



TOPIC: Waste from Electrical and Electronic Equipment (WEEE) Plastics – Who’s Responsibility are They Anyway?

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Electrical and Electronic Equipment (EEE), like laptops, cell phones, kettles, and fridges, have enabled people worldwide to establish a better standard of living. These items are indispensable to most people in their daily lives. However, the effects of our consumption of these seemingly ‘indispensable’ products have resulted in an alarming disposal rate. EEE’s production and consumption practices have resulted in a global E-waste problem. The fourth University of Cape Town’s (UCT) Chemical Network discussion of 2023 addressed the topic of **Waste from Electronic and Electrical Equipment (WEEE) Plastics**. It was presented by Susanne Yvonne Karcher, national coordinator for the Sustainable Recycling Industry (SRI) Project, and Aysha Lotter, WEEE Policy/N&S Expert for the SRI Project.

To view the PowerPoint presentation and other resources for this discussion, click [here](#).

KEY MESSAGES

The discussion covered three main topics: **initiatives in various countries to recycle brominated flame retardants (BFR)-free WEEE**; ways countries can **grow the interest, capacity, and knowledge to recycle BFR-free plastics**; and **financing treatment solutions for problematic WEEE materials**.

WEEE initiatives identified by representatives from Ethiopia, Zambia, Madagascar, Gabon, Nigeria, and Namibia entailed **WEEE recycling by local companies**. They also acknowledged the **lack of technical capacity to deal with it**, the level of **local knowledge about WEEE**, and the current lack of **legislative initiatives to manage it**.

The actions identified by participants to encourage the recycling of WEEE include **using processes that help recover** the valuable materials from WEEE while minimising the impact on the environment. Using **the Extended Producer Responsibility (EPR) legal principle** to allocate end-of-life responsibilities to the relevant stakeholders (including raising the financial means to facilitate any required safe treatment including the incineration of problematic and toxic WEEE fractions such as BFR treated WEEE plastics). **Education campaigns** to increase awareness through **traditional and digital media** and amongst stakeholders to **encourage and grow** interest in WEEE recycling. **Regulatory measures** to create an enabling legal environment fostering responsible disposal and recycling and developing national recycling awareness campaigns aimed at promoting the recovery and recycling of (BFR-free) plastics.

Participants agreed that both the **government and industry** should jointly bear the financial responsibility for WEEE and that environmental agencies should be responsible for implementing EPR schemes.

Although many materials contained within WEEE can be recycled in-house or exported to countries with the technology and capacity, it is **not the solution** to dealing with the exponential growth of WEEE in South Africa. Rather, the **focus should be on initiatives** that incentivise the production of better-quality products designed with longevity in mind, **regulate** the manufacture and the import/export of these products, and **allocate sufficient resources and responsibility** to each stakeholder to minimise WEEE from the outset.



ABOUT THE PRESENTERS



After completing chemical engineering studies in Germany, **Susanne Karcher** started EnviroSense CC (an environmental consultancy) in Cape Town in 1999 (www.envirosensecc.co.za). Her company specialises in planning, developing, and facilitating tailor-made governmental, industrial/commercial, and residential “Integrated Resource and Waste Management” programs ultimately geared towards pollution prevention. Susanne is also a founding member of the African Circular Economy Network (www.acen.africa). As a one-woman consultancy business, Susanne specialised early in her career in furthering collaborative, safe, and inclusive WEEE management.

Since the end of 2020, Susanne has been appointed by the World Resources Forum (WRF) and the Swiss Federal Laboratories for Materials Science and Technology (Empa) as the National Coordinator for Phase 2 of the SRI South Africa project <https://www.sustainable-recycling.org/> which is concerned (amongst other things) with assisting the Department of Forestry, Fisheries and the Environment (DFFE) with the development of a sustainable and inclusive National WEEE policy as well as defining

operational and technical minimum standards for WEEE management operators and their facilities. In addition, the SRI project also guides relevant key stakeholders in developing the WEEE educational curriculum and local WEEE project implementation frameworks. Recently, Susanne was mandated by the South African Bureau of Standards (SABS) to represent South Africa at the International Organization for Standardization (ISO) Technical Committees on Environmental Management (TC207/SC5) and Circular Economy (TC323).



