

Update on the Global Status of Legal Limits on Lead in Paint: September 2017



Photo by RhondaK, Native Florida Folk Artist, on Unsplash

Global Perspective

Global Progress Toward Eliminating Lead Paint

Lead is a cumulative toxicant that poses serious risks to human health and development, with children being especially vulnerable. Lead-containing paint remains one of the major sources of lead exposure for children globally. The international community, governments, industry and non-governmental organizations are working together to promote the establishment of lead paint laws in all countries.

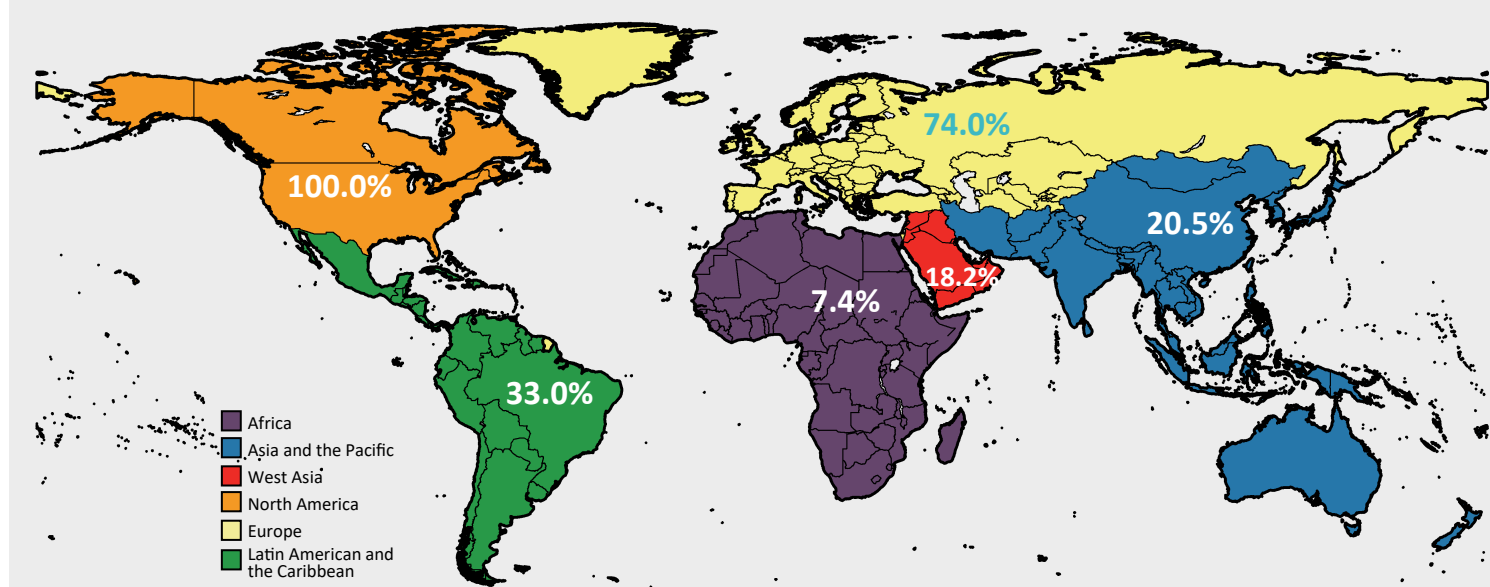
As of 31 August 2017, 67 countries have legally binding controls to limit the production, import and sale of lead paints, which is 34.7 percent of all countries (see page 5 for a list of countries by UN Environment Region). Thus there are still many countries where using lead paint in homes and schools is not prohibited, creating a significant risk of children's exposure to lead. Countries that have not yet done so are urged to enact and enforce effective national legislation, regulations and/or standards to, at a minimum, stop the manufacture, import and sale of household decorative lead paints. Countries are also encouraged to consider limiting lead in all types of paints.

