INNOCENCE TOUCHED BY SHADOWS:

INVESTIGATING TOXIC CHEMICALS IN TOYS

80 Hg Mercury 200.59

82 Pb 207.2 Lead

48 Cd Cadmium 112.41

ESDO

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Innocence Touched by Shadows: Investigating Toxic Chemicals in Toys

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The Environment and Social Development Organization, ESDO, is an action research oriented non-profit and non-government organization in Bangladesh. It is an environmental action research group dedicated to a toxic-free, zero-waste planet. This entails fighting pollution and building regenerative solutions in cities through local campaigns, shifts in policy and finance, research and communication initiatives, and movement building. ESDO is working relentlessly to ensure biological diversity since its establishment in 1990. It is the pioneer organization that launched the anti-polythene campaign in 1990, which resulted in a complete ban of polythene shopping bags throughout Bangladesh in 2002.

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ESDO is delighted to express its appreciation to all the stakeholders who have contributed to the assessment of the country's genuine status. Also thankful to media, BSTI (Bangladesh Standards and Testing Institution), academicians, researchers, toy associations, and others have made significant contributions to this study.

We applaud the efforts of these stakeholders for their valuable contributions, which have helped in accurately assessing the country's genuine status. Their expertise and insights have enriched the study and provided a comprehensive understanding of the situation at hand.

Executive Summary

Environment and Social Development Organization- ESDO conducted a study on analyzing heavy metals in toys in 2013. To follow up that study, another research has been carried out to examine the toxic chemicals in toys in 2023.

Toys serve a pivotal role in the educational and personal development of children, with the selection of toys exerting a profound influence on their growth and progress. Regrettably, some toys, contain harmful chemicals and heavy metals, posing a significant risk. Exposure to heavy metals such as, arsenic, beryllium, cadmium, hexavalent chromium, lead, and mercury, deemed hazardous by the Occupational Safety and Health Administration (OSHA), can have detrimental effects on the health, particularly on the physical and mental development of children. Children below the age of six, in their crucial developmental phase and prone to putting objects in their mouths, are particularly vulnerable to heavy metal exposure from toys. The continuous ingestion of these heavy metals can lead to health problems due to metal accumulation in their bodies. Children's unique characteristics, including higher metabolic rates, immature organ systems, rapid growth, and development, make them more susceptible to toxic exposures. Their hand-to-mouth behavior serves as a direct pathway for chemicals in toys and other products to enter their bodies.

The analysis was examined by XRF analyzer at the Ban Toxics laboratory. The study disclosed noteworthy findings concerning the sample toys. Specifically, the results indicated elevated concentrations of lead, mercury, and cadmium. For lead, the detected concentrations ranged from **1.68 to 379 ppm**, while mercury exhibited a range of **0.87 to 179 ppm**. Cadmium concentrations fell within the range of **12.37 to 56 ppm**. Besides, **50%** samples contain lead, **65%** samples contain mercury, and **100%** samples contain cadmium that exceeds the permissible limits set by the EU specifically for toys. The result reveals that, the average concentrations found in toys are as follows: Lead - 65.85 ppm, which exceeds the acceptable limit by approximately **5 times**; Mercury - 30.6 ppm, exceeding the limit by **4 times**; and Cadmium - 28.65 ppm, surpassing the limit by a significant **15 times**.

The comparative analysis of samples from 2013 and 2023 highlights significant changes in heavy metal concentrations. Notably, lead concentrations have **decreased by approximately 83%**, indicating a positive trend. Conversely, cadmium concentrations have seen a substantial **increase of 55%**, raising concerns about the rising presence of cadmium in the environment. However, the most surprising finding is the absence of mercury in 2013 samples, in contrast to its presence at 30.6 parts per million in 2023 samples. This unanticipated emergence of mercury in the environment prompts inquiries into potential pollution sources or alterations in environmental conditions.

These findings point to a significant presence of these potentially harmful heavy metals within the tested toy samples, raising concerns about their safety and compliance with regulatory standards.

Background

The history of toys is a captivating journey that spans millennia, revealing the evolution of human culture and technology. It all began with simple objects like sticks, rocks, and animal bones in prehistoric times, which children used for imaginative play. As civilization advanced, so did toys, with ancient civilizations like Egypt, Greece, and Rome crafting dolls, yo-yos, spinning tops, and early board games. The Middle Ages saw the emergence of dolls, puppets, and mechanical toys.[1] The Industrial Revolution in the 18th and 19th centuries brought mass-produced toys, including iconic favorites like dolls, toy soldiers, and board games. The 20th century witnessed the rise of modern toys, with action figures, plastic toys, and electronic games taking center stage. In the 21st century, digital and educational toys became prevalent, while the emphasis on eco-friendly and sustainable toys grew. Toys, whether traditional or high-tech, have always played a crucial role in shaping childhood experiences, reflecting the times in which they were created.[2]

Image 1: Toys from the Past

[1] https://www.britannica.com/technology/toy

[2] https://www.arts.unsw.edu.au/sites/default/files/documents/GERRIC_The%20Games%20People%20Play%20Pre-Reading%202020.pdf

Toys play an essential role in the learning and individual development of children, and the choice of toys significantly influences their growth and progress. As children grow and develop, their toy preferences change in line with their age, interests, and abilities. The selection of toys is influenced by a child's behavior and interests. Some may opt for puzzle games, memory games, manipulative games, and indoor board games, which can be enjoyed either alone, with a volunteer, with parents, or with a small group of friends. Similarly, outdoor games like basketball, badminton, and cricket require physical strength and a specific number of players. Toys can be categorized based on their ability to stimulate and support development in different age groups. Additionally, toys can be grouped according to the specific areas of development they enhance. However, many toys have the potential to contribute to multiple aspects of development. For instance, a doll can aid in social development and imaginative play, while dressing the doll can enhance fine motor skills. Here are examples of toys and the key areas of development they promote[3]:

- Toys for physical or muscle development include wagons, bikes, boxes, puzzles, blocks, brooms, and shovels.
- Toys for sensory development (touch, sight, sound, taste, smell) encompass water toys, musical instruments, bubbles, play dough, and sand toys.
- Toys for imaginative and social development comprise dolls, dress-up clothes, cars, trucks, games, and books.
- Toys for creative and intellectual development encompass clay, crayons, paints, books, paper, and scissors.

[3] https://www.inspirajournals.com/uploads/Issues/1066434205.pdf

Image 2: Direct Interaction with Toys

On the other side of the story, it is a matter of grief that some toys are found to have harmful elements as toxic chemicals and heavy metals. It is usually believed that toys are safe, but sometimes they are not, and that is worrisome. Exposure to heavy metals from consumer products can have detrimental effects on health, particularly affecting the physical and mental development of children. Heavy metals identified as hazardous by the Occupational Safety and Health Administration (OSHA) include arsenic, beryllium, cadmium, hexavalent chromium, lead, and mercury. As human exposure to these metals increases, so does the severity of adverse effects. Children under six years old are particularly vulnerable due to their critical developmental stage and mouthing behavior, which puts them at risk of heavy metal exposure from contaminated toys. Continuous ingestion of heavy metals through mouthing can lead to health problems due to metal accumulation in the body.[4]

The combination of toxic metals in children's toys and their accessibility, along with children's developmental vulnerability, presents a significant public health concern, referred to as the "risk triangle" by the Intergovernmental Forum on Chemical Safety. Among these metals, arsenic, cadmium, and lead are known to have adverse effects with prolonged exposure. Some manufacturers use these metals in toy products for various purposes, such as lead for stabilization, color enhancement, or corrosion resistance. Cadmium may replace lead-based stabilizers or enhance the realism of children's novelty jewelry. The reasons behind the use of arsenic in products remain unclear but may relate to certain coloring dyes.[5]

Children's unique characteristics, including higher metabolic rates, greater surface area to weight ratios, immature organ systems, rapid growth, and development, make them more susceptible to toxic exposures. Their hand-to-mouth activity provides a pathway for chemicals in toys and other products to enter their bodies. Children encounter multiple low-dose exposures daily from various products and environmental sources.[6]

[4] https://www.cbc.ca/news/business/toy-recall-analysis-1.4461167
[5] https://scholarship.richmond.edu/cgi/viewcontent.cgi?article=1080&context=chemistry-faculty-publications
[6] https://pubs.acs.org/doi/10.1021/es1009407

Toxic chemicals in toys primarily result from two main factors: the absence of regulation and violations of existing regulations. The latter problem is compounded by the complexities of global production systems. Regulatory gaps exist, and the U.S. Environmental Protection Agency (EPA) maintains an inventory of over 80,000 chemicals under the Toxic Substances Control Act (TSCA), with only a few having undergone sufficient safety testing. TSCA requires extensive hazard and exposure data before the EPA can restrict chemical use. Historically, even when strong evidence links a chemical to illness or injury, the EPA has been slow to impose restrictions. Calls for legislative reform to address these issues are gaining momentum.[7]

Although the Consumer Product Safety Commission (CPSC) theoretically has the authority to regulate toxic chemicals in products, its practical ability to do so has been limited. Under the Federal Hazardous Substances Act (FHSA), the presence of toxic substances is addressed.[8]

ESDO's Previous Study on 2013

Environment and Social Development Organization (ESDO) has conducted a study on toxic metals level on the toys and public perception in Bangladesh from October 2012 to August 2013. During this study, toys were collected from of different stores of Dhaka city markets and sent for analysis to Nepal Bureau of Standard and Metrology (NBSM), Nepal. The selection was based on the country of origin, composition and color. Levels of toxic metals in 97% toys tested were significantly above the EU and US recommended ceiling of lead, cadmium, bromine and chromium. The plastic toys are the most contaminated as "Toxic Toys" category and the lead is the highest concentrated metal in different category of toys. Many international brands like Barbie, and Lego toys also exposed by lead, cadmium and chromium. Local clay and wooden color toys found high concentration of lead and chromium. The highest level of lead concentration was found as 8305.8 Parts Per Million (ppm) following cadmium 490.5 ppm, chromium 2502.2 ppm and bromine 3923 ppm.

