Project Name: **Assessment of the Current Status of the Circular Economy in the Waste Sector for Developing a Waste Stream-Specific Roadmap in Zimbabwe**

Theme: Circular Economy (Waste Management, Environment Management)

Project Summary: The transition from a linear to a circular economy is crucial for resource efficiency and material value preservation. In this context, Zimbabwe's Ministry of Environment, Climate, Tourism, and Hospitality Industry, in collaboration with The Netherlands Organisation for Applied Scientific Research (TNO), supported by Sustainable Inclusive Business (SIB-K) under the Kenya Private Sector Alliance (KEPSA), and funded by Climate Technology Centre & Network (CTCN), assessed the circular economy in Zimbabwe's waste sector. This assessment, focusing on organic and inorganic domestic waste, provided valuable insights for the development of a waste stream-specific circular economy roadmap for climate change. The findings of this study have significantly aided Zimbabwe in designing a waste stream roadmap, which will play a pivotal role in addressing the identified challenges in the waste management subsector.

Project Objective: The primary objective of the project was to develop a national waste stream roadmap. A key component of this roadmap was the development of a pilot project, which aimed to demonstrate the feasibility and benefits of a more circular waste management system in a real-world setting.

Specific objectives:

1. Assess the status quo of waste management practices for the six waste streams (plastics, metals, glass, paper, household waste, agricultural waste), identifying and developing an up-to-date guide to key stakeholders, existing public and private sector initiatives, and policies and insights in waste generation and processing.
2. Identify potential opportunities and barriers to shifting to a more circular waste management system for each waste stream.
3. Select a prioritized waste stream with the highest potential for transition to a more circular management system.
4. Developing a detailed strategic national roadmap for the selected waste stream is a management tool for the implementation phase aimed at creating new businesses, innovation, and technology transfer.
5. The conceptualization of a pilot project will include potential benefits in economic, social, institutional, and environmental terms.

Target Group(s): The target groups were the Zimbabwe national Government, Zimbabwe's Ministry of Environment, Climate, Tourism, and Hospitality Industry, government agencies, waste management organizations, informal waste players, and households.

Impact:

- **Conducted a successful study** to assess the current state of the circular economy in the waste sector in Zimbabwe.
- **Analyzed policy gaps** and identified opportunities for Zimbabwe's transition to circularity.
- **Designed a conceptualized pilot project** for the circular economy in Zimbabwe.
- Aided Zimbabwe in **designing a waste stream roadmap** for attaining a circular economy in the waste sector, specifically focusing on the waste stream's priorities. This roadmap includes short-, medium-, and long-term recommendations for appropriate technologies, legal reforms, policies and regulations, and market engagement.

Funding Partners: The European Commission funded the study through the Climate Technology Centre and Network (CTCN).
Duration: The study was implemented for one year (2021 – 2022).
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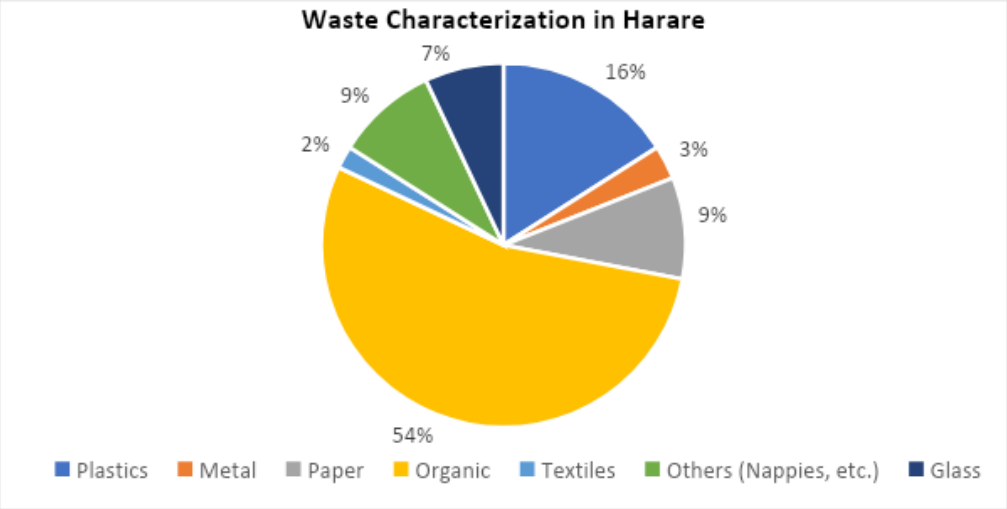
Focal group discussion to provide a vision for the future of waste management in Zimbabwe led by SIB-K's Program Manager Ebenezer Amadi

