

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Solid Waste Treatment and Reuse

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Elizabeth Dewar

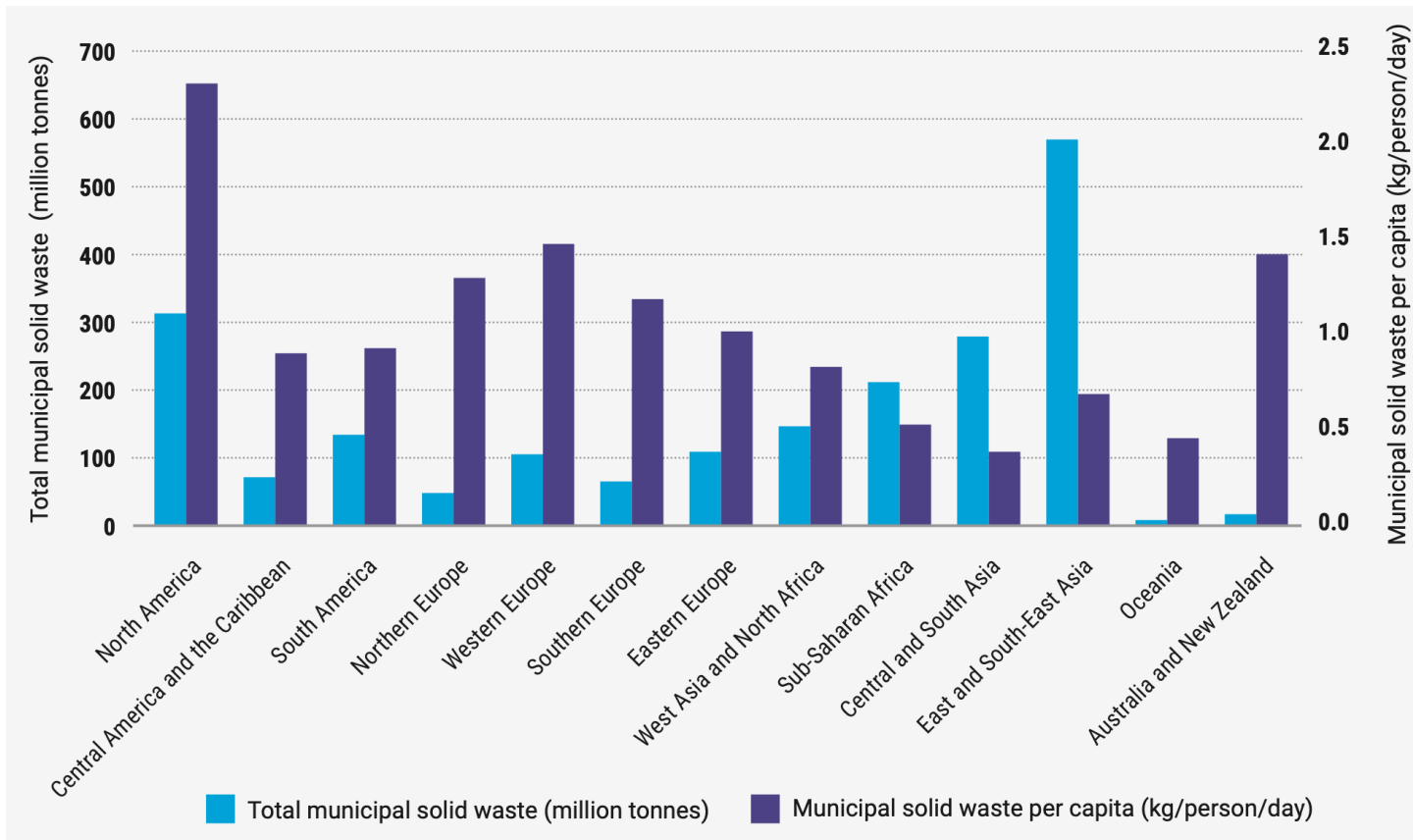
Trade, Environment, Climate Change and Sustainable Development, UNCTAD