Heavy metals	Range	Concentration (ppm)	Average (ppm)
Lead	Lowest	21.4	401.78
	Highest	8305.8	
Mercury	Lowest	0	0
	Highest	0	
Cadmium	Lowest	16.2	18.48
	Highest	490.5	
Bromine	Lowest	5.6	311.97
	Highest	3923	
Chromium	Lowest	9.6	330.44
	Highest	2052.2	

Table 1: Heavy Metal Concentration in Toys in 2013

[7] https://www.scientificamerican.com/article/chemicals-of-high-concern-found-in-thousands-of-childrens-products/

[8] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6278473/

All these concentrations are of several times higher than the EU suggested limit. It was surprising that no mercury level was found in the studied samples. 75% of the samples were contaminated with bromine following 62.5% with lead, 27.5% with chromium, 20% with cadmium and 0% with mercury. Study found very low level of awareness and understanding of "Toxic Toys" amongst the business and consumers/parents in Bangladesh. Unfortunately, no regulation and policy on toy safety yet taken by the government. Study found discurded toys endup with landfil, water bodies and drain.[9]

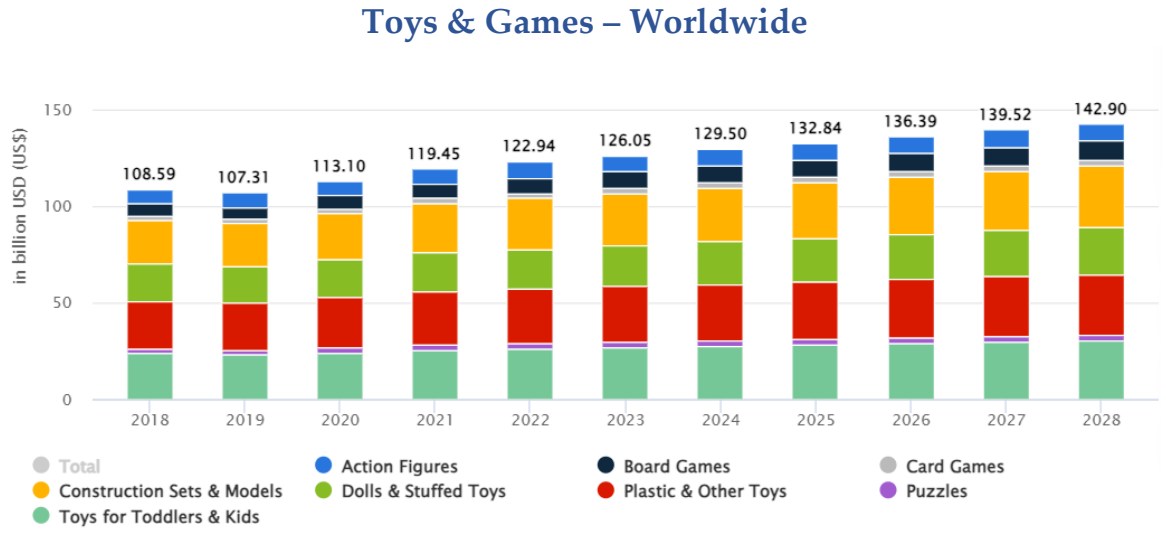


Figure 1: Types of Toys Worldwide (2018-2028)

The Toys & Games market experienced steady growth in 2022, primarily due to increased consumer disposable income and a renewed interest in traditional toys and games. Classic toys, board games, and educational toys regained popularity, leading to a total revenue of US$122.90 billion, a 2.9% increase from the previous year. Dominated by industry giants like Hasbro, Mattel, LEGO Group, and Spin Master, niche toy manufacturers are also emerging to diversify the market. Future trends include the rise of educational toys promoting STEAM learning, a focus on eco-friendly and sustainable toys, licensing agreements with popular franchises, and the continued expansion of e-commerce and online retail channels. These trends suggest further growth for the Toys & Games market in the years to come.[10]

[9] https://ipen.org/news/esdo-releases-new-study-toxic-toys-bangladesh
[10] https://www.statista.com/outlook/cmo/toys-hobby/toys-games/worldwide

Toys: "Made in Bangladesh"

Image 3: Made in Bangladesh toys manufacturing[11]

The global popularity of toys produced in Bangladesh reflects a significant shift in the international toy market. Bangladesh has become a major hub for toy manufacturing, primarily due to its skilled labor force, cost-effective production methods, and compliance with international safety standards. These toys, often characterized by their affordability and quality, are in high demand, especially in European countries like the Netherlands, Spain, Germany, Russia, as well as in countries like Japan, Australia, and the United States. The growing demand can be attributed to both the competitive pricing of these toys and the emphasis on ethical sourcing and sustainability in the manufacturing process. As a result, "Made in Bangladesh" toys have not only carved a niche in the global toy industry but also exemplify the potential for developing countries to contribute significantly to the global market while maintaining high production standards.[12]

[11] https://www.dhakatribune.com/business/159419/made-in-bangladesh-toys-all-over-europe-and
[12] https://thefinancialexpress.com.bd/views/views/bangladeshi-toys-prospects-in-local-and-global-markets-1550588512

Global Toy Industries

Leading exporters of toys, games and sport requisites worldwide in 2022, by country (in million U.S. dollars)

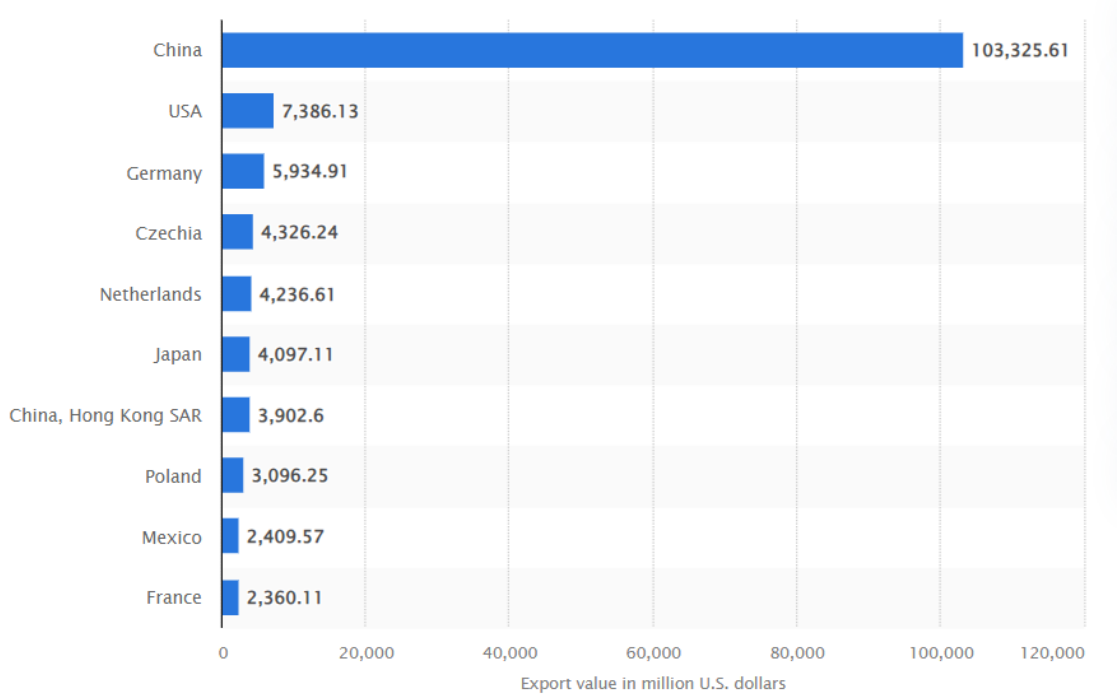


Figure 2: Global Toy Industries 2022

Aa reported by Statista 2023, statistic The statistics for 2022 highlight the trade value of the top exporters of toys, games, and sports requisites on a global scale. Notably, China emerged as the dominant player in this industry, with exports in this category reaching an impressive figure of approximately 103 billion U.S. dollars. This data underscores China's preeminent position as the world's foremost exporter of toys and related products.[13]

[13] https://www.statista.com/statistics/616732/toy-and-game-exporters-worldwide/#statisticContainer

Toys Industries in Bangladesh

Image 4: Toy shops Bangladesh

The toy industry in Bangladesh is currently considered an emerging one, and its profile is somewhat obscured when viewed from a global perspective. One notable challenge is the lack of readily available published data that comprehensively represents this industry. Nevertheless, discussions with individuals and stakeholders involved in this sector have shed light on its composition and market dynamics. Among the types of toys in the Bangladesh toy industry, plastic-based toys stand out as the most dominant category, accounting for a substantial 38.3% of the market share. These toys are typically made from various plastic materials and come in a wide range of shapes and sizes, catering to diverse preferences and age groups. Clay-based toys, with an 18.1% contribution, also play a significant role in the industry. These toys are often handcrafted and can include items like clay figurines, pottery, and other artistic creations. Clay-based toys are not only sources of entertainment but also have cultural and artistic value. Wooden toys, with a 15.3% market share, hold their place in the industry. These toys are crafted from wood and are appreciated for their durability, craftsmanship, and often traditional designs. They are favored for their tactile appeal and eco-friendliness. Cotton and fabric toys make up 8.5% of the market, typically appealing to children's sensory experiences and often featuring soft, huggable designs. Metal toys (7.4%) are appreciated for their sturdiness, and they often include miniature vehicles, figurines, or puzzles. Rubber-based toys account for 5.9% of the industry and are known for their resilience and playability in various environments, especially in water. Paper and board toys (3.5%) are often associated with puzzles, board games, and other interactive, flat-pack options. Jute-based toys make up 1.8% of the market and are appreciated for their sustainable and eco-

friendly nature. Lastly, ceramic toys have a smaller presence, contributing 1.2% to the industry. These toys are prized for their artistic value and craftsmanship.[14]

