

Harmful Chemicals Detected in Toys Sold in the Philippines

Executive Summary:

The EcoWaste Coalition, with support from IPEN's Chemicals in Products Program, conducted an investigation on the availability of toys containing hazardous chemicals that are sold in the Philippines. The study was prompted by the group's continuing concern over the sale of toys that have not passed quality and safety standards, including toys laden with toxic metals, phthalates and flame retardants. The study was also spurred by government-issued directives banning lead in toys and other children's products such as those decorated with lead paints, and the need to know if such an important public health measure is well implemented. In addition the study was aimed at promoting the implementation of the Strategic Approach to International Chemicals Management (SAICM) Chemicals in Products Program (SAICM CiP Program) and associated Guidance in the Philippines to improve information disclosure on what chemicals are in children's products, including toys.

Our study was based on the following recommendations developed in the frame of SAICM CiP Program:

1. Selecting chemicals to be included in the information exchange on chemicals in products

During the implementation of the projects we obtained new data on toxic metals and phthalates in toys which are regulated by the Philippine national legislation.

2. Analyzing information on the product labels

While analyzing product labels we found out whether chemicals revealed during data generation and/or other chemical ingredients are listed on the labels.

3. Based on the data that we collected, we made a conclusion regarding the availability of information on **regulated and/beyond regulated chemicals/chemicals based on their hazardous characteristics** to the stakeholders outside the supply chain.

The EcoWaste Coalition's investigation revealed:

That 32 out of the 100 sampled toys (32%) contained one or more toxic metals such as antimony, arsenic, cadmium, chromium, lead and mercury above levels of concern, of which 22 (22%) screened positive for lead up to 198,900 ppm despite the explicit ban on the use of lead in the production of toys;

That none of the toy samples containing toxic metals indicated the presence of such chemicals on the label, and no cautionary statements or graphic warnings were provided to inform or forewarn buyers and users;

That the country's toy registration and labelling requirements are not effectively enforced as evidenced by 77% of the samples providing zero information about their manufacturers and/or distributors, 75% not indicating License to Operate (LTO) number on the product label, and 75% failing to meet other required labelling information on the packaging.

The findings of the study should contribute to the 1) promotion of “full material disclosure” as it is highlighted in paragraph 19 of the SAICM CiP Program Guidance for stakeholders on exchanging chemicals in products information. The study should, in particular, contribute to full disclosure of chemicals in toys and childcare articles and their health and safety implications throughout the product’s life-cycle in line with the public’s right to know, 2) development and implementation of pertinent policies and regulations that will promote and facilitate public access to chemical in products information, and 3) the effective enforcement of existing toy policies and regulations, particularly on registration and labeling.

These aspirations correspond to the overall objective of the Strategic Approach to International Chemicals Management (SAICM): “To achieve the sound management of chemicals throughout their life-cycle so that, by 2020, chemicals are produced and used in ways that lead to the minimization of significant adverse effects on human health and the environment,” and are compatible with the SAICM’s objective “to strengthen knowledge and information” as set out in the Global Plan of Action.

These aspirations are also in sync with the vision of the EcoWaste Coalition towards a zero waste and toxics-free society.

I. Background

1.1 Health Effects of Toxic Metals, Phthalates and Flame Retardants

Antimonyⁱ is “an obscure metal widely used in consumer products, including baby bibs, children’s shoes and clothes, and toys and games. Chemical compounds based on antimony are used as pigments – one of them, antimony trioxide, a known carcinogen, is also used as a flame retardant in textiles and plastics. Chronic exposure to antimony can cause lung damage, skin irritation and stomach problems, and it has been linked to reproductive problems.” Antimony pentachloride is included in the Philippine Priority Chemical Listⁱⁱ.

Arsenicⁱⁱⁱ is “a naturally present at high levels in the groundwater of a number of countries. Arsenic is highly toxic in its inorganic form. Contaminated water used for drinking, food preparation and irrigation of food crops poses the greatest threat to public health from arsenic. Long-term exposure to arsenic from drinking-water and food can cause cancer and skin lesions. It has also been associated with cardiovascular disease and diabetes. In utero and early childhood exposure has been linked to negative impacts on cognitive development and increased deaths in young adults.” Arsenic is among the “ten chemicals of major public health concern^{iv}” as per the World Health Organization and is listed in the Philippine Priority Chemical List^v.