Global waste is growing unevenly across regions

Global waste generation: diverse challenges require tailored solutions



Municipal solid waste (MSW) generation by region:
Total MSW (million tonnes) and MSW per capita (kg/person/day)

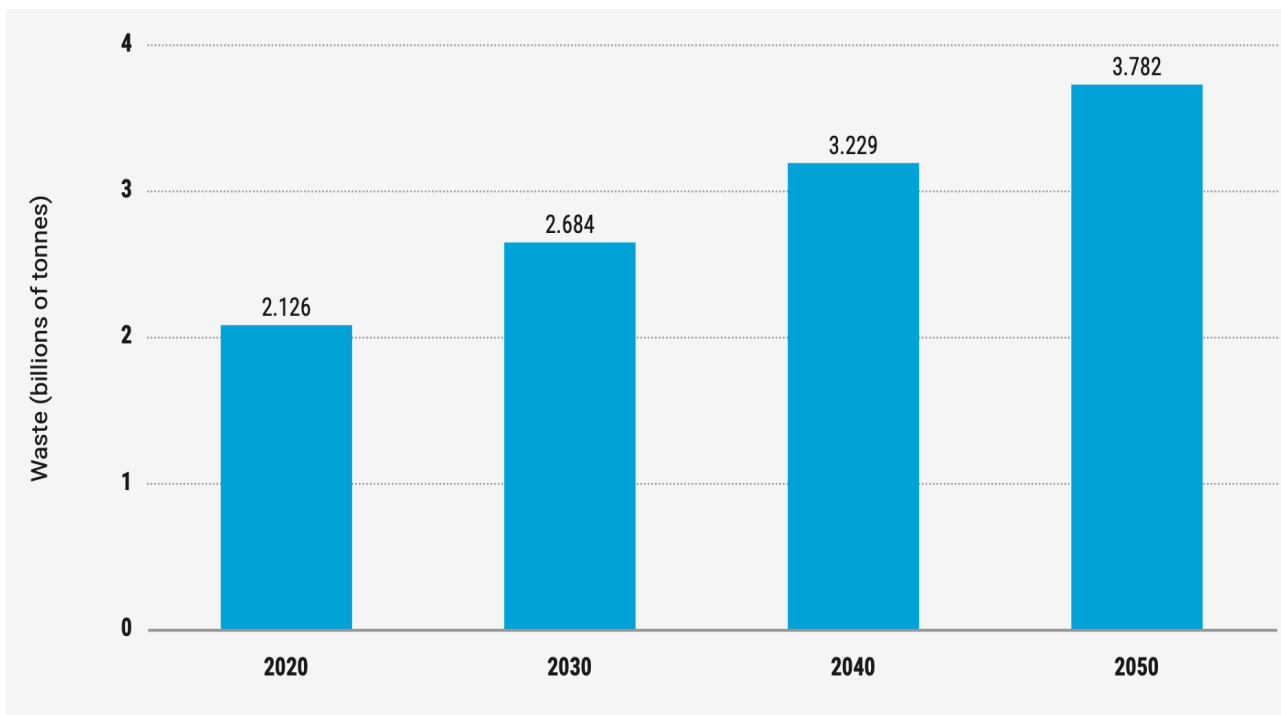
Source: UNEP (2024)

- ▶ Global waste reaches **2.01 billion** metric tons annually, expected to **grow by 68% by 2050**. (UN, 2018)
- ▶ Waste types include plastics, food/organics, textiles, and e-waste, making recycling challenging.
- ▶ **Regional differences** in waste generation and per capita contributions are significant.