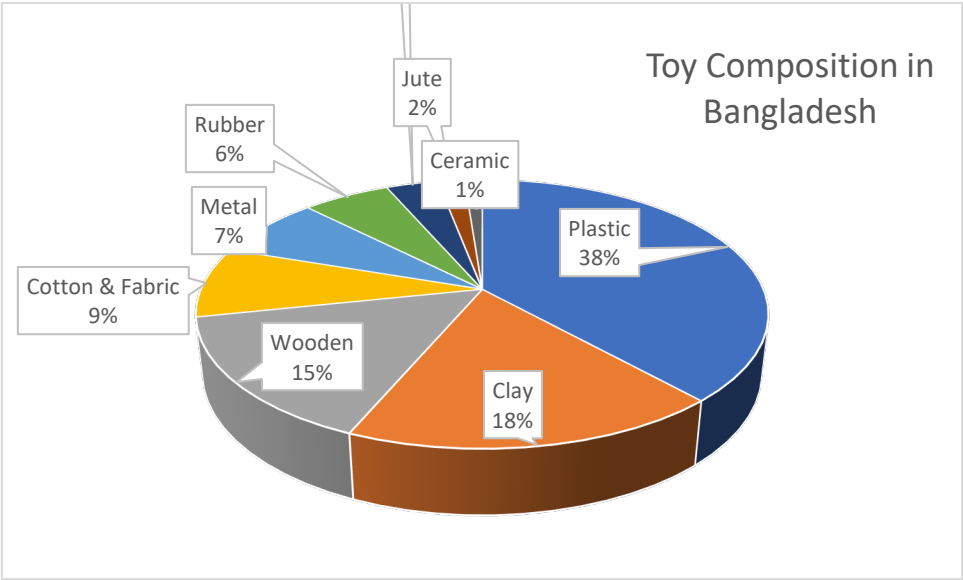


Figure 3: Toy Composition in Bangladesh in Percentage

Despite the lack of extensive data, the Bangladesh toy industry showcases a diverse array of toy types that cater to different tastes and preferences. While plastic and clay-based toys are the most prominent, other materials, such as wood, cotton, metal, rubber, paper, jute, and ceramic, contribute to the rich tapestry of the industry. The evolving nature of this sector indicates that it may continue to grow and diversify, potentially gaining recognition on the global stage in the future.

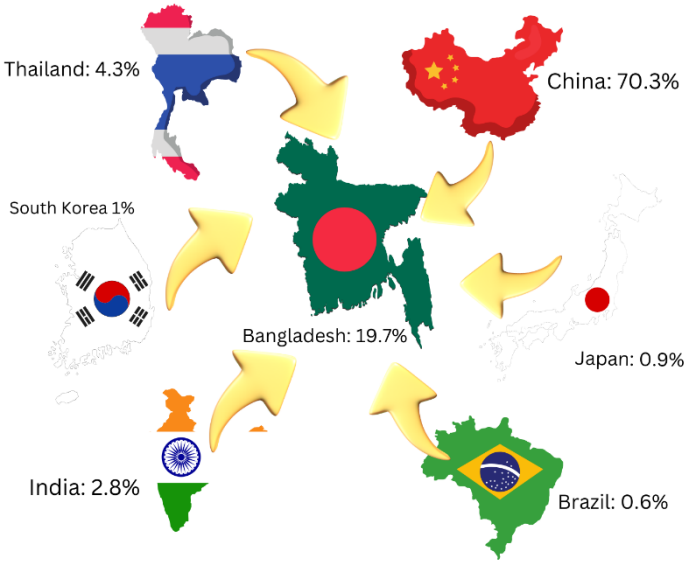


Image 5: Percentage of the production and import of Toys in Bangladesh[15]

14 https://www.researchgate.net/publication/319395482_Toxic_Toys_Heavy_Metal_Content_Public_Perception_in_Bangladesh_II_Environment_and_Social_Development_Organization_ESDO

15 https://ipen.org/news/esdo-releases-new-study-toxic-toys-bangladesh

Regulations for Chemicals and Heavy Metals in Toys

Unfortunately, there is no proper regulations of guidelines regarding the safety standards of toys in Bangladesh. The lack of regulations concerning toxic metals in children's toys in Bangladesh is a concerning issue that warrants immediate attention. This regulatory gap has allowed the unrestricted importation of toys containing hazardous levels of toxic metals from various countries worldwide. While there are indications of the dangers associated with hazardous substances in 'The Bangladesh Environment Conservation Act, 1995,' which defines hazardous substances as those with chemical or biochemical properties that can harm the environment during their manufacture, storage, discharge, or unregulated transportation, it is essential to recognize that the potential harm extends beyond the environment to the health and well-being of children who come into contact with these toxic toys. Addressing this issue requires the development and enforcement of comprehensive regulations specifically targeting the presence of toxic metals in children's toys to ensure the safety of the nation's youth.[16]

Permissible Limits for Heavy Metals

Table 2: Permissible Limits for Heavy Metal in Toys

Regulatory Body	Lead (ppm)	Mercury (ppm)	Cadmium (ppm)
EU[17]	13.5	7.5	1.9
GB6673-2003 (China)[18]	90	25	50

Table 3: Permissible Limits for Heavy Metals in Drinking Water

Regulatory Body	Lead (ppm)	Mercury (ppm)	Cadmium (ppm)
USA EPA[19]	0.015	0.002	0.005
WHO[20]	0.05	0.001	0.005

Objective of the Study

- To know the range of concentration of heavy metals (Pb, Hg and Cd) in toys
- Asses the health impacts generated by the existing heavy metals found in the toys
- Create awareness regarding this issue and policy advocacy for safety regulation in toys

[16] https://greenpagebd.net/high-levels-of-toxic-chemicals-found-in-children-toys-in-bangladesh-market/
[17] http://ec.europa.eu/enterprise/sectors/toys/files/toys-safety-brochure/w-toyssafety-brochure_en.pdf
[18] https://www.lisungroup.com/news/technology-news/the-eight-major-heavy-metals-in-toys-eu-standards-and-canadian-standard-methods.html
[19] C. Griffiths, H. Klemick, M. Massey, C. Moore, S. Newbold, D. Simpson, et al., US Environmental Protection Agency valuation of surface water quality improvements, Rev. Environ. Econ. Pol., 2012
[20] https://www.who.int/publications/i/item/9789241549950

Methodology

To prepare this extensive report, the relevant study for data have been collected from both primary and secondary sources. The initial review was expanded relevant terms and included the following websites and sources –IPEN, Google Scholar, United Nations Environment Programme and local media releases - using an advanced search by country, with key words and filters for the evaluations, most relevant to least relevant, special evaluations, and other ESDO supported study/documents. The primary data collection methodology has divided into two parts – Sample Collection & Sample analysis which have elaborated in the next section. Then the data was compiled and analysis were made to make relevant assessments.

Sample Collection

Environment and Social Development Organization- ESDO collected toy samples from the markets of Dhaka city. The selection was based on the country of origin, composition and color.

Sample Size

Total 40 toys of different brands, colors were collected for this analysis.

Study Duration: Nine months.

Sample Data Analysis Method

Samples were coded and sent for testing to Ban Toxics, which is a non-Governmental organization based in Philippine. The concentrations of heavy metals in the collected samples were analyzed by using XRF analyzer in the lab of Ban Toxics. The XRF instrument shows the content of elements in the surface layer of an object. This analytical technique uses the interaction of X-rays with a material to determine its elemental composition. XRF is suitable for solids, liquids and powders, and in most circumstances is non-destructive.

XRF principle

X-ray fluorescence (XRF) technology utilize X-rays to excite the electrons within the atoms present in the analyzed products, most notably when determining the concentration of elements like lead. As the X-rays bombard the sample, they displace inner-shell electrons, creating temporary voids within the atom's electron configuration. In the effort to return to stability, electrons from outer shells transition to fill these voids, emitting characteristic X-rays in the process. These emitted X-rays are then swiftly detected by the XRF analyzer, allowing it to identify the elements within the sample based on their unique energy signatures. Through precise measurement of the emitted X-rays' energy and intensity, the analyzer quantifies the concentration of the target elements, often expressing it in parts per million (ppm), providing real-time, valuable insights into the composition of the analyzed material.