Cadmium is a heavy metal that is used in the production of nickel-cadmium batteries, in electroplating steel, and in pigments in plastic paint, and as stabilizers for PVC. “Cadmium exerts toxic effects on the kidney, the skeletal and the respiratory systems, and is classified as a human carcinogen. It is generally present in the environment at low levels. However, human activity has greatly increased those levels.^{vi}” Cadmium is listed in the Philippine Priority Chemical List^{vii} as well as the WHO’s “ten chemicals of major public health concern.^{viii}”

Chromium “is a naturally occurring element and occurs in the environment predominantly in one of two valence states: trivalent chromium (Cr III), which occurs naturally and is an essential nutrient, and hexavalent chromium (Cr VI), which, along with the less common metallic chromium (Cr 0), is

most commonly produced by industrial processes.^{ix} “Cr 0 is used for making steel. Cr VI and Cr III are used for chrome plating, dyes and pigments, leather tanning, and wood preserving.^x” “Cr III is an essential nutrient that helps the body use sugar, protein, and fat. Breathing high levels of Cr VI can cause irritation to the lining of the nose, nose ulcers, runny nose, and breathing problems, such as asthma, cough, shortness of breath, or wheezing. The main health problems seen in animals following ingestion of Cr VI compounds are irritation and ulcers in the stomach and small intestine and anemia. Cr III compounds are much less toxic and do not appear to cause these problems. Sperm damage and damage to the male reproductive system have also been seen in laboratory animals exposed to Cr VI. Skin contact with certain Cr VI compounds can cause skin ulcers.^{xi}” Chromium compounds are on the Philippine Priority Chemical List^{xii}.

Lead “is a naturally occurring element found in small amounts in the earth’s crust. While it has some beneficial uses, it can be toxic to humans and animals causing of health effects. Lead and lead compounds have been used in a wide variety of products found in and around our homes, including paint, ceramics, pipes and plumbing materials, solders, gasoline, batteries, ammunition, and cosmetics.^{xiii}” “It is a cumulative toxicant that affects multiple body systems, including the neurologic, hematologic, gastrointestinal, cardiovascular, and renal systems. Children are particularly vulnerable to the neurotoxic effects of lead, and even relatively low levels of exposure can cause serious and in some cases irreversible neurological damage.^{xiv}” “When toys, household furniture or other articles are painted with lead paint, children may chew on them and directly ingest the lead-contaminated dried paint. Nonetheless, the most common way that children ingest lead is through lead contaminated dust and soil that gets onto their hand.^{xv}” Lead belongs to the Philippine Priority Chemical List^{xvi} and the WHO’s “ten chemicals of major public health concern^{xvii}.”

“Mercury is a highly toxic heavy metal that poses a global threat to human health and the environment. Together with its various compounds, it has a range of severe health impacts, including damage to the central nervous system, thyroid, kidneys, lungs, immune system, eyes, gums and skin. Victims may suffer memory loss or language impairment, and the damage to the brain cannot be reversed. There is no known safe exposure level for elemental mercury in humans, and effects can be seen even at very low levels. Fetuses, newborn babies and children are amongst the most vulnerable and sensitive to the adverse effects of mercury.^{xviii}” The Philippine Priority Chemical List^{xix} includes mercury compounds. WHO considers mercury among the “ten chemicals of major public health concern.^{xx}”

Phthalates^{xxi} “are a class of plasticizers used to soften polyvinyl chloride (PVC), add fragrance to a product, or enhance pliability in plastics and other products. Phthalates act by interfering with androgen (testosterone) production. Because androgens are critical to male development, including genital development, boys are thought to be most vulnerable to exposure. However, androgens also play important roles in females, making phthalates relevant to both sexes. Phthalate exposure is linked to: genital abnormalities in boys, reduced sperm counts, decreased ‘male typical’ play in boys, endometriosis, and elements of metabolic disruption, including obesity.” In December 1999, the Philippine FDA (then known as the Bureau of Food and Drugs) issued a warning on the health hazards posed by phthalates in PVC toys.^{xxii}

“Brominated flame retardants have been widely added to foam and plastics used in consumer and electronic products. Pentabromodiphenyl ether (PentaBDE) has been used extensively in polyurethane foam, but also appears in electronics. Octabromodiphenyl ether (OctaBDE) has been used in acrylonitrile butadiene styrene (ABS) and other plastics used in electronics such as office

equipment. Decabromodiphenyl ether (DecaBDE) is widely found in plastics used in electronics and is a common component of electronic waste. Hexabromocyclododecane (HBCD or HBCDD) was mainly applied in extruded and expanded polystyrene foam for building insulation, but also in video cassette recorder housing and electronics. These chemicals are known to disrupt human hormone systems, adversely impacting the development of the nervous system and children’s intelligence. All four substances or their commercial mixtures are listed in Annex A of the Stockholm Convention for global elimination.^{xxiii} A study by IPEN and its participating organizations in 26 countries, including the Philippines, found DecaBDE, OctaBDE and HBCD children’s toys and related products with recycled plastic content. As stated in the report^{xxiv} “POPs Recycling Contaminates Children’s Toys with Toxic Flame Retardants,” “recycling materials that contain persistent organic pollutants (POPs) and other toxic substances contaminates new products, continues human and environmental exposure, and undermines the credibility of recycling.”

