening protocol issued; # workers screened/year; coverage in prioritized sectors; (ii) Registry operational (dashboard + reporting cadence); (iii) % elevated BLL cases receiving referral + follow-up; (iv) # participating labs meeting ISO/IEC 17025-aligned QA/QC; (v) Annual	Not systematic	Annual/biannual screening institutionalized in high-risk sectors; registry producing annual analytics	DIFE/MoLE registry; lab QA reports; referral logs (DGHS); annual occupational risk report, Research Organizations	BLL screening protocol; worker registry database outputs; lab QA/QC reports; referral and follow-up logs; workplace inspection records; annual occupational risk analytics report.	Annual (analytics), quarterly (screening/registry updates)

Priority Action	Key Indicator	Baseline (2026)	Target (2030)	Responsible Entities	Means of Verification	Frequency
	occupational lead risk report published					

Pillar 3. Policy and Regulation

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
3.1 Develop and enact a Comprehensive National Lead Control Act	Status of the Act (drafted, approved, enacted, gazetted)	No unified Act	Act enacted and fully gazetted	MoEFCC, DOE, MoLJPA	<i>Status of Act:</i> Draft bill versions; cabinet/ministerial approvals; parliamentary records; gazette notification; regulatory instruments/SROs issued.	Annual
	Number of stakeholder consultations conducted	Ad hoc	≥10 national consultations	MoEFCC, DOE	<i># consultations:</i> Consultation agenda and minutes; participant lists; technical working group notes; consolidated consultation report.	Annual
3.2 Establish mandatory standards for industrial paints	Number of industrial paint standards developed or updated to include lead thresholds	Limited/fragmented standards	≥5 industrial paint standards finalized	BSTI, MoI, DOE	<i># standards updated:</i> BSTI standard documents; technical committee approvals; published	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
					standard numbers; circulars to industry.	
	Percentage of industrial paints tested meeting new standards	Unknown	≥90% compliance	BSTI testing labs	% <i>compliance</i> : BSTI lab reports; market surveillance datasets; compliance dashboards; enforcement notices and follow-up verification.	Annual
3.3 Institutionalize lead paint screening and testing	Number of paint samples screened annually	<1,000 samples/year	≥10,000 samples/year	BSTI, DOE	# <i>samples screened</i> : Sampling logs; lab test database; quarterly screening reports; chain-of-custody forms.	Semi-annual
	Establishment of validated testing protocols for lead in paints	Not standardized	Standardized national protocol approved	BSTI	<i>validated protocols</i> : Approved national test protocol; BSTI method validation report; inter-lab	One-time (2026)

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
					comparison/proficiency results.	
3.4 Reform import duties, VAT, and fiscal instruments to discourage lead-containing products and encourage safer alternatives	Number of fiscal instruments revised (tariff lines, VAT categories, rebates)	None reformed for lead	≥6 fiscal instruments revised	NBR, MoF, MoC	# <i>fiscal instruments revised</i> : NBR SROs/circulars; tariff schedule updates; VAT order amendments; policy briefs submitted; meeting minutes with MoF/NBR.	Annual
	Change in import volume of lead-containing goods (declining trend)	No monitoring	≥50% reduction in high-risk product imports	NBR customs data	<i>import volume trend</i> : Customs import datasets; HS code-wise trend reports; annual statistical bulletins.	Annual
3.5 Develop and update national policies and regulations related to lead	Number of policies/regulations updated (environment, health, industry, food safety)	Fragmented	≥10 updated/introduced	MoEFCC, MoHFW, MoI, BFSa, DOE	# <i>policies updated</i> : Official circulars; gazettes; revised rules; policy compendium; compliance guidance documents.	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	Number of ministries incorporating lead provisions into sectoral policies	Limited	≥12 ministries	MoEFCC, Cabinet Division	# <i>ministries incorporating lead provisions</i> : Approved sectoral policies/workplans; cabinet division tracking; annual performance agreements (if used).	Annual
3.6 Introduce mandatory third-party testing, labeling, and certification	Percentage of high-risk products requiring third-party certification	<5%	≥80%	BSTI, BFSA, MoI	% <i>high-risk products covered</i> : BSTI certification registry; BFSA compliance records; labeling compliance inspection reports.	Annual
	Number of accredited third-party testing bodies certified	Few	≥12 accredited bodies	BSTI, Accreditation Board	# <i>accredited bodies</i> : Accreditation certificates; audit reports; approved list of bodies; competency assessment documentation.	Annual

