Explainer 2 | Responsible e-waste value chains in Africa

This summary is based on a rapid review that provided an assessment of Responsible E-Waste Value Chains in Africa.[1]

❶ Introduction

A value chain is a concept describing the full process of a business's activities in the creation of a product or service - from the initial reception of materials through to its delivery to market (Chai, 2021). **When e-waste is collected and treated formally, it normally includes the following steps: Collection, Sorting and Disassembly, Size reduction, and Separation.**

Formal e-waste recycling is an important and growing industry in many countries. In many contexts, downstream vendors purchase the e-waste components that have been separated, dismantled and recovered by recyclers. **When e-waste is handled in the informal economy, the value chain is more complex, with multidirectional flows and numerous actors.**

The process of treating e-waste is an important consideration in the current context of the energy transition. Whilst the aspirations of this transition are laudable, products associated with these goals can become major contributors to the e-waste challenge. The necessary wind turbines, solar panels, electric car batteries, and other "green" technologies require vast amounts of resources. Further to this, at the end of their lifetime, they can pose environmental hazards.

❷ What are the elements of sustainable e-waste management?

Given the e-waste challenges faced by the energy transition explored in the first explainer and wider concerns around the environment and climate change, many have argued that current non-circular economic practices are no longer fit for purpose. **Current linear economic models are not sustainable and suffer from instability due to their high dependence on limited natural resources. This has led to calls for the development of circular value chains, including in the production of electronic goods** (Ellen MacArthur Foundation, 2021).

Five pillars of a sustainable e-waste management system have been identified by ITU (2021):

> **Business and finance:** The most sustainable system is one that is self-financing.

> **Policy and regulation:** This signals the government's intent to engage in e-waste management.

> **Technology and skills:** Appropriate technology and skills across the value chain are essential for successful implementation.

> **Monitoring and control:** Monitoring and enforcement create a level playing field.

> **Marketing and awareness:** Awareness on the part of consumers and commercial customers is key to e-waste management (this should be focussed on recycling and reuse).

Reading time:

🕐 2-3 minutes

Who is this for:
FCDO personnel, partners and external development actors involved with the policy or implementation of environmental issues which cover the energy transition and e-waste in Africa.

What you can find:

❶ Introduction

❷ What are the elements of sustainable e-waste management?

❸ How is a responsible e-waste value chain developed?

❹ How can regional integration enable sustainable e-waste management in Africa?

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❸ How is a responsible e-waste value chain developed?

To support the development of a responsible e-waste value chain, the following elements must be addressed:

> There needs to be an **understanding how e-waste is currently managed:** This is a crucial starting point for all countries looking to establish or revitalise their e-waste management system.

> There is **no one-size-fits-all solution** to building a robust e-waste management system based on extended producer responsibility:[2] Although there are good practices and lessons from across the world, it is important that countries adapt these to local situations, taking into consideration their e-waste generation rates, recycling capabilities, the presence of 'producers' and expectations of stakeholders.

> **Participation is key** for successful e-waste implementation: An e-waste system built without a participatory approach is likely to be hampered by a lack of stakeholder buy-in, unrealistic expectations and regulations that do not adequately reflect the reality on the ground.

> **The detail is important:** An overarching policy is necessary, but more specific guidelines and implementation action plans are crucial for ensuring action.

> **Informed decision-making involves data and relevant engagement:** The choices made for the e-waste sector should be founded on two crucial elements – on-the-ground data and inputs from affected stakeholders.

> **There needs to be political will** to achieve e-waste management: Enforcement of sustainable practices is dependent on the government mandate. Thus, adequate resources and financing need to be set aside for this aspect.

❹ How can regional integration enable sustainable e-waste management in Africa?

