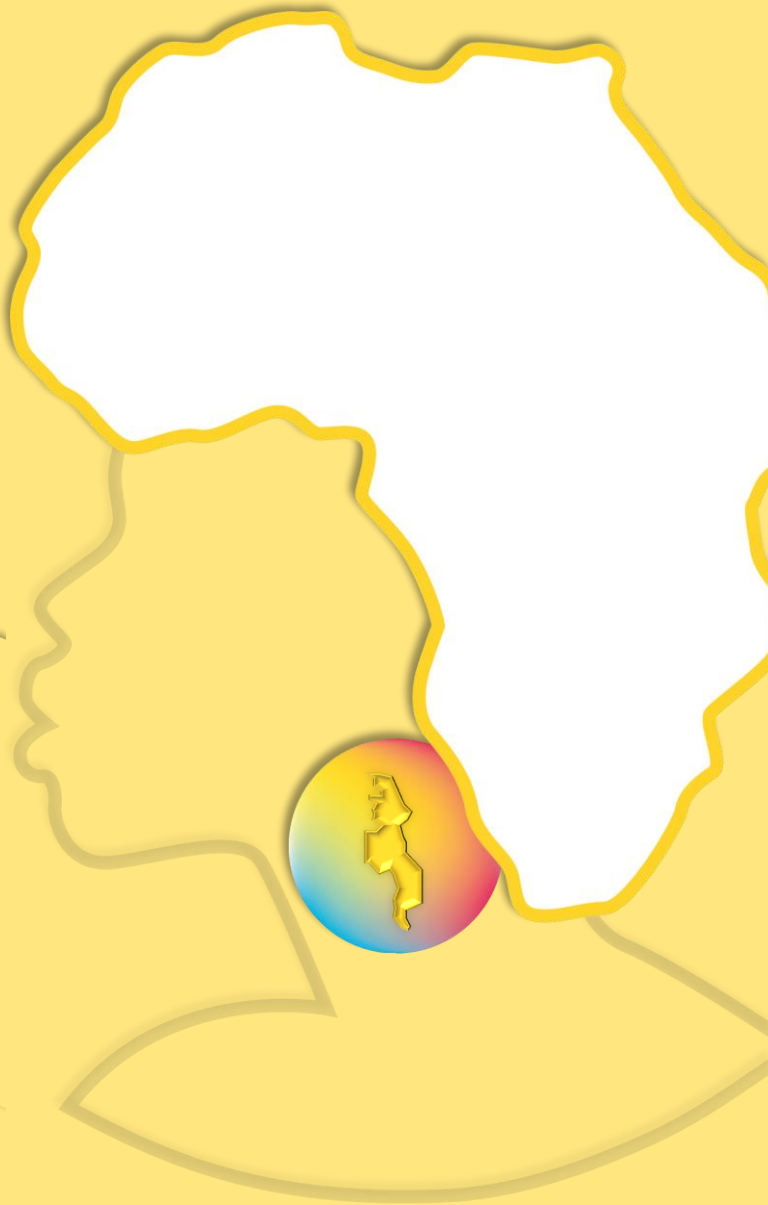
PROJECT

ASSESSMENT OF THE CURRENT STATUS OF THE CIRCULAR ECONOMY

in the waste sector for developing a waste stream specific roadmap



IN MALAWI

APRIL 2022, FACT SHEET

PROJECT INTRODUCTION

The National Commission for Science and Technology implemented a project to assess the current status of the circular economy in Malawi's waste sector in collaboration with the Netherlands Organisation for Applied Scientific Research (TNO), supported by Sustainable Inclusive Business (SIB-K), a knowledge centre under the Kenya Private Sector Alliance (KEPSA)), implemented a study to assess the current status of the circular economy in the waste sector in Malawi for developing a waste stream roadmap. The European Commission-funded study through the Climate Technology Centre & Network (CTCN) envisions supporting Malawi to transition the waste sector to adopt circularity with a focus on organic and inorganic-domestic waste. The assignment seeks to develop a national waste stream roadmap, including conceptualizing a pilot project for a more circular management system. The implementation period of the project is between 2021 and 2022.

PROJECT OBJECTIVES

The project's objective was to create a national waste stream roadmap and a pilot project for a more circular waste management system.

