GLOBAL LEAD PAINT ELIMINATION REPORT

October 2016

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Acknowledgments

We take this opportunity to thank all those who were instrumental in compiling and shaping this report on lead paint elimination and who are working to eliminate lead from paint globally.

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Disclaimer

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IPEN
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Established in 1998, **IPEN** is a network of non-governmental organizations (NGOs) in 116 countries, primarily developing and transition countries. IPEN brings together leading environmental and public health groups around the world to establish and implement safe chemicals policies and practices that protect human health and the environment.

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PREFACE

Beginning in the 1970s and 1980s, most highly industrial countries adopted laws or regulations to control lead paints. Most banned the manufacture, sale and use of lead decorative paints – the paints used on the interiors and exteriors of homes, schools and commercial buildings. Many countries also imposed controls on other lead paints, especially paints and coatings used in the applications most likely to contribute to lead exposure in children.

In 1999 and 2003, academic researchers reported high levels of lead in major brands of decorative paints being sold on the market in India and some other countries in Asia. Starting in 2008, NGOs in the IPEN network began to research the lead content of paints sold in the developing world. The results were startling. In eleven low- and middle-income countries, most of the solvent-based decorative paints purchased and analyzed by IPEN Participating Organizations contained high levels of lead.

In response to these studies and other activities, the Second Session of the International Conference on Chemicals Management (ICCM2) passed a resolution in 2009 identifying lead in paint as an emerging policy issue, endorsed a global partnership to promote phasing out the use of lead in paints, and invited the United Nations Environment Programme (UNEP) and the World Health Organization (WHO) to serve as the secretariat for this global partnership. The partnership was named the Global Alliance to Eliminate Lead Paint (GAELP). GAELP has set a target date of 2020 for all countries having adopted legally binding laws, regulations, standards and/or procedures to control the production, import, sale and use of lead paints, with special attention to the elimination of lead decorative paints and lead paints for other applications most likely to contribute to childhood lead exposure.

With the formation of GAELP, the effort to ban lead in paint became a worldwide movement involving international agencies, regional governing bodies, national governments and NGOs around the globe. In 2015, global elimination of lead in paint by 2020 was unanimously re-affirmed as a global priority issue by 141 government delegates attending the Fourth Session of the International Conference on Chemicals Management (ICCM4).

IPEN launched its Global Lead Paint Elimination Campaign in 2008. The Campaign works at an international level in cooperation with UNEP,

WHO and other partners in GAELP, and at the national level with lead paint elimination campaigns and programs led by non-governmental organizations (NGOs) that promote regulatory controls on lead paint and raise awareness among business entrepreneurs, government officials, and consumers about the adverse human health impacts of lead paint, particularly on the health of children. Since 2008, IPEN has assisted NGOs in sampling and analyzing paints in approximately 40 low- and middle-income countries and developing national lead paint elimination projects and programs in many of these countries.

EXECUTIVE SUMMARY

Lead is a toxic metal that causes adverse effects on both human health and the environment. While lead exposure is harmful to adults, lead exposure harms children at much lower levels, and the health effects are generally irreversible and can have a lifelong impact.

The younger the child, the more harmful lead can be, and children with nutritional deficiencies absorb ingested lead at an increased rate. The human fetus is the most vulnerable, and a pregnant woman can transfer lead that has accumulated in her body to her developing child. Lead is also transferred through breast milk when lead is present in a nursing mother.

Even small amounts of lead can harm a child's nervous system, making it more likely that the child will have difficulties in school and engage in impulsive and violent behavior. Lead exposure in young children has been linked to increased rates of hyperactivity, inattentiveness, failure to graduate from high school, conduct disorder, juvenile delinquency, drug use, and incarceration. The economic cost of childhood lead exposure in low- and middle-income countries is estimated at a total cumulative cost burden of $977 billion international dollars per year.

Most highly industrial countries adopted laws or regulations to control the lead content of decorative paints—the paints used on the interiors and exteriors of homes, schools, and other child-occupied facilities—beginning in the 1970s and 1980s. However, more than 40 lead paint studies over the last eight years show that lead paints are still widely sold in low- and middle-income countries, and many paints contain very high levels of lead.

PROGRESS IN LEAD PAINT ELIMINATION

Success in global lead paint elimination will be achieved when all countries have enforced lead paint regulations and paint companies eliminate lead from paint. However, impressive gains have been made in eliminating lead paint over the last several years.

- ***Greater awareness of lead paint.*** Data on lead paint is now available in 46 countries, with 15 additional studies scheduled for release by IPEN and NGO partners in 2016.
- ***New lead paint standards and regulations***. Binding regulatory controls limiting lead content of paint have been enacted or are pending

Lead Paint Terminology

As used in this booklet:

• "Paint" includes varnishes, lacquers, stains, enamels, glazes, primers, or coatings used for any purpose. Paint is typically a mixture of resins, pigments, fillers, solvents, and other additives.

• "Lead paint" is paint to which one or more lead compounds have been added.

• "Lead pigments" are lead compounds used to give a paint product its color.

• "Lead anti-corrosive agents" are lead compounds used to protect a metal surface from rusting or other forms of corrosion.

• "Lead driers" are lead compounds used to make paint dry more quickly and evenly.

• "Decorative paint" refers to paints that are produced for use on inside or outside walls, and surfaces of homes, schools, commercial buildings, and similar structures. Decorative paints are frequently used on doors, gates, and windows, and to repaint household furniture such as cribs, playpens, tables, and chairs.

• "Solvent-based, enamel decorative paint" or "enamel decorative paint" refers to oil-based paints.

• "PPM" means parts per million total lead content by weight in a dried paint sample.

in 6 Asian countries and 4 African countries. The East African Community (EAC) has adopted mandatory standards restricting the use of lead paint in its five member states.

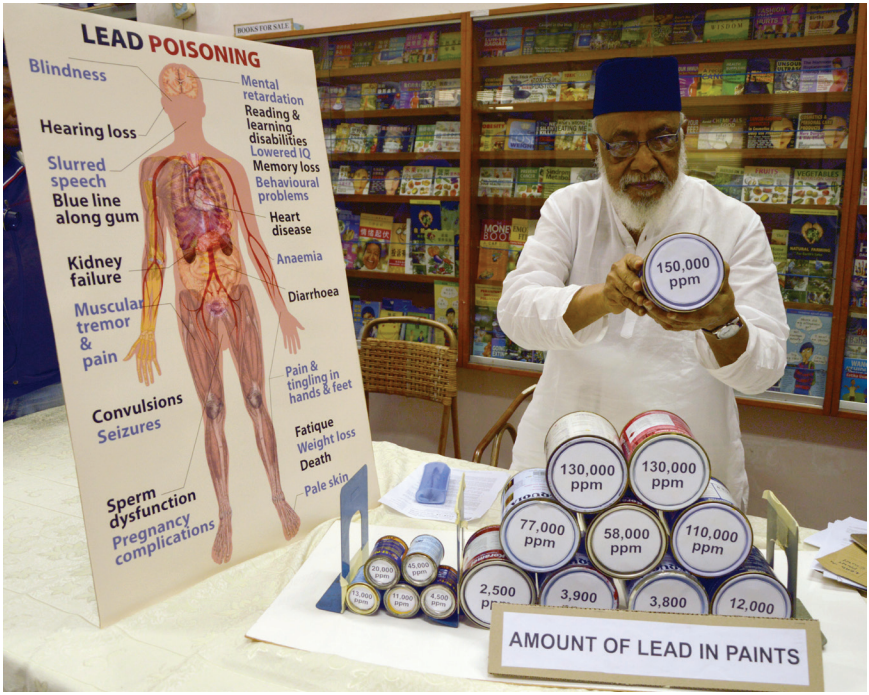
- ***Growing international support.*** The Global Alliance to Eliminate Lead Paint (GAELP), hosted by UNEP and WHO, has developed a toolkit and hosted regional workshops to help governments enact lead paint laws and eliminate lead paint. Its International Lead Poisoning Prevention Week of Action generated activities in nearly 90 cities in 30 countries in 2015.
- ***Major paint producers eliminating lead paint.*** In 2011, Akzo Nobel, the world's second largest paint producer, announced that it had removed lead from all its paint product lines. In 2016, the world's largest paint producer, PPG, announced it had removed leaded ingredients from all its consumer paint brands and products in all countries and will completely phase out the use of lead in its products by 2020. In addition, major Asian paint producers in a number of countries have begun eliminating lead from their paint products.

- ***The world's first lead paint certification program is now in place.*** The Lead Safe Paint® certification program was developed by a multi-stakeholder group in the Philippines, led by the Philippine Association of Paint Manufacturers (PAPM). This program independently verifies that all paints under the certified brand contain less than 90 ppm (dry weight) lead in total. So far leading brands in the Philippines and Sri Lanka have received certification under the program.

STILL MORE NEEDS TO BE DONE

Though much has been accomplished in the last several years, the majority of the countries in the world still do not have binding lead paint regulation and lead paint continues to be widely sold in low- and middle-income countries. Much more needs to be done if we are to achieve the GAELP target date of 2020 for all countries having adopted legally binding laws, regulations, standards and/or procedures to control the production, import, sale and use of lead paints.