In the African context, ITU (2021) have highlighted the potential for regional integration among countries as a tool to addressing pan-African e-waste issues. Possible benefits include:

> **Pooling and consolidation** of e-waste management efforts

> **Improving the quality** of recycled products through competition

> Increasing **economies of scale**

> **Opening up** larger, more diverse markets

> Increased **trade flow and integration**

> **More capital** through consolidation

> Better **information, technology and knowledge sharing**

> Potential for promoting a **diversified workforce**

❽ References

Börner, L. & Hegger, D. (2018). Toward design principles for sound e-waste governance: A research approach illustrated with the case of the Netherlands. Resources, Conservation and Recycling. Volume 134. https://doi.org/10.1016/j.resconrec.2018.02.013

Chai, W. (2021). Value Chain: Definition. Tech Target. https://www.techtarget.com/searchcio/definition/value-chain#:~:text=A%20value%20chain%20is%20a,market%2C%20and%20everything%20in%20between.&text=A%20diagram%20of%20a%20value,activities%20and%20four%20secondary%20activities

CLASP (2019). The Global LEAP Solar E-Waste Challenge: Market Scoping Report. CLASP. https://www.clasp.ngo/research/all/global-leap-awards-solar-e-waste-market-scoping-report/

Efficiency for Access Coalition (EFAC) (2021). Innovations and Lessons in Solar E-Waste Management. EFAC. https://www.clasp.ngo/research/all/innovations-in-off-grid-solar-e-waste-management/

Ellen Macarthur Foundation (2021). Circular economy in Africa: examples and opportunities: Electronics and E-Waste. Ellen Macarthur Foundation. https://ellenmacarthurfoundation.org/circular-economy-in-africa-e-waste

Forti, V. et al. (2020). The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential. UNU. https://ewastemonitor.info/wp-content/uploads/2020/11/GEM_2020_def_july1_low.pdf

GIZ (2021). Environmentally Sound Disposal and Recycling of E-waste in Ghana. GIZ. https://www.giz.de/en/worldwide/63039.html

ILO (2019). Decent Work in the Management of Electrical and Electronic Waste (E-Waste): Issue Paper for the Global Dialogue on Decent Work in the Management of Electrical and Electronic Waste (E-Waste) (Geneva 9–11 April 2019); International Labour Organization: Geneva. https://www.ilo.org/sector/activities/sectoral-meetings/WCMS_673662/lang--en/index.htm

[2] Extended Producer Responsibility (EPR) is a policy approach under which producers are given a significant responsibility – financial and/or physical – for the treatment or disposal of post-consumer products

ILO (2019a). From Waste to Jobs Decent work challenges and opportunities in the management of e-waste in Nigeria. ILO. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_730910.pdf

ITU (2021). Policy practices for e-waste management: Tools for fair and economically viable extended producer responsibility. ITU. https://www.itu.int/en/ITU-D/Environment/Documents/Publications/2021/Toolkit_Africa_final.pdf?csf=1&e=OHEtIM

ITU et al. (2021). Digital solutions for a circular electronics value chain A thought paper for International E-Waste Day 2021. ITU. https://www.itu.int/myitu/-/media/Publications/2021-Publications/Digital-solutions-for-a-circular-electronics-value-chain.pdf

Mureithi, M. & Waema, T. (2008). E-Waste Management in Kenya. Kenya ICT Action Network (KICTANet), Kenya. http://ewasteguide.info/Waema_2008_KICTANet

Nganji, J., & Brayshaw, M. (2010). Is green IT an antidote to e-waste problems? Innovation in Teaching and Learning in Information and Computer Sciences, 9(2). https://doi.org/10.11120/ital.2010.09020006

UNEP (2018). Turning e-waste into gold: the untapped potential of African landfills. UNEP. https://www.unep.org/news-and-stories/story/turning-e-waste-gold-untapped-potential-african-landfills

WEF (2019). A New Circular Vision for Electronics: Time for a Global Reboot. Geneva: World Economic Forum. https://www.weforum.org/reports/a-new-circular-vision-for-electronics-time-for-a-global-reboot

WEF (2021). Five Big Bets for the Circular Economy in Africa African Circular Economy Alliance. WEF. https://www3.weforum.org/docs/WEF_Five_Big_Bets_for_the_Circular_Economy_in_Africa_2021.pdf

WHO (2021). Children and digital dumpsites: E-waste exposure and child health/ WHO. https://www.who.int/publications/i/item/9789240023901

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