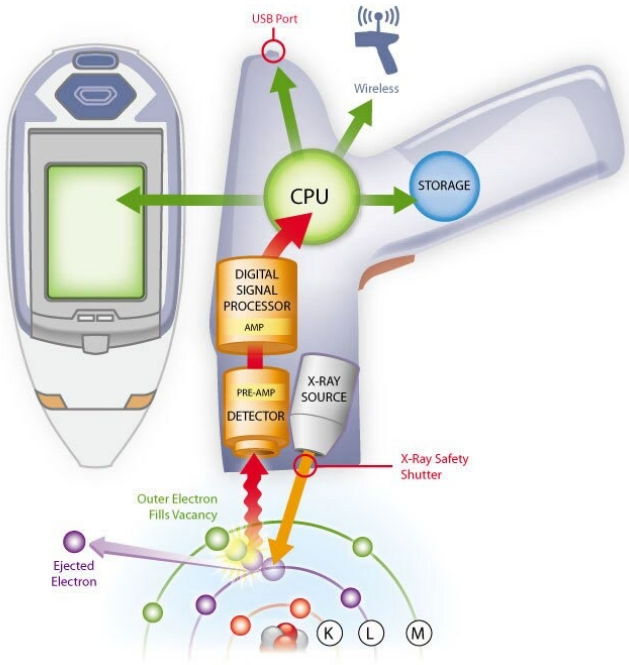


Image 6: XRF Analyzer

Results and Discussion

Heavy Metal Concentration Range

The study revealed noteworthy findings concerning the sample toys. Specifically, the results indicated elevated concentrations of lead, mercury, and cadmium. For lead, the detected concentrations ranged from 1.68 to 379 ppm, while mercury exhibited a range of 0.87 to 179 ppm. Cadmium concentrations fell within the range of 12.37 to 56 ppm.

Table 4: Heavy Metal Concentration Range found in the Sample Toys

Heavy Metal	Min (ppm)	Max (ppm)	Average (ppm)
Lead (Pb)	1.68	379	65.85
Mercury (Hg)	0.87	179	30.6
Cadmium (Cd)	12.37	56	28.65

Average Concentration of Heavy Metal and EU Standard

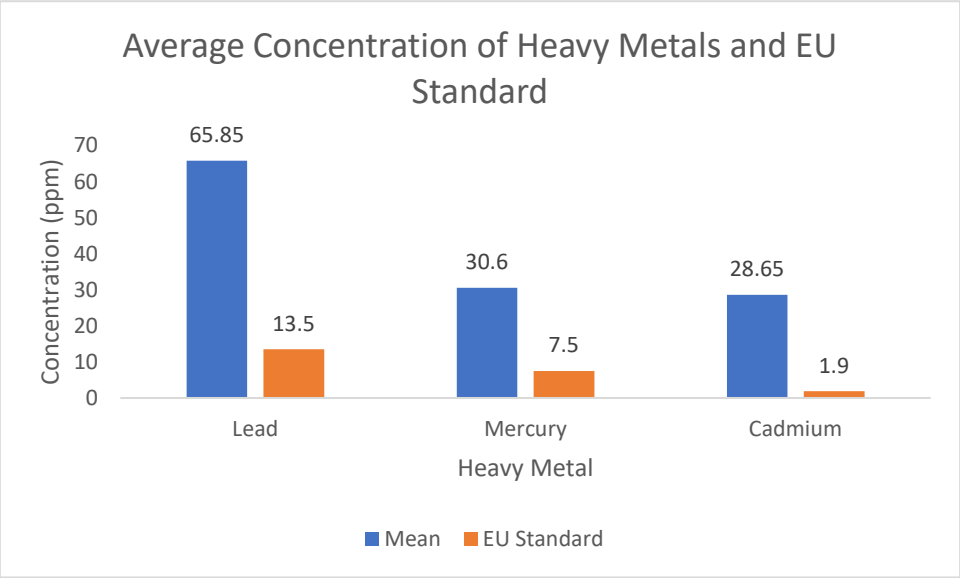


Figure 4: Average concentration of Heavy Metals in Samples comparing with EU Limit

According to the results, the average concentrations found in toys are as follows: Lead - 65.85 ppm, which exceeds the acceptable limit by approximately **5 times**; Mercury - 30.6 ppm, exceeding the limit by **4 times**; and Cadmium - 28.65 ppm, surpassing the limit by a significant **15 times**.

Proportion of Samples that Exceeded the Permissible Limit

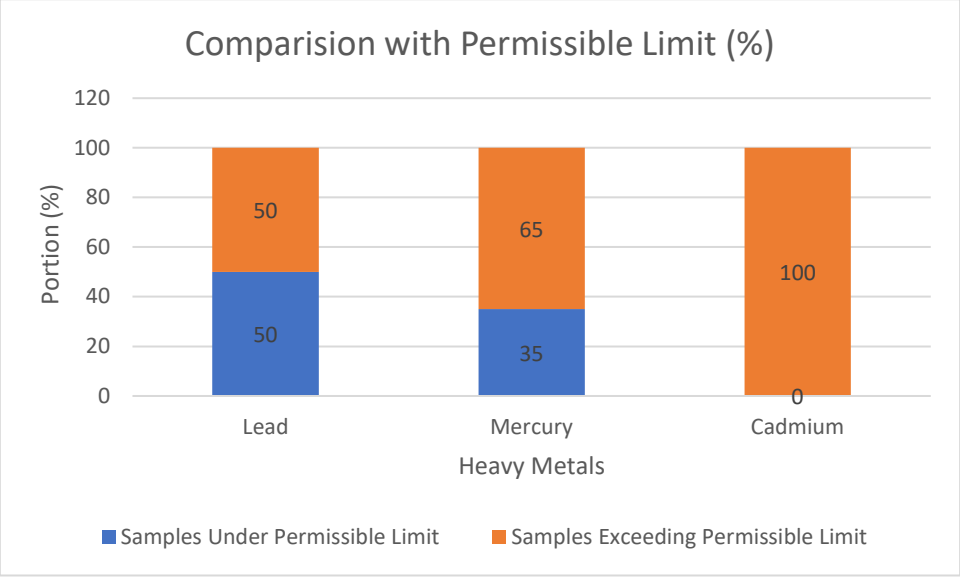


Figure 5: Comparison Ratio with Permissible Limit

Among 40 toy's samples, **50%** samples contain lead, **65%** samples contain mercury, and **100%** samples contain cadmium that exceeds the permissible limits set by the EU specifically for toys.

Samples that Exceeded the Permissible Limit for Drinking Water

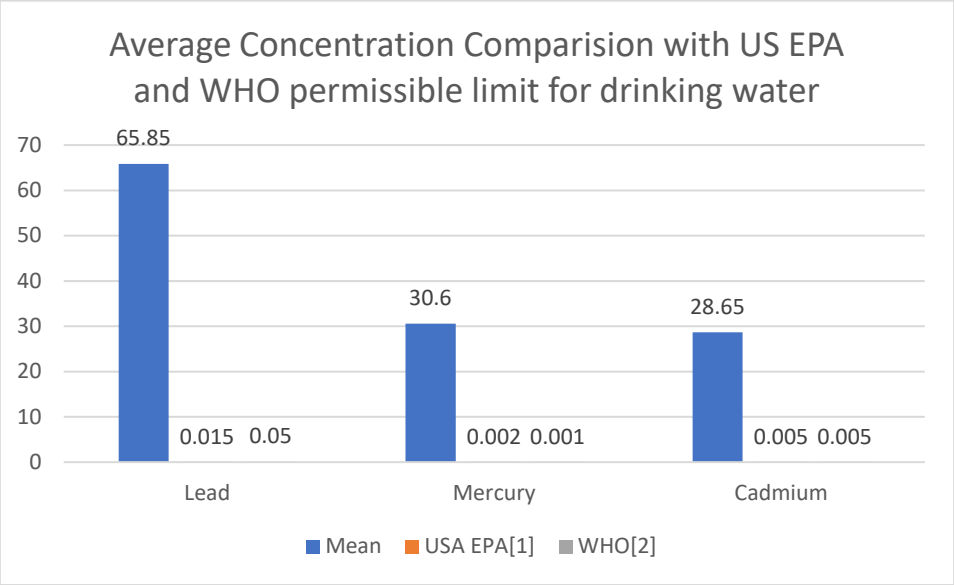


Figure 6: Comparison with US EPA and WHO permissible limit for drinking water

In contrast, comparing with the permissible limit of drinking water by WHO and US EPA, **100%** of the toy sample concentrations have surpassed the standards. Since children have the tendency to chew toys, it can be compared with the drinking water. In addition, these toys get disposed in the environment eventually, therefore, this high concentration of heavy metals can contaminate the water and hamper the food cycle in this way.

This is a significant cause for concern, as exposure to these heavy metals can have severe health implications, especially for children who may come into contact with or ingest these toys. Lead exposure can lead to developmental delays and behavioral problems, while mercury and cadmium exposure can harm the nervous system and vital organs. Urgent action is needed to recall and ban these toys to protect the health and well-being of children. Toy manufacturers, retailers, regulatory authorities, and parents must collaborate to ensure safer toys are available, and ongoing vigilance is crucial to prevent further instances of heavy metal contamination in toys.