- ***More country-level data on lead paint.*** Data on the presence (or absence) of lead paints on the market is currently only available in 23 of the 126 countries that lack regulatory controls on lead paint. It is very difficult for governments to act if there is no clear data demonstrating lead paint is being sold in the marketplace.
- ***Expert assistance in developing regulation to national governments.*** Many countries are willing to adopt paint regulation, but lack the legislative authority and/or the regulatory experience required to establish enforceable regulatory controls on lead in paint.
- ***Ongoing monitoring and enforcement of existing lead paint regulations.*** In several countries where regulatory controls have been adopted and have entered into force, paints with prohibited lead content continue to be manufactured and/or sold. Governments need to ensure that strategies, mechanisms and a budget for monitoring and enforcement are available once the lead paint regulations are in place.
- ***Complete elimination of lead paint.*** Lead paint data collected around the world shows conclusively that in every country where studies have been conducted, some paint companies are producing paint containing less than 90 ppm lead. This demonstrates that eliminating lead in all paints is within the capability of local producers. Moreover, some forward-looking countries, such as the Philippines and Nepal, have adopted regulations that control the lead content of all paint categories, not just decorative paints for home use.



RECOMMENDATIONS

International Agencies

- Ensure that reliable data on the lead content of paints on the market in all countries is generated and made publicly available. It is unrealistic to expect that any country lacking data on the lead content of paints sold on its national market will enact any meaningful and enforceable regulatory controls on the lead content of paint.
- Provide concrete guidance to individual governments seeking assistance in establishing regulatory controls on lead in paint. More regional and in-country meetings are needed to help governments enact strong regulations.

National Governments

- Take steps now to begin developing lead paint regulations. Multi-stakeholder consultations are the best way to address how controls will be formulated and the timeline for their entry into force.

- Ensure that monitoring and enforcement measures are included in lead paint regulations. Establish budgets, protocols and responsibility for monitoring and enforcement.

Paint Manufacturers, Paint Industry Trade Associations and Paint Ingredient Vendors

- Take voluntary action immediately to eliminate lead from all paints, with decorative and other paints used in and around homes and schools as a priority. Ethical manufacturers need not wait for government controls before they act. National, regional and international paint industry trade associations should send clear and strong signals to their members that now is the time to end all manufacture and sale of lead paints.
- Begin the process for eliminating lead from all paints now. Even though lead is now being eliminated in paint for consumer use, additional work and effort should be invested in addressing all paint categories.

Donors

- Make significant new resources available for global lead paint elimination. The total financial and other resources made available so far for global lead paint elimination efforts have been modest to say the least. This should be corrected given the high pay-off that can be achieved by investing in lead paint elimination, especially when compared to the enormous, documented health and economic costs associated with childhood and worker lead exposure.

1. BACKGROUND

1.1 HEALTH IMPACTS OF LEAD EXPOSURE

When lead paint on walls, windows, doors, furniture, playground equipment or other painted surfaces begins to chip or deteriorate, lead is released into the surrounding dust and soil.

Children playing indoors or outdoors get house dust or soil on their hands, and then ingest it through normal hand-to-mouth behavior. If the dust or the soil is contaminated with lead, the children ingest the lead. Keeping children indoors is not a solution as contaminated soil will typically also be transported indoors by wind and/or on shoes and clothes. Hand-to-mouth behavior is especially prevalent in children aged six years and under, the age group most harmed by exposure to lead. A typical one- to six-year-old child ingests between 100 and 400 milligrams of house dust and soil each day.[1]

In some cases, children pick up paint chips and put them directly into their mouths. This can be especially harmful because the lead content of paint chips is typically much greater than what is found in dust and soils. When toys, household furniture, or other articles are painted with lead paint, children may directly ingest the lead-containing, dried paint when chewing on them. Nonetheless, the most common way that children ingest lead is through lead-contaminated dust and soil.[2]

When a surface previously painted with lead paint is sanded or scraped in preparation for repainting, very large amounts of dust contaminated with high levels of lead are produced. Ingestion and inhalation of this dust constitutes an especially severe health hazard for everyone exposed, but especially to children and pregnant women.[3]

The developing brain and organs of children are especially vulnerable and may be harmed even at low levels of lead exposure (below 5 μg/dL) caused by lead in soil or dust.[4] Children absorb up to five times as much ingested lead as adults, and children with nutritional deficiencies absorb ingested lead at even more increased rates.[1]

The younger the child, the more harmful lead can be, and the health effects are generally irreversible and can have a lifelong impact. The human fetus is the most vulnerable, and a pregnant woman can transfer lead that

has accumulated in her body to her developing child.[5] Lead is also transferred through breast milk when lead is present in a nursing mother.[6]

Once lead enters a child's blood stream through ingestion, inhalation, or across the placenta, it has the potential to damage a number of biological systems and pathways. The primary target is the central nervous system and the brain, but low levels of lead can also affect the immune, reproductive and cardiovascular systems, the kidneys, and the skeleton.[1, 7] Lead is also categorized as an endocrine-disrupting chemical (EDC).[8]

It is generally agreed that one key element in lead toxicity is its capacity to replace calcium in neurotransmitter systems, altering their function and structure, and thereby causing neurological impairments and other severe health impacts. Lead is also known to affect and damage cell structure.[9]

When a young child is exposed to even small amounts of lead, the harm to her or his nervous system makes it more likely that the child will have difficulties in school and engage in impulsive and violent behavior.[10] Lead exposure in young children has been linked to increased rates of hyperactivity, inattentiveness, failure to graduate from high school, conduct disorder, juvenile delinquency, drug use, and incarceration.[1] Lead exposure impacts on children continue throughout their life and have long-term impacts on work performance, and—on average—are related to decreased economic success.

According to the World Health Organization (WHO): "Lead has no essential role in the human body, and lead poisoning accounts for about 0.6 percent of the global burden of disease."[1] Evidence of reduced intelligence caused by childhood exposure to lead has led WHO to list "lead-caused mental retardation" as a recognized disease. WHO lists it as one of the top ten diseases whose health burden among children is due to modifiable environmental factors.[11]

In recent years, medical researchers have documented significant health impacts in children from lower and lower levels of lead exposure.[4] According to WHO's fact sheet on *Lead Poisoning and Health*: "There is no known level of lead exposure that is considered safe."[12]

1.2 ECONOMIC IMPACT OF LEAD EXPOSURE

A recent study published in *Environmental Health Perspectives* (a high-impact, U.S. government-supported journal) that investigated the economic cost of childhood lead exposure in low- and middle-income

countries estimated a total cumulative cost burden of $977 billion international dollars[1] per year.[13]

The study predicted the neurodevelopmental effects on lead-exposed children, as measured by reduced IQ points, based on published national data on blood lead levels. The study identified many different sources of lead exposure in children, with lead paint as one major source. The predicted reductions in children's IQ scores were then used to estimate reduction in lifetime economic productivity, as expressed in lifelong earning power. Broken down by region, the economic burden of childhood lead exposure as estimated by this study was:

- **Africa:** $134.7 billion of economic loss, or 4.03% of Gross Domestic Product (GDP)
- **Latin America and the Caribbean:** $142.3 billion of economic loss, or 2.04% of GDP
- **Asia:** $699.9 billion of economic loss, or 1.88% of GDP

1.3 THE USE OF LEAD IN PAINT

Lead paint is typically produced when the paint manufacturer intentionally adds one or more leaded compound to the paint for some purpose. However, a paint product may also contain some amount of lead when paint ingredients contaminated with lead are used, or when there is cross-contamination from other product lines in the same factory. Leaded paint ingredients are most commonly used intentionally in solvent-based paint due to their chemical properties, and solvent-based lead paints have been found in many countries.[14]

The leaded compounds most commonly added to solvent-based paints are pigments. Pigments are used to give the paint its color, make the paint opaque (so it covers well), and protect the paint and the underlying surface from degradation caused by exposure to sunlight. Lead-based pigments are sometimes used alone, and sometimes used in combination with other pigments.

Leaded compounds may also be added to enamel paints for use as driers (sometimes called drying agents or drying catalysts). Leaded compounds

1 An international dollar is a currency unit used by economists and international organizations to compare the values of different currencies. It adjusts the value of the U.S. dollar to reflect currency exchange rates, purchasing power parity (PPP), and average commodity prices within each country. According to the World Bank, "*An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States.*" The international dollar values in this report were calculated from a World Bank table that lists GDP per capita by country based on purchasing power parity and expressed in international dollars.

are also sometimes added to paints used on metal surfaces to inhibit rust or corrosion.

Non-leaded pigments, driers, and anti-corrosive agents have been widely available for decades, and are used by manufacturers producing the highest quality paints in all regions of the world. When a paint manufacturer does not intentionally add lead compounds in its paints and takes reasonable care to avoid the use of paint ingredients that are contaminated with lead, the lead content of the paint will be low—less than 90 parts per million (ppm) lead in total of the dry weight of the paint.