1.2 Toy Regulatory Framework in the Philippines

The Department of Health Administrative Order 2009-0005 provides for the revised policies and guidelines pertaining to the regulation of toys. It sets out the “Regulations on the Issuances of a License to Operate, Certificate of Conformity and Clearance for Customs Release Prescribed to Manufacturers, Importers and Distributors of Toys in the Philippines.” As a general rule, all toys that are manufactured, imported and distributed in the country must comply with the Philippine National Standards on Safety of Toys developed and issued by the Department of Trade and Industry. The standards include maximum acceptable element migration from toy materials” for antimony, arsenic, barium, cadmium, chromium, lead, mercury, and selenium as shown in the following table:

Maximum acceptable element migration from toy materials

| Toy material | Element | | | | | | | |
|---|---------|----|-------|----|----|----|----|-----|
| | Sb | As | Ba | Cd | Cr | Pb | Hg | Sa |
| Any toy material given in clause 1 of PNS, except modelling clay and finger paint | 60 | 25 | 1,000 | 75 | 60 | 90 | 60 | 500 |
| Modelling clay and finger paint | 60 | 25 | 250 | 50 | 25 | 90 | 25 | 500 |

Local toy manufacturers, importers and distributors are required to secure a License to Operate, as well as a Certificate of Conformity for toys manufactured, imported or distributed in the country. Furthermore, toy importers are required to obtain a Clearance for Customs Release prior to importation. The required License to Operate, Certificate of Conformity and Clearance for Customs Release are issued by Food and Drug Administration, a regulatory agency under the Department of Health that, among other things, oversees the product registration or notification scheme for toy and childcare articles. Under this scheme, toys and related products have to undergo verification process to guarantee their quality and safety. Duly registered or notified toys and childcare articles contain the following product labelling formation: License to Operate number, age grade, cautionary statements/ warnings, instructional literature, item/ model/ stock keeping unit (SKU) number, and manufacturer’s marking, including the complete name and address of the manufacturer or distributor.

Another pertinent law governing toys in the Philippines is Republic Act 10620^{xxv}, or the “Toy and

Game Safety Labelling Act of 2013,” under which toys and games must conform with the safety labelling and manufacturer’s markings as specified in the Philippine National Standards. “A balloon, ball, marble, or toy or game which packaging is not in compliance with the requirements of this Act shall be considered a misbranded or banned hazardous substance” and “withdrawn from the market at the expense of the manufacturer or importer.” The law also requires the Department of Trade and Industry to publish every six months 1) “the list of all manufacturers, importers, distributors, and retailers who failed to comply with the requirements,” and 2) “the list of all misbranded or banned hazardous substances the sale, offer for sale and distribution of which shall not be allowed.” To date, the law remains unimplemented because of the delay in the issuance of its Implementing Rules and Regulations.

Other relevant laws and regulations include the Consumer Act of the Philippines, Department of Health Administrative Order 2009-0005-A as amended in 2011, the Department of Environment and Natural Resources Administrative Order 2013-24 and the Environmental Management Bureau Memorandum Circular 2016-010, and the Department of Education Order No.4, series of 2017.

Republic Act 7394^{xxvi}, or the Consumer Act of the Philippines, supports the protection of consumers against hazards to health and safety, as well as their protection against deceptive, unfair and unconscionable sales acts and practices. The law also provides for consumer information and education to facilitate sound choice and for consumer rights and means of redress. As defined under this law, “banned hazardous substance” would also refer “any toy or other articles intended for use by children, which are hazardous per se, or which bear or contain substances harmful to human beings.”

Department of Health Administrative Order 2009-0005-A^{xxvii} regulates the use of certain phthalates in toys. It states that “it shall be unlawful to manufacture for sale, offer for sale, distribute in commerce, or import into the country any children’s toy that contains concentration of more than 0.1 percent of di-(2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP) or benzyl butyl phthalate (BBP).” It further prohibits diisononyl phthalate (DINP), diisodecyl phthalate (DIDP), or di-n-octyl phthalate (DnOP) in any children’s toy that can be placed in a child’s mouth in concentrations above 0.1 percent by weight.

Department of Environment and Natural Resources Administrative Order 2013-24^{xxviii}, or the Chemical Control Order for Lead and Lead Compounds includes the use of lead and its compounds in the production of toys among the prohibited uses of lead. The order sets a 90 parts per million (ppm) total lead content limit for lead in paint, and establishes a phases out period for lead-containing decorative paints (2013-2016) and industrial paints (2013-2019). Environmental Management Bureau Memorandum Circular 2016-010 clarified 31 December 2016 as the date of effectiveness of the ban on the manufacture, processing, distribution, sale and use of paints with lead content above 90 ppm in the production of toys and related products.

Finally, Department of Education Order No. 4, series of 2017^{xxix}, requires the use of independently certified mandatory use of lead safe paints and coatings for painting and repainting works in schools, including the use of such paints in learning materials such as teaching aids, school supplies and toys.