This update is provided by the United Nations Environment Programme (UN Environment) in support of the Global Alliance to Eliminate Lead Paint (Lead Paint Alliance). UN Environment and the World Health Organization serve as the joint secretariat for this international voluntary, collaborative initiative (See Resource 1). "Lead paint" is paint or similar surface-coatings to which one or more lead compounds have been added. The primary goal of the Lead Paint Alliance is to prevent children's exposure to lead from paints and to minimize occupational exposures to lead paint. The most effective means of preventing lead exposure from paints is to establish national laws, including legislation, regulations and/or legally binding standards as appropriate, that ban the use of lead additives in paints. Therefore, the goal of the Alliance is for all countries to have lead paint laws in place as soon as possible.

Countries that have *only* put in place legally binding controls on lead coatings used on children's toys are not counted toward this Alliance goal. Eliminating lead paint on children's toys provides only partial protection, since it does not address household decorative paints. Likewise, countries that have *only* ratified the International Labour Organization (ILO) White Lead (Painting) Convention, 1921 (No. 13), which prohibits the use of lead carbonate and lead sulphate in paints, are also not included in this update. Since these lead compounds are no longer widely used in paints, the ILO Convention alone provides little benefit in protecting against lead exposure.

The map below shows the percentage of countries with lead paint laws within each of the six UN Environment regions, and Table 1 lists the specific countries with lead paint laws by region. Clearly there are regional differences in the progress of countries in establishing lead paint laws. Primarily low and middle income countries do not have lead paint laws. This report provides separate updates for each UN Environment region.

Map 1: Percent of Countries with Lead Paint Laws in Each UN Environment Region



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Unless otherwise noted, all the data in the maps, tables and figures are from WHO: Regulations and controls on lead paint, September 2017.

Table 1: Countries with Confirmed Lead Paint Laws in each UN Environment Region

Africa	Asia and the Pacific	West Asia	North America	Latin America and the Caribbean	Europe		
Algeria Kenya South Africa United Republic of Tanzania	Australia China India Nepal New Zealand Philippines Sri Lanka Thailand	Jordan Oman	Canada United States	Argentina Brazil Chile Costa Rica Cuba Dominica Guyana Mexico Panama Paraguay Trinidad and Tobago Uruguay	Armenia Austria Belarus Belgium Bulgaria Croatia Cyprus Czech Republic Denmark Estonia Finland France Germany Greece Hungary Iceland Ireland	Italy Kyrgyzstan Latvia Liechtenstein Lithuania Luxembourg Malta Monaco Montenegro Netherlands Norway Poland Portugal Romania Russian Federation Serbia Slovakia	Slovenia Spain Sweden Switzerland The Former Yugoslav Republic of Macedonia United Kingdom

Lead Exposure from Paint

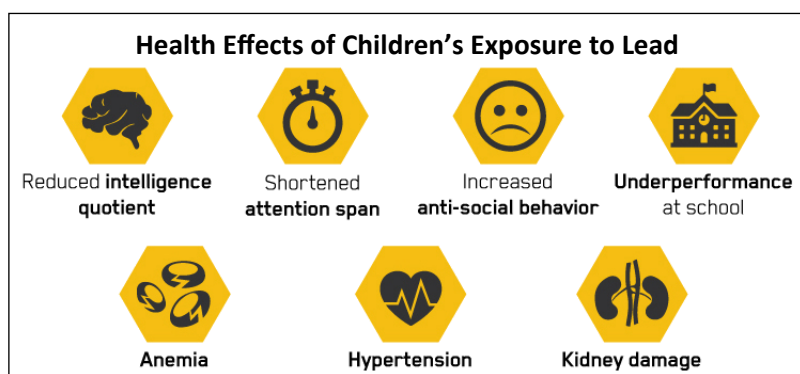
Historically, lead compounds have been added to oil-based decorative and industrial paints and other coatings to enhance colour, reduce corrosion on metal surfaces or reduce drying time. Today, non-lead pigments, driers and anti-corrosive ingredients are widely available for use in most oil-based paints.

