PHTHALATES AND BISPHENOLS IN THE DEMOCRATIC REPUBLIC OF CONGO

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A Appui aux
I Initiatives
C Communautaires de
C Conservation de
E l'Environnement et de
D Développement
D Durable

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PHTHALATES AND BISPHENOLS IN THE DRC

Name of Participating Organization: Appui aux Initiatives Communautaires de Conservation de l'Environnement et de Développement Durable (AICED)

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Brief summary (200 à 300 mots)

To date, there is no data on quantity of phthalates and bisphenols imported in the Democratic Republic of Congo (DRC),neither by the government nor by researchers. The National Control Office (ONC), responsible for chemical analyses, does not perform analyses on inedible substances such as plastics. Although there is one study made by professors and researchers who wanted to figure out bio-surveillance of environmental pollutants in the population of Kinshasa, Democratic Republic of Congo (DRC)[1].According to a 2015 UN Environment report, the DRC produces 48,154 kilograms of plastic waste per day, 85% of which is poorly managed[2]. DRC has no local plastics manufacturing industry and that all plastics are imported into the country. This volume continues to increase due to the country's current situation. By extrapolation, DRC imports 17,333,440 kilograms of plastic annually.

Our field investigations reveal that 80% of children consume hot drinks from plastic containers. This may expose them to phthalates and bisphenols which is concerning since these chemicals can affect development. Phthalates, which affect children's brain development, could be correlated with declining academic performance. According to UNICEF statistics, only 27% of primary school students are literate and 18% can write.[3]

Furthermore, 85% of women use plastic cooking utensils, often for hot food, and drink water from Lake Kivu, which is contaminated with plastics. These practices expose women to chronic poisoning from phthalates and bisphenol, endocrine disruptors that can lead to fertility problems. A study in Goma revealed that 41% of infertility cases are linked to ovulatory disorders[4].

Methods (max 300 mots)

To answer questions about phthalates and bisphenols in the DRC, we used the following methods:

[1]https://web.archive.org/web/20210319175301id_/https://assets.researchsquare.com/files/rs-314598/v1/05676dff-4910-495f-9ecd-2b453e0a1974.pdf

[2]RDC : 85% de déchets plastiques produits par jour sont mal gérés ! – Zoom Eco

[3]Baisse de la qualité de l'enseignement en RDC, soutiennent plusieurs acteurs du domaine de l'éducation | Radio Okapi

[4]Profil clinique et étiologique de l'infertilité féminine ã Goma – KISMED

1. Interviews

We conducted interviews with officials from the Ministries of Environment and Natural Resources, as well as representatives from universities and non-governmental organizations. These interviews provided qualitative information on policies and regulations related to chemical substances, and on the challenges encountered in managing the risks associated with phthalates and bisphenols.

2. Field Surveys

Surveys were conducted to observe local practices regarding the use of plastics containing phthalates and bisphenols. These surveys also allowed us to assess the potential exposure of populations to these substances, focusing on markets, points of sale, and places of consumption.

3. Review of Reports and Online Publications

We conducted a literature review to supplement the data collected during interviews and surveys, thus providing a broader context on the situation of phthalates and bisphenols in the DRC.

This integrated approach has enabled a thorough understanding of the issue, thus facilitating the analysis of results and the formulation of recommendations tailored to the country's realities.

Production and Use in the Country

1. Quantity of Plastics

According to the 2015 UN Environment report (Jambeck et al.2015) the DRC produces 48,154 kilograms of plastic waste per day, 85% of which is poorly managed[5]. It is estimated that all of this waste comes from imported plastics, as the country does not produce plastics. By extrapolation, this means that the DRC imports approximately 17,333,440 kilograms of plastic per year. According to our studies in Goma town, plastic waste includes: plastic bottles, plastic bags, plastic containers which majority is made of polyethylene.[6]

2. Phthalates and Bisphenols

To date, no studies have been conducted in the DRC on phthalates and bisphenols, either by the government or by researchers.