Pillar 4. Monitoring and Enforcement

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
4.1 Establish a monitoring system to ensure compliance	Number of risk-based compliance inspections, market surveillance visits, port checks, and joint monitoring operations conducted annually in priority lead-related sectors.	Fragmented, irregular, and not systematically risk-based.	≥5,000 risk-based inspections, market surveillance visits, port checks, and joint monitoring operations conducted annually, or ≥10,000 cumulative inspections completed by 2030, subject to staffing, budget, and digital monitoring-system expansion.	DOE, BSTI, NBR inspection reports, DIFE	# <i>inspections</i> : DOE/BSTI/DIFE/NBR inspection registers; inspection MIS exports; market surveillance reports; port inspection records; joint operation logs; quarterly inspection summaries.	Quarterly
	Percentage of verified serious non-compliance cases receiving timely enforcement response, including	Limited and inconsistent enforcement follow-up.	00% of verified serious violations receive enforcement response; ≥80% of corrective action plans	DOE, BSTI, DIFE	# <i>enforcement actions</i> : Enforcement registers; improvement notices; fine/penalty receipts; closure orders; product recall records; prosecution case logs; corrective action plan	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	warning, improvement notice, fine, closure order, prosecution, product recall, or corrective action plan.		closed within agreed timelines.		registers; follow-up verification reports.	
	Number of regulatory bodies with strengthened monitoring capacity	Partial	≥10 agencies with trained monitoring teams	MoEFCC, DOE, DIFE	<i># agencies strengthened</i> : Training records; staffing deployment orders; equipment procurement/asset registers; budget execution reports.	Annual
4.2 Establish a monitoring framework and lead traceability technology	National monitoring framework approved and implemented	None	Framework fully operational nationwide	MoEFCC, DOE, Chief Controller of Imports and Exports (CCIE)	<i>framework approved</i> : Approved framework document; circulars; implementation SOPs; training on framework roll-out; annual performance report.	Annual
	Lead traceability system developed and piloted (battery tagging/tracking)	No traceability system	Traceability pilot completed and scaled	DOE, MoI, MoC, NBR	<i>traceability system piloted</i> : System design document; pilot report; platform logs; tagged battery database outputs; audit results.	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	Number of sectors submitting routine compliance and traceability reports	None	≥8 sectors reporting routinely	MoEFCC, DOE, Industry Associations	# <i>sectors reporting</i> : Sectoral compliance reports; industry association submissions; registry exports; semi-annual compilation reports.	Semi-annual
4.3 Pilot remediation at an abandoned ULAB site	Completion of remediation pilot at selected ULAB site	No remediation piloted	Remediation pilot fully completed with verification tests	DOE, LGD, MoEFCC	<i>pilot completed</i> : Remediation completion report; independent verification sampling; clearance certificate; photo documentation.	One-time (by 2027)
	Blood lead level reduction among exposed populations at pilot site	High BLL levels	≥40% reduction in BLL among target population	DGHS, DOE, MoHFW	<i>BLL reduction</i> : Pre/post BLL datasets; lab certificates; analysis report; ethics/consent documentation (where relevant).	Annual (post-remediation)
4.4 Lead-specific OSH governance and risk-based enforcement in lead-using industries	(i) Lead provisions inserted into labour rules/OSH guidance (gazette/official circulars); (ii) Lead-risk inspection	Limited / non-standard	OSH lead control regime operational; measurable inspection + CAP closure performance	DIFE inspection MIS; enforcement registers; circulars; joint operation minutes with DOE	Gazette/circulars; inspection checklists; DIFE inspection MIS outputs; CAP registers; CAP closure verification reports; joint operation minutes with DOE/local admin.	Quarterly

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	checklist + sector guidance approved and used nationally; risk-based protocol applied; (iii) # lead-focused inspections/year by DIFE; (iv) # enforcement actions/year; % corrective actions closed within agreed timelines; # joint operations with DOE/local admin					

Pillar 5. Private Sector Engagement for Responsible Business Practices

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
5.1 Develop and enforce mandatory corporate responsibility standards for lead-free operations	(i) Number of sector-specific corporate responsibility standards, compliance toolkits, and licensing-linked requirements introduced; (ii) Percentage of regulated enterprises complying with lead-related operational standards and licensing requirements.	None / <5% enterprise compliance	≥10 sector-specific standards/toolkits adopted; ≥70% of registered enterprises compliant	MoEFCC, DOE, MoI, BSTI	Published guidelines; compliance toolkits; circulars; licensing/renewal documentation; inspection and audit reports; certification registry	Annual
5.2 Establish public–private co-design platforms for lead-free standards and compliance mechanisms	(i) Number of sector-specific co-design working groups established and functioning; (ii) Number of co-developed technical guidelines and transition	No structured co-design platform	≥4 sectoral working groups operational; ≥2 validated technical guidelines per priority sector; annual review mechanism institutionalized	MoI, BSTI, DOE	Working-group ToR; membership lists; meeting minutes; validated guidance documents; annual review reports	Annual, with quarterly tracking of meetings

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	pathways validated; (iii) Annual public-private review report published.					
5.3 Establish economic incentives and penalties to shift market behavior	(i) Number of fiscal and regulatory incentive/penalty instruments introduced or revised; (ii) Reduction in market share or sales of high-risk lead-containing products; (iii) Number of public procurement instruments incorporating lead-free preference clauses.	None / no trend data	≥6 fiscal/regulatory instruments revised; ≥50% reduction in market share of high-risk products; lead-free preference integrated into public procurement in priority sectors	NBR, MoF, MoC, MoI, BSTI	Gazettes/SROs; tariff and VAT schedules; procurement circulars; surveillance reports; market audit data	Annual
5.4 Implement multiyear incentive programs to support business	(i) Multiyear national incentive framework approved and operational;	Not established	Multiyear incentive framework operational; ≥50 firms enrolled in	MoF, MoI, Bangladesh Bank, DOE	Framework approval documents; programme guidelines; firm	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
transition to lead-free production	(ii) Number of firms enrolled in pilot incentive schemes; (iii) Number of financing windows or transition-support facilities launched and serving firms.		pilot schemes; ≥ 3 financing windows/facilities launched		enrolment records; financing facility reports; disbursement and uptake reports	
5.5 Strengthen traceability and transparency in lead-related supply chains	(i) Number of firms participating in traceability systems or platforms; (ii) Digital supply-chain tracking platform operational; (iii) Number of annual supply-chain due diligence or sustainability disclosures submitted.	Very limited / not available	$\geq 1,000$ firms participating; national traceability platform operational; routine annual disclosures in priority sectors	BSTI, MoI, DOE, MoEFCC, Industry Associations	Platform analytics; firm registry; due diligence submissions; annual disclosure reports; sectoral compliance records	Annual
5.6 Formalize and integrate informal sector actors into regulated systems	(i) Number of informal actors formally registered; (ii) Number of	Few / none	$\geq 5,000$ informal actors registered; $\geq 10,000$ workers/operators supported or	MoI, SMEF, DOE, LGD, DIFE, BSTI	Registration databases; MoUs; training rosters; technical assistance records;	Semi-annual for programme delivery; annual for formalization outcomes