After the application of lead paint, weathering, peeling or chipping of the paint releases lead particles into dust and soil in and around homes, schools and other locations. Decorative paint for household use has been identified as the main source of children's lead exposure from paints. Lead-containing dust can also be brought into the home on the clothes of those who work in industries where such dust is generated, including paint factories where lead additives continue to be used.

Lead-contaminated soil and dust are easily ingested and absorbed, particularly by young children when they play on the floor or outdoors and put their hands or other objects in their mouths. Children also ingest lead if they mouth and chew toys painted with lead paint. Both children and adults can be exposed to lead in paint chips and dust during the removal of old lead paint.

Negative Health Effects from Lead Exposure

Lead can cause permanent damage to the brain and nervous system, resulting in decreased IQ and increased behavioural problems. It can also cause anemia, increase the risk of kidney damage and hypertension, and impair reproductive function. Young children and pregnant women (whose developing fetus can be exposed) are especially vulnerable to the adverse effects of lead. Even relatively low levels of exposure can cause serious and irreversible neurological damage. There is no known level of lead exposure that is considered safe.



Preventing Health Effects and Related Economic Costs

The negative impacts on children's developing brains resulting from exposure to lead has staggering economic costs that are borne by the affected children, their families and societies at large. These include health care costs, productivity losses and intellectual disability.

The largest economic burden of lead exposure is borne by low and middle income countries. Estimated annual costs (in international dollars) of lead exposure by global region, based on loss of IQ, include the following: Africa - \$134.7 billion; Latin America and Caribbean - \$142.3 billion; and Asia - \$699.9 billion. For annual costs by country, visit the NYU map of Economic Costs of Lead Exposure (see Endnote 2).

The cost of removing existing decorative lead paint from surfaces in homes, schools and other buildings can be substantial. By contrast, the economic cost is low for eliminating the use of lead compounds in new decorative paints. In fact, many manufacturers have already successfully reformulated their paint products to avoid the intentional addition of lead. According to the paint industry, the reformulation of residential and decorative paints to eliminate lead additives is feasible, and the technical and cost impacts are manageable. Increasingly, paint producers are publicly stating that it is possible to eliminate lead additives in *all* types of paint.

Global Status of Lead Paint Laws

The map below shows data on the status of countries' lead paint laws as provided by governments to UN Environment and WHO (see Endnote 3). As of 31 August 2017, 67 countries had confirmed that they have legally binding controls on lead in paint, 70 stated that they do not, and information was unavailable for the remaining 56 countries.