[5] RDC : 85% de déchets plastiques produits par jour sont mal gérés ! – Zoom Eco
[6] Les sacs en plastique : responsable de la pollution du sol et des cours d'eaux de la RDC | Radio Okapi

Regulatory Controls

1. Controls on Phthalates and Bisphenols

Currently, the DRC has no specific controls on phthalates and bisphenols.

2. Regulations on Transparency and Traceability

There are no regulations concerning the transparency and traceability of chemicals in plastics. Our investigations show that plastic labels only indicate the type of polymer (PET, PVC, HDPE, LDPE, PP, PS), without mentioning additives.

Furthermore, imported products do not carry labels indicating the presence of BPA or phthalates, which limits consumers' right to information.

Known Impacts of Phtalates and Bisphénols

1. Studies on Phthalates and Bisphenols

To date, no studies have been conducted on phthalates and bisphenols in the DRC.

2. Specific Exposed Groups

Children and women are particularly exposed to phthalates and bisphenols. Our surveys reveal that 80% of children consume hot drinks from plastic containers. Phthalates can impair children's cognitive development (Stephanie Engel and co. 2021), thus contributing to decreased academic performance.[7]

3. Women's Food Practices

Approximately 85% of women use plastic utensils for cooking and storing food. They also consume contaminated water from Lake Kivu which is contaminated by plastic, and may expose them to phthalates and bisphenols, increasing the risk of infertility.[8]

National Efforts to Eliminate Phthalates and Bisphenols in the DRC

1. Projects/Campaigns

[7] https://x.com/AicedAsbl2022/status/1990744315090604445,https://x.com/AicedAsbl2022/status/1987933100697915811,(3) Children rights andplastic pollution - YouTube

[8] Profil clinique et étiologique de l’infertilité féminine ā Goma – KISMED

To date, there are no specific projects or campaigns aimed at eliminating phthalates and bisphenols, but AICED has begun raising public awareness on this issue through television programs and school activities.

2. Challenges in the Campaign Process

The main challenges include a lack of information among political and educational authorities, the general public, the media, healthcare professionals, and consumer product testing services.

3. Recommendations and Project Ideas

It is crucial to involve international organizations such as the WHO, UNICEF, UNESCO and scholar authorities in raising awareness and regulating phthalates and bisphenols. AICED with scholar authorities has begun introducing the concept of harmful effects of plastics additives on children brains in basic education[9], and is also in the process of establishing contacts with UNESCO to strengthen this collaboration[10]. Like phthalates and bisphenols affects children's and women's health OMS and UNICEF must be involved. To get a sustainable impact the youth must be engaged at the base hence UNESO must be involved. Moreso, AICED Supports an introduction of a legal framework at the national level, with a focus on phthalates and bisphénols, and not just plastics in general.

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[9] https://x.com/AicedAsbl2022/status/2008415674696085670

[10] AICED Asbl sur X : "Advocacy: calls on UNESCO to get involved in the process of combating the harm of plastic pollution on children's health and brains and the introduction of these concepts in basic education @AfricaCoalNet @ToxicsFree @groundWorkSA @GreengrantsFund @oilwatchafrica1 https://t.co/U3OB6bmTRI" / X

NATIONAL REPORT ON THE SITUATION OF BISPHENOLS AND PHTHALATES IN THE DRC

AICED is an NGO whose vision is to build a sustainable future where local communities are at the heart of protecting biodiversity and ecosystems, using their traditional knowledge for conservation while improving their livelihoods, often through projects that reduce deforestation and poaching, and promote sustainable practices such as organic farming and participatory natural resource management.

IPEN is a network of over 600 non-governmental organizations working in more than 125 countries to reduce and eliminate the harmful effects of toxic chemicals on human health and the environment.. www.ipen.org

Summary

Phthalates and bisphenols, particularly bisphenol A (BPA), are endocrine disruptors widely used in plastics, medical devices, toys, food packaging, and other everyday products. Exposure to these substances is associated with adverse effects on human health, including reproductive disorders, developmental abnormalities, metabolic diseases, and certain cancers.