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	informal enterprises or operators receiving technical assistance, compliance support, and training; (iii) Number of informal businesses transitioned into formal, compliant operations; (iv) Number of MSMEs/informal operators accessing affordable testing support.		trained; measurable annual increase in businesses transitioned to compliance		testing support logs; enterprise transition records	
5.7 Promote industry-led voluntary commitments, CSr/ESG resource mobilization, and consumer awareness	(i) Number of firms or associations adopting voluntary lead-free commitments; (ii) Number of consumer-awareness	Very few/limited	≥500 firms with voluntary commitments; ≥100 private-sector-led or co-financed campaigns; annual recognition mechanism institutionalized;	MoEFCC, MoI, Industry Associations, BSTI, DOE, FBCCI	Signed pledges/MoUs; coalition membership roster; CSR/ESG contribution records; company sustainability/CSR reports; campaign reports; research	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	campaigns led by the private sector; (iii) Number of firms or products recognized through lead-free business awards or similar schemes; (iv) Amount of CSR/ESG resources mobilized for lead-related awareness, community outreach, applied research, product safety testing, and innovation; (v) Number of CSR/ESG-supported awareness, research, testing, or innovation initiatives implemented.		CSR/ESG resource-mobilization mechanisms established; annual CSR/ESG-supported lead-related initiatives documented		grant or project records; product testing records; award documentation; media analytics	

Pillar 6. Awareness, Behavior Change and Education

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
6.1 Develop and implement a National RCCE Strategy on lead	RCCE Strategy developed, validated, and implemented	No national RCCE strategy	National RCCE strategy fully implemented	MoEFCC, DOE, MoHFW, MoI&B	Approved RCCE/SBCC strategy; TORs for RCCE unit; implementation plan; annual progress report; budget line evidence.	Annual
	Number of RCCE coordination meetings held	Fragmented	≥4 national coordination meetings per year	MoEFCC, RCCE Unit	<i>coordination meetings</i> : Meeting minutes; attendance lists; action trackers; quarterly coordination reports.	Quarterly
6.2 Develop and update messages on lead sources, health and environmental impacts, and solutions	Number of standardized message packages developed and updated	Limited messaging	≥15 message packages updated	MoHFW, MoEFCC, DOE, BFSA	Approved message packs; IEC toolkits; message testing reports; version control logs; dissemination briefs.	Annual
	Number of languages/formats used for dissemination (print, radio, digital)	Limited	≥10 formats/languages produced	MoI&B, RCCE Unit	<i>languages/formats</i> : Print/audio/video files; distribution records; broadcast logs; web/social posts archive.	Annual
6.3 Develop a national message dissemination strategy	Dissemination strategy developed and implemented	No national dissemination plan	Strategy developed and operational nationwide	MoEFCC, MoI&B	Approved dissemination plan; channel deployment tracker; contracts with media;	Annual
	Number of dissemination	Fragmented	≥20 channels activated	MoEFCC, MoI&B, NGOs	SMS logs; campaign monitoring report.	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	channels activated (TV, radio, SMS, community networks)					
6.4 Build knowledge and capacity of youth, media, and civil society to tackle lead pollution	Number of youth, media, and CSO representatives trained	Limited	≥20,000 individuals trained	MoEFCC, MoE, NGOs	Training records; ToT outputs; participant lists; certification; event reports; youth-led activity documentation.	Annual
	Number of lead-awareness materials produced for youth and CSOs	Limited	≥50 materials produced	MoEFCC, DOE	<i>materials:</i> Material catalogue; production/distribution records; online repository analytics.	Annual
6.5 Conduct awareness and capacity-building activities for industries	Number of industry-focused trainings conducted	Fragmented	≥500 training sessions	MoI, BSTI, Industry Associations	Training reports; attendance sheets; KAP/pre-post results; industry compliance self-assessments; inspection feedback loops.	Annual
	Percentage of industries reporting improved knowledge on lead-safe practices	No data	≥70% reporting improved practices	MoI, BSTI		Annual
6.6 Strengthen school-based lead awareness and safe learning environments	(i) Number and percentage of schools in identified hotspot areas implementing	Not systematically tracked	School-based lead awareness and safe practices operational in priority hotspot districts; teachers	MoPME, DPE, Ministry of Education, NCTB, MoEFCC, DOE	Training records; school reporting formats; inspection checklists; hotspot district implementation reports;	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
	lead awareness and safe school-level practices; (ii) Number of teachers and school leaders trained or oriented on lead awareness and exposure prevention; (iii) Number and percentage of schools meeting minimum lead-safe standards in priority districts.		and school leaders trained at scale; lead-safe standards introduced and monitored in priority schools/districts		curriculum/co-curricular guidance documents	
6.7 Observe WED, Earth Day, World Food Safety Day, ILPPW, and other thematic days	Number of national and local observance events organized	Sporadic	≥200 observances annually	MoEFCC, BFSa, NGOs	Event reports; official circulars; media tracking logs; press releases; TV/radio coverage logs.	Annual
	Number of media coverages associated with observances	Low	≥1,000 media coverages/year	MoI&B	<i>media coverage count:</i> Media monitoring reports; press clipping database; social listening analytics.	Annual
6.8 Conduct ongoing social media campaigns	Number of social media campaigns launched	Fragmented	≥200 campaigns	MoEFCC, DOE, MoI&B	Social media dashboards/analytics exports; content	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
on lead awareness	Total digital reach (views, engagements) of lead-awareness content	Minimal	≥50 million cumulative reach	MoEFCC, MoI&B, RCCE Unit	calendar; paid campaign invoices; reach/engagement reports.	Quarterly