Comparison between 2013 and 2023:

The present data has been compared with the findings from ESDO's study in 2013

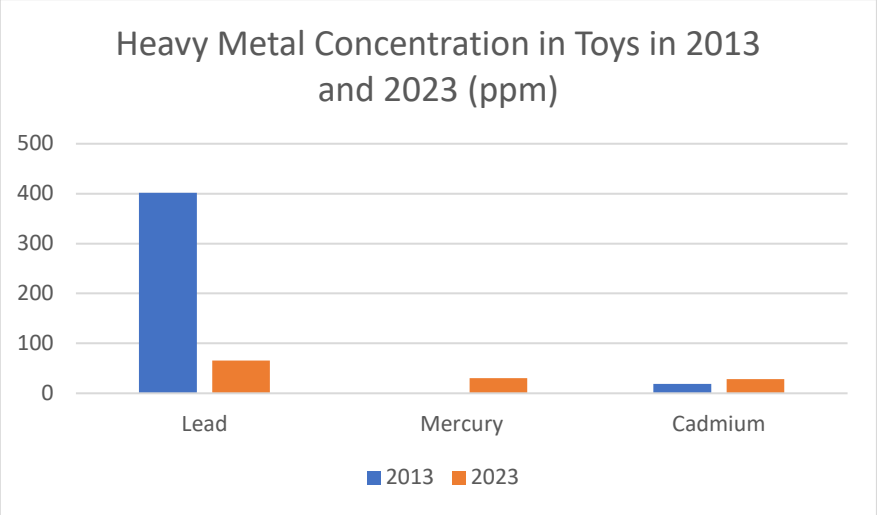


Figure 7: 2013 and 2023 Comparison

The comparative analysis of samples from 2013 and 2023 reveals remarkable shifts in heavy metal concentrations. Lead concentrations have declined by around 83%. In contrast, cadmium concentrations have witnessed a significant increase of 55%, signifying an alarming increase in cadmium presence in the environment. However, the most striking revelation is the absence of mercury in 2013 samples, contrasted with the presence of 30.6 parts per million in 2023 samples. This unexpected appearance of mercury in the environment raises questions about potential pollution sources or changes in environmental conditions. A thorough investigation is imperative to comprehend the underlying causes and evaluate the environmental and health implications of these significant alterations in heavy metal concentrations.

Sample Toys Heavy Metal Analysis

Table 4: Average concentration of Heavy Metals in Each Sample

Brand Name	Category	Country of Origin	Heavy Metal Concentration (ppm)		
			Lead	Mercury	Cadmium
Hot Wheels	Baby Car (Red)	Malaysia	118.49	163.955	22.5
Hot Wheels	Baby Car (Yellow)	Malaysia	123.18	179	23.81
Not Mentioned	Baby Tank Car (Blue)	Not Mentioned	8.31	11.33	22.62
RFL	Baby Rattles (Jhunjhuni)	Bangladesh	21.3	16.74	19.91
Not Mentioned	Baby plastic ball (Red)	Not Mentioned	64.44	3.26	20.29
Not Mentioned	Baby plastic ball (yellow)	Not Mentioned	25.295	22.09	23.94

Not Mentioned	Baby plastic ball (green)	Not Mentioned	7.97	106.88	43.37
Not Mentioned	Baby bath toys (Dinosaur Red)	Not Mentioned	11.415	7.32	56.01
Press and learn	Baby toy (Camera)	China	5.715	17.01	33.59
Not Mentioned	Baby Toys (Avengers Model- Blue)	China	24.81	1.59	29.84
Not Mentioned	Baby toys (Avengers Model- Green)	China	20.35	14.96	26.37
Not Mentioned	Baby toys (Avengers Model- Red)	China	8.54	7.72	23.47
Not Mentioned	Baby toys (Avengers Model- Purple)	China	9.19	8.98	24.57
Aarong	Baby doll (Bride)	Bangladesh	10.22	3.10	20.10
Aarong	Soft toys (Colorful Caterpillar)	Bangladesh	178.83	131.48	35.85
Classic Toy Products	Bat ball set (Red)	Not Mentioned	83.73	97.17	34.05
Classic Toy Products	Bat ball set (blue)	Not Mentioned	13.34	27.77	37.77
Not Mentioned	Spiderman (soft doll)	China	84.51	16.98	34.17
Aman toy garden	Baby Jeep car (Blue)	Bangladesh	285.045	30.03	50.47
Not Mentioned	Doraemon Keyboard (yellow)	Bangladesh	3.66	26.99	12.37
RFL	English Alphabet Block Capital letter set (Red)	Bangladesh	5.23	27.12	37.41
Not Mentioned	Bangla Alphabet block letter set (Pink)	Bangladesh	70.99	2.21	33.82
Hafiz plastic product	Kitchen set (blue)	Bangladesh	329.49	2.31	53.12
Zihan plastic industry	Racing car (Red)	Bangladesh	12.625	1.08	36.15
Hafiz Plastic product	Kitchen Set (Pink)	Bangladesh	17.4	45.64	51.79
Zihan plastic industry	Racing car (Blue)	Bangladesh	74.21	42.9	26.42
Zihan plastic industry	Racing car (Yellow)	Bangladesh	24.01	48.31	28.74

Not Mentioned	Baby bath toys (Dinosaur Pink)	Not Mentioned	232.91	8.04	30.31
Not Mentioned	Baby bath toys (Dinosaur Blue)	Not Mentioned	240.21	6.53	21.44
RFL	English Alphabet Block Capital letter set (Blue)	Bangladesh	9.35	23.65	22.37
RFL	English Alphabet Block Capital letter set (Orange)	Bangladesh	3.8	27.47	23.90
RFL	English Alphabet Block Capital letter set (Yellow)	Bangladesh	13.44	24.56	23.28
RFL	English Alphabet Block Capital letter set (Green)	Bangladesh	17.08	18.29	23.73
Not Mentioned	Bangla Alphabet block letter set (Yellow)	Bangladesh	12.11	1.32	20.95
Not Mentioned	Bangla Alphabet block letter set (Blue)	Bangladesh	7.71	1.9	18.28
Not Mentioned	Bangla Alphabet block letter set (Green)	Bangladesh	5.09	0.87	16.50
Not Mentioned	Bangla Alphabet block letter set (Orange)	Bangladesh	4.69	1.07	16.46
Aarong	Wooden Fish (Pink)	Bangladesh	379	10.31	17.83
Not Mentioned	Baby Toy (Spiderman Web- Yellow)	China	1.68	5.815	19.58
Aarong	Soft Toy (A girl)	Bangladesh	9.18	2.82	20.205

**Red marked concentrations exceeds the permissible limits*

Country of Origin

Figure: Country of origins of the sample toys (%)

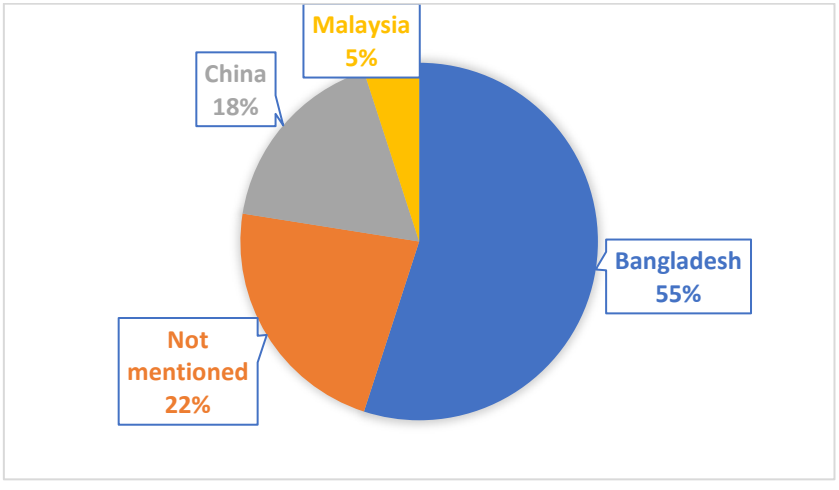


Figure 8: Country of Origin

Among the 40 toy samples, majority of the toys are found to be local (Bangladeshi) which is 55%. 18% originates from China and 5% are imported from Malaysia. Rest of them are not mentioned in the packaging labelling.

It is clearly seen that, the toys samples from China contain heavy metals below the limit of the threshold.

Overview of the heavy Metals found in Toys

Lead

Lead (Pb) is a chemical element with the symbol Pb and atomic number 82. It is a heavy metal.

Physical Properties:

- **Atomic Mass:** 207.2 atomic mass units (amu).
- **Density:** Lead is a dense metal with a density of about 11.34 grams per cubic centimeter (g/cm^3).
- **Melting Point:** 327.5 degrees Celsius (621.5 degrees Fahrenheit).
- **Boiling Point:** 1749 degrees Celsius (3180 degrees Fahrenheit).

Chemical Properties:

- Lead is a relatively unreactive metal, which is one reason it has been used throughout history for various applications.
- It can form various compounds with other elements, including lead oxide (PbO), lead sulfate (PbSO4), and lead chloride (PbCl2).

History:

- Lead has been used by humans for thousands of years. It was one of the first metals to be smelted from its ore.
- The Romans, for instance, used lead extensively in plumbing, as well as in the production of lead-acid batteries and for cosmetic purposes (lead-based cosmetics were used, though they are highly toxic).

Sources:

- Lead is found naturally in the Earth's crust and is typically associated with other minerals, such as galena (lead sulfide).
- It can also be found in trace amounts in soil, water, and the atmosphere due to human activities like burning fossil fuels and mining.

Toxicity:

- Lead is highly toxic to humans and many other organisms. Ingesting or inhaling lead can lead to lead poisoning, which can cause a wide range of health problems, especially in children and pregnant women.
- Due to its toxicity, the use of lead in various applications, like lead-based paints and leaded gasoline, has been significantly reduced or banned in many countries.

Applications:

- Historically, lead was used in a wide range of applications, including plumbing, bullets, batteries, and as a pigment in paint.
- It's still used in some specialized applications today, such as radiation shielding (due to its high density) and in the production of certain types of batteries (lead-acid batteries).

Environmental Concerns:

- Lead pollution is a significant environmental concern. Lead can accumulate in soil and water, posing risks to ecosystems and human health.
- Efforts have been made to reduce lead emissions and phase out its use in various products to mitigate its environmental impact.

Symbol and Name:

- The chemical symbol "Pb" for lead comes from the Latin word "plumbum."

Isotopes:

- Lead has four naturally occurring isotopes, with lead-208 being the most abundant, followed by lead-206, lead-207, and lead-204.