Specific objectives

- Assessment of the current state of waste management practices for the six household waste streams (plastics, metals, glass, paper, organic waste, and agricultural waste), identify and develop an up-to-date guide for key stakeholders, existing public and private sector initiatives, policies, and insights in waste generation and processing.
- Identify potential opportunities and barriers to transitioning to a more circular waste management system for each waste stream.
- To select a prioritized waste stream with the greatest potential for transitioning to a more circular management system.
- To develop a detailed strategic national roadmap for the selected waste stream, which serves as a management tool for the implementation phase, creating new businesses, innovation, and technology transfer. The roadmap will include short, medium, and long-term recommendations for, among others, appropriate technologies, legal reforms, policies and regulations, and market engagement.
- Conceptualization of a pilot project with potential economic, social, institutional, and environmental benefits.

THE CURRENT STATE OF WASTE MANAGEMENT PRACTICES IN MALAWI

- Malawi is still far from having a sound waste management system in place.
- Most cities and municipalities have underdeveloped collection systems, with collection rates of 30%.
- Plastic has a well-developed value chain. Metal, glass, and paper have less developed value chains than plastics.
- Plastic bags (less than 60 micrometers) were prohibited from being imported, manufactured, traded, or distributed commercially (Environmental Management (Plastics) Regulations, 2015).
- Low recycling uptake in packaging, limited acceptance of the Extended Producer Responsibility program,
- On average, waste is collected once a week in the three cities (Lilongwe, Blantyre, and Mzuzu) in Malawi – but only from planned settlements. Blantyre and Mzuzu, have the highest potential waste collection coverage (by the local authorities), at approximately 30%. Lilongwe only has a maximum potential of covering 25% of its residential areas.
- There is no separation of waste during collection by the local authorities.
- Waste separation for reuse or delivery to private waste collectors was acknowledged by 20 percent to 44 percent of households. Many private collectors gather plastic waste separately, then send it to aggregators or recycle it directly.
- Malawi's responsibility for waste management lies with local governments. However, waste management remains problematic for local authorities, particularly in urban areas. Lilongwe, Blantyre, Zomba, and Mzuzu, like many other rapidly urbanizing cities worldwide, are confronted with waste accumulation due to urban population growth and inadequate resources (primarily financial) that limit public services.
- Approximately 70% of municipal solid waste is not officially disposed of. 4% of the waste generated is recycled
- Lilongwe and Blantyre cities have the most significant waste generation of 180,000 metric tonnes and 192,720 metric tonnes. The data provided by the local authorities consists of estimations based on the number of track trips transporting waste to the dumpsites.

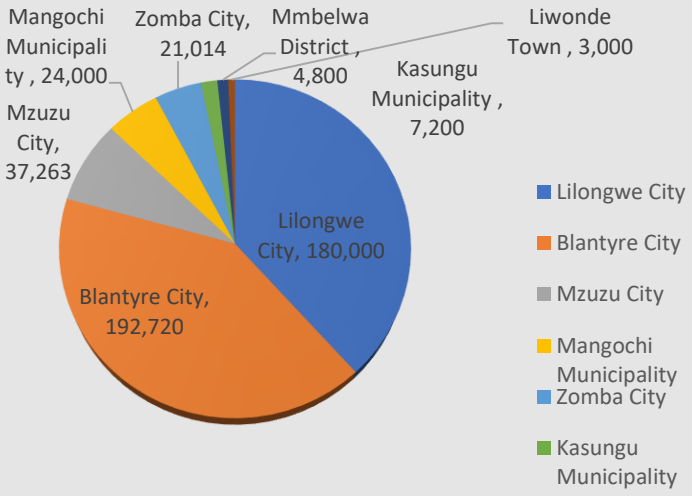


Figure 1: Estimated waste generation (local authority data)