1.4 REGULATION OF LEAD PAINT

Most highly industrial countries adopted laws or regulations to control the lead content of decorative paints in the 1970s and 1980s. Most also imposed controls on the lead content of paints used on toys and for other applications likely to contribute to lead exposure in children. These regulatory actions were taken based on scientific and medical findings that lead paint is a major source of lead exposure in children, and that lead exposure in children causes serious harm, especially to children aged six years and under.[1]

The use of lead in the production of paint is prohibited in the European Union through regulations related to workers' health and safety of consumer products, with specific prohibitions for leaded raw materials. In addition, a number of countries have established mandatory regulations specifying the maximum total lead content allowed in household and other paints. The most protective maximum regulatory limits on lead in household paints have been set at 90 parts per million (ppm) total lead content by the United States, Canada, the Philippines, and Nepal. Several other countries are now also considering the adoption of this regulatory standard, which ensures that a manufacturer can sell its paint anywhere in the world. Thailand has a mandatory limit of 100 ppm total lead, while countries like South Africa, Brazil, Uruguay, Sri Lanka, and some other countries have regulatory limits of 600 ppm total lead. In most of these countries, the 600 ppm limit was based on a U.S. standard, which was subsequently revised to be 90 ppm.

2. STATUS OF GLOBAL LEAD PAINT ELIMINATION

2.1 PROGRESS TOWARD GLOBAL LEAD PAINT ELIMINATION

Success in global lead paint elimination will be achieved when all countries have enforced lead paint regulations and paint companies eliminate lead from paint. However, impressive gains have been made over the last several years.

Awareness that lead paint is widely available and a severe health hazard is growing

Data on lead paint in 46 countries is now available, with 15 additional paint studies scheduled for release by IPEN and NGO partners in 2016. More data on lead paint has increased awareness and led to widespread global action. One of the most notable activities is the International Lead Poisoning Prevention Week of Action (LPPWA), first organized in 2013 by the Global Alliance to Eliminate Lead Paint (GAELP) under the leadership of World Health Organization (WHO) and United Nations Environment Programme (UNEP). In 2015, ILPPWA events were held in 87 cities in 39 countries.

A number of countries have made progress in developing and implementing lead paint standards and regulations

Active lead paint elimination campaigns conducted at both national and international levels have resulted in binding regulatory controls limiting lead content of paint enacted or pending in a number of countries. For example, six out of seven Asian countries where NGOs actively campaigned for lead paint elimination from 2012 to 2015 now have enacted regulation or have regulation pending. Legally binding standards on lead in paint are also underway in Ethiopia, Cameroon, Kenya and Tanzania. In addition, the East African Community (EAC) has adopted mandatory standards restricting the use of lead paint that its five member states (Kenya, Tanzania, Uganda, Rwanda and Burundi) are required to implement in their national regulatory systems.

International support for lead paint elimination has grown exponentially

Global efforts to eliminate lead paint have increased steadily in intensity and commitment since the first resolution on lead paint was introduced at the World Health Summit in 2002. Resolutions issued at consecutive sessions of the International Conference on Chemicals Management (ICCM) have encouraged governments and other stakeholders to contribute to the goal of phasing out lead paint globally by the year 2020.

The Global Alliance to Eliminate Lead Paint (GAELP), hosted by UNEP and WHO, brings together governments, industry and civil society in support of global, regional and country-level initiatives to eliminate lead paint. As noted above, the International Lead Poisoning Prevention Week of Action is one such initiative. GAELP also developed, promotes, and conducts regional workshops on its *Toolkit for Establishing Laws to Control the Use of Lead in Paint*. This toolkit provides comprehensive information and references designed for use by government officials and others who have an interest in establishing legal limits on lead paints in their countries.

GAELP regional workshops have so far been organized in South Asia, East Africa and Eastern Europe, and more are being considered. Utilizing the opportunity to bring together stakeholders from government, civil society and industry, these workshops help encourage governments to act individually as well as through regional cooperation, and they have also created opportunities for more targeted follow-up activities.

Major paint producers are eliminating lead from all paint products

The short-term goal at the formation of GAELP was to prioritize the elimination of lead from decorative paints and paints for other applications most likely to contribute to childhood lead exposure, with a longer term goal of elimination of lead from all paint and coating products by the year 2020. Momentum is now beginning to build toward eliminating lead from all paint, as shown by initiatives from international manufacturers to eliminate lead from other categories of paint and coating products such as automotive paints (OEM and refinish), structural primers, marine paints, and all other industrial and specialty paint and coating products. Some newly enacted regulations, for example, restrict the use of lead in all paints, but provide a longer time period before the restriction comes into force in order to give manufacturers enough time to reformulate all their lead paint products.

In 2011, Akzo Nobel, the world's second largest paint producer[15] and a member of the Advisory Group of GAELP, announced that it had removed

lead from all its paint product lines. In 2016, the world's largest paint producer,[15] PPG, announced it had removed leaded ingredients from all its consumer paint brands and products in all countries. PPG additionally pledged that by 2020, it will remove lead from all paint and coatings products it manufactures.

In addition, major Asian paint producers in a number of countries have begun eliminating lead from their paint products, often in response to on-the-ground campaigning by NGOs together with the work of other GAELP stakeholders. (For more details see the regional and country reports on pages 18-38 below.)

The world's first lead paint certification program is now in place

The Lead Safe Paint® certification program was developed by a multi-stakeholder group in the Philippines, led by the Philippine Association of Paint Manufacturers (PAPM). This program verifies that all paints under the certified brand contain less than 90 ppm (dry weight) lead in total.

In 2016, two leading paint companies in the Philippines, Pacific Paint (Boysen) Philippines, Inc. and Davies Paints Philippines, Inc., became the first to receive Lead Safe Paint® certification from the world's first, independent, third-party, lead paint certification program. In the same year, Multilac, one of the leading paint manufacturers in Sri Lanka, also received certification, with additional paint manufacturers in Bangladesh and Kenya expressing interest in the program.

REGIONAL AND COUNTRY PROGRESS TOWARD ELIMINATING LEAD PAINT

When IPEN launched its Global Lead Paint Elimination Campaign in 2008, studies by IPEN and others suggested that lead paint for home and school use was being sold in nearly all low- and middle-income countries. Since that time, real progress in eliminating lead paint has occurred in Asia and Latin America, and lead paint elimination activities are now underway in every region in the world.

WESTERN EUROPE AND OTHER DEVELOPED NATIONS

The sale of lead paints has been prohibited in highly industrialized countries for 40 years or more. In most cases, however, these regulations have applied only to paints sold for so-called consumer use, i.e., for use in and around homes and schools. Less attention has been given to hazards associated with legacy lead paints already present on walls and surfaces and lead in most categories of paint marketed for non-consumer use. Although the present global effort is focused on taking action in low- and middle-income countries, the phase out of lead in all categories of paints now appears to be gaining momentum in the highly industrialized countries of Western Europe, North America and other countries.

An important exception is Japan, which has never adopted any legally-binding regulatory controls on lead in paint. No public data on the lead content of paints for consumer use in Japan is available. However, government officials have given assurance that there is no problem, and in December 2015, the Japan Paint Manufacturers Association released a "Revised Resolution of Japan Manufacturers Association (JPMA) for elimination of leaded paints,"[16] which called on all Japanese paint manufacturers to voluntarily eliminate by March 2019 the use of lead in paints for "general usages such as interior/exterior decorative paints."

LATIN AMERICA AND THE CARIBBEAN

Argentina, Brazil, Chile, Costa Rica, Dominica, Mexico, Panama, Trinidad and Tobago and Uruguay have adopted binding regulatory controls that limit lead in paint to 600 ppm.[17] The governments of Bolivia, Ecuador, Colombia and Peru have expressed interest in working with the United Nations Industrial Development Organization (UNIDO) to develop enforceable regulatory controls.[18] In a report to UNEP, the government of Paraguay said that it is working on developing a lead paint regulation,[19] and several Central American and Caribbean countries attending a meeting on lead paint at the 2016 United Nations Environment Assembly have requested that UNEP propose actions that can be undertaken by governments to limit lead in paint.

LEAD PAINT DATA FOR COUNTRIES IN LATIN AMERICA AND THE CARIBBEAN

ARGENTINA

NGO partner: **Taller Ecologista**

- Number of available paint studies: 1
- Results from most recent study[1] (2013):
  - 30 solvent-based paints from 12 brands analyzed
  - 23% of paints had a lead content greater than 90 ppm
  - 17% of paints had a lead content greater than 10,000 ppm

Regulation: Law No 18.609 (1970), Ministerial Resolutions Nº 7/2009, Nº 436/2009, Nº 523/2009, Nº 453/2010 and Nº 39/2011 prohibits the manufacture and import of paints, lacquers and varnishes containing more than 600 ppm lead.