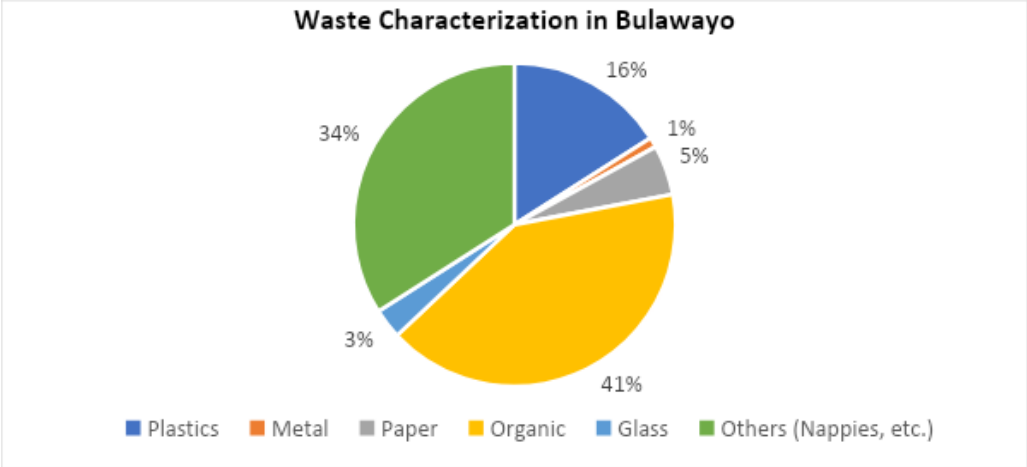
MORE DETAILS OF THE PROJECT

- **Findings of the Study:** Zimbabwe's circular economy is not fully developed. However, the 'circular behavior' is implicit in waste value chains developing in plastic statutes (e.g., SI 84 of 2012; NDS 1). However, some areas need improvement. The study also found that record-keeping remains challenging for private and public authorities collecting and managing waste nationwide. There are only three engineered landfills in the country - Bulawayo, Kadoma, and Nortoon, with the rest being open dumpsites. There are low levels of organic waste valorization, primarily due to its nature as smelly, heavy, and difficult to store and transport, making recyclers shy away.

  Both private and Local Authorities recorded low waste collection rates at 48% percentage. However, this rate is relatively high compared to some neighboring countries. There is no waste separation at the source for waste collected by local authorities and some private collectors, except CBOs & Social enterprises. Plastic recycling is advanced; metal, glass, and paper value chains are active, while organic waste recycling and valorization are least developed.
- **Waste Characterization in Zimbabwe's Cities**



This project's study focused on glass, paper, plastic, organic waste, and metal. Waste characterization studies showed that approximately 54% of solid waste generated in Harare is organic. Plastic accounts for about 16% of the total, and paper, glass, metal, and textiles account for 9%, 7%, 3%, and 2% respectively. Other types of waste, including nappies, contribute about 9% of the total waste generated in the capital city. The existing infrastructure managed by Harare City Council to accelerate composting can be revived/redesigned to facilitate biogas production for the city's urban dwellers, consequently earning revenue to augment effective waste management services.