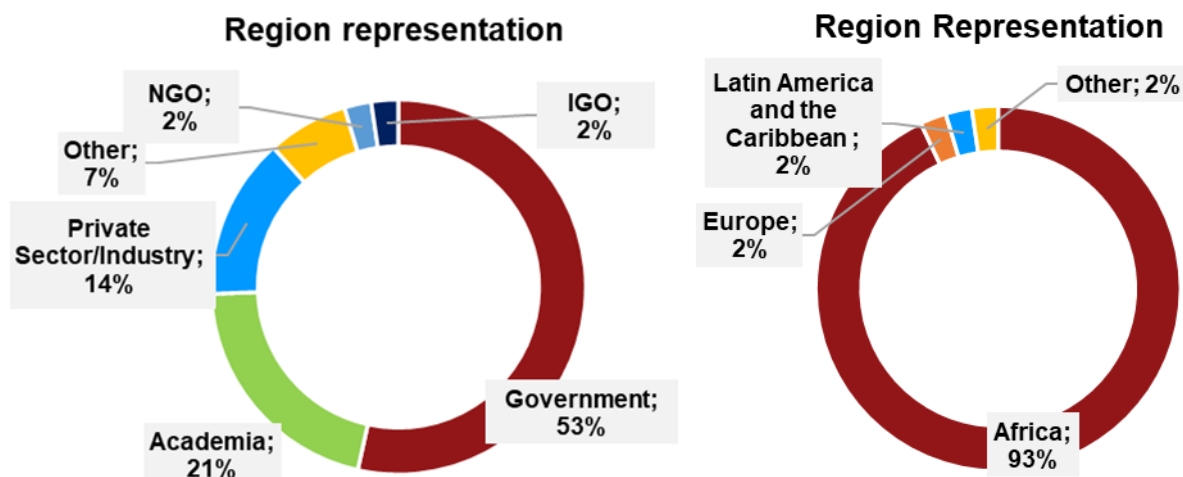
Aysha Lotter is an environmental and mineral law consultant and researcher focusing primarily on the Anglophone African countries. Her research focuses on EPR, Integrated Environmental Management, and Transformative Negotiations. She is currently pursuing an interdisciplinary PhD (Private Law and Advanced Manufacturing & Processing (AMP Chemical Engineering)) at the University of Cape Town. Her doctorate focuses on product and material stewardship in South Africa, working to establish a circular economy of metals in Africa. Her expert knowledge has guided the development of the South African E-waste policy and the national norms and standards. Previously, Aysha was a researcher for the South African Research Chair: Mineral Law in Africa based in the Faculty of Law and the Minerals to Metals Initiative based in the Chemical Engineering Department at the University of Cape Town. She also was the project manager for the multidisciplinary Community of Practice: Waste to Value. Aysha chaired and coordinated the Cape Town branch of the social initiative, ‘Students for Law and Social Justice, where her flagship project was a legal referral clinic in Khayelitsha.



ATTENDANCE BREAKDOWN

ATTENDEES:
43
Female – 42%
Male – 58%

IGO* =
Intergovernmental
Organisations
NGO* = Non-
Governmental
Organisations



CONTRIBUTIONS FROM PARTICIPANTS IN THE DISCUSSION:

Disclaimer: The information in this digest represents the opinions of members participating from different stakeholder groups expressed during the discussion. The views expressed in this document do not necessarily represent the opinion or the stated policy of the Swedish Chemicals Agency (KemI) or DEH UCT, nor does citing trade names or commercial processes constitute an endorsement.