BRAZIL

NGO partner: **APROMAC Environment Protection Association** and **TOXISPHERA Environmental Health Association**

- Number of available paint studies: 2
- Results from most recent study[2] (2014):
  - 20 solvent-based paints from 8 brands analyzed
  - 30% of paints had a lead content greater than 600 ppm
  - 10% of paints had a lead content greater than 10,000 ppm

Regulation: Law 11.762/2008 prohibits paint with lead content greater than 600 ppm, with exceptions for use in industry and agriculture equipment, traffic paint and other industrial applications.

CHILE

NGO partner: **Observatorio Latinoamericano de Conflictos Ambientales (OLCA)**

- Number of available paint studies: 1
- Results from most recent study[1] (2013):
  - 23 solvent-based paints from 6 brands analyzed
  - 4% of paints had a lead content greater than 90 ppm
  - 0% of paints had a lead content greater than 10,000 ppm

Regulation: Chile's Health Ministry promulgated a decree in 1997 establishing a maximum lead content in paints, varnishes and similar coating materials of 600 ppm. Exceptions include products intended for agricultural and industrial equipment, bridges, road markings, artists' materials and other applications.

COLOMBIA

NGO partner: **COLNODO**

- Number of available paint studies: 1
- Results from most recent study[3] (2016):
  - 39 solvent-based paints from 11 brands analyzed
  - 64% of paints had a lead content greater than 600 ppm
  - 59% of paints had a lead content greater than 10,000 ppm

Regulation: Colombia does not have any regulation limiting the manufacture, sale, import or use of lead paint.

ECUADOR

- Number of available paint studies: 1
- Results from most recent study[4] (2009):
  - 10 solvent-based paints from 2 paint companies analyzed
  - 70% of paints had a lead content greater than 90 ppm
  - % of paints with a lead content greater than 10,000 ppm not available

Regulation: Peru does not have any regulation limiting the manufacture, sale, import or use of lead paint.

MEXICO

NGO partner: **Red de Acción en Plaguicidas y sus Alternativas en México (RAPAM)/Centro de Analisis y Acción en Tóxicos y sus Alternativas (CAATA)**

- Number of available paint studies: 1
- Results from most recent study[5] (2009):
  - 20 solvent-based paints from 7 brands analyzed
  - 100% of paints had a lead content greater than 90 ppm
  - 100% of paints had a lead content greater than 10,000 ppm

Regulation: NOM-003-SSA1-2006 sets the limit of lead content to 600 ppm (0.06%). Products involved: paints, enamels, coatings and inks; glazed pottery, glazed pottery and porcelain for storage or processing of food and / or beverages, toys, pencils, pens, coloured drawing, plasticine and other articles; cosmetics; furniture, paints, emulsions and enamels for exterior and interior of residential buildings, offices, schools, hospitals and kindergartens. Exceptions include: coatings for automotive vehicles and industrial or agricultural and gardening equipment

PARAGUAY

NGO partner: **AlterVida**

- Number of available paint studies: 1
- Results from most recent study[6] (2015):
  - 15 solvent-based paints from 5 brands analyzed
  - 27% of paints had a lead content greater than 90 ppm
  - 20% of paints had a lead content greater than 10,000 ppm

Regulation: Paraguay does not have any regulation limiting the manufacture, sale, import or use of lead paint.

PERU

- Number of available paint studies: 1
- Results from most recent study[4] (2009):
  - 10 solvent-based paints from 2 paint companies analyzed
  - 90% of paints had a lead content greater than 90 ppm
  - 40% of paints had a lead content greater than 10,000 ppm

Regulation: Ecuador does not have any regulation limiting the manufacture, sale, import or use of lead paint

URUGUAY

NGO partner: **Pesticide Action Network Uruguay**

- Number of available paint studies: 1
- Results from most recent study[1] (2013):
  - 30 solvent-based paints from 10 brands analyzed
  - 0% of paints had a lead content greater than 90 ppm
  - 0% of paints had a lead content greater than 10,000 ppm

Regulation: Uruguay's Ministry of Housing, Spatial Planning and the Environment and its Ministry of Industry Energy and Mining promulgated a law in 2004 establishing a maximum lead content in paints, varnishes and similar coating materials of 600 ppm.

NGO partner in the following country will release a report with new data on lead paint in 2016/2017:

Argentina

ASIA & THE PACIFIC

According to UNEP, until recently the Republic of South Korea (600 ppm total lead) and China (90 ppm soluble lead) were the only Asian countries with binding regulatory limits on lead paint.[17] However, regulatory controls have now been adopted in Nepal, the Philippines Sri Lanka and Thailand. Regulatory controls are under active consideration and close to completion in Bangladesh, India, and Indonesia.

Analytical studies conducted at the start of IPEN´s Global Campaign in 2008 showed that lead paint for consumer use was widely available in many countries in South and Southeast Asia.

In 2012, IPEN initiated a focused effort in these regions with substantial funding from the European Union and other donors, resulting in high-profile, national lead paint elimination campaigns led by NGOs in seven Asian countries (Bangladesh, India, Indonesia, Nepal, the Philippines, Sri Lanka, and Thailand).

These campaigns generated ongoing media interest in the lead paint elimination issue and led to growing public awareness. In response, paint brands with majority market share eliminated lead from their consumer paints, and, as noted above, a number of governments enacted regulation. More recently, NGOs in the IPEN network have initiated lead paint elimination activities in several additional South and Southeast Asian countries, including Malaysia, Pakistan, and Vietnam.

China adopted standards that defined limits on lead content of various types of paint in 2009. However, paint studies conducted by IPEN and others found many brands of solvent-based decorative paints with high lead content for sale in China. The same is true for many paint brands exported from China to neighboring countries. Additionally, China is the world's major producer and distributor of lead chromate pigments and lead drying catalysts that are used to make lead paint in countries around the world.

The Chinese government is now collaborating with UNEP and paint industry trade associations on a project that aims to establish effective controls on lead in paints by 2020. The project's objectives are to "minimize and ultimately eliminate the manufacture, export, import, sale and use of decorative lead paint in China by promoting the elimination of the use of lead paints in China."

LEAD PAINT DATA FOR COUNTRIES IN ASIA AND THE PACIFIC

BANGLADESH

NGO partner: **Environment and Social Development Organization (ESDO)**

- Number of available paint studies: 4
- Results from most recent study[7] (2015):
  - 56 solvent-based paints from 24 brands analyzed
  - 77% of paints had a lead content greater than 90 ppm
  - 34% of paints had a lead content greater than 10,000 ppm

Regulation: Bangladesh does not have any regulation limiting the manufacture, sale, import or use of lead paint.

CHINA

NGO partner: **Insight Explorer**

- Number of available paint studies: 3
- Results from most recent study[8] (2016):
  - 141 solvent-based paints from 47 brands analyzed
  - 50% of paints had a lead content greater than 600 ppm
  - 34% of paints had a lead content greater than 10,000 ppm

Regulation: Standards for various types of paint that include a lead limit of 90 parts per million, as measured by migration of lead from the dry paint, were introduced in China in 2008.

INDIA

NGO partner: **Toxics Link**

- Number of available paint studies: 5
- Results from most recent study[9] (2015):
  - 101 solvent-based paints from 64 brands analyzed
  - 95% of paints had a lead content greater than 90 ppm
  - 46% of paints had a lead content greater than 10,000 ppm

Regulation: India's Bureau of Indian Standards (BIS) issued a voluntary 90 ppm lead limit standard in paints. However, the Ministry of Environment, Forest and Climate issued a notification in April 2016 on a draft Regulation on Lead contents in Household and Decorative Paints Rules that limits the total lead content of household and decorative paints to 90 ppm. This is expected to be enacted in 2016.

INDONESIA

NGO partner: **BaliFokus Foundation**

- Number of available paint studies: 3
- Results from most recent study[10] (2015):
  - 121 solvent-based paints from 63 brands analyzed
  - 83% of paints had a lead content greater than 90 ppm
  - 41% of paints had a lead content greater than 10,000 ppm

Regulation: Indonesia does not have a legally binding limit of lead in paint. However, the National Standardization Agency of Indonesia has issued voluntary standards that limits the total lead content of various paints to 600 ppm

JORDAN

NGO partner: **Land and Human to Advocate Progress (LHAP)**

- Number of available paint studies: 1
- Results from most recent study[11] (2012):
  - 17 solvent-based paints from 16 companies analyzed
  - 18% of paints had a lead content greater than 90 ppm
  - 0% of paints had a lead content greater than 10,000 ppm

Regulation: Jordan has a legally-binding standard that applies to all lead compounds setting a limit of 0.06% (600 ppm) for lead in paint. Exceptions for industrial paints, car paints, road paints, artists' paint

LEBANON

NGO partner: **Indy Act**

- Number of available paint studies: 1
- Results from most recent study[6] (2015):
  - 15 solvent-based paints from 6 brands analyzed
  - 80% of paints had a lead content greater than 90 ppm
  - 53% of paints had a lead content greater than 10,000 ppm

Regulation: Lebanon does not have any regulation limiting the manufacture, sale, import or use of lead paint.