Uses in the Past and Present:

- In the past, lead was used extensively in pipes for plumbing, in paint, and in gasoline additives. These uses have been largely phased out due to health and environmental concerns.
- Lead-acid batteries continue to be a significant application for lead.
- Lead is used in some alloys, such as solder and radiation shielding materials.

Regulation:

- Many countries have strict regulations regarding the use and disposal of lead-containing products, particularly in industries that can lead to lead exposure for workers and the general public.

Lead's historical significance and toxic nature have led to its reduced use in modern times. Efforts to minimize exposure to lead and to reduce its environmental impact continue to be a priority in many regions.

Mercury

Mercury (Hg) is a chemical element with the atomic number 80 and the symbol Hg.

Physical Properties:

- **Atomic Mass**: 200.59 atomic mass units (amu).
- **Density**: Mercury is a dense liquid at room temperature, with a density of about 13.5 grams per cubic centimeter (g/cm^3).
- **Melting Point**: -38.83 degrees Celsius (-37.89 degrees Fahrenheit).
- **Boiling Point**: 356.73 degrees Celsius (674.11 degrees Fahrenheit).

Chemical Properties:

- Mercury is a transition metal, and it does not react with air at room temperature, which means it doesn't tarnish or corrode like many other metals.
- It does react slowly with atmospheric oxygen to form a thin layer of oxide on its surface.

History:

- Mercury has a long history of use by humans. The ancient Egyptians and Chinese used mercury in various applications, including cosmetics and medicine.
- The element's name comes from the Roman god Mercury, who was known for his speed and agility.

Sources:

- Mercury is a naturally occurring element found in small quantities in the Earth's crust.
- It can be obtained by heating the mineral cinnabar (mercury sulfide), which releases elemental mercury vapor that can be condensed and collected.

Toxicity:

- Mercury is highly toxic to humans. Exposure to mercury and its compounds can lead to severe health problems, including neurological and developmental issues.
- The most toxic form of mercury is methylmercury, which can accumulate in fish and seafood, posing risks to people who consume contaminated food.

Applications:

- Historically, mercury was used in thermometers, barometers, and switches due to its unique properties, including its low freezing point and high density.

- It has been used in dental amalgams, fluorescent lights, and as a catalyst in the production of various chemicals.
- Due to its toxicity and environmental concerns, many of these applications have been reduced or eliminated, such as the phase-out of mercury thermometers and barometers.

Environmental Concerns:

- Mercury pollution is a significant environmental concern. Emissions from industrial processes and the burning of fossil fuels can release mercury into the atmosphere, where it can eventually enter bodies of water.
- Once in aquatic ecosystems, mercury can undergo a transformation into methylmercury, which bioaccumulates in fish and can lead to human exposure through seafood consumption.

Symbol and Name:

- The chemical symbol "Hg" for mercury comes from the Latin word "hydrargyrum," which means "liquid silver."

Isotopes:

- Mercury has several stable isotopes, with the most common being mercury-202 (29.86%) and mercury-200 (23.10%).

Uses in the Past and Present:

- While mercury was once used in various consumer products and industrial processes, its use has declined significantly due to health and environmental concerns.
- It is still used in some niche applications, such as in small amounts in dental amalgams and some specialized laboratory equipment.

Regulation:

- Many countries have established strict principles to control the use and disposal of mercury-containing products to reduce human and environmental exposure to this toxic element.

Efforts to reduce mercury exposure and limit its environmental impact continue to be a priority due to its toxic nature and potential long-term effects on human health and ecosystems.

Cadmium

Cadmium (Cd) is a chemical element with the atomic number 48 and the symbol Cd.

Physical Properties:

- **Atomic Mass**: 112.41 atomic mass units (amu).

- **Density**: Cadmium is a relatively dense metal with a density of about 8.65 grams per cubic centimeter (g/cm^3).
- **Melting Point**: 321.07 degrees Celsius (609.93 degrees Fahrenheit).
- **Boiling Point**: 767 degrees Celsius (1413 degrees Fahrenheit).

Chemical Properties:

- Cadmium is a relatively unreactive metal, and it does not corrode readily. However, it can form compounds with other elements, and it can release toxic fumes when heated.

History:

- Cadmium was discovered in 1817 by Friedrich Stromeyer, a German chemist.
- The element's name comes from the Latin word "cadmia," which referred to calamine, a mineral that contains cadmium.

Sources:

- Cadmium is typically found as a minor component in various ores, including zinc ores (sphalerite) and copper ores.
- It is often obtained as a byproduct of zinc refining.

Toxicity:

- Cadmium is highly toxic to humans and other living organisms. Exposure to cadmium can have severe health effects, particularly on the kidneys and bones.
- Long-term exposure to even low levels of cadmium can lead to chronic health problems, including kidney disease, lung cancer, and osteoporosis.

Applications:

- Historically, cadmium was used in a variety of applications, including pigments for coloring glass and ceramics, as a corrosion-resistant plating for steel (cadmium plating), and in rechargeable nickel-cadmium (NiCd) batteries.
- Due to its toxicity and environmental concerns, many of these applications have been reduced or phased out, especially in the case of NiCd batteries.

Environmental Concerns:

- Cadmium pollution is a significant environmental concern. It can enter the environment through industrial processes, agricultural practices, and waste disposal.
- Once in the soil, cadmium can be taken up by plants and accumulate in the food chain, posing risks to human health.

Symbol and Name:

- The chemical symbol "Cd" for cadmium comes from its Latin name.

Isotopes:

- Cadmium has several isotopes, with the most abundant and stable being cadmium-114 (28.73%) and cadmium-112 (24.13%).

Uses in the Past and Present:

- Cadmium was once used in a variety of consumer products and industrial processes, but its use has been greatly reduced due to its toxicity.
- In the past, nickel-cadmium batteries were a common choice for portable electronic devices, but they have been largely replaced by other battery types like nickel-metal hydride (NiMH) and lithium-ion (Li-ion) batteries.

Regulation:

- Many countries have imposed guidelines to control the use and disposal of cadmium-containing products to reduce human and environmental exposure to this toxic element.

Efforts to minimize exposure to cadmium and to reduce its environmental impact continue to be a priority in many regions.

Why Chemicals are used in Toy industries

Lead

Softening Plastics: Lead is used in some plastics to make them more flexible and pliable. This is particularly common in older plastic materials, and it helps the plastic to return to its original shape after being deformed.

Stability in Plastic Toys: In plastic toys, lead can be added to stabilize the molecules in the material, especially in conditions where the toys might be exposed to heat. While this may serve a functional purpose, it can lead to harmful consequences if the lead is not properly contained within the plastic.

Alloys in Toys: Lead is also used in the production of certain alloys, often in combination with elements like antimony, tin, arsenic, and calcium. These alloys can be used in various applications, including some toy manufacturing. If not handled or disposed of properly, these toys can present risks of lead exposure.

Risks: Over time, when lead-containing plastics are exposed to environmental factors such as sunlight, air, or detergents, the chemical bond between lead and the plastic can break down. This degradation process can result in the formation of lead dust, which is especially concerning when it comes to toys intended for young children.

One of the most critical concerns is the risk of lead exposure to young children who come into contact with toys that contain lead. Children often explore their world by putting objects, including toys, in their mouths. If lead dust is present on these toys, children can ingest it

unknowingly. Lead is a toxic substance, and even small amounts can have severe health consequences, particularly in developing children. It can lead to developmental delays, cognitive impairments, and a range of physical and behavioral issues.

Mercury

Shiny Decorative Toys: Some decorative items such as toys and ornaments get coated with a thin layer of mercury to achieve a shiny, reflective appearance.

Shiny Pigments in Art and Craft Materials: Mercury is used in some metallic pigments for art and craft toys materials.

Risk Factors: While mercury was once used for its reflective and shiny properties, its toxicity and environmental impact have led to the reduction or elimination of its use in these applications. Regulatory agencies and industry standards now require the use of safer and more environmentally friendly materials to achieve shiny or reflective effects in products.

Cadmium

Corrosion Resistance: Cadmium is highly corrosion-resistant, making it a valuable material for plating or coating products like toys that need protection from corrosion.

Electroplating: Cadmium plating is historically used to provide a protective layer on steel and other materials. It offered excellent corrosion resistance and lubricity, making it suitable for parts like screws, bolts, and springs.

Alloying: Cadmium can be added to various alloys to improve their properties. For example, it can enhance the strength and durability of certain alloys.

Electrical Conductivity: Cadmium exhibits good electrical conductivity, making it useful in some electrical components, such as semiconductors and certain types of connectors in toys.

Pigments and Dyes: Cadmium compounds are used as pigments in paints, plastics, and textiles. They provided bright, stable colors, making them popular choices in the arts and manufacturing.

Risk Factors: Cadmium's toxicity and environmental concerns have led to the reduction or elimination of its use in many applications. Regulations in many countries now restrict or ban the use of cadmium in consumer products and certain industrial processes to protect human health and the environment. Safer and more environmentally friendly alternatives have been developed and are being used in place of cadmium in many instances.