Waste is wealth: transforming waste into opportunity

Projections of global municipal solid waste generation per year in 2030, 2040 and 2050 if urgent action is not taken



Source: UNEP (2024)

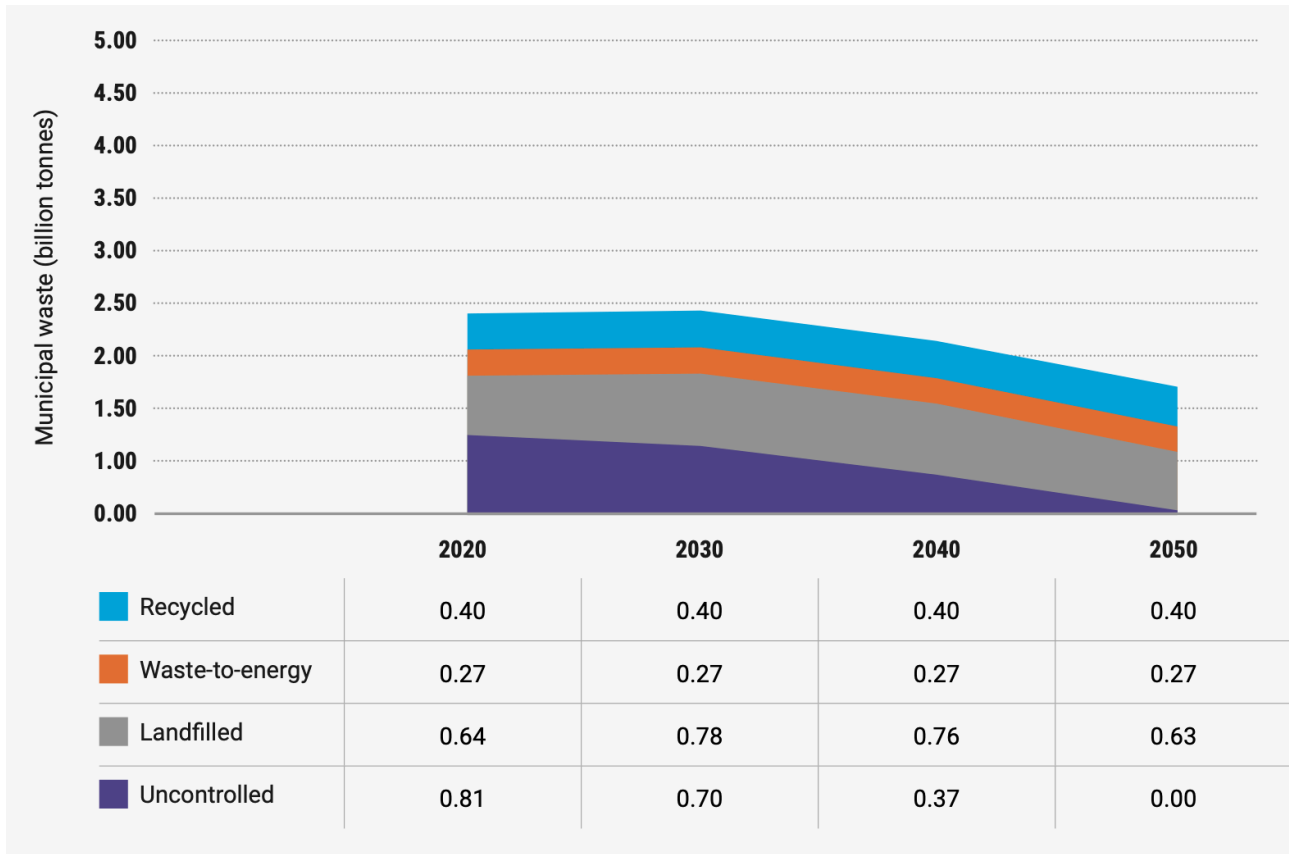
- ▶ Global municipal solid waste is projected to **rise sharply** by 2030, 2040, and 2050 without interventions. (UNEP, 2024)
- ▶ Significant waste is traded as recycled commodities, creating opportunities for sustainable trade. (UNEP, 2024)
- ▶ **Circular economy models** can transform waste into economic assets, boosting local economies and global trade.



The role of the circular economy

The circular economy promotes local production and trade of goods aligned with reuse, repurposing, and recycling.