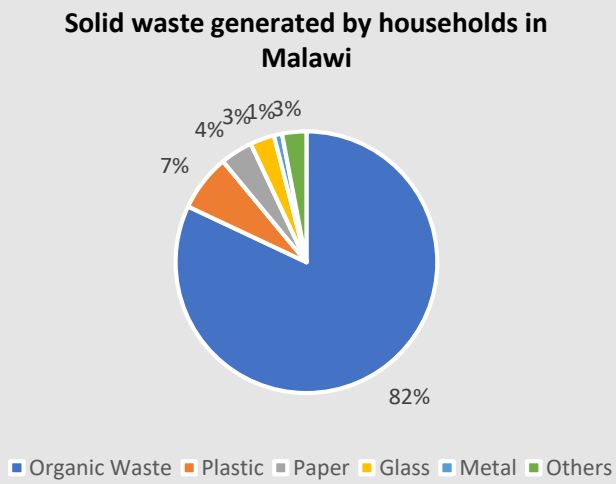


Figure 2: Waste Characterization in Malawi (Household data

POLICIES AND INSIGHTS IN WASTE GENERATION AND PROCESSING

- The Constitution is the basis for other laws and sets the pace in establishing laws, regulations, and policies. The acknowledgment of environmental protection as a right indicates that waste management is key to ensuring this right.
- Malawi has a lot of legislation (Environmental Management Act, 2017, Local Government Act of 1998, Environment Management (Waste Management and Sanitation) Regulations. 37 of 2008) dedicated to fighting waste generation and poor infrastructure.
- National Environmental Policy (NEP) 2004 advocates for the separation of waste at the source, recycling, and the adoption of appropriate technology to dispose of waste.
- The Environmental Management (Plastics) Regulation (2015) supports the integration of circularity by enforcing the refuse of problematic plastic that is considered a menace where alternative innovation can be adopted and push for reuse
- The National Waste Management Strategy of 2019-2013 provides for waste segregation at source and transport. It outlines strategies and budget allocation for reducing, reusing, recycling, and recovering energy from waste.
- The National Climate Change Management Policy 2016 lays out the sectors that generate GHGs or recommends how the GHGs can be reduced. The climate change adaptation policy statements outline that women, girls, and other vulnerable groups to be engaged.
- Plastic waste valorization in Malawi is already happening, but public policy's coherence and alignment must be intentional to ensure proper and effective stakeholder engagement.

PRIORITIZED WASTE STREAM AND POTENTIAL FOR CIRCULARITY

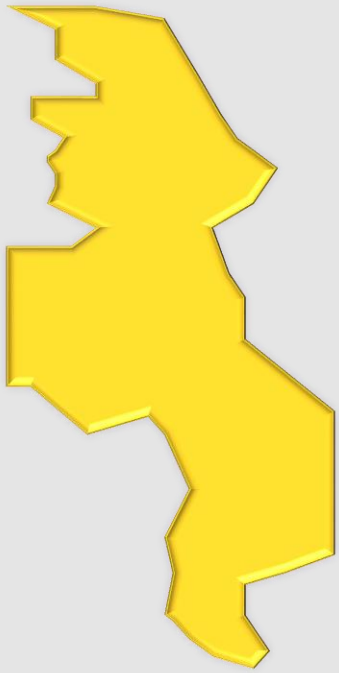
Malawi now has the best potential for a circular waste stream transition in plastic, organic, and agricultural waste. Even though organic waste is the most prevalent, plastic was chosen as a priority waste stream due to its long-term persistence in the ecosystem and great potential for reuse. The premise that there is already a developed downstream value chain for plastics to be built upon is one of the key reasons for its tremendous potential. The value of plastic waste is rather significant; hence the plastic waste stream has the potential to be a successful business venture. On the other hand, processing plastic waste is difficult, and most plastics are exported after aggregation. There are three technological pathways considered for the valorization of plastic waste:

- Closed-loop recycling (plastic products are recycled into the same product or applications with requiring materials with similar qualities),
- Open-loop recycling (plastic is downcycled into a different product, often tick walled products of lower quality),
- Feedstock or thermo-chemical recycling (which breaks down the plastics into monomers or other hydrocarbon products).

IDENTIFIED POLICY/REGULATION GAPS

Though the government and Malawian stakeholders have demonstrated a commitment to creating policies addressing plastic pollution more directly, there is a gap in that the policies in Malawi do not fully address the principles of circularity. As described in the above section, several policies and regulations still serve the linear model of production and consumption. Most of them were developed from the background of environmental pollution and aim at ensuring that waste is safely disposed of at designated disposal sites in Malawi.

