Regulation of hazardous chemicals in plastic products is urgently needed in Kenya

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Executive Summary

Chemicals in products have continued to expose humans and the environment to their negative impacts. Evidence from analysis of recycled plastic products sampled from markets in Kenya and other parts of the world has revealed high levels of POPs in recycled products including children's toys. This is exacerbated by weaknesses in the legal frameworks, the limited capacity of countries to screen imports for Persistent Organic Pollutants (POPs) and lack of transparency and traceability mechanisms for chemicals in products.

To reduce exposure to these chemicals in Kenya, there is need to regulate the use of plastic products treated with chemicals and set stringent limits for POPs in products and wastes. Furthermore, there is need to strengthen the capacity to manage chemicals in products including capacity for screen of imports. Lastly, the government should take lead in pushing for adequate measures to eliminate toxics in plastics in the ongoing plastic treaty negotiations to support non- toxic circular economy.

This policy brief is intended for policy and decision makers in the national and county governments, particularly in the ministries of health, environment, labor and trade, as well as regulatory agencies such as the National Environmental Management Authority (NEMA) and the Kenya Bureau of Standards.

Background

The increasing production and consumption of plastics has increased the burden of managing plastic wastes in many countries, including Kenya. A recent report by the Organization for Economic Co-operation and Development (OECD) has revealed that the volume of plastic wastes generated globally has more than doubled in the last two decades[1].

In many countries, plastics management has often been viewed solely as a solid waste management problem. However, this approach has always overlooked the substantial health risks associated with the use and management of plastics. Research has proven that plastics can contain chemicals that are harmful to human health.

Some of the chemicals have been linked to cancer, adverse effects on the immune and reproductive systems, neurological effects as well as endocrine disruption[2] among others.

Exposure to harmful chemicals in plastics can occur through different ways. The first source of exposure is through burning of wastes that contain plastics.

Being a problem in many countries, open burning of wastes generates new, even more toxic chemicals, such as chlorinated and brominated dioxins and polyaromatic hydrocarbons that may leak into the environment or affect people through direct exposure.

Secondly, exposure to toxic chemicals in plastics can occur through the use of plastic consumer products. Increasing body of evidence shows that certain plastic products available on the African market contain dangerous levels of toxic chemicals. These chemicals include mercury, lead, short-chain chlorinated paraffins and brominated dioxins among others[3].

Chemicals can end up in plastic products through two ways; intentional addition during manufacturing to improve certain properties; or can be transferred into new products during recycling of plastics that contain dangerous chemicals[4].

People can get exposed to dangerous chemicals in recycled plastic products in various ways, including through hand-to-mouth-contact, household dust, dumping, incineration or recycling.[2]

POPs in plastic consumer products and free-range chicken eggs in Kenya

The Centre for Environment Justice and Development (CEJAD) together with the International Pollutant Elimination Network (IPEN) and Arnika has been monitoring the presence of toxic chemicals Persistent Organic Pollutants (POPs), a group of toxic chemicals, in consumer products made from recycled plastics and in eggs. Monitoring has mainly been undertaken in potential pollution hotspots in parts of Nairobi, and in Nanyuki to a small extent.

Monitoring targeted eggs from free range chicken farmers near the hotspots, and black plastic products made of recycled plastics. Hotspots targeted for eggs included dumpsites, e-wastes dismantling areas, and areas with community cookers; a waste to energy facility (See table 1 for sampling sites).

On the other hand, recycled plastic products targeted included toys, hair accessories, kitchen utensils and office supplies. The products were purchased from open air markets, bookshops and super markets[6].

Table 1: Egg sampling sites

Site	Hotspot	Description
Dandora, Nairobi	Dandora dumpsite	A major dumpsite in Kenya Open burning is common
Ngara Market, Nairobi	E-waste dismantling area	Significant site for dismantling electronic waste Open burning common
Mirema, Nairobi	Community cooker for Mirema International School	Utilizes plastic waste as fuel for preparing meals for pupils.
Nanyuki	Nanyuki municipal dumpsite	Eggs collected from a farmer near the site. Open burning very common.