Map 2: Countries with Lead Paint Laws, as of September 2017

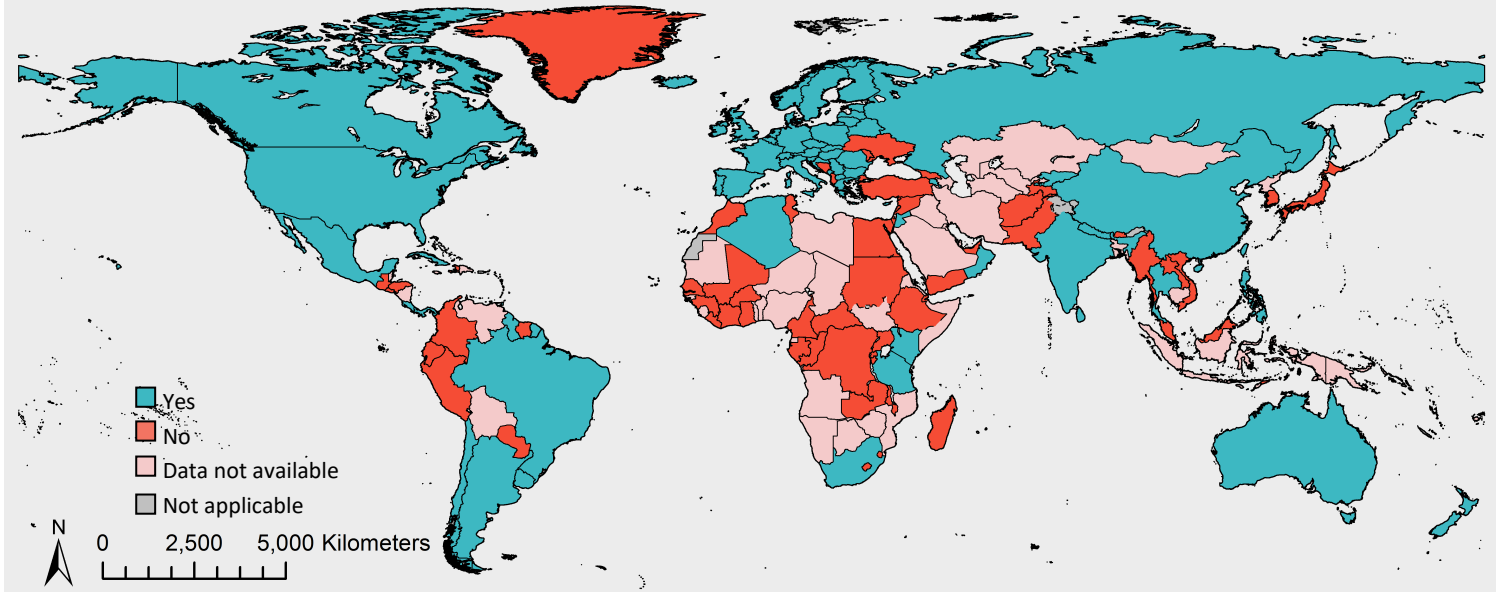
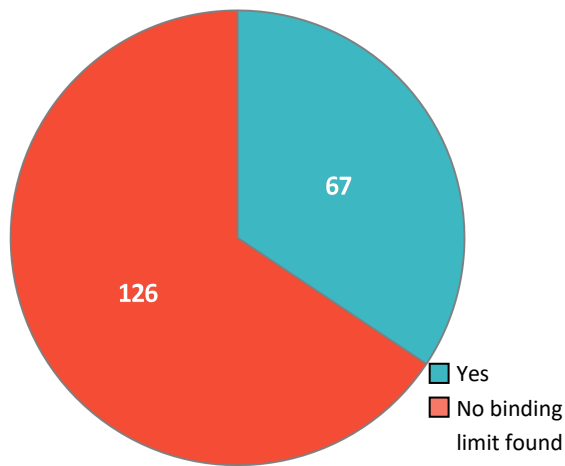


Figure 1: Countries with Lead Paint Laws



Currently **67** countries have lead paint laws and more countries are passing new laws every year.

Lead is Still Present in Paint in High Levels in Many Countries

Since 2009, more than 40 studies have shown that lead paints are still widely sold in low and middle income countries. Most of the paints tested for lead were found to exceed the 90 ppm or 600 ppm legal limit that has been set by many countries as an achievable limit. In addition, many of these paints contained very high levels of lead: above 10,000 parts per million (ppm) of the dry weight of the paint. To see paint testing results by country, go to the link for the IPEN Map entitled “Lead Levels in Paint Around the World” (see Endnote 4). IPEN is a Lead Paint Alliance partner and is an international public interest, non-profit organization comprised of hundreds of participating environmental and public health organizations in over 100 countries, primarily in developing and transition countries.

The Importance of Lead Paint Laws

The elimination of lead exposure at its source is the single most effective action to protect people from the harmful effects of lead. Most industrialized countries adopted laws or regulations to control the lead content of residential and decorative paints in the 1970s and 1980s, based on clear findings that lead-containing household paint is a major source of lead exposure in children. However, the continued use of lead in paint in many parts of the world remains a significant environmental source of human exposure. To protect human health, laws, regulations or enforceable standards are needed in every country to stop the manufacture, sale and import of lead-containing paints.

Global Approaches to Lead Paint Laws

Countries that have enacted laws to limit the lead content in paint have generally used one of two approaches: (1) establish a single regulatory limit on the total concentration of lead in paint from all sources (currently used in 31 countries) or (2) establish a set of chemical-specific regulatory limits based on the management of risks of individual lead compounds that are used as additives in paint (currently used in the European Union REACH regulation). Both approaches have been effective in limiting the lead content in paint, but the chemical-specific approach requires risk management assessments for individual lead compounds that may be beyond the capacity of many developing countries. In contrast, a single regulatory limit on total lead content does not require risk management assessments, and is therefore much simpler for governments to implement and enforce.