Pillar 7. Research, Innovation and Knowledge Management

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
7.1 Strengthen national research and academic capacity to generate multidisciplinary evidence on lead	Number of multidisciplinary research institutions conducting lead-related studies	Limited (<5)	≥20 institutions engaged in lead research	MoE, UGC, Universities	Fund award letters; research project registry; institutional MoUs; annual research activity reports.	Annual
	Number of peer-reviewed publications on lead in Bangladesh	~10/year	≥100 cumulative publications	Academic institutions, journals	<i>publications:</i> Publication database; DOI list; institutional repositories; annual bibliometric summaries.	Annual
7.2 Promote innovation in affordable, scalable lead-free alternatives, testing kits, and remediation technologies	Number of prototypes/innovations developed and piloted	Few	≥25 innovations piloted	MoST, Universities, Industry	Prototype validation reports; pilot evaluation reports; lab test certificates; product verification reports.	Annual
	Number of patents or technology transfers facilitated	Minimal	≥10 patents/transfers	Patent Office, MoST	<i>patents/transfers:</i> Patent filings; licensing agreements; tech-transfer MoUs;	Annual

					commercialization reports.	
7.3 Facilitate academic–industry–policy partnerships for lead research uptake	Number of formal partnerships (MoUs) between academia, industry, and government	Limited	≥100 MoUs signed	MoEFCC, MoI, Universities	Signed MoUs; committee TORs; meeting minutes; policy brief repository; citations in standards/policies.	Annual
	Number of policy briefs generated and used for regulatory decision-making	Ad hoc	≥25 high-quality policy briefs produced	MoEFCC, DOE		Annual
7.4 Expand national surveillance and epidemiological studies on health impacts, especially in vulnerable groups	Number of epidemiological studies conducted (children, pregnant women, workers)	<5	≥30 studies completed	DGHS, MoHFW, Universities	Study protocols/IRB approvals; datasets; reports; sentinel site dashboards; survey modules documentation.	Annual
	Number of biomarkers and exposure datasets generated and made accessible	Very limited	≥10 national datasets established	DGHS, MoHFW	<i>biomarker datasets:</i> DGHS/IEDCR data releases; repository logs; data dictionaries/metad ata.	Annual
7.5 Undertake economic analyses and cost-benefit studies to inform	Number of economic burden and cost–benefit studies completed	Few	≥15 studies completed	MoEFCC, MoF, Research institutions	Published cost-benefit/COI reports; ministry submissions;	Annual

planning and budgeting					investment case documents; ADP proposal references.	
	Evidence from analyses integrated into national budgeting and ADP proposals	None	Evidence integrated annually into ADP cycles	MoF, MoEFCC	<i>budget integration:</i> Budget books/ADP documents; planning commission minutes; annex references.	Annual
7.6 Promote social and community-engaged research to ensure inclusive knowledge generation	Number of community-engaged research studies completed	Minimal	≥50 CEnR studies conducted	Universities, NGOs	CEnR study reports; participation logs; citizen science data outputs; community validation meeting minutes.	Annual
	Number of research outputs incorporating citizen-generated data	None	≥10 participatory datasets integrated	MoEFCC, Academia	<i>citizen-generated data:</i> App dashboards; dataset exports; quality assurance notes; integration report.	Annual
7.7 Align national research priorities with global environmental health and climate	Existence of a national lead research agenda aligned to global frameworks	None	Research agenda developed and endorsed	MoEFCC, MoE, MoST	National research agenda document; alignment matrix; endorsement	One-time + annual review

resilience frameworks					memo; annual review report.	
	Number of national plans/sectoral strategies integrating lead-related research findings	Zero	≥15 national/sector plans updated	Cabinet Division, Line Ministries	<i>plans integrating findings</i> : Revised sectoral plans; cabinet/ministerial approvals; cross-references to evidence.	Annual
7.8 Develop national R&D facilities to accelerate technology development and testing capability	Number of R&D facilities established/upgraded for lead-related innovation	Few	≥10 dedicated R&D facilities operational	MoST, Universities, Industry	Facility commissioning reports; equipment inventories; staffing lists; grant	Annual
	Number of R&D grants issued for lead-related innovation	Very limited	≥100 grants awarded	MoST, UGC, Research Councils	award records; annual utilization reports.	Annual
7.9 Conduct follow-up and screening research to support evidence-based decisions	Number of follow-up studies conducted in previously identified hotspots	Ad hoc	≥40 follow-up studies completed	DOE, MoHFW, Academia	Hotspot follow-up study reports; longitudinal cohort protocols; cohort datasets;	Annual
	Number of longitudinal cohorts established for monitoring vulnerable groups	None	≥5 cohorts established	DGHS, Academic institutions	annual cohort progress reports.	Annual