II. Materials and Methods

The EcoWaste Coalition in April-May 2018 procured 100 toy samples from various retail stores located in the city of Manila, mostly from Divisoria, the shopping hub for cheap goods. After assigning a unique number for each sample, the information indicated on the product label, including manufacturers' markings and cautionary warnings, were examined and recorded. The samples were then screened for toxic metals using a portable Olympus InnovX Delta X-Ray Fluorescence (XRF) spectrometer. The XRF was also used to identify samples with significant concentrations of bromine, an indicator of the potential presence of brominated flame retardant chemicals on a sample.

The XRF device is routinely used by companies and US regulatory agencies such as US EPA and the US Consumer Product Safety Commission for metals detection in consumer products and other media. The average coefficient of variation was approximately 10 – 15%. Since many products have many different components, a conservative approach was used and the reported levels are the highest level detected for each metal of concern. Indicative metal levels of high concern were developed considering various regulatory and voluntary standards. Standards for levels of concern include samples with concentrations greater than the following: antimony, 60 ppm; arsenic, 25 ppm; cadmium, 75 ppm; chromium, 60 ppm; lead, 90 ppm; and mercury, 25 ppm. The said limits for antimony, arsenic, cadmium, chromium and lead are based on the maximum element migration from toy materials as per the Philippine National Standard, while the limit for mercury is based on the US Toxics and Packaging Law in several states. These figures do not represent a threshold below which there are no health effects. For example, there is strong scientific agreement that there is no safe level of lead exposure.

Also, five samples of toys made with polyvinyl chloride (PVC) plastic were obtained from toy stores in Manila and then sent to a government-accredited private laboratory (SGS) for phthalate analysis. The samples were tested with reference to Public Law 110-314 (US Consumer Product Safety Improvement Act of 2008). The sample preparation, extraction method and analysis method followed CPSC-CH-C1001-09.3. The analysis was performed by Gas Chromatography–Mass Spectrometry (GC-MS).

III. Results

3.1 Summary of Results

The study shows that out of 100 toys analyzed:

- 22 (22%) screened positive for lead ranging from 116 to 198,900 ppm
- 16 (16%) indicated the presence of antimony from 129 to 1,117 ppm
- 5 (5%) contained arsenic from 32 to 395 ppm
- 2 (2%) had cadmium (one had 91 ppm and the other 115 ppm)
- 1 (1%) had 228 ppm of mercury

Please see the Annexes for the relevant tables.

3.2 Label Analysis

None of toy samples that screened positive for toxic metals indicated the presence of such chemicals on the label, and no cautionary statements or graphic warnings were provided to inform or forewarn buyers and users. The metals detected (antimony, arsenic, cadmium, chromium lead and mercury) are on the Philippine Priority Chemical List^{xxx}.

With respect to compliance to the labelling requirements as provided for under Republic Act 10620, or the Toy and Game Safety Labeling Act of 2013, and pertinent toy regulations issued by the Department of Health and the Food and Drug Administration Act:

- 77 (77%) provided no information about their manufacturers and/or distributors
- 75 (75%) lacked License to Operate (LTO) number
- 75 (75%) failed to comply with other required labelling information on the packaging
- 29 (29%) displayed no warning information on potential hazards

3.3 Phthalates in Samples Sent to the Laboratory for Analysis

Of the five samples of plastic toys sent to the laboratory for phthalate, two failed to pass the regulatory limits for phthalates DBP, DEHP and DINP. A doll had 0.915% DBP and 2.82% DEHP, and a baseball toy had 0.988% DEHP, way in excess of the 0.1 % limit for such phthalates set up by the Department of Health Administrative Order 2009-0005-A.

3.4 Comparison with Results from an Earlier Study

In 2011, the EcoWaste Coalition in collaboration with IPEN measured toxic metals in 435 children’s products bought from retailers in Metro Manila, Metro Cebu and Davao City in the Philippines. Measurements were performed using a hand-held X-ray fluorescence analyzer (XRF) and focused on antimony, arsenic, cadmium, chromium, lead, and mercury. Approximately 29% of the products contained at least one toxic metal above levels of concern. The data revealed 67 products (15%) contained lead at or above the US regulatory limit. Fifty-seven samples (13%) contained more than one toxic metal.

Summary of toxic metals in children’s toys greater than levels of concern:

| Metal | 2011 | | | 2018 | | |
|----------|----------------|------|-----------------------|----------------|----|-----------------------|
| | No. of samples | % | Highest concentration | No. of samples | % | Highest concentration |
| Antimony | 56 | 12.9 | 8,135 | 16 | 16 | 1,117 |
| Arsenic | 36 | 8.3 | 5,748 | 5 | 5 | 395 |
| Cadmium | 14 | 3.2 | 5,837 | 2 | 2 | 115 |
| Chromium | 33 | 7.6 | 14,389 | 9 | 9 | 36,300 |
| Lead | 67 | 15.4 | 38,433 | 22 | 22 | 198,900 |
| Mercury | 8 | 1.8 | 74 | 1 | 1 | 228 |
| | | | | | | |

IV. Discussion

Children are uniquely vulnerable to the negative effects of shoddily made and chemically laden toys as their immature bodies and minds are still growing and developing. While all children are vulnerable to injuries and chemical exposures, children from families living in poverty may be at increased risk due to lower consumer literacy, lesser purchasing power, and lack of access to consumer information and redress of grievances. With children's health and safety foremost in its pursuit towards clean production, the EcoWaste Coalition since 2011 has been analyzing toys for hazardous chemicals and raising awareness about the prevalence of unsafe toys, especially toys that are sold by discount shops that are within the means of typical Filipino families.