Legal Approach 1: Regulatory Limits on Total Lead Concentration

Of the 67 countries with lead paint laws, 31 countries (46%) have established a single regulatory limit on the total or soluble lead concentration in paint (in parts per million or ppm). These existing lead limits range from 90 ppm to 1,000 ppm or higher. 24 countries have a limit of 90, 100 or 600 ppm, which are all relatively low levels and indicate that lead compounds have probably not been added to the paint. Among countries with low limits, only one country use a regulatory limit on soluble lead content, which is somewhat less protective than a limit on total lead content. There may be additional countries that also currently use a regulatory limit on soluble rather than total lead.

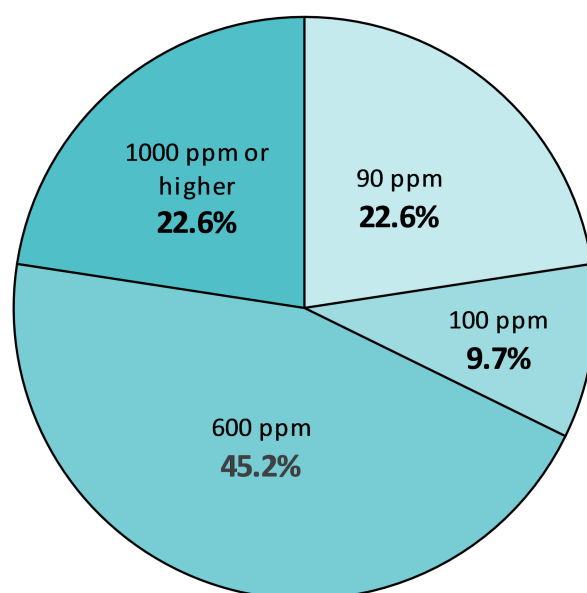
The concentration limit recommended in UN Environment's "Model Law and Guidance for Regulating Lead Paint" is **90 ppm** total lead (see Endnote 1).

Table 2: Countries with Limits on Total Lead Concentration

(s) = limit applies to soluble lead content only

90 ppm	100 ppm	600 ppm	1000 ppm or higher
Canada China (s) India Kenya Nepal Philippines United States	Switzerland Thailand United Republic of Tanzania	Argentina Brazil Chile Costa Rica Dominica Guyana Jordan Mexico Oman Panama South Africa Sri Lanka Trinidad and Tobago Uruguay	Algeria Armenia Australia Belarus Cuba New Zealand Russian Federation

Figure 2: Percentage of Countries by Lead Concentration Limit



Legal Approach 2: Chemical-Specific Regulatory Limits

Chemical-specific regulatory limits are used by 36 countries, of which 31 have adopted the European Union's Registration, Evaluation, Authorisation and Restriction of Chemical (REACH) regulation on lead compounds in paints. EU REACH restricts the addition of certain specific lead compounds to paints, based on risk management assessments. Specific lead compounds for use in paints are subject to an authorization procedure for manufacturers and importers that requires analyses of health and environmental risks and the availability of non-lead alternatives.

Table 3: Countries with Chemical-Specific Regulatory Limits

Austria*	Czech Republic*	Germany*	Italy*	Luxembourg*	Norway*	Slovakia*	The Former Yugoslav Republic of Macedonia
Belgium*	Denmark*	Greece*	Kyrgyzstan	Malta*	Poland*	Slovenia*	United Kingdom*
Bulgaria*	Estonia*	Hungary*	Latvia*	Monaco	Portugal*	Spain*	
Croatia*	Finland*	Iceland*	Liechtenstein*	Montenegro	Romania*	Sweden*	
Cyprus*	France*	Ireland*	Lithuania*	Netherlands*	Serbia		