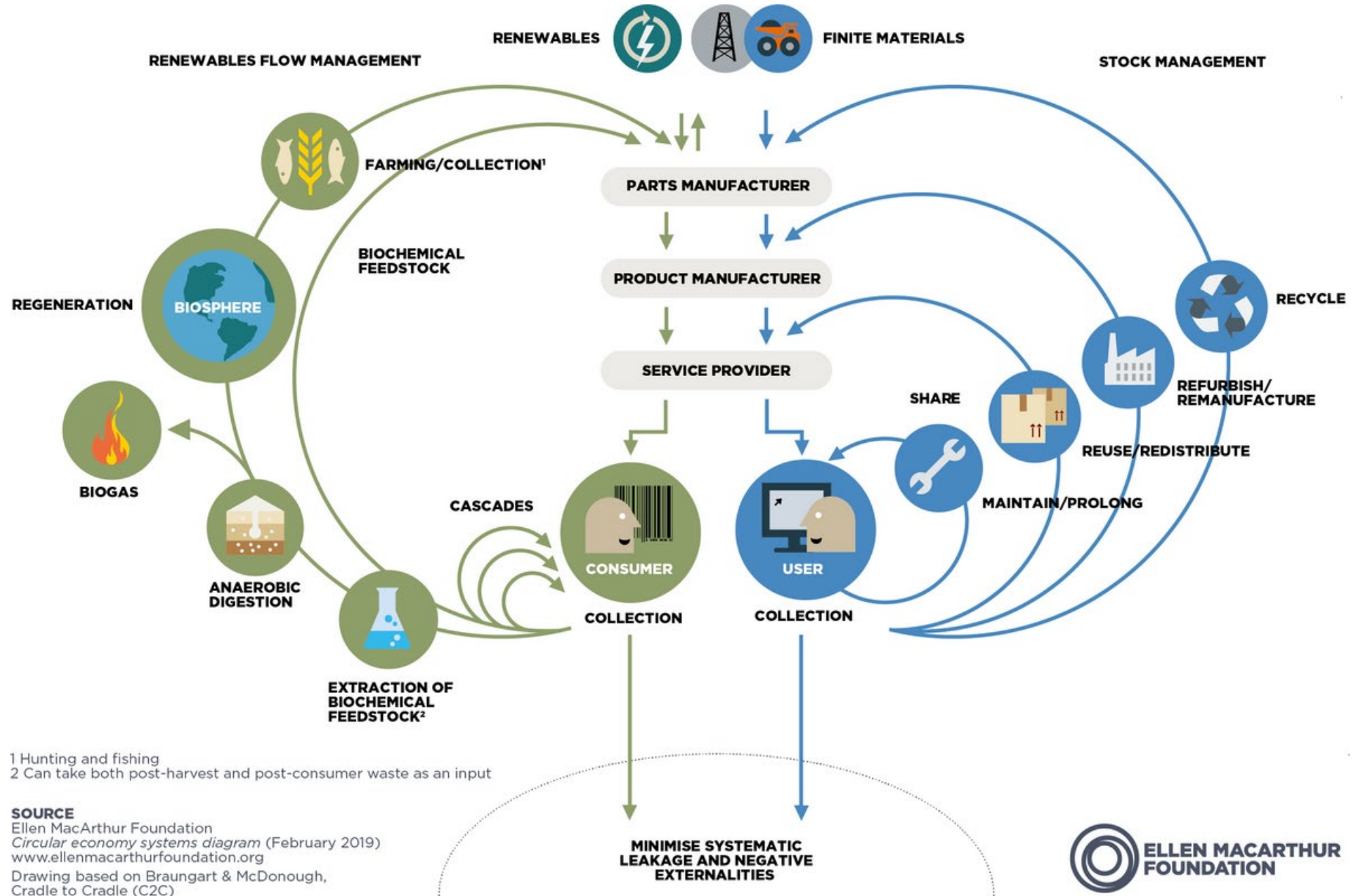
Circular Economy Projections, 2020-2050



Source: UNEP (2024)

- ▶ Adoption of circular economy principles offers **economic and environmental benefits.**
- ▶ Promotes local production of recycled goods for regional and international trade.
- ▶ **Drives local Small and Medium-Sized Enterprise (SME) growth,** creating jobs and boosting local and international economies.