Pillar 8. Multisectoral Engagement, Coordination, and Collaboration

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
8.1 Establish and operationalize the multisectoral steering committee, technical committee, and working groups	Committees notified, functional, and meeting regularly	No functional committees	Steering, Technical & WGs fully functional	MoEFCC, DOE, Cabinet Division	Committee formation orders; TORs; membership lists; meeting minutes; quarterly action trackers.	Quarterly
	Number of multisectoral meetings convened	Ad hoc	≥4 national meetings per year	MoEFCC	# meetings: Meeting calendars; minutes; attendance; decisions log; follow-up compliance reports.	Quarterly
8.2 Define roles and responsibilities for the steering committee, technical committee, and working groups	Roles & responsibility matrix finalized and adopted	None	Full RACI matrix adopted and disseminated	MoEFCC, Cabinet Division	Approved RACI matrix; circulars; designated focal point letters; focal point registry.	Annual
	Number of ministries/agencies with formally designated lead focal points	Fragmented	≥20 ministries with formal focal points	MoEFCC, Line Ministries	# focal points: Official designation letters; updated focal point directory; onboarding records.	Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
8.3 Develop a National Multisectoral Action Plan for Lead Elimination	Multisectoral Action Plan completed and approved	No national plan	Action Plan endorsed and implemented	MoEFCC, All ministries	Approved action plan; dissemination report; annual review minutes; integration evidence in ministry AOPs.	One-time (2026) + annual review
	Number of ministries integrating actions into annual workplans	None	≥15 ministries integrated	Cabinet Division, MoEFCC	# <i>ministries integrated</i> : Ministry workplans; ADP submissions; performance reporting extracts.	Annual
8.4 Establish a Lead-Free Bangladesh Coordination and Information Platform	Digital coordination platform developed and operational	Not available	Platform fully functional with datasets uploaded	MoEFCC, DOE, ICT Division	Portal go-live documentation; user logs; quarterly upload logs; data dashboards; governance SOPs.	Annual
	Frequency of data uploads from ministries/agencies	None	≥4 updates per year per agency	Line Ministries	<i>upload frequency</i> : Platform analytics; upload tracker; quarterly compliance scorecards per agency.	Quarterly

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
8.5 Institutionalize joint monitoring, review, and learning mechanisms	Annual national lead mitigation report produced	None	Annual report published every year	MoEFCC, DOE, DGHS	Annual national report; publication records; joint field visit logs; mission reports; supervision checklists.	Annual
	Number of joint monitoring visits conducted across sectors	Very limited	≥200 joint field visits	DOE, DGHS, BFSa, BSTI		Semi-annual
8.6 Mobilize and pool resources for lead elimination	Amount of funding mobilized (domestic + development partners)	Fragmented, small-scale	≥\$200 million cumulative by 2030	MoEFCC, MoF, Development Partners	Funding agreements; donor commitment letters; national budget allocations; pooled fund governance documents.	Annual
	Number of joint proposals submitted for financing	None	≥20 proposals submitted	MoEFCC, MoF, All line ministries	#proposals: Submitted proposals; concept notes; decision memos; financing pipeline tracker.	Annual
8.7 Build stakeholder capacity for coordinated action	Number of multisectoral officials trained in coordinated lead response	Limited	≥5,000 officials trained	MoEFCC, DOE, MoHFW, MoI	Training modules; attendance lists; completion reports; exposure visit reports; workshop proceedings.	Annual
	Number of joint sector-wide workshops held	Minimal	≥100 workshops	MoEFCC, Line Ministries		Annual

Priority Action	Key Indicator	Baseline 2026	Target 2030	Responsible Entities	Means of Verification	Frequency
8.8 Harmonize policies and regulations across sectors	Number of cross-sector policies harmonized with the National Lead-Free Strategy	None	≥20 national/sectoral policies harmonized	MoEFCC, Cabinet Division	Regulatory gap analysis reports; harmonization memos; conflict-resolution minutes; revised policy instruments.	Annual
	Number of regulatory conflicts identified and resolved	No system	≥15 regulatory conflicts resolved	DOE, MoI, MoHFW	<i>conflicts resolved</i> : Issue log; resolution decisions; updated instruments/circulars.	Annual
8.9 Institutionalize youth, civil society, and private-sector participation through a national alliance	National Lead-Free Alliance formed and functional	None	Alliance established and meeting quarterly	MoEFCC, NGOs, Private Sector	Alliance charter; membership roster; quarterly meeting minutes; activity reports; engagement tracker.	Quarterly
	Number of youth, CSO, and private-sector organizations participating	Limited	≥500 organizations engaged	MoEFCC, CSOs, Private Sector	<i># participating orgs</i> : Registration list; signed participation forms; event attendance records.	Annual

Institutional Arrangements

- MoEFCC: Overall coordination and publication of annual M&E reports.
- DOE: Data collection on environmental indicators (soil, air, water).
- MoHFW/DGHS/IEDCR: Data on blood lead levels and health impacts.
- BSTI & BFSa: Compliance and market surveillance data.
- BBS: Integration of lead modules in national surveys (MICS, HIES).
- National Lead Knowledge Hub: Data validation and visualization.
- Steering Committee: Quarterly review meetings.

5. Legal and Institutional Reform Recommendations

This chapter outlines the legal and institutional reforms required to support the implementation of the National Strategy for a Lead-Free Bangladesh. The reforms build on existing laws, identify regulatory and institutional gaps, and propose actionable measures to ensure effective lead pollution control across sectors. The recommendations are presented under four broad headings: (i) sector-specific standards, (ii) revision of outdated laws, (iii) strengthening enforcement agencies, and (iv) institutional capacity and accountability. In addition, a draft statutory framework for new lead-specific rules is proposed. The recommendations are preceded with a preamble and a table below on Bangladesh's Lead Management under the International Chemicals and Waste Conventions.

Table 1 presents Bangladesh's lead management in the context of its international obligations. It highlights the country's commitments under the **Basel Convention** (control and environmentally sound management of lead-containing hazardous wastes) and the **Rotterdam Convention** (regulation of lead-containing chemicals in international trade), noting that lead is not covered under the **Stockholm** or **Minamata Conventions**. The table outlines the key obligations, some implementation projects, strengths, challenges, and responsible authorities, providing a snapshot of Bangladesh's progress and gaps in meeting its international responsibilities for lead management.

Table 1: Bangladesh's Lead Management under International Chemicals and Waste Conventions.