In the Democratic Republic of Congo, although the country does not produce phthalate- or bisphenol-based plastics, the massive importation of manufactured goods constitutes a major pathway for exposure. Data from UN Comtrade show that imports of plastics and plastic articles have increased significantly, reaching USD 48 million in 2023, confirming a growing dependence.

The Congolese regulatory framework remains limited: no specific legislation governs the use of phthalates and bisphenols in toys, food contact materials, or medical devices. Although Law No. 11/009 of 2011 on Environmental Protection (LPE) represents progress, it has not yet been implemented for these additives. The most exposed groups include children, pregnant women, hospitalized patients, and informal recycling workers.

The main shortcomings identified are: the absence of national biomonitoring, weak analytical capacity, the lack of local migration standards, the absence of mandatory labeling, and the practice of open-air burning of plastic waste.

These observations call for urgent and prioritized actions, presented below as key recommendations:

- Banning BPA in baby bottles and limiting phthalates in toys.

- Strengthening laboratories, adopting migration standards for food materials, and launching targeted awareness campaigns.

- Enshrining phthalates and bisphenols in law and implementing a traceability system, as well as promoting safe alternatives (glass, stainless steel, bioplastics).

Introduction

Modern plastics incorporate a mixture of polymers and chemical additives, among which phthalates and bisphenols play a key role in the manufacture of many products. Phthalates serve as plasticizers to make PVC more flexible, while bisphenols, particularly BPA, are used in the production of polycarbonates and epoxy resins. These substances are found in food packaging, toys, medical devices, electronic equipment, building materials, and some hygiene products.

These compounds are recognized as endocrine disruptors, capable of interfering with the human and animal hormonal systems. They are associated with effects on reproduction, fetal development, metabolism, and certain hormone-dependent cancers. BPA has been studied since the 1930s for its hormonal activity, while phthalates have been found in cord blood, breast milk, and urine, demonstrating their widespread presence and their ability to cross biological barriers.

International regulations remain fragmented: the European Union has banned BPA in baby bottles and set limits for several phthalates in toys, while other countries apply partial restrictions. No comprehensive framework yet regulates these substances throughout their entire lifecycle.

In Central Africa, and particularly in the DRC, dependence on imports, a lack of analytical infrastructure, and limited controls exacerbate exposure. Studies conducted in neighboring countries have detected BPA and various phthalates in bottled water, food, baby bottles, and biological matrices, indicating a similar risk in the DRC.

Plastic consumption is increasing in the DRC, driven by urbanization and population growth. This situation exposes vulnerable groups such as children, pregnant women, patients, and populations living near landfills to unassessed health and environmental risks. This report aims to establish a national overview, identify regulatory gaps and propose strategic actions to reduce the exposure of the Congolese population to these toxic substances.

1. Research methods used

The preparation of this situation report on phthalates and bisphenols in the DRC was based on a combination of literature reviews and targeted institutional consultations.

1.1. Scientific Literature Review

A literature review was conducted using online academic databases, including Google Scholar, PubMed, and ScienceDirect, with a focus on Central Africa. Keywords used included “phthalates DRC,” “bisphenol DRC,” “BPA exposure Africa,” and “endocrine disruptors plastics.” This search identified relevant regional studies documenting the presence of BPA and phthalates in various products.

1.2. Consultation of International Databases

International databases were consulted to obtain quantitative and regulatory data:

- UN Comtrade: import flows of plastics and plastic articles.

- IPEN Plastic Map: identification of plastic products containing additives of concern.

- ChemReg: Comparison of national and regional regulations with international standards.

- Institutional reports (WHO, UNEP, FAO): Integration of global data on endocrine disruptors and their health and environmental impacts.

1.3. Analysis of national documents

Analysis of national documents implementing environmental conventions, including plans, laws, and projects related to Persistent Organic Pollutants (POPs). This analysis highlighted the DRC's experience in managing hazardous chemicals and identified specific gaps concerning phthalates and bisphenols.