Waste is wealth (2)



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input

SOURCE
Ellen MacArthur Foundation
Circular economy systems diagram (February 2019)
www.ellenmacarthurfoundation.org
Drawing based on Braungart & McDonough,
Cradle to Cradle (C2C)

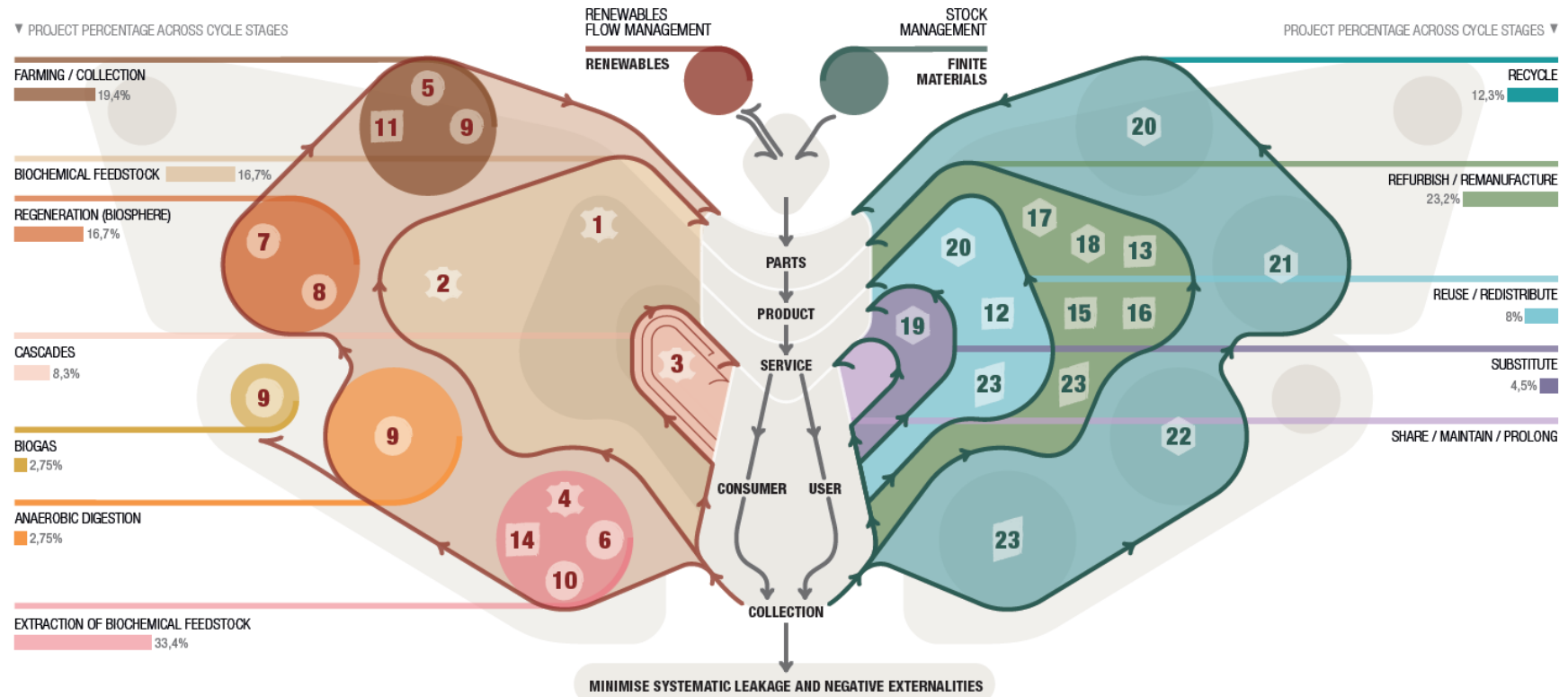


Waste is wealth (3)