IDENTIFIED GAPS	
Lack of adopting a risk-based approach to prioritize the most urgent environmental risks	Low levels of public awareness and engagement
Slow integration of circularity in the existing policies	Low adoption of recycled content to produce packaging products
Low levels of involvement of players in the informal sector in policy development	Financing the transition to a circular economy for plastics
Part adoption of the Extended Producer responsibility scheme	



CONCEPTUALIZED PILOT PROJECT

A Decentralized Integrated Waste-transfer Station (DIWS) is suggested as a pilot project, with the potential of including low- and medium-tech recycling. A DIWS combines four different functions: a buyback center, a waste transfer station, a value addition facility, and a recycling facility. A DIWS plays an important function in Malawi's waste management system since collection rates are low (30 percent in urban areas, almost non-existent in rural regions), and scaling up formal collection is difficult in the short term owing to financing constraints. The pilot will provide a decentralized local waste disposal option for informal waste collectors, public and private collectors, and individual households.

CRITICAL ASSUMPTIONS OF THE PROPOSED PILOT

- There will be 5 PBBCs (which in phase two will include other waste streams to become a DIWS). Each PBBC will be established within a community. The intention will be to leverage the available asset (land) within the community and reduce the costs that would have been incurred in collection.
- There will be one larger site in a strategic location where value addition activities and potentially recycling will be done, this will from now on be called the Value Addition Site (VAS).
- Each PBBC will collect 1 tonne of plastic per week, resulting in an average of 5 tonnes of plastic per week. Note that an average household in Lilongwe produces 0.75kg of plastic waste per week. The assumption of 1 tonne per week thus means the plastic waste of an equivalent of 1300 households is used for each PBBC.
- The pilot assumes that shreds will attract 250MKW/kg compared to the prices for the unwashed and unshredded raw material.
- The pilot assumes that there will be goodwill from the local authority in supporting the establishment of the pilot and collaboration with waste pickers and aggregators.
- It is anticipated that the market for plastic recycled products will increase, and companies will begin to increase recycled content in their packaging.
- It is assumed that there will be consistency in policy in mainstreaming circularity in the waste sector. The policies in the country will create an enabling environment to support the sustainability of the pilot and encourage expansion as anticipated in the phased approach.
- The pilot assumes 75% of the plastics are bought back from informal waste pickers; the other 25% is delivered by community members or the local authorities

ANTICIPATED CHALLENGES IN EXECUTING CONCEPTUALIZED PILOT PROJECT

- The current implementation of plastic waste management technologies shows that the key gaps are not due to a lack of existing technology – recycling technology is in place, and several companies are already implementing these.
- There is little domestic development of recycling technologies, nor little domestic availability of spare parts. This means that recyclers are dependent on expensive imports of (parts of) equipment.
- The costs of machinery to extrude and molt plastics are quite high, from $250.000 for a simple granule producing plant to $2.000.000 for an integrated manufacturing facility
- No incentives such as subsidies, tax holidays, or reduced import duty on equipment used for recycling and circular activities
- Loans or other forms of financing for plastic waste processing are difficult to come by since the interest rate is very high
- No equipment manufacturer in the country, so everything needs to be imported

ROADMAP VISUALIZATION OF THE CURRENT PRIORITIZATION

ROADMAP 2030

Long 2027-2030

- Redesign of policies
- Improve waste disposal options
- Develop infrastructure for commercialization

Medium 2024-2026

- Expand local trade and foster market development
- Include the informal sector
- Improve cross-sectoral collaboration
- Invest in R&D and innovation
- Prepare for and foster human capacity building
- Increase collection levels
- Improve data infrastructure
- Increase dry/wet separation and post collection separation

Short 2022-2023

- Improve policy and regulatory enforcement
- Develop domestic funding mechanisms
- Develop a policy and legal framework for EPR for plastics
- Include women and young entrepreneurs
- Improve public-private collaboration and engagement
- Increase institutional awareness
- Increase public awareness and information sharing
- Enhance the valorization of (plastic) waste

Domain:

- Enhancing the institutional environment
- Promoting constructive collaboration
- Increase knowledge levels and availability
- Improve the physical infrastructure

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