MALAYSIA

NGO partner: **Consumers' Association of Penang (CAP)**

- Number of available paint studies: 3
- Results from most recent study[12] (2016):
  - 39 solvent-based paints from 18 brands analyzed
  - 41% of paints had a lead content greater than 600 ppm
  - 31% of paints had a lead content greater than 10,000 ppm

Regulation: Malaysia does not have any regulation limiting the manufacture, sale, import or use of lead paint. However, the Ministry of Domestic Trade, Co-operatives and Consumerism (MDTCC) regulates mandatory safety standards for toys intended for children aged below 14 years old. Under the MS ISO 8124-3 Safety of Toys Part 3 Migration of Certain Elements the maximum acceptable migration of lead in paint shall not be more than 90 ppm.

NEPAL

NGO partner: **Center for Public Health and Environmental Development (CEPHED)**

- Number of available paint studies: 5
- Results from most recent study[13] (2015):
  - 87 solvent-based paints from 35 brands analyzed
  - 89% of paints had a lead content greater than 90 ppm
  - 44% of paints had a lead content greater than 10,000 ppm

Regulation: Nepal enacted a mandatory limit of 90 ppm total lead content for any paint imported, produced, sold or used in Nepal in December 2014 and which took effect on June 20, 2015. Paint can labels are required to show lead content and provide a precautionary message to avoid occupational exposures.

PHILIPPINES

NGO partner: **EcoWaste Coalition**

- Number of available paint studies: 4
- Results from most recent study[14] (2015):
  - 140 solvent-based paints from 44 brands analyzed
  - 69% of paints had a lead content greater than 90 ppm
  - 45% of paints had a lead content greater than 10,000 ppm

Regulation: Philippines' Chemical Control Order for Lead and Lead Compounds, promulgated in December 2013 establishes a 90 ppm total lead limit in paint and stipulates a three year phase-out for lead-containing architectural, decorative and household paints (2013-2016) and six years for lead-containing paints for industrial applications (2013-2019).

SINGAPORE

- Number of available paint studies: 1
- Results from most recent study[4] (2009):
  - 41 solvent-based paints from 7 paint companies analyzed
  - 44% of paints had a lead content greater than 90 ppm
  - 7% of paints had a lead content greater than 10,000 ppm

Regulation: Singapore has included paint with a total lead content above 600 ppm on their list of controlled hazardous substances, which means that any person who wishes to import, sell or export, any hazardous substance controlled under the EPMA must obtain a Hazardous Substances License

SRI LANKA

NGO partner: **Centre for Environmental Justice (CEJ)**

- Number of available paint studies: 3
- Results from most recent study[15] (2015):
  - 56 solvent-based paints from 37 brands analyzed
  - 46% of paints had a lead content greater than 600 ppm
  - 21% of paints had a lead content greater than 10,000 ppm

Regulation: Sri Lanka's Gazette Extra Ordinary No 1725/30 issued on September 30, 2011 establishes a mandatory 600 ppm total standard for lead for enamel and floor paints and 90 ppm soluble lead for paints used for children's toys and accessories and emulsion paints for exterior and interior use. Regulation came into effect on January 1, 2013.

TAIWAN

NGO partner: **Taiwan Watch Institute**

- Number of available paint studies: 2
- Results from most recent study[16] (2016):
  - 47 solvent-based paints from 8 brands analyzed
  - 66% of paints had a lead content greater than 600 ppm
  - 47% of paints had a lead content greater than 10,000 ppm

Regulation: Taiwan does not have any regulation limiting the manufacture, sale, import or use of lead paint.

THAILAND

NGO partner: **Ecological Alert and Recovery (EARTH)**

- Number of available paint studies: 3
- Results from most recent study[17] (2015):
  - 100 solvent-based paints from 56 brands analyzed
  - 62% of paints had a lead content greater than 100 ppm
  - 40% of paints had a lead content greater than 10,000 ppm

Regulation: Thailand's Thai Industrial Standard for Alkyd Enamel Paints (TIS 2625-2557), issued on January 29, 2016, requires that all enamel paints manufactured or sold in Thailand and used for construction and decorative purposes must contain no more than 0.01% (100 ppm) lead, mercury and cadmium (dry weight) and must not exceed 0.1% (1,000 ppm) hexavalent chromium (dry weight). The regulation takes effect January 2017.

VIETNAM

NGO partner: **Research Centre for Gender, Family and Environment in Devolopment (CGFED)**

- Number of available paint studies: 1
- Results from most recent study[18] (2016):
  - 26 solvent-based paints from 11 brands analyzed
  - 54% of paints had a lead content greater than 600 ppm
  - 19% of paints had a lead content greater than 10,000 ppm

Regulation: Vietnam does not have any regulation limiting the manufacture, import or use of lead paint.

NGO partners in the following countries will release reports with new data on lead paint in 2016/2017:

Pakistan, Mongolia

AFRICA

South Africa has adopted binding, regulatory controls limiting lead in decorative paint to 600 ppm. Though both Zimbabwe and Algeria have regulations limiting the lead content of paint, the standards in these countries – 10,000 ppm in Zimbabwe and 5,000 ppm in Algeria – are not health protective.[17]

In May the East African Community (EAC) adopted a 100 ppm lead limit in their new standards for various types of paint, as measured by migration of lead from the paint. This is legally binding for its member states (Tanzania, Kenya, Burundi, Rwanda, and Uganda) and has to be implemented in each country in November 2016. The standard will come into force within three years in the EAC countries.

Government delegates from Kenya and Tanzania participating in the East Africa Workshop on the Development of National and Regional Regulations and Standards on Lead in Paints organized by the United Nations Environment Programme (UNEP) in September 2016 agreed to work in the coming months to justify a revision of this limit to 90 ppm, measured as total lead content.

IPEN is currently collaborating with NGOs and government officials in more than 10 African countries on efforts to establish regulatory controls, with funding from the Global Environment Facility (GEF), the New York Community Trust, and other donors, and with support from UNEP and other GAELP partners.

In September, 2016, the Tanzanian Bureau of Standards announced that Tanzania plans, over the next four years, to remove all paints with lead substances from the market. Lead paint regulations are now under active consideration by the governments of Cameroon, Côte d'Ivoire, Ethiopia, and Kenya. Government representatives from these and ten other African countries (Benin, Burundi, Congo, Ghana, Malawi, Nigeria, Rwanda, Sudan, Uganda, and Zambia) participated in a UNEP-sponsored capacity-building workshop in 2015 and all agreed to cooperate to phase out the use of lead in paint by 2020. These government delegates also agreed that African countries should adopt a total lead limit of 90 parts per million for all paints.

LEAD PAINT DATA FOR COUNTRIES IN AFRICA

CAMEROON

NGO partner: **Centre de Recherche et d'Education pour le Développement (CREPD)**

- Number of available paint studies: 3
- Results from most recent study[19] (2015):
  - 35 solvent-based paints for decorative purposes from 21 brands analyzed
    - → 54% of paints had a lead content greater than 90 ppm
    - → 23% of paints had a lead content greater than 10,000 ppm
  - 19 anticorrosive and automotive paints used for decorative purposes from 10 brands
    - → 42% of paints had a lead content greater than 90 ppm
    - → 21% of paints had a lead content greater than 10,000 ppm

Regulation: Cameroon does not have any regulation limiting the manufacture, sale, import or use of lead paint.

COTE D'IVOIRE

NGO partner: Jeunes Volontaires pour l'Environnement (JVE)

- Number of available paint studies: 2
- Results from most recent study[20] (2015):
  - 44 solvent-based paints from 13 brands analyzed
    - → 75% of paints had a lead content greater than 90 ppm
    - → 36% of paints had a lead content greater than 10,000 ppm
  - 5 anticorrosive paints used for decorative purposes from 5 brands
    - → 90% of paints had a lead content greater than 90 ppm
    - → 0% of paints had a lead content greater than 10,000 ppm

Regulation: Cote d'Ivoire does not have any regulation limiting the manufacture, sale, import or use of lead paint

EGYPT

- Number of available paint studies: 1
- Results from most recent study[4] (2009):
  - 20 solvent-based paints from 4 paint companies analyzed
  - 65% of paints had a lead content greater than 90 ppm
  - % of paints with a lead content greater than 10,000 ppm not available

Regulation: Egypt does not have any regulation limiting the manufacture, sale, import or use of lead paint.

ETHIOPIA

NGO partner: **Pesticide Action Nexus Association**

- Number of available paint studies: 2
- Results from most recent study[21] (2015):
  - 36 solvent-based paints from 9 brands analyzed
  - 78% of paints had a lead content greater than 90 ppm
  - 47% of paints had a lead content greater than 10,000 ppm

Regulation: Ethiopia does not have any regulation limiting the manufacture, import or use of lead paint

GHANA

NGO partner: **Ecological Restorations**

- Number of available paint studies: 1
- Results from most recent study[1] (2013):
  - 18 paints from 8 brands analyzed
  - 33% of paints had a lead content greater than 90 ppm
  - 17% of paints had a lead content greater than 10,000 ppm

Regulation: Ghana does not have any regulation limiting the manufacture, sale, import or use of lead paint

KENYA

NGO partner: **iLima**

- Number of available paint studies: 1
- Results from most recent study[22] (2013):
  - 31 solvent-based paints from 11 brands analyzed
  - 87% of paints had a lead content greater than 90 ppm
  - 29% of paints had a lead content greater than 10,000 ppm

Regulation: Kenya is a member of the East Africa Community, where newly adopted paint standards limit the lead content of various types of paint to 100 ppm, measured as lead migration from the dry paint.