*Countries that have adopted the EU REACH regulation

UN Environment Regions

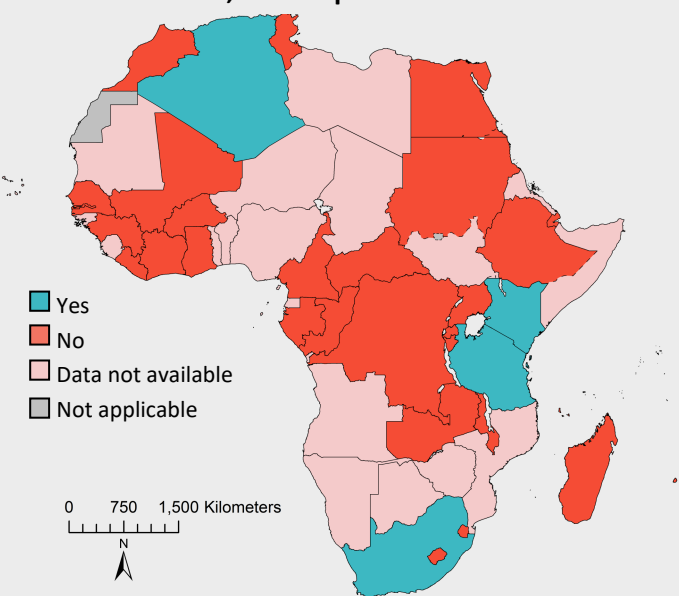
For the purposes of this report, countries are grouped into the six UN Environment regions.

Table 4: Countries by UN Environment Regions

Africa		Asia and the Pacific		West Asia	North America	Latin America and the Caribbean	Europe	
Algeria	Mauritius	Afghanistan	Philippines	Bahrain	Canada	Antigua and Barbuda	Albania	Poland
Angola	Morocco	Australia	Republic of	Iraq	United States	Argentina	Andorra	Portugal
Benin	Mozambique	Bangladesh	Korea	Jordan		Bahamas	Armenia	Romania
Botswana	Namibia	Bhutan	Samoa	Kuwait		Barbados	Austria	Russian Federation
Burkina Faso	Niger	Brunei	Singapore	Lebanon		Belize	Azerbaijan	San Marino
Burundi	Nigeria	Darussalam	Solomon Islands	Oman		Bolivia	Belarus	Serbia
Cameroon	Rwanda	Cambodia	Sri Lanka	Qatar		Brazil	Belgium	Slovakia
Cape Verde	Sao Tome & Principe	China	Thailand	Saudi Arabia		Chile	Bosnia and Herzegovina	Slovenia
Central African Republic	Senegal	Democratic Republic of	Timor-Leste	Syrian Arab Republic		Colombia	Bulgaria	Spain
Chad	Seychelles	Republic of	Tonga	United Arab Emirates		Costa Rica	Croatia	Sweden
Comoros	Sierra Leone	Korea	Tuvalu	Yemen		Cuba	Cyprus	Switzerland
Congo	Somalia	Fiji	Vanuatu			Dominica	Czech Republic	Tajikistan
Côte d'Ivoire	South Africa	India	Vietnam			Dominican Republic	Denmark	The Former Yugoslav Republic of
Democratic Republic of the Congo	South Sudan	Indonesia				Ecuador	Estonia	Macedonia
Djibouti	Sudan	Islamic Republic of Iran				El Salvador	Finland	Turkey
Egypt	Swaziland	Japan				Grenada	France	Turkmenistan
Equatorial Guinea	Togo	Kiribati				Guatemala	Georgia	Ukraine
Eritrea	Tunisia	Lao, People's Democratic Republic				Guyana	Germany	United Kingdom
Ethiopia	Uganda	Malaysia				Haiti	Greece	Uzbekistan
Gabon	United Republic of Tanzania	Maldives				Honduras	Hungary	
Gambia	Zambia	Marshall Islands				Jamaica	Iceland	
Ghana	Zimbabwe	Micronesia (Federated States of)				Mexico	Ireland	
Guinea		Mongolia				Nicaragua	Israel	
Guinea-Bissau		Myanmar				Panama	Italy	
Kenya		Nauru				Paraguay	Kazakhstan	
Lesotho		Nepal				Peru	Kyrgyzstan	
Liberia		New Zealand				Saint Kitts and Nevis	Latvia	
Libya		Pakistan				Saint Lucia	Liechtenstein	
Madagascar		Palau				Saint Vincent and the Grenadines	Lithuania	
Malawi		Papua New Guinea				Suriname	Luxembourg	
Mali						Trinidad and Tobago	Malta	
Mauritania						Uruguay	Moldova	
						Venezuela	Monaco	
							Montenegro	
							Netherlands	
							Norway	