The discussion was structured around three questions. The key discussion points raised by participants and organised by themes or countries (although not representatives) are presented under each question.

QUESTION 1: Are there any initiatives in your country to recycle any BFR-free WEEE plastics? How can this be improved?

PARTICIPANTS RESPONSES

- | | |
|-------------------|--|
| ETHIOPIA | ➤ E-waste is recycled by local companies but there is a lack of knowledge and technical capacity to properly recycle it |
| GABON | ➤ Plastic waste is recycled by private companies |
| MADAGASCAR | ➤ There are no initiatives to recycle, E-waste plastics end up in dumpsites |
| NIGERIA | ➤ WEEE plastics are exported for recycling or treatment.
➤ There are recycling organisations that export E-waste. Nigeria set up a draft collection and recycling management legislation, but it has not been implemented |
| NAMIBIA | ➤ WEEE plastics are exported to Denmark |
| ZAMBIA | ➤ E-waste is recycled within the country and the non-recyclable plastics are co-processed |



Throughout the discussion, informal polls were conducted to help encourage discussion among the participants. They do not provide any representative data but rather provide a snapshot of participants' views.

Poll 1: Has E-waste been identified as a problem in your country (please state your country as part of your reply)?N=13

AFRICA

- E-waste has been identified as a problem in Nigeria, Ethiopia, Madagascar, South Africa, Lesotho, Tanzania, and Senegal
- Zambia: E-waste has been identified as a problem because of inadequate capacity and legal framework to manage it.
- Ethiopia: E-waste is a problem because there is a lack of legislation and E-waste recycling organisations.
- Namibia: Namibia is in the process of developing E-waste regulations to improve its management.

ASIA

- Iran: The problem of E-waste has become a serious challenge due to the increased use of technology. E-waste is illegally burned or buried due to improper management of waste.

NORTH AMERICA

- Canada: Waste education and management has been identified as a problem.

QUESTION 2: How can your country grow the interest, capacity, and knowledge to recycle BFR-free plastics and cover the required final safe treatment of flame-retardant containers?

PARTICIPANTS RESPONSES:

IRAN	➤ The country can recycle BFR-free plastics by using processes such as mechanical recycling, chemical recycling, and energy recovery that help recover valuable materials from WEEE while minimising the impact on the environment
MADAGASCAR	➤ The EPR can help to generate resources to improve waste treatment
MAURITIUS	➤ Mauritius is embracing the concept of a circular economy for all waste: https://circulareconomy.govmu.org/circulareconomy/
LESOTHO	<ul style="list-style-type: none"> ➤ Educational campaigns and awareness programs to inform the public and businesses about the environmental and health benefits of recycling and the potential risks of flame-retardant plastics. ➤ Investments in recycling infrastructure and technology to increase the capacity for processing these materials. ➤ Establish regulatory measures to encourage responsible disposal and recycling of flame-retardant plastics. ➤ Collaboration with research institutions and the private sector to facilitate the development of sustainable recycling methods and alternative flame-retardant materials, advancing Lesotho's sustainability goals. ➤ Developing a specific policy and legislation for E-waste management
ESWATINI	➤ Raise awareness of BFR-free plastics to all stakeholders and create a regulatory framework to respond to the problem
SOUTH AFRICA	➤ Countries can develop national recycling awareness campaigns to promote recycling (BFR-free plastics), drive awareness through traditional and digital media to increase and promote awareness, and establish collection points for BFR-free plastics, etc. The government can implement regulatory measures for organisations to guide E-waste management.



