RESEARCH BRIEF:

Improving e-waste management to support green Internet in resource-constrained settings: The Case of Zimbabwe.

RECOMMENDATIONS:

There is a need for the promulgation of legislation that controls the importation of electrical and electronic equipment (EEE) and e-waste management. Awareness campaigns and training to promote the proper management of e-waste for all stakeholders are required. Municipalities should be equipped and trained to dispose of e-waste appropriately, as they are responsible for waste management. The government and corporates should work together to improve the management of e-waste through a multistakeholder synergistic framework. The government should consider setting up an e-waste recycling plant. Participants had the following recommendations:

   i.   Inclusion of e-waste topics and activities in curricular up to university level

   ii.   Use of social media for information dissemination on e-waste

   iii.   Empowerment and training of environmental clubs

   iv.   Improve funding for e-waste management research and development programmes.

   v.   Creating standard e-waste management procedures for local authorities, telecoms companies

   vi.   University students, through their research, expressed willingness to be involved in e-waste recycling and management.

BACKGROUND:

Information and Communication Technologies (ICT), the Internet, big data, and artificial intelligence affect every aspect of human life, including the economy, education, and social networks (Maphosa & Maphosa, 2020; ITU, 2017). The Global South's widespread adoption of the Internet to participate in the knowledge economy has increased the adoption of electronic and electrical equipment (EEE) (Ogunlade, 2010). EEE have limited lifespan; when they reach their end of useful life, they must be appropriately disposed of. EEE contains rare earth metals, and some of the most toxic elements, and inappropriate disposal will adversely affect the environment and human health. Global annual e-waste output is 53.7Mt, with yearly revenue from e-waste recycling over $60 billion (Goodbody, 2021). E-waste management in Africa is highly informal, with less than 1% of e-waste recycled. Zimbabwe's mineral deposits are finite, and recycling can save the environment, create employment and reduce pressure on virgin mining. The study aims to create awareness and support the development of e-waste policies to strengthen the management and collection of e-waste to reduce its impact on the environment and human health. The study assesses-waste generation and management strategies and policy formulation in Zimbabwe.

RESEARCH APPROACH:

A mixed-method approach was used to undertake this study. Existing literature and pieces of legislation on waste management were reviewed. The research targeted individuals or companies that handle used EEE and institutions that regulate the use of devices that connect to the Internet and those used to facilitate connection. The study population comprised participants from key ministries such as the Ministry of ICT and Courier Services, Environment and Tourism and the Ministry of Higher Education, Technology Innovation, Civil Society Organisations (that deal with environmental management), municipalities, selected universities, scavengers, the private sector, the general public. Environmental management clubs at universities were supported and showcased there projects. Information dissemination was through webinars, workshops and publications in peer reviewed journals.

Required a u t h o r i t y a n d approvals to conduct the research were granted by the responsible gatekeepers and the Medical Research Council of Zimbabwe.

KEYFINDINGS:

Participants identified seven significant constraints with e-waste management in Zimbabwe:

i. There are no policies or specific legislation on e-waste in Zimbabwe. A policy on e-waste is still in draft stage.
ii. There is generally insufficient knowledge of the environmental and public health effects of e-waste across all the sectors studied
iii. Municipalities that are in charge of waste management do not dispose of e-waste appropriately
iv. Environmental and law enforcement agencies are unaware of the legislation pertaining to e-waste resulting in a lack of enforcement.
v. The importation of used EEE is not controlled in terms of the condition of the gadgets to prevent the importation of e-waste.
vi. There is inadequate community engagement in e-waste management.
vii. There is no formal recycling of e-waste in the country

Different organisations handle e-waste differently. Some keep the waste on their premises, while others dispose it with general waste. Government departments keep and resell obsolete gargets after the board approves, and those not bought are disposed of with solid waste or incinerated. There is no waste segregation in most organisations. The waste is mixed during transportation and final disposal. Generally, e-waste is handled as general waste. There is rapid accumulation of secondhand EEE, hence an import policy to regulate this is paramount.

WANT TO KNOW MORE?

For more information on this project, please contact the Principal Investigator, Prof. Vusumuzi Maphosa (vmaphosa@gmail.com; vusumuzi.maphosa@nust.ac.zw).

ACKNOWLEDGEMENTS:

Please Cite This Brief As:

Maphosa,V.,Macherera M.,Zezai D., Mangwana, J.(2023).*Research brief: Improving e-waste management to support green Internet in resource-constrained settings: a case for Zimbabwe.*