Convention / Initiative	Ratification in Bangladesh	Key Obligations for Bangladesh (related to lead)	Key Implementation / Projects	Strengths / Achievements	Challenges / Gaps	Responsible National Authority
Basel Convention (on the Control of Transboundary Movements of Hazardous Wastes and their Disposal)	Acceded 1 April 1993	• Control and reduce transboundary movement of lead-containing hazardous wastes (e.g., used lead-acid batteries, electronic waste) • Ensure environmentally sound management (ESM) of lead waste • Minimize waste generation at source • Prevent illegal traffic	• Hazardous waste inventories including lead-acid batteries • Ship recycling projects assessing lead-containing components • Draft amendments to strengthen hazardous waste management	• Government commitment to ESM of lead waste • Awareness and some infrastructure planning for lead-acid battery collection and recycling	• Informal recycling of batteries and e-waste • Limited treatment/disposal facilities • Weak enforcement in informal sector • High technical and financial needs	MoEFCC; DOE; Ministry of Industries (for battery & shipbreaking sectors)
Rotterdam Convention (on the Prior Informed Consent – PIC – Procedure for Certain Hazardous Chemicals and Pesticides in International Trade)	Ratified (date recorded by BRS Secretariat)	• Implement PIC for certain lead compounds (e.g., tetraethyl lead) • Notify regulatory actions • Exchange information on risks of lead chemicals • Regulate import/export of listed lead compounds	• Lead-containing chemicals monitored under pesticide and industrial chemical regulations • Workshops to strengthen customs/trade enforcement	• Legal ratification in place • Some lead compounds regulated for import and export	• Limited dedicated projects purely on lead trade • Weak customs enforcement • Awareness gaps among importers/traders	MoEFCC; DOE; Ministry of Agriculture (if pesticide-related); Customs Department

5.1. Sector Specific Standards Related to Lead

This section identifies the current sector-specific standards and regulatory gaps to enhance enforcement and monitoring, aimed at protecting public health and the environment from the harmful effects of lead exposure.

5.1.1. Battery Recycling Industry

Bangladesh's LAB recycling sector lacks regulatory oversight. Informal recyclers operate without environmental clearances or fail to meet safety standards. Even formal actors depend on these informal recyclers and resellers.

S.R.O. No. 45-Act/2021: S.R.O. No. 45-Act/2021 was issued by the Ministry of Environment, Forest and Climate Change (MoEFCC) on February 25, 2021. The S.R.O. is sometimes referred to, in secondary sources, as the “Lead Acid Battery Preparation, Regeneration, Import and Utilization Regulations” or “Battery Recycling Order” under the Bangladesh Environment Conservation Act (BECA). The S.R.O. updates the Bangladesh Environment Conservation Act, 1995 (Act No. 1 of 1995), as amended by the Environment Conservation (Amendment) Act, 2010 (Act No. 50 of 2010), to regulate battery recycling. The SRO directs the lead-acid battery manufacturers and importers to manage their products' lifecycle. Under this Act, companies involved in manufacturing, recycling, importing, and/or selling batteries must obtain and renew the Environmental Clearance Certificate (ECC) annually. Applications for renewal must be submitted at least 30 days prior expiry. They must also maintain activity documentation and keep the DOE informed. They must attach updated environmental monitoring data and evidence of compliance, e.g., waste handling, effluent quality, and air emissions. It prohibits the unauthorized buying and selling of lead, as well as the disposal, burning, or storing of batteries in open places, water bodies, and waste dumps. The Act mandates that battery recycling industries register with the Accumulator Battery Manufacturers and Exporters Association of Bangladesh (ABMEAB). The SRO applies to formal facilities only and DOEs not address informal battery recycling and manufacturing. While the SRO imposes regulatory obligations on producers and recyclers, Bangladesh has not yet established a formal EPR mechanism (e.g., collection targets, financing, design responsibility, producer take-back) for lead-acid batteries. The concept of EPR was first legally introduced in the Hazardous Waste (E-Waste) Management Rules, 2021, under the

Environment Conservation Act, 1995. The same principle could be extended to battery, paint, and other lead-containing products to ensure full life-cycle accountability.

Hazardous Waste (E-Waste) Management Rules (2021): The Hazardous Waste (E-Waste) Management Rules, 2021 (S.R.O. No. 187-Law/2021) was issued by the Ministry of Environment, Forest and Climate Change (MoEFCC) on June 03, 2021, under Section 20 of the Environment Conservation Act, 1995 (Act No. 1 of 1995). The Hazardous Waste (E-Waste) management rules are meant to ensure environmentally sound collection, storage, transport, recycling, and disposal of electronic and electrical waste (e-waste) through shared responsibility and EPR. Within these regulations, the operational responsibilities of producers, assemblers, importers, distributors, refurbishers, collection centres, recyclers, dismantlers, transporters, and consumers were clearly defined. According to these rules, companies involved in e-waste management must register with the DOE. The rules require that producers establish EPR programs and submit EPR plans to the DOE. The EPR plans must include mechanisms for take-back, collection and recycling of products. The rules require producers, assemblers and importers achieve progressive e-waste collection targets: 10 % in the first year, 20 % in the second, 30 % in the third, 40 % in the fourth, and 50 % in the fifth year and thereafter. In accordance with these regulations, producers are required to ensure that, within five years of implementation, a minimum of 50% of e-waste generated from their products is collected and managed through authorized systems.

Hazardous Waste and Ship Breaking Waste Management Rules (2011): The Hazardous Waste and Ship Breaking Waste Management Rules (2011) are administered by the Ministry of Industries. These rules classify ULABs and unsorted used batteries as hazardous materials, including LAB plates and other lead scraps, ashes, and residues. Additionally, the Ministry of Shipping, Government of Bangladesh, and respective Port Authorities or relevant departments reserve the right to grant specific exemptions for recycling or breaking ships grounded at locations other than recognized ship recycling plots or yards, with the consent of the Ministry of Industries (Ministry of Industries, Government of the People's Republic of Bangladesh., The Ship Breaking & Ship Recycling Rules-2011).