- Increasing awareness (through public campaigns e.g., radio/tv, education in schools), legislation around EPR (e.g., creating drop-off points, subsidies for E-waste recycling companies), incentivisation for individuals/businesses to recycle E-waste

ETHIOPIA	➤ Awareness creation campaign
OTHERS	➤ Waste sorting and incineration

Poll 2: Are there any policies or regulatory frameworks in your country to control E-waste? N=11

COUNTRIES WITH E-WASTE POLICIES:

- The Senegalese government is preparing to set up a regulatory framework for the management of electrical and electronic waste in the country to recycle 90% of E-waste by 2025
- Ethiopia: The E-waste management regulation embraces the proclamation of pollution control and hazardous waste management and disposal.
- Others (country not specified): The National Environmental (Electrical/Electronic) Regulation (2022) regulates the entire lifecycle of EEE.

NO E-WASTE POLICIES:

- Iran: There are regulatory frameworks designed to promote sustainable and responsible management.
- Mauritius: There is no regulatory framework for E-waste in Mauritius
- Guyana: There are regulations to manage pesticides and toxic chemicals but there is a lack of a definitive regulatory framework for E-waste.
- Uganda: There is no regulatory framework or policy on E-waste and there is a knowledge gap, many people are not aware of the impacts of E-waste.
- Tanzania: No policies or regulatory frameworks for E-waste management
- Madagascar and Gabon: No regulations on E-waste

QUESTION 3: How will your country finance treatment solutions for problematic WEEE materials such as flame-retardant-treated plastics?

PARTICIPANTS RESPONSES:

Eswatini	➤ The likely possible way would be to get the finances from the industry
Lesotho	➤ The country can finance treatment solutions for problematic WEEE materials, like flame-retardant plastics, through a combination of government budget allocations, public-private partnerships with electronic manufacturers, and international aid and grants from environmental organisations and donor agencies. These financial resources will support the establishment of recycling facilities and sustainable WEEE management practices.



Poll 3: Who do you think is financially responsible for the EPR initiative in your country?

- Guyana: The government has the responsibility to legislate the financing of E-waste, and the manufacturers/distributors have a role in the management of the waste throughout the lifecycle.
- Madagascar: The government is financially responsible.
- Zambia: The producers are financially responsible.
- Others: The industry players; industry and government; waste producers and the government

Poll 4: Who do you think is physically responsible for the EPR initiative in your country?

- Guyana: The Environment Protection Agency (EPA)
- Zambia: Producers of E-waste
- Ethiopia: The Environmental Protection Agency (EPA)

QUESTIONS (Q) FROM PARTICIPANTS AND ANSWERS (A) FROM PRESENTERS

Q: How do we overcome the “producer” responsibility issue in the online market? This market allows independent individuals to import products to South Africa as in other countries. People buy a lot of electronics from Alibaba, for example.

A: The control needs to happen at customs and with the International Trade Administration Commission (ITAC). As part of the forms that need to be filled in by the importers of EEE, the importer must provide proof of having joined a South African PRO concerned with managing WEEE on behalf of its producer members.

KEY RESOURCES

- Sustainable Recycling Industry website
<https://www.sustainable-recycling.org/>
- UCT Chemical Network Newsletter
<https://mailchi.mp/030189d17cf9/chemical-network-newsletter-test-17450984>
- Guidance document
<https://www.kemi.se/en/publications/guidance-on-national-chemicals-control-for-other-countries/sustainable-financing-of-institutional-capacity-for-chemicals-control>

Chemical Network: The Chemical Network is a non-partisan online forum established by the Division of Environmental Health (DEH) at the University of Cape Town's (UCT) School of Public Health. It was established as part of a knowledge management and sharing project supported by the Swedish Chemicals Authority (Kemi).

This forum has been produced with financial assistance from Sweden, through the Swedish International Development Cooperation Agency (SIDA), which has been arranged by the Swedish Chemicals Agency (Kemi). The views herein shall not be taken to reflect the official opinion of SIDA or the Swedish Chemicals Agency.

If you have any questions or require clarification on this initiative, please contact UCT at chemicallistserver@gmail.com If you are not already a member, join the Chemical Network at: <https://forms.office.com/r/Lk1tgAL6DF>