Source: UN Environment

Map 3: Countries in the Africa Region with Lead Paint Laws, as of September 2017



Four countries (7.4%) in the African Region have lead paint laws. For information about South Africa, see Endnote 1 – Regulatory Toolkit - Case Study on South Africa. Several other countries are drafting laws, such as Ethiopia and Cameroon. In addition, two regional economic groups – the East African Community (EAC) and the Economic Community of West African States (ECOWAS) – are considering adopting a regional 90 ppm concentration limit standard for lead in paint (lead limit). Paint testing has been conducted in 13 countries in the African Region. Depending on the country study and the target level, levels of lead exceeding target levels of 90 or 600 ppm ranged from 26 to 100% of samples (see IPEN Lead Paint Map, Endnote 4). The annual economic cost of childhood lead exposure in the Africa region is estimated to be \$134.7 billion, or 4.03% of regional GDP (see Endnote 2).

Regional Activities

- 2014-2017: Four countries (Cameroon, Cote d'Ivoire, Ethiopia and Tanzania) participated in a project to work toward national legal limits to eliminate lead paint. This UN Environment project was funded by the Global Environment Facility (GEF) and implemented by IPEN. Specific activities detailed below.
- December 2015: East African regional workshop was convened in Ethiopia. Government officials from the 15 participating African countries agreed to work towards the establishment of national laws to limit lead in paint.
- September 2016: Second East African workshop was convened in Tanzania to assist the East African Community in working toward a harmonized regional standard for lead in paint.
- December 2016: Central and West African workshop on lead paint was convened in Cameroon, including countries from the ECOWAS.

Figure 3: Number of Countries in the Africa Region with Lead Paint Laws

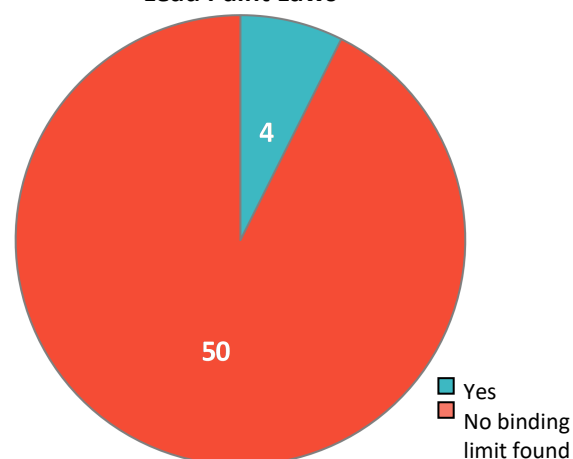
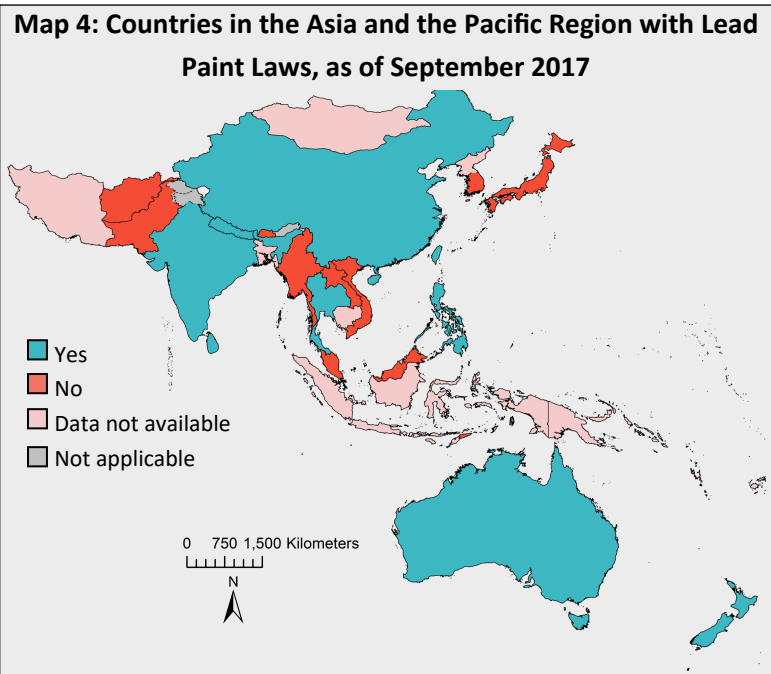