Health Impacts on Children

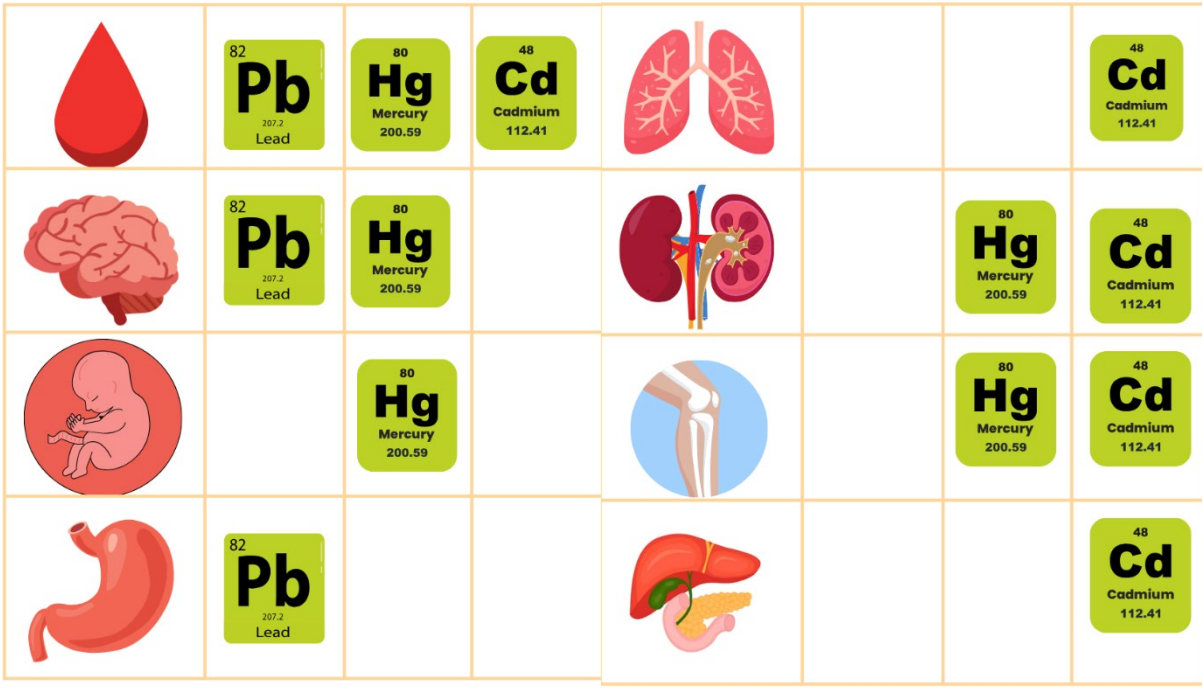


Image 7: Overview of Health Impacts by Heavy Metals

Lead

Impaired IQ and cognitive function: High lead exposure can lead to a decrease in IQ and cognitive functioning, resulting in learning disabilities and reduced academic achievement.

Behavioral problems: Lead exposure has been linked to increased aggression, attention problems, and hyperactivity in children.

Growth and development issues: Lead can interfere with the normal growth and development of children, leading to stunted growth and delayed puberty.

Anemia: Lead exposure can cause anemia, which results in a decrease in the number of red blood cells and can lead to fatigue and weakness.

Neuropathological effects: Lead damages the nervous system, leading to neurodevelopmental issues and potentially permanent neurological damage.

Seizures: High levels of lead exposure can cause seizures.

Kidney damage: Lead can damage the kidneys and impair their function.

Digestive System Effects: Lead exposure can cause abdominal pain, constipation, and gastrointestinal issues.

Tooth decay: Lead exposure can result in tooth decay, and it can affect the development of a child's teeth.

Low levels of lead exposure can be harmful to children. The effects of lead on health are cumulative, and there is no known safe level of lead exposure for children. Preventing lead exposure is crucial, and measures such as identifying and removing sources of lead, regular blood lead level testing for at-risk children, and public health initiatives to reduce lead in the environment are essential for protecting children's health. If a child is found to have elevated blood lead levels, medical intervention and lead abatement measures should be taken to minimize further exposure and treat the effects of lead poisoning.[21]

Mercury

Neurological Effects: Methylmercury, a common form of organic mercury, can have profound effects on the developing nervous system of children.

Cognitive and developmental deficits: Methylmercury can lead to cognitive impairments, including lower IQ, learning disabilities, and attention problems.

Gastrointestinal issues: Mercury exposure can lead to gastrointestinal problems, including nausea, vomiting, and diarrhea.

Kidney damage: Some forms of mercury can damage the kidneys, leading to renal problems.

Respiratory Effects: Inhalation of mercury vapor (as in the case of elemental mercury) can lead to respiratory problems, such as bronchitis and pneumonia.

Immunological Effects: Mercury exposure may suppress the immune system, making children more susceptible to infections and diseases.[22]

Cadmium

Developmental Effects: Cadmium exposure, especially during prenatal and early postnatal stages, can have adverse effects on a child's development. It can lead to cognitive and behavioral impairments, potentially resulting in learning disabilities and reduced academic achievement.

Respiratory Effects: Cadmium exposure, primarily through inhalation of cadmium-containing dust or fumes, can damage the respiratory system. Children exposed to cadmium may experience coughing, wheezing, and shortness of breath. Long-term exposure can lead to chronic respiratory conditions.

Gastrointestinal Effects: Cadmium can irritate the gastrointestinal tract and lead to nausea, vomiting, and diarrhea.

Bone and Kidney Effects: Cadmium is known to accumulate in the bones and kidneys over time. It can result in reduced bone density and an increased risk of osteoporosis later in life.

[21] https://www.cdc.gov/nceh/features/leadpoisoning/index.html#:~:text=windowsills%2C%20and%20wells.-,Exposure%20to%20lead%20can%20seriously%20harm%20a%20child's%20health%2C%20including,and%20hearing%20and%20speech%20problems.

[22] https://www.who.int/news-room/fact-sheets/detail/mercury-and-health#:~:text=Exposure%20to%20mercury%20%E2%80%93%20even%20small,%2C%20kidneys%2C%20skin%20and%20eyes.

Cadmium is also a nephrotoxin, meaning it can damage the kidneys and impair their function. This is a significant concern, as kidney function is crucial for overall health.[23]

Sustainable Toy Trend by European Union

Recently, sustainability has become much more than a hyped toy industry trend. It's becoming a way of life for many consumers. The importance of buying greener, healthier, more ethical products has accelerated its infiltration and reflects the habit of buying toys in recent years.

According to the Kids & Family Industry Report 2021, 69% of toy companies believe they can make a difference in the sustainability industry. The principal brands developing environmental strategies worldwide are LEGO, Hasbro, Mattel, MGA, Playmobil, and Clementoni. They understand that a clear environmental strategy can give them a competitive advantage while remaining relevant.[24]

It's already possible to identify four product categories relevant to this toy trend, based on the European toy fair trades in Europe, such as Spielwarenmesse International Toy Fair.

Made by Nature: Cork, bamboo, and similar materials

Recycle & Create: Toys made from recycled materials

Inspired by Nature: Bio-plastic or other bio-based composition

Discover Sustainability: Toys that can display and educate children about environmental topics

Conclusion

The situation described in Bangladesh regarding the presence of high levels of toxic metals in toys is deeply concerning. Children, who are the most vulnerable members of society, often interact closely with toys, making them particularly susceptible to the harmful effects of these toxic substances. Lead, mercury and cadmium are indeed highly poisonous metals, with the potential to harm various organs and systems within the human body when ingested or even just handled. The findings of the study, revealing excessive levels of toxic metals in all toy samples highlight a critical issue that demands immediate attention.

Moreover, the lack of awareness among parents about this issue further exacerbates the problem. To safeguard the health and well-being of future generations, it is imperative to take toy safety seriously. This entails implementing stringent government regulations to prevent the importation of toys containing toxic metals and conducting extensive awareness programs at various levels of society. Additionally, future research should delve deeper into this issue, and collaboration between institutions and government agencies is vital to address this pressing concern effectively. In doing so, we can work towards a safer and healthier environment for children in Bangladesh and beyond.

[23] https://pubmed.ncbi.nlm.nih.gov/17000570/
[24] https://www.eurodev.com/blog/5-toy-industry-trends-in-europe

Recommendation

Manufacturers and Consumer Protection Regulations: It is crucial for manufacturers to adhere to consumer protection regulations that limit the permissible levels of toxic metals in children's toys. Additionally, including cautionary labeling on toy packaging can help inform consumers about potential risks associated with the product. This transparency empowers parents and guardians to make informed choices when purchasing toys for their children, ultimately safeguarding their well-being.

Government Policy and Strict Enforcement: The government should play a pivotal role in addressing this issue by formulating and enforcing stringent policies. These policies should include bans on the import, manufacture, and sale of toys that exceed safe limits for heavy metals. Furthermore, governments should compel manufacturers to provide comprehensive information about any potential hazards and health impacts associated with their products. This transparency ensures accountability in the toy industry.

International Treaty for Toxic Metals-Free Children's Products: Establishing an international treaty to prohibit the use of toxic metals in children's toys can have a far-reaching impact. Such a treaty would promote global cooperation in ensuring the safety of children's products. It would also set a standard that all nations can follow, contributing to the overall well-being of children worldwide.

Consumer Awareness: Educating consumers is vital. Parents and caregivers should be made aware of the risks associated with toxic metals in toys. Encouraging them to carefully read and understand the labeling on toys can help them make safer choices when purchasing toys for children. This awareness empowers consumers to be proactive in protecting their children from potential harm.

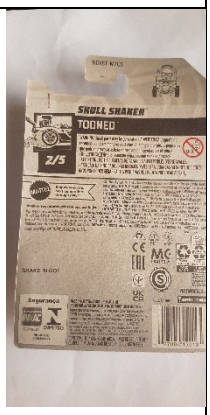
Media's Role in Raising Awareness: The media can play a crucial role in creating mass awareness about the harmful effects of toxic metals in toys. Through news reports, articles, and public service announcements, the media can inform the public about the risks, government regulations, and safe practices related to children's toys. This increased awareness can lead to a more informed and vigilant society.