The results of this particular study conducted by the EcoWaste Coalition with support from IPEN's Chemicals in Products Program provide additional evidence confirming the presence of toys that may put the health of children, as well as the environment, at risk due to their undisclosed toxic makeup and other potential hazards (choking, laceration, strangulation, eye injury, eardrum damage, etc.)

Of the 100 toy samples purchased and analyzed, 32 (32%) were found to contain one or more toxic metals such as antimony, arsenic, cadmium, chromium, lead and mercury above levels of concern. On the other hand, toxic metals were not detected in 68 (68%) of the samples, indicating the technical feasibility of making toys that will not expose children to such hazardous substances. In this study and in other studies conducted by the group, a toy containing a toxic metal usually has many identical or similar counterpart toys that do not contain such elements.

As it is not obligatory for toy manufacturers to disclose the chemical composition of their goods as a condition for sale in the Philippines, the only possibility for consumers to reduce the risk of purchasing toxic products is to rely on the availability of the License to Operate, Certificate of Conformity and Clearance for Customs Release as described in par.1.2 above. However none of the analysed labels contained such information. None of the samples containing toxic metals were labelled with information about their chemical content to warn consumers. Products with no detectable toxic metals were not labelled either. Thus it would be next to impossible for consumers, to find out if the toys being offered for sale are safe for children to play with. It is obvious that toy screening, testing and monitoring are critical to inform, guide and empower consumers to make sound toy purchasing decisions.

The presence of lead in 22% of the sampled toys is a cause for concern as lead and its compounds are explicitly banned in the production of toys under the groundbreaking Chemical Control Order for Lead and Lead Compounds. While lead-containing decorative paints have been phased out effective 31 December 2016, some toys are still coated with lead paint. Lead detected in some plastic toys may be attributed to the use of lead stabilizers in polyvinyl chloride (PVC), its use as pigment, or as a result of poor quality control.

The presence of high levels of regulated phthalates in 40% of the sampled toys is a serious concern as phthalates are well known endocrine disrupting chemicals and can be released from a product by heat, agitation, and prolonged storage. The release can occur during the product lifecycle - from production, through use, to disposal. Phthalates detected in toys are regulated by the Department of Health Administrative Order 2009-0005-A. However no information about their presence in sampled toys was present on the labels thus leaving consumers unaware of the potential health hazard.

The study revealed low compliance with the country's toy registration and labelling requirements with 77% of the samples providing zero information about their manufacturers and/or distributors, 75% not indicating License to Operate (LTO) number on the product label, and 75% failing to meet required labelling information on the packaging.

The EcoWaste Coalition is also concerned with the environmental implications of toxic toys, particularly when the products are discarded, dumped in landfills or dispose via open burning, incineration or cement kiln co-processing, which can lead to the release of hazardous substances into the air, water and land. High concentration of hazardous chemicals revealed in toys justifies the need to treat these products as hazardous waste in the end of life which requires special attention and management in compliance with Republic Act 9003. The law defines "hazardous waste" as "solid waste or combination of solid waste which because of its quantity, concentration, or physical, chemical or infectious characteristics may: (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Overall, the study highlighted the need for a more stringent enforcement of the country's existing toy regulations, including the issuance of the Implementing Rules and Regulations of the Toy and Game Safety Labelling Act of 2013 and the enactment of proposed Safe and Non-Toxic Children's Product Act.

This study provides another basis for the authorities to require toy companies to disclose the chemical content of their products as a condition for market access, which could substantially improve the protection of children and consumers, while reducing the burdens on government regulators at the same time. The toy industry should provide consumers with the necessary health and safety information, which should not be treated as confidential business information.

As it is highlighted in the SAICM Chemicals in Product Programme, par. 49, "information needed to protect human health and the environment should not be regarded as confidential...". Though the Philippines government or any toy producing companies inside or outside the Philippines have not formally joined the SAICM CiP Programme, our project proves the need to encourage them to join. By becoming formal members of this voluntary initiative, governmental agencies and the toy industry would prove their willingness to provide stakeholders with information that will help reduce toxic exposure and associated health risks.

As recommended in the joint study of the EcoWaste Coalition and IPEN in 2011, "a comprehensive approach to regulating toxic substances in children's toys should prohibit substances of concern such as carcinogens, mutagens, reproductive toxicants, neurotoxicants, immunotoxicants, persistent bioaccumulative and toxic substances, and endocrine disrupters.^{xxxii} "

Becker et al.^{xxxiii} propose four key elements for proactive policy-making on toxic substances in toys and children's products, that the EcoWaste Coalition would like to get implemented in the Philippines,: 1) Ban or restrict the use of chemicals with well-documented toxicity in toys and other children's products; 2) Ensure consumers' "right to know" about toxic chemicals in children's products including labelling to promote consumer choice; 3) Require chemical manufacturers to generate and disclose basic toxicity information for all chemicals; and 4) Promote the design and development of safer children's products using green design, safe natural materials, and green

chemistry.