Table 5: 2017 Summary of Country-Specific Lead Paint Laws in the Africa Region

Country	Lead Paint Laws
Algeria	1000 ppm lead limit for manufacture, import and sale of paint
Kenya	90 ppm lead limit for manufacture, import and sale of all paint; sampling and testing requirements
United Republic of Tanzania	90 or 100 ppm lead limit, depending on the type of paint
South Africa	600 ppm lead limit for manufacture, import and sale of paint; no testing or certification requirements

Asia and the Pacific



Eight countries (20.5%) in the Asia and Pacific Region have lead paint laws. In addition, several countries, such as Cambodia and Laos, are in the process of developing laws.

Paint testing has been conducted in 15 countries in this region. Depending on the country studied and the target level, levels of lead exceeding target levels of either 90 or 600 ppm were found in approximately 37 to 95% of samples (see IPEN Lead Paint Map, Endnote 4). The annual economic cost of childhood lead exposure in Asia is \$699.9 billion, or 1.88% of regional GDP (see Endnote 2).

Regional Activities

- 2012 to 2015: Seven Asian countries (Bangladesh, India, Indonesia, Nepal, Philippines, Sri Lanka and Thailand) participated in a project to work toward national legal limits to eliminate lead paints, in a project funded by the European Commission. For information about the Philippines, see Endnote 1 – Regulatory Toolkit - Case Study on the Philippines.
- April 2016: A workshop was held in China for a UN Environment project on “Promoting elimination of the use of lead in paints in China and Africa.” A follow up workshop was conducted in China in March 2017.
- The Government of Cambodia is working in partnership with the US EPA to phase out lead paint in a new environmental code and implementing decree.
- The People’s Republic of Laos is working with the World Bank to draft a lead paint law.

Figure 4: Number of Countries in the Asia and the Pacific Region with Lead Paint Laws

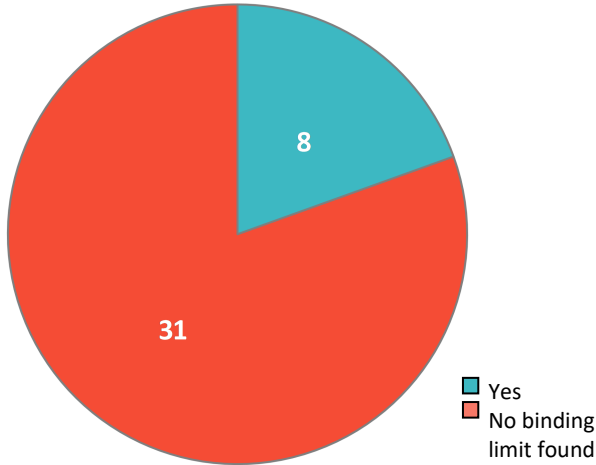


Table 6: 2017 Summary of Country-Specific Lead Paint Laws in the Asia and Pacific Region

Country	Lead Paint Laws
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