NIGERIA

NGO partner: **SRADev**

- Number of available paint studies: 1
- Results from most recent study[5] (2009):
  - 23 solvent-based paints from 6 brands analyzed
  - 100% of paints had a lead content greater than 90 ppm
  - 65% of paints had a lead content greater than 10,000 ppm

Regulation: Nigeria does not have any regulation limiting the manufacture, sale, import or use of lead paint.

SENEGAL

NGO partner: **Pesticide Action Network**

- Number of available paint studies: 1
- Results from most recent study[5] (2009):
  - 21 solvent-based paints from 6 brands analyzed
  - 86% of paints had a lead content greater than 90 ppm
  - 14% of paints had a lead content greater than 10,000 ppm

Regulation: Senegal does not have any regulation limiting the manufacture, sale, import or use of lead paint.

SEYCHELLES

- Number of available paint studies: 1
- Results from most recent study[4] (2009):
  - 28 solvent-based paints from 2 paint companies analyzed
  - 68% of paints had a lead content greater than 90 ppm
  - 43% of paints had a lead content greater than 10,000 ppm

Regulation: Seychelles does not have any regulation limiting the manufacture, sale, import or use of lead paint.

SOUTH AFRICA

NGO partner: **GroundWork-Friends of the Earth**

- Number of available paint studies: 1
- Results from most recent study[5] (2009):
  - 29 solvent-based paints from 5 brands analyzed
  - 66% of paints had a lead content greater than 90 ppm
  - 31% of paints had a lead content greater than 10,000 ppm

Regulation: Leaded paint is defined as paint containing lead or lead compounds used for decorating with a total lead content of 0.06% (600 ppm) and above of the total non-volatile content. Such paint is declared to be a Group 1, category A hazardous substance. It can only be handled and sold by licensed individuals and cannot be supplied to anyone under 16 yrs. Records must be kept. Exclusions to this categorization include industrial paints, paint for road markings, graphic art coatings and others. Precautionary labelling is required on paint containing more than 600 ppm of lead, including that such paints should not be used for domestic purposes or on toys or furniture to which children may be exposed.

TANZANIA

NGO partner: **AGENDA**

- Number of available paint studies: 2
- Results from most recent study[23] (2015):
  - 56 solvent-based paints from 11 brands analyzed
  - 64% of paints had a lead content greater than 90 ppm
  - 23% of paints had a lead content greater than 10,000 ppm

Regulation: Tanzania is a member of the East Africa Community, where newly adopted paint standards limit the lead content of various types of paint to 100 ppm, measured as lead migration from the dry paint.

TUNISIA

NGO partner: **Association d'Education Environnementale pour la Future Génération (AEEFG)**

- Number of available paint studies: 1
- Results from most recent study[1] (2013):
  - 30 solvent-based paints from 16 brands analyzed
  - 70% of paints had a lead content greater than 90 ppm
  - 27% of paints had a lead content greater than 10,000 ppm

Regulation: Tunisia does not have any regulation limiting the manufacture, sale, import or use of lead paint.

UGANDA

NGO partner: **Uganda Network on Toxic Free Malaria Control (UNETMAC)**

- Number of available paint studies: 1
- Results from most recent study[24] (2012):
  - 50 solvent-based paints from 8 brands analyzed
  - 26% of paints had a lead content greater than 90 ppm
  - % of paints with a lead content greater than 10,000 ppm not available

Regulation: Uganda is a member of the East Africa Community, where newly adopted paint standards limit the lead content of various types of paint to 100 ppm, measured as lead migration from the dry paint

NGO partners in the following countries will release reports with new data on lead paint in 2016/2017:

Zambia, Togo, Benin, Sudan, Morocco, Nigeria, Uganda, Kenya, Cameroon, Cote d'Ivoire, Ethiopia, Tanzania

CENTRAL AND EASTERN EUROPE

According to UNEP, Belarus and Armenia have binding, regulatory controls on lead paint. But these controls – 5,000 ppm in both countries – are not health protective. The Kyrgyz Republic has set a 90 ppm maximum allowable limit for lead content in paint; however, a 2013 study on paints sold in Kyrgyz Republic showed that most paints exceeded this limit. Macedonia and Montenegro have binding lead paint limits of 90 ppm, according UNEP.[17]

At a 2016 UNEP-sponsored workshop (Central and Eastern Europe and Central Asia Regional Workshop on the Establishment of Legal Limits on Lead Paint), government participants from twelve countries (Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, the Kyrgyz Republic, Macedonia, Moldova, Montenegro, Serbia, and Tajikistan) discussed issues related to enacting and enforcing legally binding limits in these countries.

The five countries that form the Eurasian Economic Union – Armenia, Belarus, Kazakhstan, the Kyrgyz Republic, and Russia – have agreed to common Technical Regulations for controlling the lead content of paints for interior use in the framework of their common Customs Union. The details — including when the Technical Regulations will enter into force, the Regulations' precise provisions, and how compliance will be monitored and enforced — are not yet publicly available.

A second group of countries have indicated interest in bringing their national environmental regulations into alignment with EU regulations, including regulatory controls on lead in paint. These countries include: Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro and Serbia.

Other countries in the region are also pursuing regulatory controls, including Moldova (which is a member of the GAELP Advisory Group), Ukraine (where the Organization for Security and Cooperation in Europe has staff working with the government to develop regulatory controls), and others.

LEAD PAINT DATA FOR COUNTRIES IN CENTRAL AND EASTERN EUROPE

ARMENIA

NGO partner: **Armenian Women for Health and Healthy Environment NGO**

- Number of available paint studies: 2
- Results from most recent study[25] (2016):
  - 49 solvent-based paints from 20 brands analyzed
  - 61% of paints had a lead content greater than 90 ppm
  - 18% of paints had a lead content greater than 10,000 ppm

Regulation: All paints are subject to compulsory state registration and testing. According to the uniform sanitary requirements, paints used for buildings lived in or used by people must not contain driers containing metals or other chemicals belonging to hazard class 1 in quantities greater than 0.5% (5,000 ppm) dry residue. Paints must not contain lead-containing pigments of chemical hazard class 1 in quantities greater than 15% (150,000 ppm) dry residue.

AZERBAIJAN

NGO partner: **Ruzgar Ecological Society**

- Number of available paint studies: 1
- Results from most recent study[1] (2013):
  - 30 solvent-based paints from 16 brands analyzed
  - 77% of paints had a lead content greater than 90 ppm
  - 7% of paints had a lead content greater than 10,000 ppm

Regulation: Azerbaijan does not have any regulation limiting the manufacture, import or use of lead paint.

BELARUS

NGO partner: **Center for Environmental Solutions**

- Number of available paint studies: 1
- Results from most recent study[5] (2009):
  - 22 solvent-based paints from 13 brands analyzed
  - 82% of paints had a lead content greater than 90 ppm
  - 9% of paints had a lead content greater than 10,000 ppm

Regulation: All paints are subject to compulsory state registration and testing. According to the uniform sanitary requirements, paints used for buildings lived in or used by people must not contain driers containing metals or other chemicals belonging to hazard class 1 in quantities greater than 0.5% (5,000 ppm) dry residue. Paints must not contain lead-containing pigments of chemical hazard class 1 in quantities greater than 15% (150,000 ppm) dry residue.

GEORGIA

NGO partner: **Gamarjoba**

- Number of available paint studies: 1
- Results from most recent study[25] (2016):
  - 37 solvent-based paints from 15 brands analyzed
  - 32% of paints had a lead content greater than 600 ppm
  - 11% of paints had a lead content greater than 10,000 ppm

Regulation: Georgia does not have any regulation limiting the manufacture, sale, import or use of lead paint.

KAZAKHSTAN

NGO partner: **Greenwomen**

- Number of available paint studies: 2
- Results from most recent study[2] (2016):
  - 45 solvent-based paints from 21 brands analyzed
  - 56% of paints had a lead content greater than 600 ppm
  - 9% of paints had a lead content greater than 10,000 ppm

Regulation: All paints are subject to compulsory state registration and testing. According to the uniform sanitary requirements, paints used for buildings lived in or used by people must not contain driers containing metals or other chemicals belonging to hazard class 1 in quantities greater than 0.5% (5,000 ppm) dry residue. Paints must not contain lead-containing pigments of chemical hazard class 1 in quantities greater than 15% (150,000 ppm) dry residue.