Lead-acid Battery Recycling and Management Rules (2006) (SRO No. 175-Act/2006): These rules specify how buyers and sellers of LABs and ULABs should manage the recycling and handling of batteries. The rules require battery recyclers to submit regular reports on the volume

of recycled products, the recycling methods, and the environmental impacts. The rules also mandate that all parties involved, including transport, follow environmentally sound procedures, with penalties for non-compliance under Section 15 of the Environment Conservation Act. However, the DOE does not maintain or publish information on enforcement activities against battery recyclers and only acknowledges that over 250 unauthorized recyclers operate in the country (Pure Earth, 2020).

Hazardous Waste (Control of Export, Import and Transit) Rules, 2003: These rules regulate the import, export, and transit of hazardous waste, including those containing lead. They also ensure the proper management and disposal of hazardous waste to prevent environmental contamination.

Occupational Health and Safety Policy, 2013: This policy aims to protect workers from health risks due to hazardous substances like lead and ensure safer working conditions in industries handling lead-containing products.

5.1.2. Paint and Consumer Products

Prior to 2018, the absence of enforceable limits for lead content in paint and toys constituted a significant regulatory gap, thereby exposing consumers, particularly children, to lead poisoning risks. In 2018, the Bangladesh Standards and Testing Institution (BSTI) established standards under the Statutory Regulatory Order (S.R.O.) No. 221-Law/2018. This order defines three standards for various types of paint: BDS 1423:2018 for enamel, synthetic, and exterior paints used for undercoating and finishing applications; BDS 1827:2018 for emulsion paints; and BDS 1833:2018 for economy emulsion paints or distempers. These standards mandate that the lead content in enamel paint, emulsion paint, and distemper must not exceed 90 ppm. However, enforcement and monitoring of these regulations remain insufficient. Additionally, there is currently no standard for lead levels in industrial paint, which is frequently sold and utilized as decorative paint or applied in public spaces.

5.1.3. Food Safety and Food Contaminant Standards (Lead in Food)

Food Safety Act (2013): Under the Food Safety Act, 2013 (Act No. 43 of 2013), Bangladesh established the Bangladesh Food Safety Authority (BFSA) as the apex body to regulate and coordinate activities across food production, import, processing, storage/supply, marketing and

sale to protect the right to safe food. The Act provides an enabling legal basis for food control functions (including inspection, analysis, enforcement, and adjudication through designated Pure Food Courts) and authorizes the Government and BFSA to issue implementing rules and regulations—creating the institutional and regulatory architecture through which standards related to contaminants (including lead) can be operationalized and enforced.

Food Safety (Chemical Contaminants, Toxins and Harmful Residues) Regulations, 2017: The Food Safety (Chemical Contaminants, Toxins and Harmful Residues) Regulations, 2017 (issued by BFSA via S.R.O. under the Food Safety Act, 2013) operationalize controls on chemical hazards by defining concepts such as Maximum Residue Limit (MRL) and establishing schedule-based limits for contaminants, including heavy metals. Notably, the Regulations include a dedicated schedule on “Heavy Metals or any other metallic substance,” specifying maximum tolerable levels for lead across multiple food categories (e.g., milk, edible oils/fats, fruits, vegetables, cereals, meat/offal, salt, and infant formula), thereby providing a concrete compliance benchmark for surveillance, enforcement, and risk management actions related to lead in food.

5.2. Review and Revise Outdated Laws

Bangladesh’s legal framework for managing lead contamination is currently dispersed across multiple sectoral laws and regulations, some of which are outdated, fragmented, or lack enforceable provisions. To ensure a coherent and comprehensive approach, the following reforms are recommended:

- **Harmonize Sectoral Regulations:** Undertake a comprehensive review of the Environmental Conservation Act (1995), National Environmental Policy (2018), Lead-Acid Battery Management Rules (2021), Paint Standards, and other sector-specific regulations to eliminate overlaps, close legal gaps, and harmonize lead limits with WHO/UNEP standards.
- **Enact a National Lead Control Act:** Consolidate all provisions relating to lead content limits, production, import, use, disposal, and recycling into a unified legislation. This Act should clearly define permissible lead limits in paints, toys, cosmetics, food contact materials, batteries, plumbing, and other high-risk products.

- **Update Standards and Testing Protocols:** Mandate BSTI to periodically revise product safety standards for lead based on evolving scientific evidence, and to incorporate internationally recognized testing methodologies such as ISO, ASTM, and WHO-recommended protocols.
- **Integrate Informal Sector Regulation:** Introduce legal provisions to formalize and regulate high-risk informal sector activities (e.g., backyard battery recycling, informal smelting, pigment production) to ensure compliance with environmental, health, and occupational safety standards.
- **Introduce Stronger Penalty Framework:** Revise penalty structures under environmental and product safety laws to make non-compliance economically unviable, including higher fines, license revocation, and public disclosure of violations.

5.3. Strengthen Enforcement Agencies (DOE, BSTI, MoHFW, etc.)

Institutional weaknesses in enforcement continue to be a significant barrier to effective lead control. To address this, the following measures are proposed:

- **Enhance Human Resource Capacity:** Increase staffing levels for DOE's environmental inspectors, BSTI's product safety officers, BFSA officers, and MoHFW's public health surveillance teams, ensuring adequate representation in all divisions and districts.
- **Provide Modern Enforcement Tools:** Equip enforcement agencies with advanced testing and screening equipment (e.g., portable XRF analyzers, ICP-MS for laboratory testing, mobile inspection units) to enable rapid detection of lead in products and the environment.
- **Mandate Inter-Agency Enforcement Protocols:** Establish joint enforcement mechanisms among DOE, BSTI, Customs, DNCRP, and MoHFW to allow coordinated inspections, data sharing, and rapid enforcement action.
- **Implement Real-Time Market Surveillance:** Develop an integrated surveillance platform to monitor imports, manufacturing, and market sales for compliance with lead regulations, linked to customs clearance and BSTI certification.