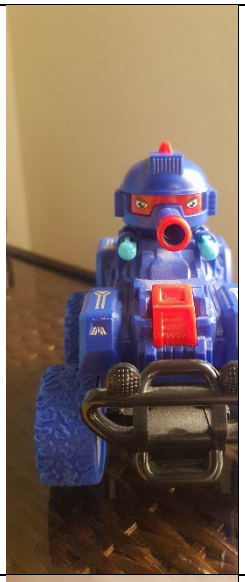
Third-Party Testing and Certification: Implementing third-party testing for children's products is essential to verify compliance with safety rules and regulations. Certification processes can provide consumers with confidence that the toys they purchase meet safety standards. This not only protects children but also encourages manufacturers to prioritize safety in their product development.

To conclude, a multi-faceted approach involving manufacturers, governments, international cooperation, consumers, media, and third-party testing is essential to address the issue of toxic metals in children's toys effectively. By implementing these recommendations, we can work towards ensuring that toys are safe for children and protect their health and well-being.

Annex

To find out the presence and amount of lead (Pb) in these toys and also the presence of some other toxic chemicals (like BPA, the quality of the color used, vinyl chloride to see whether it contains phthalates, etc.)

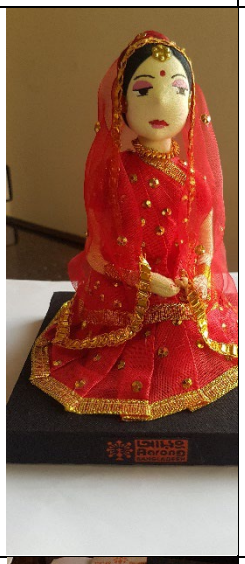
Label No	Categories	Brand Name	Country of Origin	Manufacturing Company	Shop Name Address	Photo of product Taken	Photo of Ingredients Taken
BD 001.	Baby Car (Red)	Hot Wheels	Malaysia	Malaysia	New fortune, Orchid Plaza Dhanmondi		
BD 002.	Baby Car (yellow)	Hot Wheels	Malaysia	Malaysia	New fortune, Orchid Plaza Dhanmondi		

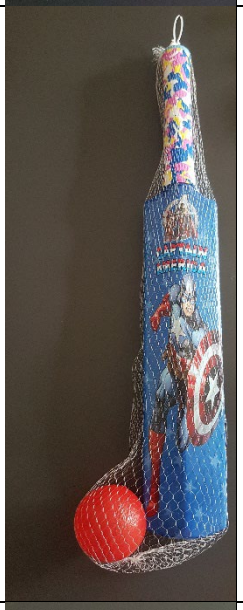
BD 003.	Baby Tank Car (Blue)	Not mentioned	Not mentioned	Not mentioned	Toys Park, Orchid Plaza Dhanmondi		Not Mentioned
BD 004.	Baby Rattles (Jhunjhuni)	RFL	Bangladesh	RFL	Toys Park, Orchid Plaza Dhanmondi		Not mentioned
BD 005.	Baby plastic ball (Red)	Not mentioned	Not mentioned	Not mentioned	Toys Park, Orchid Plaza Dhanmondi		Not mentioned

BD 006.	Baby plastic ball (yellow)	Not mentioned	Not mentioned	Not mentioned	Toys Park, Orchid Plaza Dhanmondi		Not mentioned
BD 007.	Baby plastic ball (green)	Not mentioned	Not mentioned	Not mentioned	Toys Park, Orchid Plaza Dhanmondi		Not mentioned
BD 008.	Baby bath toys (Dinosaur Red)	Not mentioned	Not mentioned	Not mentioned	New fortune, Orchid Plaza Dhanmondi		Not mentioned

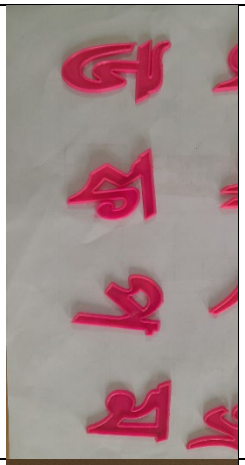
BD 009.	Baby toy (Camera)	Press and learn	China	China	New fortune, Orchid Plaza Dhanmondi		
BD 010.	Baby Toys (Avengers Model - Blue)	Not mentioned	China	China	Ador collection, Orchid Plaza Dhanmondi		

BD 011.	Baby toys (Avengers Model - Green)	Not mentioned	China	China	Ador collection, Orchid Plaza Dhanmondi		
BD 012.	Baby toys (Avengers Model - Red)	Not mentioned	China	China	Ador collection, Orchid Plaza Dhanmondi		

BD 013	Baby toys (Avengers Model - Purple)	Not mentioned	China	China	Ador collection, Orchid Plaza Dhanmondi		
BD 014	Baby doll (Bride)	Aarong	Bangladesh	BRAC Aarong	Aarong		Not mentioned
BD 015	Soft toys (Colorful Caterpillar)	Aarong	Bangladesh	BRAC Aarong	Aarong		Not mentioned

BD 016	Bat ball set (Red)	Classic Toy Products	Not mentioned	Not mentioned	Krishi Market, Mohammadpur		Not mentioned
BD 017	Bat ball set (blue)	Classic Toy Products	Not mentioned	Not mentioned	Krishi Market, Mohammadpur		Not mentioned
BD 018	Spider man (soft doll)	Not mentioned	China	China	Krishi Market, Mohammadpur		Not mentioned

BD 019	Baby Jeep car (Blue)	Aman toy garden	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not mentioned
BD 020	Doraemon Keyboard (yellow)	Not mentioned	Bangladesh	Bangladesh	Town hall		
BD 021	English Alphabet Block Capital letter set (Red)	RFL	Bangladesh	RFL	Krishi Market, Mohammadpur		Not mentioned

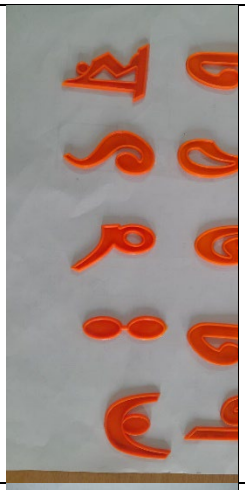
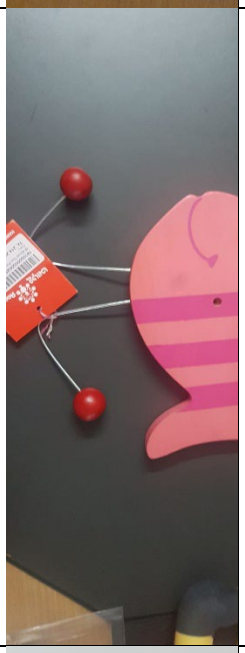
BD 022	Bangla Alphabet block letter set (Pink)	Not mentioned	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not mentioned
BD 023	Kitchen set (blue)	Hafiz plastic product	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not mentioned
BD 024	Racing car (Red)	Zihan plastic industry	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		

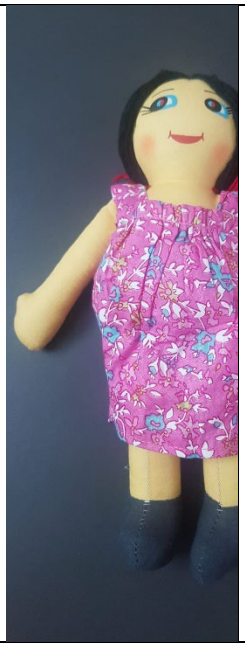
BD 025	Kitchen Set (Pink)	Hafiz Plastic product	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not mentioned
BD 026	Racing car (Blue)	Zihan plastic industry	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		
BD 027	Racing car (Yellow)	Zihan plastic industry	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		

BD 028	Baby bath toys (Dinosaur Pink)	Not mentioned	Not mentioned	Not mentioned	New fortune, Orchid Plaza Dhanmondi		Not mentioned
BD 029	Baby bath toys (Dinosaur Blue)	Not mentioned	Not mentioned	Not mentioned	New fortune, Orchid Plaza Dhanmondi		Not mentioned
BD 030	English Alphabet Block Capital letter set (Blue)	RFL	Bangladesh	RFL	Krishi Market, Mohammadpur		Not mentioned

BD 031	English Alphabet Block Capital letter set (Orange)	RFL	Bangladesh	RFL	Krishi Market, Mohammadpur		Not mentioned
BD 032	English Alphabet Block Capital letter set (Yellow)	RFL	Bangladesh	RFL	Krishi Market, Mohammadpur		Not Mentioned
BD 033	English Alphabet Block Capital letter set (Green)	RFL	Bangladesh	RFL	Krishi Market, Mohammadpur		Not Mentioned

BD 034	Bangla Alphabet block letter set (Yellow)	Not mentioned	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not mentioned
BD 035	Bangla Alphabet block letter set (Blue)	Not mentioned	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not mentioned
BD 036	Bangla Alphabet block letter set (Green)	Not mentioned	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not Mentioned

BD 037	Bangla Alphabet block letter set (Orange)	Not mentioned	Bangladesh	Bangladesh	Krishi Market, Mohammadpur		Not mentioned
BD 038	Wooden Fish (Pink)	Aarong	Bangladesh	Brac Aarong	Aarong		Not Mentioned
BD 039	Baby Toy (Spiderman Web-Yellow)	Not mentioned	China	China	Ador collection, Orchid Plaza Dhanmondi		

BD 040	Soft Toy (A girl)	Aarong	Bangladesh	Brac Aarong	Aarong		Not mentioned

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MORE **ABOUT ESDO**

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