Bulawayo is another city in Zimbabwe where the study characterized waste. The outcome was as follows: Organic waste contributed to 41% of the city's total solid waste, followed by plastic at 16%, paper at 5%, glass at 3%, metal at 1%, and the rest accounting for 34% of the waste generated.

- **Policy Landscape in Zimbabwe:** As in most countries, there has been no implementation of policies that focus entirely on the Circular Economy in Zimbabwe. Most efforts are connected with waste treatment and recycling, with the overall goal being to reduce the number of landfills

that have increasingly become a nuisance. The most notable characteristic of the country's waste management system is the promotion of 3R (reduce, reuse, and recycle) policies in parallel with waste management regulations. About 48% of solid waste generated in Zimbabwe is not collected and either illegally dumped in open spaces and on roadsides or disposed of by open burning. The limited quantity of solid waste collected by local authorities is deposited at dumpsites that do not qualify as landfills because of their design. As part of developing a paradigm shift and mainstream circular economy where waste is not seen as waste but as an input for another product(s), there is a need to adopt the integrated solid waste management system which prioritizes waste minimization, re-use, recycling, and waste-to-energy recovery.

The assessment further identified gaps that hinder the transition to circularity.

- Poor policy enforcement.
- The requirement that everyone have a license to transport waste prohibits the practice of recycling at the household level.
- The cumbersome process and costs of Environmental Impact Assessments (EIAs) are usually a significant deterrent to setting up any project that requires one.
- Inadequate budgetary allocations for infrastructure development, especially roads, transfer stations, skip bins, garbage trucks, etc.
- Insufficient investments in recycling.
- Inadequate or poor coordination among local and urban councils, thus hampering effective management of solid waste, including establishing designated landfills.
- Low levels of public awareness and engagement.
- Slow integration of circularity in the existing policies.
- Low players' involvement in policy development in the informal sector.

Some of the recommendations provided in the assessment include:

- Developing a circular economy roadmap for the organic waste stream.
- Adopting a multi-sectoral approach.
- Increasing human resource capacity.
- Boosting the market for secondary raw materials.
- Increasing financing for circular economy initiatives in the organic waste stream.
- Rewarding circular economy trailblazers.
- Implementing the Extended Producer Responsibility (EPR) Regulations.