Sustainable Manufacturing and Environmental Pollution

MAKING THE CIRCULAR ECONOMY A REALITY THROUGH PRACTICAL SMEP SOLUTIONS

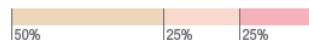


SMEP PROJECTS



TANNERIES

- 1 Ethical Trading Initiative
- 2 LeatherTrace Bangladesh
- 3 WWF Pakistan
- 4 CSIR-CLRI India



ORGANIC WASTE

- 5 Mananasi Fibre Ltd
- 6 Mr Green Africa
- 7 Sanergy
- 8 Takataka Solutions / Chanzi Ltd
- 9 KEPSA / Rio Fish Ltd
- 10 KNPC



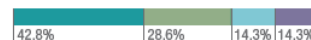
TEXTILES

- 11 BANATEX-EA
- 12 Reverse Resources
- 13 Uganda Circular Textiles
- 14 SAFECONOMY
- 15 Solidaridad Network Asia Ltd
- 16 Panta Rei Water Solutions



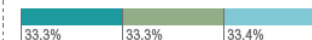
PLASTICS

- 17 FlipFlopi
- 18 Catchgreen
- 19 FRESHPPACT
- 20 RiverRecycle Oy
- 21 Plastic-to-Ghar
- 22 GVO / Warwick



USED LEAD-ACID BATTERIES

- 23 Pure Earth / Georgetown



SMEs drive innovation in the circular economy

- SMEs often find niche solutions for waste reduction, repurposing and tailored recycling.
- They produce and reimagine products like plastics-based building materials or fashion for local and global markets.
- Supportive policies and trade networks help SMEs scale and access international markets.



Challenges in scaling recycling systems in urban areas



Capital-Expensive and Complex



Logistics / Skills / Specialized services



Public and business / institutional Behaviour



Examples of successful waste treatment and reuse



Solution: Integrated circular bio-waste management for agricultural residues

Mananasi Fibre Ltd (Kenya)



- ▶ Burning 40,000 tonnes of pineapple waste annually emits **52,000 tonnes of CO₂**, pollutes the air, harms health, and degrades soil.
- ▶ The project **repurposes 10%** of this waste into textile-grade fibres, compost, and biochar, creating a sustainable alternative.
- ▶ To date, 1,542 tonnes of waste have been diverted, **producing 22 tonnes of fibre and 158 tonnes of compost.**
- ▶ The initiative has created 85 jobs, with 50% for women and 84% for semi-skilled workers.

Solution: Secondhand textiles



- ▶ Uganda imports **80,000 tonnes** of secondhand clothing annually; much of which ends up in landfills.
- ▶ The Uganda Circular Textile Project diverts waste to a **Textile Reuse Hub**, creating products like reusable nappies and accessories.
- ▶ Aims to repurpose **270 tonnes of textile waste**, reduce emissions, and upskill tailors (90% women).
- ▶ Progress includes a **market assessment** at Owino Market and engagement with policymakers to support waste reduction efforts.

Solution: Multi-technology for industrial organic waste



- ▶ Kenya's food and beverage industry produces large amounts of polluting organic waste.
- ▶ Currently transforming waste into:
 - ▶ **Animal feed** from black soldier fly larvae and frass fertiliser.
 - ▶ **Biochar** for soil enhancement and carbon sequestration.
 - ▶ **Compost** as affordable fertiliser for local farmers.
- ▶ Diverted **16,000 tonnes** of waste so far.
- ▶ Expanding operations in Nairobi and Mombasa to scale impact.

Tackling these challenges requires rethinking waste – not as a burden, but as a valuable resource that can be recovered and reused.

Pollution is the cost of wasted resources.

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Thank you



References

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SMEP (2024c). A multi-technology industrial organic waste solution. Available at: <https://smepprogramme.org/project/takataka-solutions-ltd/>

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