V. Recommendations

The results of the study prompted the EcoWaste Coalition to recommend the following measures that will protect children from toys and related products containing hazardous chemicals to which they might be exposed:

FOR THE GOVERNMENT:

- For the Senate to expedite the enactment of the proposed Safe and Non-Toxic Children's Product Act, which seeks to regulate the manufacture, importation, distribution and sale of children's toys, school supplies, childcare articles and other related products containing toxic chemicals beyond the permissible limits.
- For the Department of Health and the Department of Trade and Industry to promulgate the long-delayed Implementing Rules and Regulations of Republic Act 10620 to "ensure the protection of children against potential hazards to their health and safety by requiring special labelling of toys and games." (Sec. 2, Declaration of Policy, R.A. 10620).
- For all concerned agencies to ensure compliance to the ban on lead and its compounds in the production of toys and children's products as contained in the Department of Environment and Natural Resources Administrative Order 2013-24, or the Chemical Control Order for Lead and Lead Compounds.
- For the Food and Drug Administration to enforce Department of Health Administrative Order 2009-0005-A as amended in 2011 that bans phthalates DEHP, DBP and BBP in concentrations exceeding 0.1% in toys, as well as phthalates DINP, DIDP and DNOP above 0.1% in toys that can be placed in a child's mouth.
- For the Food and Drug Administration to issue advisories prohibiting the manufacture, importation, distribution and sale of toys and other children's products not in compliance with national standards and regulations. In case there are no national standards or regulations, the most progressive regulations effective in other countries should be considered.
- For the Food and Drug Administration to ensure systematic seizure or withdrawal from the market of non-compliant toys and children's products and the environmentally-sound management of confiscated and recalled products.
- For Congress to come up with a legislation that will require full disclosure of the chemical content of toys and other children's products as a condition for sale in the Philippines.
- For concerned departments and stakeholders to integrate safe toys and children's products as a component of the national program to prevent injury and poisoning among children.

- For the Food and Drug Administration, together with the Department of Trade and Industry, to call for a multi-stakeholders' review of the implementation of the Philippine National Standards on Safety of Toys.

FOR THE INDUSTRY:

- Manufacturers, importers, distributors and retailers should not engage in the production, trade and sale of toys and other children's products containing hazardous chemicals such as those included on the Philippines Priority Chemical List, Stockholm Convention on Persistent Organic Pollutants (POPs) and other relevant laws and regulations.
- Manufacturers should actively generate and disclose the chemical content of toys and children's products as a condition for sale in the Philippines and to make such information readily available through adequate and comprehensible product labels and warnings.
- Importers, distributors, wholesalers and retailers should not market toys and children's products lacking information about their chemical ingredients and other required labelling requirements.
- Manufacturers should stop using polyvinyl chloride (PVC) plastic and other plastics containing toxic additives such as cadmium, lead and other toxic metals; polybrominated diphenyl ethers and other POPs; phthalates; and Bisphenol A.
- Manufacturers should promote and produce safe and non-toxic children's products using green design, safe natural materials, and green chemistry

FOR THE CIVIL SOCIETY:

- Conduct a continuing campaign to inform and educate consumers about the risks posed by toxic chemicals in toys and children's products to health and the environment.
- Undertake activities that will promote compliance to quality and safety and labelling requirements pertaining to toys and other children's products.
- Participate in processes aimed at formulating laws and regulations that will ensure children's protection against neurotoxins, endocrine disruptors, reproductive toxicants, carcinogens and other chemicals of concern in toys and other products marketed for children's use.

FOR CONSUMERS:

- Examine product labels for chemical safety and health information, demand for your right to know the chemicals comprising a product, and avoid purchasing items with undisclosed chemical contents.

- Refrain from buying, giving or using products made with polyvinyl chloride (PVC) and other problematic materials such as plastics that may contain Bisphenol A, phthalates and polybrominated diphenyl ethers.
- Urge lawmakers, particularly members of the Senate, to hasten the approval of the Safe and Non-Toxic Children’s Product Act, that the House of Representatives has already approved.

VI. Conclusion

This study illustrates that the sale of unsafe toys laden with hazardous chemicals persists in the Philippines despite the complementary efforts by the government and the civil society to promote toy safety. While an elaborate system for toy registration has been instituted and a law for toy and game safety labelling has been adopted, many toys are sold in the market without undergoing the required quality and safety verification, and are not compliant with labelling requirements. The study reaffirms that consumer access to information on chemicals in products remains unheeded – a problem compounded by the proliferation of adulterated, counterfeit and substandard commodities, mostly from overseas. As young children are particularly susceptible to the health and safety hazards posed by such products, current toy laws and regulations need to be reviewed, strengthened and enforced.