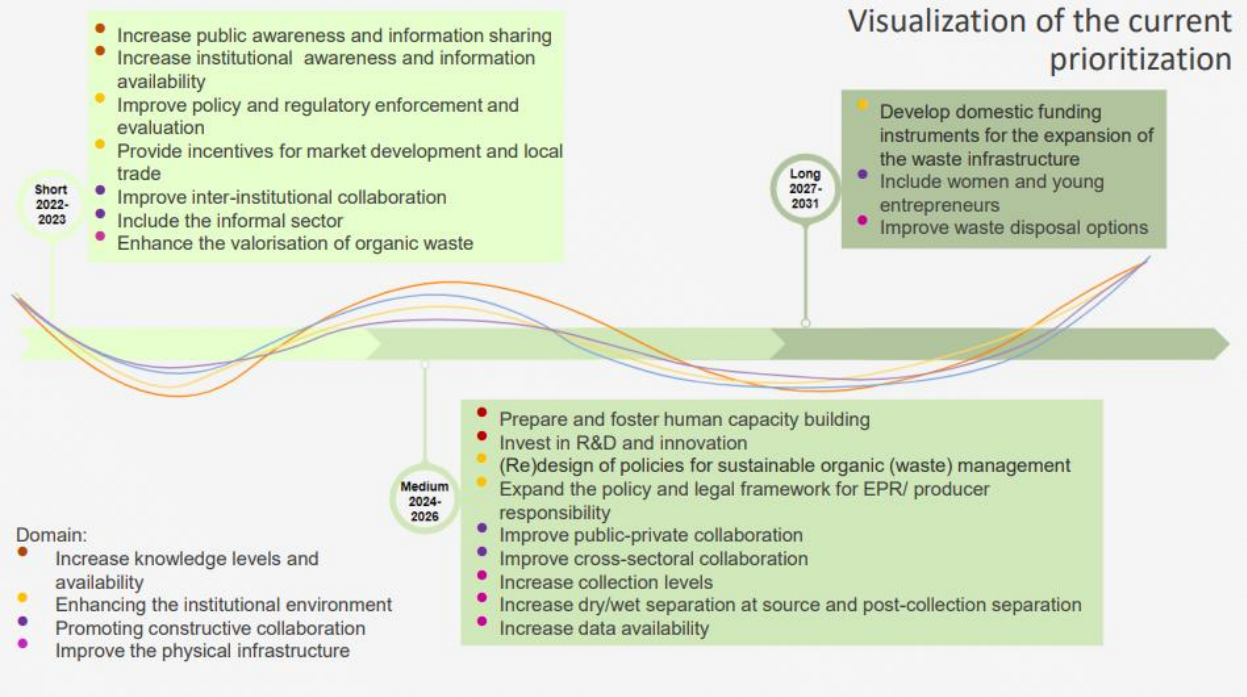
- **Relation to the Zimbabwe Nationally Determined Contributions (NDCs):** Zimbabwe introduced the Solid Waste Management Plan in 2014, which envisions a "safe, secure and sustainable solid waste management system that transforms Zimbabwe into a clean, healthy and environmentally friendly country by 2020 through citizen participation". Its objectives range from solid waste management to maximizing resource recovery, investing in environmentally sound infrastructure, and educating citizens on sustainable solid waste management.
  Zimbabwe's Nationally Determined Contributions (NDCs) prioritize waste as a critical mitigation sector, targeting integrated waste management. The National Climate Change Response Plan

from 2015 identifies solid waste management as a significant national challenge, targeting better capacity building of local authorities, creating an enabling policy environment for waste to energy, and developing an enabling framework to promote waste minimization. The waste sector is a priority mitigation area and is a sector where the circular economy has one of the most significant impacts.

Green House Gas (GHG) emissions from the waste sector gradually increased, reaching 1.76 MtCO2 by 2017. In Section 3.4, Zimbabwe's National Climate Change Policy explicitly articulates that the largest sources of these emissions are methane (CH4) generation from anaerobic digestion of organic waste in landfills and wastewater treatment, which dents the NDCs. To mitigate GHG emissions in the waste sector, Zimbabwe commits to composting 20% of organic waste, implementing waste into energy projects, and collecting at least 42% of the generated methane by 2030.

The intersection between the circular economy and Industry 4.0 represents a great opportunity for companies, organizations, and academia to develop new circular business models through the incorporation of technologies, continuing competitiveness, and reducing the environmental impact of their productive activities.

Roadmap Visualization of the Current Prioritization


Visualization of the current prioritization
Short 2022-2023
Increase public awareness and information sharing
Increase institutional awareness and information availability
Improve policy and regulatory enforcement and evaluation
Provide incentives for market development and local trade
Improve inter-institutional collaboration
Include the informal sector
Enhance the valorisation of organic waste
Long 2027-2031
Develop domestic funding instruments for the expansion of the waste infrastructure
Include women and young entrepreneurs
Improve waste disposal options
Medium 2024-2026
Prepare and foster human capacity building
Invest in R&D and innovation
(Re)design of policies for sustainable organic (waste) management
Expand the policy and legal framework for EPR/ producer responsibility
Improve public-private collaboration
Improve cross-sectoral collaboration
Increase collection levels
Increase dry/wet separation at source and post-collection separation
Increase data availability
Domain:
Increase knowledge levels and availability
Enhancing the institutional environment
Promoting constructive collaboration
Improve the physical infrastructure