KYRGYZSTAN

NGO partner: **NGO Independent Ecological Expertise**

- Number of available paint studies: 2
- Results from most recent study[1] (2016):
  - 51 solvent-based paints from 23 brands analyzed
  - 55% of paints had a lead content greater than 600 ppm
  - 8% of paints had a lead content greater than 10,000 ppm

Regulation: All paints are subject to compulsory state registration and testing. According to the uniform sanitary requirements, paints used for buildings lived in or used by people must not contain driers containing metals or other chemicals belonging to hazard class 1 in quantities greater than 0.5% (5,000 ppm) dry residue. Paints must not contain lead-containing pigments of chemical hazard class 1 in quantities greater than 15% (150,000 ppm) dry residue.

MOLDOVA

NGO partner: **EcoContact**

- Number of available paint studies: 1
- Results from most recent study[27] (2016):
  - 29 solvent-based paints from 12 brands analyzed
  - 55% of paints had a lead content greater than 90 ppm
  - 17% of paints had a lead content greater than 10,000 ppm

Regulation: Moldova does not have any regulation limiting the manufacture, sale, import or use of lead paint.

RUSSIA

NGO partner: **Eco-Accord**

Number of available paint studies: 2

Results from most recent Study[28] (2016):

- 72 solvent-based paints from 24 brands analyzed
- 49% of paints had a lead content greater than 600 ppm
- 6% of paints had a lead content greater than 10,000 ppm

Regulation: All paints are subject to compulsory state registration and testing. According to the uniform sanitary requirements, paints used for buildings lived in or used by people must not contain driers containing metals or other chemicals belonging to hazard class 1 in quantities greater than 0.5% (5,000 ppm) dry residue. Paints must not contain lead-containing pigments of chemical hazard class 1 in quantities greater than 15% (150,000 ppm) dry residue.

TAJIKISTAN

NGO partner: **FSCI, Dastgiri-Center**

- Number of available paint studies: 1
- Results from most recent study[29] (2016):
  - 51 solvent-based paints from 29 brands analyzed
  - 94% of paints had a lead content greater than 90 ppm
  - 20% of paints had a lead content greater than 10,000 ppm

Regulation: Tajikistan does not have any regulation limiting the manufacture, sale, import or use of lead paint.

UKRAINE

NGO partner: **MAMA-86**

- Number of available paint studies: 1
- Results from most recent study[30] (2016):
  - 53 solvent-based paints from 19 brands analyzed
  - 30% of paints had a lead content greater than 90 ppm
  - 15% of paints had a lead content greater than 10,000 ppm

Regulation: Ukraine does not have any regulation limiting the manufacture, sale, import or use of lead paint.

NGO partners in the following countries will release reports with new data on lead paint in 2016/2017:

Belarus, Kazakhstan

3. CONCLUSIONS: DESPITE PROGRESS, MUCH MORE STILL NEEDS TO BE DONE

Though much has been accomplished in the last several years, the majority of the countries in the world still do not have meaningful, binding lead paint regulation. In order to achieve the GAELP target date of 2020 for all countries having adopted legally binding laws, regulations, standards and/or procedures to control the production, import, sale and use of lead paints, much more needs to be done.

3.1 MORE COUNTRY-LEVEL DATA ON LEAD PAINT

Data on lead paint must be generated for virtually all countries to enable them to act to eliminate lead.

Data on the presence (or absence) of lead paints on the market is currently only available in 23 of the 126 countries[17] that lack regulatory controls on lead paint. In the absence of such data, government officials are not in a position to make much, if any, national progress toward establishing regulatory controls; nor will civil society organizations be able to reach out to paint manufacturers to encourage them to voluntarily remove lead from their paints or to enlist their support for legally binding controls on lead in paint.

After a country has made progress and has established regulatory controls and/or after paint companies have voluntarily removed lead from their paints, follow-up studies are also needed to evaluate the results and monitor compliance.

3.2 EXPERT ASSISTANCE IN DEVELOPING REGULATIONS FOR NATIONAL GOVERNMENTS

Many countries lack the legislative authority and/or the regulatory experience required to establish enforceable regulatory controls on lead in paint. In some cases, this results in a very slow national rule-making process as authorities must, on their own, determine each step in the process. In other cases, regulations fail to establish safe standards or lack effec-

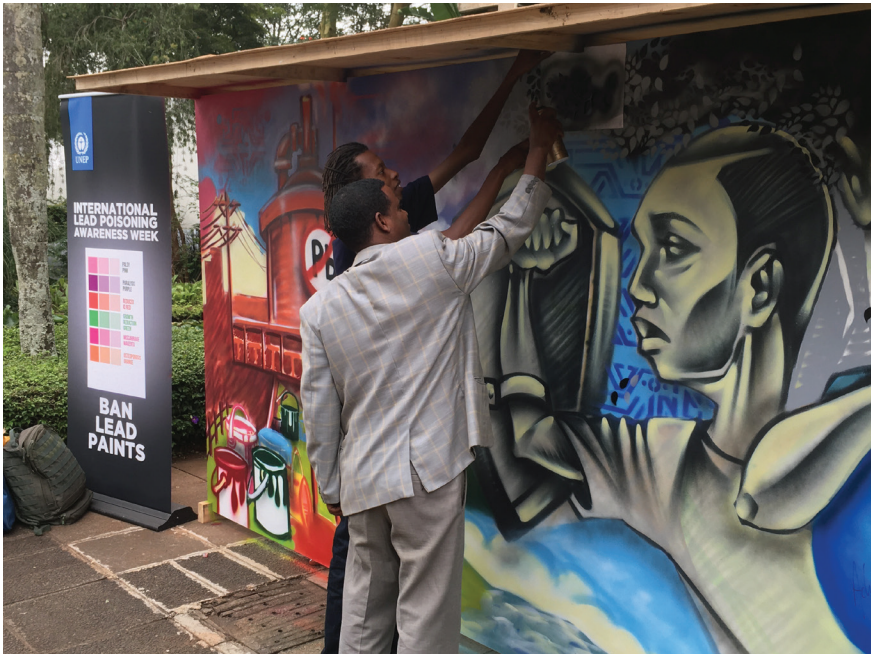
tive mechanisms for monitoring compliance and enforcement. And, even after regulatory controls have been adopted, countries may need guidance in making supplemental decisions and arrangements to strengthen the controls.

3.3 ONGOING MONITORING AND ENFORCEMENT OF EXISTING LEAD PAINT REGULATION

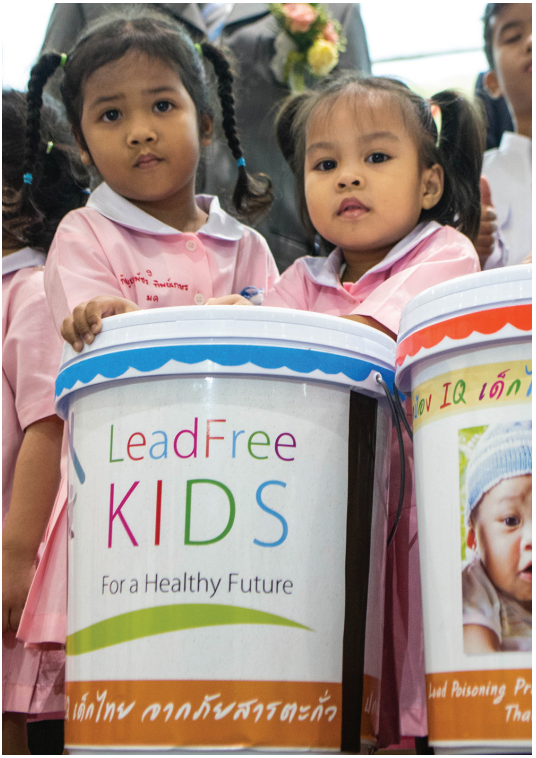
Adopting regulatory controls is not sufficient to effectively control the manufacture and sale of lead paint. Paint studies conducted by IPEN and NGOs in several countries where regulatory controls have been adopted and have entered into force demonstrate that, in some cases, many paints with prohibited lead content continue to be manufactured and/or sold.[20] This is typically a sign that strategies, mechanisms and a budget for monitoring and enforcing the lead paint regulations are lacking.

3.4 COMPLETE ELIMINATION OF ALL LEAD PAINT

More effort is needed to eliminate lead from all paints. Lead paint data collected around the world shows conclusively that in every country where paint studies have been conducted, some paint companies are producing paint with less than 90 ppm lead. This demonstrates that eliminating lead in all paints is within the capability of local producers.



Moreover, though most progress to date has been made in eliminating lead from consumer paint (decorative paints and other categories of paints used in and around homes and schools), progress is now also being made to eliminate lead in all categories of paints, both through voluntary actions by paint manufacturers and through enactment of regulatory controls. Countries taking this forward-looking approach include the Philippines and Nepal, where recently adopted regulations control the lead content of all paint categories, but allows paint manufacturers extra time to eliminate lead from paints for non-consumer use.



Not only are many so-called industrial paints such as anti-corrosives used in home and school environments, it has been noted that when national regulations exempt industrial paints from lead control regulations, these paints enter the consumer market for home-related uses.