Our study proved the importance of SAICM CiP Programme for the Philippines, while at the same time demonstrated a low level of its implementation in the country. Though the SAICM CiP Programme is a voluntary mechanism, it is the only international instrument that could help countries to make information on chemicals in products transparent, understandable, and reliable. So far only five organisations have formally joined the SAICM CiP Programme and none of them from the Philippines or from the toy industry. We believe that, if implemented, the SAICM CiP Programme would become an important mechanism leading to safer and more sustainable products, lower chemical exposure, safer waste management, better human health, and cleaner environment.

Table 1: Summary of toxic metal levels in children's products greater than levels of concern

| Metal | No. samples | % | Highest Concentration (ppm) |
|-----------------|--------------------|------------|------------------------------------|
| Antimony | 16 | 16% | 1,117 |

| | | | |
|-----------------|----|------------|---------|
| Arsenic | 5 | 5% | 395 |
| Cadmium | 2 | 2% | 115 |
| Chromium | 9 | 9% | 36,300 |
| Lead | 22 | 22% | 198,900 |
| Mercury | 1 | 1% | 228 |

Table 2: Summary of children's products with highest toxic metal levels

| Sample No. | City | Place of Purchase | Product | Toxic Metal | (ppm) |
|---------------|--------|-------------------|--|-----------------|----------------|
| 28PhI03242018 | Manila | Divisoria | Toy: Finger Spinner / Shippuden Naruto | Lead | 198,900 |
| 28PhI03242018 | Manila | Divisoria | Toy: Finger Spinner / Shippuden Naruto | Chromium | 36,300 |
| 30PhI03242018 | Manila | Divisoria | Toy: Kiddie Floater / Best Way | Antimony | 1,117 |
| 49PhI03242018 | Manila | Divisoria | Toy: Musical Toy / Wonderful Xylophone | Arsenic | 395 |
| 71PhI04262018 | Manila | Divisoria | Toy: Mini Fashion Make-up | Mercury | 228 |

Table 3-A: Children's products containing Antimony

| Sample No. | City | Place of Purchase | Product | Antimony (ppm) |
|-----------------|--------|-------------------|---------------------------------|----------------|
| 30PhI03242018 | Manila | Divisoria | Toy: Kiddie Floater | 1,117 |
| 77PhI0407262018 | Manila | Divisoria | Toy: Jungle Animals | 933 |
| 70PhI04262018 | Manila | Divisoria | Toy: Mini Guitar | 896 |
| 73PhI04262018 | Manila | Divisoria | Toy: Kiddie Sunglasses 4 | 824 |
| 74PhI0407262018 | Manila | Divisoria | Toy: Assorted Farm Toy | 510 |
| 41PhI03242018 | Manila | Divisoria | Toy: Mini Bubble Gun Toy | 483 |
| 11PhI03242018 | Manila | Divisoria | Toy: Laser toy | 476 |
| 72PhI07262018 | Manila | Divisoria | Toy: Mini Gun | 309 |
| 18PhI03242018 | Manila | Divisoria | Toy: Action Figure Toy (Naruto) | 253 |
| 80PhI04262018 | Manila | Divisoria | Toy: Mini Dinosaurs | 249 |
| 8PhI03262018 | Manila | Divisoria | Toy: Laser toy | 246 |
| 58PhI04262018 | Manila | Divisoria | Toy: Mini Dart | 232 |
| 4PhI03262018 | Manila | Divisoria | Toy: Mini Toy | 220 |
| 62PhI04262018 | Manila | Divisoria | Toy: Kiddie Sunglasses 1 | 197 |
| 33PhI03242018 | Manila | Divisoria | Toy: Baseball Toy | 129 |

Table 3-B: Children's products containing Arsenic

| Sample No. | City | Place of Purchase | Product | Arsenic (ppm) |
|---------------|--------|-------------------|-------------------------------------|---------------|
| 49PhI03242018 | Manila | Divisoria | Toy: Musical Toy | 395 |
| 7PhI04262018 | Manila | Divisoria | Toy: Laser toy | 242 |
| 65PhI04262018 | Manila | Divisoria | Toy: Mini Xylophone | 94 |
| 32PhI03242018 | Manila | Divisoria | Toy: Wooden Chicken Toy with String | 84 |
| 78PhI04262018 | Manila | Divisoria | Toy: Mini Army Set | 32 |

Table 3-C: Children's products containing Cadmium

| Sample No. | City | Place of Purchase | Product | Cadmium (ppm) |
|------------|------|-------------------|---------|---------------|
|------------|------|-------------------|---------|---------------|

| | | | | |
|---------------|--------|-----------|---------------------|-----|
| 80PhI04262018 | Manila | Divisoria | Toy: Mini Dinosaurs | 115 |
| 77PhI04262018 | Manila | Divisoria | Toy: Jungle Animals | 91 |