- **Regular Performance Reviews:** Introduce performance-based monitoring for enforcement agencies, with public reporting on inspection coverage, compliance rates, and enforcement outcomes.

5.4. Build Institutional Capacity and Accountability

To sustain long-term progress towards a lead-free Bangladesh, institutions must be equipped not only with resources but also with systems that ensure accountability and transparency.

- **Establish a National Lead Pollution Control Authority or Strengthen the Multisectoral Steering Committee:** Formalize a central coordinating body with clear legal authority to oversee strategy implementation, coordinate sectoral actions, and report progress to the Cabinet Division.
- **Capacity Building and Professional Development:** Develop continuous training programs for inspectors, lab technicians, policymakers, and health professionals on lead hazards, monitoring techniques, regulatory compliance, and environmental forensics.
- **Accredit and Expand Laboratory Capacity:** Strengthen national laboratory networks for lead testing by accrediting public and private labs, ensuring nationwide coverage and adherence to international quality standards.
- **Institutionalize Public Accountability Mechanisms:** Create public compliance registries, publish annual “State of Lead Exposure” reports, and establish citizen reporting channels for suspected lead hazards.
- **Integrate Lead Governance into Ministry Mandates:** Incorporate lead control objectives into the operational plans and performance indicators of relevant ministries and agencies to ensure institutional ownership and sustained commitment.
- **Establish minimum lead-safe standards for school environments:** Bangladesh should also establish minimum lead-safe standards for school environments, including school construction, repair and repainting practices, drinking water sources and WASH facilities, furniture, learning materials, and play equipment. These standards should be integrated into relevant school infrastructure, maintenance, procurement, and inspection systems to better protect children in learning spaces.

6. Risk Mitigation and Sustainability

6.1. Potential Risks

Implementation of the strategy may be hindered by the following challenges:

- **Policy and Regulatory Risks:** Delays in passing new legislation or revising outdated regulations; lack of harmonization across ministries; weak enforcement of existing laws.
- **Institutional Risks:** Limited coordination among ministries and agencies; insufficient technical capacity and trained personnel; bureaucratic delays in decision-making.
- **Financial Risks:** Inadequate allocation of government funds; dependency on donor financing; private sector reluctance to invest in lead-free technologies without incentives.
- **Market and Industry Risks:** Resistance from industries due to perceived high costs of compliance; illegal production and trade in lead-containing goods; persistence of informal sector activities.
- **Public Awareness Risks:** Limited public understanding of lead hazards; low behavioral change in high-risk groups; misinformation spread through informal channels.
- **External and Environmental Risks:** Global market fluctuations affecting raw material prices; cross-border trade of non-compliant products; natural disasters diverting government priorities and resources.

6.2. Proposed Mitigation Strategies

To address the identified risks, the following mitigation measures are recommended:

- **Policy and Regulatory:** Fast-track legislative reforms; adopt interim administrative orders where possible; establish legal provisions for inter-ministerial coordination and joint enforcement.
- **Institutional:** Strengthen the Multisectoral Steering Committee with clear mandates and adequate resources; appoint dedicated focal points in each ministry; implement performance-based monitoring.

- **Financial:** Diversify funding sources, including domestic budget allocations, donor grants, green bonds, and private sector investments; introduce fiscal incentives (tax rebates, subsidies) for lead-free production.
- **Market and Industry:** Support SMEs in adopting lead-free technologies through technical assistance and financing; enhance market surveillance; impose stricter penalties for repeat violations.
- **Public Awareness:** Scale up risk communication campaigns using multiple media platforms; engage influencers and community leaders to reinforce messages; include lead safety in education curricula.
- **External:** Strengthen cross-border cooperation to harmonize product standards and prevent illicit imports; develop contingency plans to maintain lead control programs during national emergencies.

6.3. Community Involvement and Local Ownership

Sustainability depends on active participation from communities and local stakeholders:

- **Community Engagement Platforms:** Establish community-based lead monitoring committees linked to local government structures to identify hazards, report violations, and support enforcement.
- **Empower Local Leaders:** Train teachers, religious leaders, health workers, and local elected representatives as lead-safety advocates.
- **Participatory Decision-Making:** Involve local communities in the design, monitoring, and evaluation of remediation projects and awareness programs.
- **Support Grassroots Initiatives:** Provide micro-grants for community-led lead hazard mapping, awareness campaigns, and safe product promotion.

6.4. Embed Strategy in National Development Plans and SDGs

To ensure continuity and sustainability, the lead-free agenda must be integrated into broader development frameworks:

- **National Development Plans:** Mainstream lead control measures into the 9th Five-Year Plan, the Delta Plan 2100, and relevant sectoral policies (health, industry, environment, education).
- **SDG Alignment:** Align strategy targets with the Sustainable Development Goals, particularly:
 - **SDG 3:** Good Health and Well-being (Reduce deaths and illnesses from hazardous chemicals)
 - **SDG 6:** Clean Water and Sanitation
 - **SDG 8:** Decent Work and Economic Growth
 - **SDG 11:** Sustainable Cities and Communities
 - **SDG 12:** Responsible Consumption and Production
 - **SDG 13:** Climate Action
 - **SDG 15:** Life on Land
- **Cross-Sector Integration:** Ensure lead elimination objectives are embedded in policies for environmental protection, public health, industrial development, and trade regulation.
- **Institutional Reporting:** Include lead reduction progress indicators in national SDG reporting frameworks to ensure accountability.

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