In addition, many paints intended for non-consumer use contribute to lead exposure in workers in their families. Examples include residues and dust from paint production attaching to clothes and hair and being carried home by workers in auto refinishing shops operating in neighborhoods; lead paint chipping and weathering off metal components in playgrounds, bridges and structures in places where children play; lead paint coatings on exempted products; and other similar situations.

4. RECOMMENDATIONS

4.1 INTERNATIONAL AGENCIES

Ensure that reliable data on the lead content of paints on the market in all countries is generated and made publicly available. Currently data on the lead content of paints sold on national markets has been generated and made available for less than fifty low- and middle-income countries. And in some cases, the existing data may no longer be current or may be available only for a few paints on the market. It is unrealistic to expect that any country lacking data on the lead content of paints on its national market will enact any meaningful and enforceable regulatory controls on the lead content of the paints sold on its national market.

Provide concrete guidance to individual governments seeking assistance in establishing regulatory controls on lead in paint. The Global Alliance to Eliminate Lead Paint (GAELP) has developed an excellent toolkit to help governments that want to implement lead paint standards and regulation, and it is conducting regional meetings to help governments get started. More activities of this type are needed, along with direct assistance to individual governments to ensure that the standards and regulation enacted are protective of human health.

4.2 NATIONAL GOVERNMENTS

Take steps now to begin developing lead paint regulations. An agreed goal of GAELP welcomed by the international policy making community is for all countries of the world to enact regulatory controls on lead in paint by 2020. Once national data is available, and once government agencies have decided to give consideration to establishing national regulatory controls on lead in paint, it is generally important to hold multi-stakeholder consultations that address how the controls will be formulated and the timeline for their entry into force.

These consultations should include representatives of the relevant national ministries and the country's standards bureau. The consultations should also include representatives of the national paint industry and/or its trade association(s); representatives of the national health sector; and representatives of relevant national NGOs and/or other civil society organizations. Consultations of this kind establish the kinds of common understandings and agreements that are needed to develop practical and

enforceable regulatory controls that can be supported by all sectors of society.

Ensure that monitoring and enforcement measures are included in lead paint regulations. Governments should clearly identify the agency with responsibility for monitoring paints sold in the market; establish a relationship with a lab accredited through the Environmental Lead Proficiency Analytical Testing (ELPAT) Program or similar for analyzing lead in paint samples; mete out meaningful penalties for failure to comply with the regulation; and establish budgets for carrying out an effective monitoring and enforcement program.

4.3 PAINT MANUFACTURERS, PAINT INDUSTRY TRADE ASSOCIATIONS AND PAINT INGREDIENT VENDORS

Take voluntary action immediately to eliminate lead from all paints, with decorative and other paints used in and around homes and schools as a priority. Ethical manufacturers need not wait for government controls before they act. National, regional and international paint industry trade associations should send clear and strong signals to their members that now is the time to end all manufacture and sale of lead paints. Paint ingredient vendors in all regions should communicate to their customers that they can supply cost-effective, high quality substitute ingredients along with the knowledge needed to appropriately use them.

While it may have once been the case that safe, substitute paint ingredients were too costly or unavailable, this is no longer true. There are now paint ingredient vendors active in all regions that can provide paint manufacturers with excellent, well-proven, non-leaded pigments and drying catalysts at reasonable costs. In some cases, the per-kilo cost of the substitute pigments may be higher, but less pigment will be needed. Moreover, if the choice of substitute ingredients is done correctly, the total cost of production for the alternate paint formulation will either be the same or only marginally higher. Paint companies that have removed lead from their paints have virtually never increased the price of their reformulated paint products sold in the retail marketplace.

Some smaller paint manufacturers, however, may lack the expertise needed to develop substitute formulations that can cost-effectively satisfy all of their relevant quality requirements. In such cases, assistance can usually be obtained from paint ingredient vendors; from national industry trade associations; and/or through the informal channels that generally emerge in a country after larger paint companies have completed research and development on how to best remove lead from their paint formulations.

Begin the process for eliminating lead from all paints now. The largest paint manufacturers have either eliminated or are eliminating lead from all categories of paints. This demonstrates that effective and economic substitutes for leaded ingredients are now available and can be used in all paint and coating products. Even though lead is now being eliminated in paint for consumer use, additional work and effort needs to be invested in addressing all paint categories.

4.4 DONORS

Make significant new resources available for global lead paint elimination

Additional resources are needed for the collection of lead paint data and to assist national governments in developing and implementing lead paint standards and regulations. The World Health Organization identifies lead exposure to be among the world's five leading Environmental Risks as measured by cost in deaths and DALYs (Disease Adjusted Life Years), and WHO says that "99 percent of children affected by exposure to lead live in low- and middle-income countries."[21] Lead poisoning, which represents 0.6 percent or more of the total global burden of disease, is the only major disease that can be easily addressed and is entirely preventable.

The first step, removing lead from automotive fuels, was accomplished in nearly all countries. Lead in paint is the next major source of lead exposure that the international community is addressing in a coordinated and concerted way. When advanced through open and public, country-by-country efforts, lead paint elimination also creates a foundation that can become the basis for addressing other remaining lead exposure sources.

Unfortunately, however, the total financial and other resources that have so far been made available to global lead paint elimination efforts have been modest to say the least. This is especially distressing when the high pay-off that can be achieved by investing in lead paint elimination is compared to the enormous, documented health and economic costs associated with childhood and worker lead exposure.

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APPENDIX A: PAINT SAMPLING AND TESTING METHODOLOGY

For methods relating to the published studies, please see each respective study.

For the IPEN/NGO studies, the following general method was used.

PAINT BRAND SURVEY

A survey of paint brands that sell solvent-based paints sold in local markets for use in homes, schools, on playground equipment and other places where children spend time on the market was an integral part of the paint studies in most cases. It was undertaken before any paints were purchased for sampling and used to decide what paints would be purchased, sampled, and sent to the lab for analysis. The paints included in the survey were typically marked "alkyd", "oil-based", "enamel", "fast-dry enamel", "quick-dry enamel", "epoxy enamel" and "anti-corrosive". The survey excluded paints for non-consumer use, such as used by the car, aerospace, coil, electronics, shipping and other industries.

The surveys were carried out by going to stores that sell paint and recording the brands of solvent-based paints sold for use in homes, schools, on playground equipment and other places where children spend time. Locations included hardware stores, large supermarkets, home depots and paint centers. Locally-manufactured paint brands, as well as imported paint brands that are available in local markets were included.

Information recorded included

1) Name of paint manufacturer.

2) Name of paint brand.

3) Type of paint as listed on the paint can (e.g. enamel, anti-corrosive, epoxy enamel).

4) Country of manufacture.

5) If the brand sells white colored paint, as well as brightly colored paint such as yellow, orange, red and green.

6) Size of the paint can and the purchase price of the can in local currency.

7) Labels such as relevant eco-labeling and warning statement/s on the product label (for example: "eco-friendly," "no lead," "lead-free" or its equivalent, "keep out of children's reach," "hazardous," etc.)

PAINT SELECTION

Based on the brand survey, as many paint brands as the budget allowed for were included taking care to include brands from manufacturers of different sizes. In most cases, one white paint and one or more bright-colored paint such as red, orange or yellow were selected. For all colored paints, the protocol called for obtaining "bright" or "strong" red and yellow paints when available.

Additionally, anti-corrosive paints for consumer use were also included in this study. The availability of these paints in retail establishments suggested that they were intended to be used within home environments.

During the paint sample preparation, information such as color, brand, manufacturer, country where manufactured, product codes, production dates, and other details as provided on the label of the paint can were recorded. Generic paint colors were recorded, e.g., "yellow" instead of "sunflower."

PAINT SAMPLE PREPARATION

Paint sampling preparation kits containing individually numbered, untreated wood pieces, single-use paintbrushes and stirring utensils made from untreated wood sticks were assembled and shipped to the NGO partners, to ensure no lead contamination of the materials.

Each can of paint was thoroughly stirred and was subsequently applied onto individually numbered triplicates of untreated, labelled wood pieces using different unused, single-use paintbrushes by a researcher of the NGO. Each stirring utensil and paintbrush was used only for the same paint, and extra caution was taken to avoid cross contamination.

All samples were then allowed to dry at room temperature for five to six days. After drying, the painted wood pieces were placed in individually labelled, resealable plastic bags and shipped for analysis of total lead content to an accredited laboratory that participated in the Environmental Lead Proficiency Analytical Testing (ELPAT) Program operated by the American Industrial Hygiene Association. In the laboratory selection

process, IPEN further assessed the reliability of the laboratory results by conducting an independent quality assurance testing. This was done by sending paint samples with a known lead content to the laboratory, and evaluating the results received.

The laboratory's lower limit of detection for the lead concentration in the paint samples was, in general, dependent on the amount of paint in the samples and the method used. It therefore ranged between very low (below 10 ppm) to below 200 ppm where only insufficient amount of paint sample was available.

PAINT SAMPLE DIGESTION AND ANALYSIS

The paint samples were digested and analyzed using methods recommended by WHO.[1] For details of the methods, see references [2], [3] and [4] below.

Results were provided as parts per million (ppm) lead in total of the dry weight of the paint sample.

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