Box 1 | Key highlights: POPs in consumer products

- Monitoring of plastic products in the Kenyan market reveals that children's toys, hair accessories, kitchen utensils and office supplies made of recycled black plastics contains harmful chemicals.
- The chemicals found in the products were mainly Brominated Flame Retardants (FFRs) and Brominated dioxins.
- In most cases, the levels were found to be higher than the European safety limits; which are 10 ppm for virgin plastic and 500 ppm for unintentional trace contamination.
- Children toys, particularly car toys were found to contain significantly higher levels of Brominated dioxins; much higher than concentrations observed, for example, in waste incineration ashes.

Box 2 | POPs in eggs

- Analysis of POPs levels in the eggs from the selected hot spots in Kenya exceeded by many times the levels measured in reference samples purchased from a supermarket in Nairobi.
- Several dangerous chemicals were found in egg samples from Kenya including Polychlorinated Biphenyls (PCBs), Dioxins, Furans and Chort-Chai Chlorinated Paraffins.
- The levels of dioxins and furans in free-range egg samples were found to be higher than the EU regulatory limit of 2.5 pg TEQ/g by 2- 8 times.
- The highest level of contamination was found eggs sampled around Ngara market and Dandora dumpsite.
- Free-range egg samples from Ngara market had very high levels of PCBs, more than 100 times above the EU regulatory limit of 40 ng/g fat and the highest ever measured in free chicken eggs globally.

Challenges of managing chemicals in products

In a bid to address the plastic wastes, government banned the manufacture, importation and use of all single -use-plastics bags for commercial and household packaging in 20178. Following this, the government in 2019 banned the use plastic bottles, straws, and related products in protected areas[9].

In addition, a draft Extended Producer Responsibility Regulations, and the Plastic Bag Control and Management Regulations have been developed[6].

While there has been attempts by the government to address plastic pollution, management of chemicals in products remains a huge challenge. As a result, the environment and people continue to be at risk of exposure to hazardous chemicals in products throughout the entire lifecycle of plastics.

Globally, chemicals in products are poorly legislated, thus exposing countries to the risks of pollution through transboundary movement of plastic products that contain dangerous chemicals, some of which are banned or restricted in the country of origin.

The lack of capacity to screen for POPs in plastics in many countries has encouraged importation of plastics that contain harmful chemicals, which in turn enter into the recycling value chain thus compounding the problem. This is a real threat to Kenya's push towards a non- toxic circular economy.

In addition, most countries including Kenya infrastructures for environmentally sound management of plastic waste. This exacerbates the health risks associated with chemicals leakage into the environment.

Conclusion

In conclusion, our research has consistently demonstrated that certain recycled plastic products available in Kenyan markets contain dangerous chemicals. This finding underscores the need for heightened awareness and stringent regulations to ensure consumer safety and environmental protection.

Furthermore, it is evident that a toxics free circular economy cannot be achieved through recycling of plastics that contain toxic chemicals. The presence of these harmful substances in recycled plastics poses significant challenges and risks to both human health and the environment.

It is imperative to recognize that the chemicals found in plastics are also entering the food chain thus has the potential of exposing the entire population. This emphasizes the urgency to address chemicals in products for the benefit of human health and the environment.

Policy recommendations

01 Ministry of Environment Climate Change and Forestry (MoECCF) in collaboration with National Environment and Management Authority (NEMA) should formulate and implement a robust law for traceability, transparency and screening of chemicals in products.

02 The government should take lead in pushing for measures that will eliminate toxics in plastics, reduce the demand and production of problematic plastics and promote transparency systems that will make known, any toxic chemicals in products in the ongoing plastic treaty negotiations

03 The Kenya Bureau of Standards (KEBS) in collaboration with National Environment and Management Authority (NEMA) should develop and implement standards on plastic products with the view of limiting importation of products containing high POP content level.

04 NEMA should domesticate the Environmentally Sound Management (ESM) guidelines for plastics and e-waste adopted by the Basel Convention in its 14th COP in 2023 which provides best practice in the management of plastics and e-waste.

05 The County governments should desist from investments that promote combustion technologies in waste management such as waste to energy plants and incinerators.

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[9] Gazette notice no 4858 of 5th June 2019.

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