1.4. Review of Congolese Legislation

Review of legislative and regulatory texts:

- Law No. 11/009 of 2011 on Environmental Protection (LPE)

- Decree No. 14/019 of August 2, 2014, establishing the regulations for the LPE for environmental protection

1.5. Institutional Interviews

A semi-structured interview was conducted with government officials and civil society actors. This exchange confirmed the absence of specific regulations on phthalates and bisphenols and the need for a national inventory.

1.6. Methodological Limitations

- Lack of direct local data.

- Unavailability of resource persons.

- Regional extrapolation based on data from neighboring countries.

- Limited analytical capacity: lack of laboratories equipped to measure phthalate and bisphenol metabolites.

2. Production and Use of Plastics, Phthalates, and Bisphenols in the DRC

In the DRC, there is no local production of phthalates or bisphenols as chemical additives for plastics. These substances are introduced exclusively through the importation of manufactured products. The products concerned include, in particular, bottles and packaging.

Food products, toys, medical devices, PVC, and polycarbonate are all likely to contain phthalates or BPA.

2.1. Plastic Imports

UN Comtrade data shows that imports of plastics and plastic articles have increased significantly, raising the likelihood of the introduction of materials containing additives of concern such as BPA and various phthalates.

2.2. Common Uses

- Food sector: plastic packaging, PET bottles, films, and trays.
- Medical sector: flexible PVC devices, often containing DEHP.
- Baby products and toys: baby bottles, soft toys, exposing children to BPA and other phthalates.
- Construction and housing: vinyl siding, PVC electrical cables, plastic-coated textiles.

2.3. Additives Concerned

- Phthalates: DEHP, DBP, BBP, DiNP, DiDP.
- Bisphenols: BPA, as well as its substitutes BPS and BPF.

2.4. Methodological Limitations

Specific national data on the presence of phthalates and bisphenols in biological products or matrices in the DRC are nonexistent or inaccessible. The information used comes primarily from international databases and regional extrapolations.

3. Regulatory Controls in the DRC

The DRC has a general legal framework for the management of chemical substances, but no specific regulations directly target phthalates and bisphenols. Existing legislation mainly governs hazardous chemicals and plastics in general.

3.1. Phthalates

- The framework law on the environment provides for the management of hazardous chemical substances, without specifically mentioning phthalates.
- There are no concentration limits or migration standards for phthalates in toys or food materials.

3.2. Bisphenols

- There is no ban on BPA or its substitutes in baby bottles, toys, or food materials.

- Imported medical devices may contain BPA without any controls.

3.3. Transparency and Traceability

- The law on chemical management provides for the creation of a national database, but these provisions are not yet applied to plastics.

- Imported products do not have labeling indicating the presence of BPA or phthalates.

4. Known Impacts of Phthalates and Bisphenols

4.1. Available Studies

There are few scientific studies conducted directly in the DRC on phthalates and bisphenols. National data are limited, but research in neighboring countries shows concerning levels of BPA and phthalates in various products.

4.2. Vulnerable Groups

Certain population groups in the DRC are particularly exposed:

- Children: soft plastic toys and baby bottles.

- Pregnant women: exposure via food packaging.

- Hospitalized patients: PVC medical devices containing DEHP.

- Informal recycling workers: handling plastic waste.

5. National efforts to phase out these substances

5.1. Existing projects and campaigns

To date, there are no specific projects or campaigns in the DRC directly aimed at the phase-out of phthalates and bisphenols. Actions undertaken mainly concern the management of plastics in general.

5.2. Main Challenges

- Lack of local data on the presence and impacts of phthalates and bisphenols.

- Limited analytical capacity and an incomplete regulatory framework.

- Lack of awareness among consumers and policymakers.

5.3. Recommendations and Project Ideas

1. Establish limits for certain phthalates in toys.

2. Ban the use of BPA in baby bottles and other infant products.

3. Conduct a national inventory of products containing phthalates and bisphenols.

4. Strengthen the infrastructure and capacity of national laboratories.

5. Implement awareness campaigns targeting vulnerable populations.

6. Incorporate phthalates and bisphenols into chemical regulations.

7. Establish a mandatory traceability and labeling system for affected products.

8. Encourage the use of safe alternatives and support local eco-entrepreneurship.

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