Table 3-D: Children's products containing Chromium

| Sample No. | City | Place of Purchase | Product | Chromium (ppm) |
|---------------|--------|-------------------|-------------------------------------|----------------|
| 28PhI03242018 | Manila | Divisoria | Toy: Fidget Spinner | 36,300 |
| 49PhI03242018 | Manila | Divisoria | Toy: Musical Toy | 5,568 |
| 65PhI04262018 | Manila | Divisoria | Toy: Mini Xylophone | 3,145 |
| 17PhI03242018 | Manila | Divisoria | Toy: Magnet Toy | 2,509 |
| 7PhI03262018 | Manila | Divisoria | Toy: Laser toy | 1,061 |
| 32PhI03242018 | Manila | Divisoria | Toy: Wooden Chicken Toy with String | 397 |
| 58PhI04262018 | Manila | Divisoria | Toy: Mini Dart | 298 |
| 59PhI04262018 | Manila | Divisoria | Toy: Mini Die Cast Car | 293 |
| 72PhI04262018 | Manila | Divisoria | Toy: Mini Gun | 141 |

Table 3-E: Children's products containing Lead

| Sample No. | City | Place of Purchase | Product | Lead (ppm) |
|---------------|--------|-------------------|--|------------|
| 28PhI03242018 | Manila | Divisoria | Toy: Fidget Spinner / Shippuden Naruto | 198,900 |
| 49PhI03242018 | Manila | Divisoria | Toy: Musical Toy / Wonderful Xylophone | 9,696 |
| 7PhI03262018 | Manila | Divisoria | Toy: Laser toy / Kai Xin Electronic Toy (Yellow) | 4,632 |
| 65PhI04262018 | Manila | Divisoria | Toy: Mini Xylophone | 1,994 |
| 8PhI03262018 | Manila | Divisoria | Toy: Laser toy / Kai Xin Electronic Toy (Green) | 1,951 |
| 79PhI04262018 | Manila | Divisoria | Toy: Mini Lizards | 1,885 |
| 11PhI03242018 | Manila | Divisoria | Toy: Laser toy / Kai Xin Electronic Toy (Violet) | 1,850 |
| 10PhI03262018 | Manila | Divisoria | Toy: Laser toy / Kai Xin Electronic Toy (Blue) | 1,799 |
| 74PhI04262018 | Manila | Divisoria | Toy: Assorted Farm Toy / Farm Animals | 1,161 |
| 84PhI04262018 | Manila | Divisoria | Toy: Big Gun toys | 716 |
| 9PhI03262018 | Manila | Divisoria | Toy: Laser toy / Kai Xin Electronic Toy (Red) | 630 |
| 77PhI04262018 | Manila | Divisoria | Toy: Wild Animals | 575 |
| 32PhI03242018 | Manila | Divisoria | Toy: Wooden Chicken Toy with String | 436 |
| 87PhI04262018 | Manila | Divisoria | Toy: Kiddie Watch Minions Design | 388 |
| 86PhI04262018 | Manila | Divisoria | Toy: Kiddie Watch (Inside Out Design) | 375 |
| 75PhI04262018 | Manila | Divisoria | Toy: Mini Smiley Magnet Holder | 374 |
| 88PhI04262018 | Manila | Divisoria | Toy: Kiddie Watch (Cars Design) | 373 |
| 78PhI04262018 | Manila | Divisoria | Toy: Mini Army Set | 366 |
| 27PhI03242018 | Manila | Divisoria | Toy: Finger Spinner | 275 |
| 5PhI03262018 | Manila | Divisoria | Toy: Mini Toy Paw Patrol (Egg shape with toy inside) | 180 |
| 69PhI04262018 | Manila | Divisoria | Toy: Kiddie Sunglasses | 140 |
| 72PhI04262018 | Manila | Divisoria | Toy: Mini Gun | 116 |

Table 3-F: Children’s products containing Mercury

| Sample No. | City | Place of Purchase | Product | Mercury (ppm) |
|---------------|--------|-------------------|---------------------------|---------------|
| 71PhI04262018 | Manila | Divisoria | Toy: Mini Fashion Make-up | 228 |

Table 3-G: Children’s products containing Phthalates

| | Test Item(s) | Unit | Result |
|---|---|------|--------|
| “Super” baseball set with bat and glove | DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7) | % | 0.988 |
| | DINP (Diisononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0) | % | 0.0182 |
| “Mommy’s Baby Collection” plastic doll | DBP (Dibutyl phthalate) (CAS No.: 84-74-2) | % | 0.915 |
| | DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7) | % | 2.82 |
| | DIBP (Diisobutyl phthalate) (CAS No.: 84-69-5) | % | 0.0123 |

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ⁱⁱ <http://chemical.emb.gov.ph/wp-content/uploads/2017/03/DAO-2005-27-PCL-List.pdf>

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^{iv} http://www.who.int/ipcs/assessment/public_health/chemicals_phc/en/

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