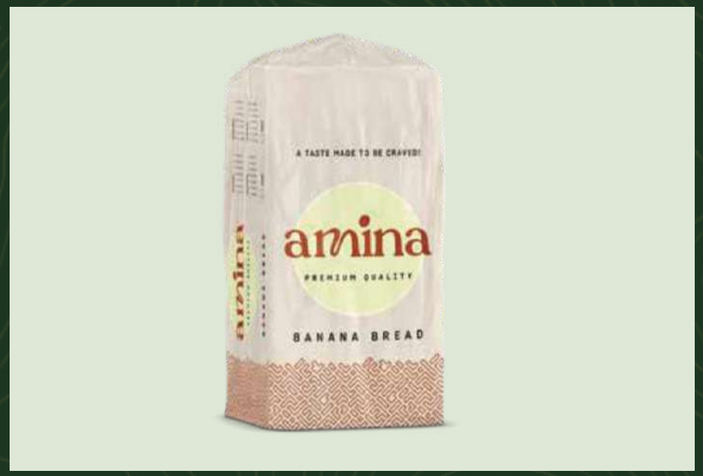
AFRICAN CIRCULAR ECONOMY NETWORK

FROM CIRCULARITY TO INNOVATION

NEW PRODUCTS FOR AFRICA'S FOOD SYSTEMS

PORTFOLIO







AFRICAN CIRCULAR ECONOMY NETWORK

The African Circular Economy Network (ACEN) is a group of circular economy experts from di erent fields looking at ways to reinvent inclusive growth on the African continent.

The Network aims to promote new business practices aligned with the concepts and principles of the Circular Economy, with a socially inclusive strategy for long-term bottom-line gains. ACEN is a registered Non-Profit Organisation in South Africa and has a continent-wide footprint.

ACEN's work in Rwanda includes the **Circular Food Systems for Rwanda** (CIRF) programme.



CIRCULAR FOOD SYSTEMS FOR RWANDA

The Circular Food Systems for Rwanda (CIRF) is a 5-year programme funded by the **IKEA Foundation** and managed by a consortium of partners led by the **World Resources Institute** (WRI), in partnership with **African Circular Economy Network** (ACEN), **Resonance**, **African Circular Economy Alliance** (ACEA), and **Rwanda Cleaner Production and Climate Innovation Centre** (CPCIC).

The programme helps Small and Medium Enterprises (SMEs) adopt circularity in their business models while strengthening the enabling environment through policy dialogue. Through pipeline development, technical assistance, market linkages, business development and product certification support, CIRF helps businesses use resources more efficiently, reduce operational costs,
& transform existing resources into new products. These efforts unlock new revenue streams and create employment opportunities, contributing to more sustainable and resilient businesses.



SUPPORTING SMES TOWARDS CIRCULARITY

This porfolio showcases **3 innovative products** developed by three companies, supported by the CIRF programme, using circular practices and demonstrating the practices and demonstrating the potential of circularlity for product development and innovation.

As part of our work to advance circular economy solutions in Rwanda, we also supported these **3 SMEs** to develop more circular packaging for their products. The initiative aims to help SMEs adopt more sustainable packaging solutions, reduce waste, improve resource use, & strengthen circular business practices.

MNB is a Rwandan social enterprise focusing on a zero-waste, circular agricultural model that produces mushroom substrates and processes mushrooms into new products to reduce food loss and waste.

ZEAN is a food processing company that produces high-quality banana chips and maize flour and is committed to sustainable practices.

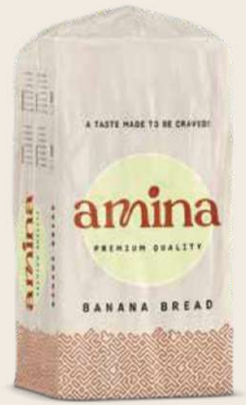
Kigasali Coffee Company transforms coffee husks into fuel pellets, replacing charcoal as a clean energy source for cooking and for coffee processing operations.

PORTFOLIO OVERVIEW

Product packaging is a critical lever for Rwandan SMEs, shaping product protection, shelf appeal, cost margins and sustainability performance.

A major challenge is the continued dependence on plastic packaging. While valued for its low cost, durability and convenience, plastic resists degradation for centuries, driving pollution and unsustainable material use that harm biodiversity and disrupt ecological systems.







COFFEE THAT FUELS MORE THAN YOUR DAY



KIGASALI COFFEE COMPANY LTD

Kigasali Coffee Company works with **5,187 farmers,** throughout Rwanda and processes up to **3,000 tonnes** of hand-picked Arabica Bourbon Coffee Annually.

Each year, Kigasali's milling operations generate about **120 tonnes** of coffe husks.

Rather than allowing this valuable resource to go to waste, the company converts all **120 tonnes** into clean fuel pellets, replacing charcoal as a clean energy source for cooking and supplying cleaner energy for its own coffee processing operations.

Every year, Kigasali transforms approximately **600 tonnes** of coffe parchment into organic compost, returning valuable nutrients to coffee farms and providing farmers with a sustainable agricultural input.

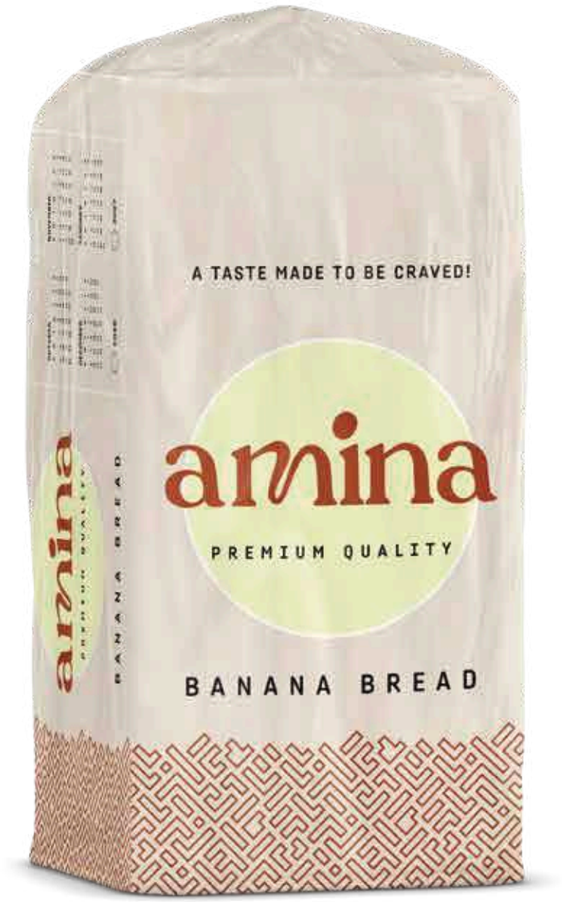
By turning coffee by-products into clean energy and organic farming inputs, Kigasali reduces **waste, creates new value and supports a more sustainable coffee value chain,** from farm to cup and beyond.



KIGASALI COFFEE COMPANY LTD

Not only does Kigasali Coffee Company create value by upcycling coffee by-products into coffee pellets, but with CIRF's support it has also designed a fully circular product for the pellets by rethinking their packaging. The company uses multi-layer kraft paper, sewn with sisal thread, for Sirimuka pellets to reduce environmental waste and promote biodegradability, reuse and recycling.

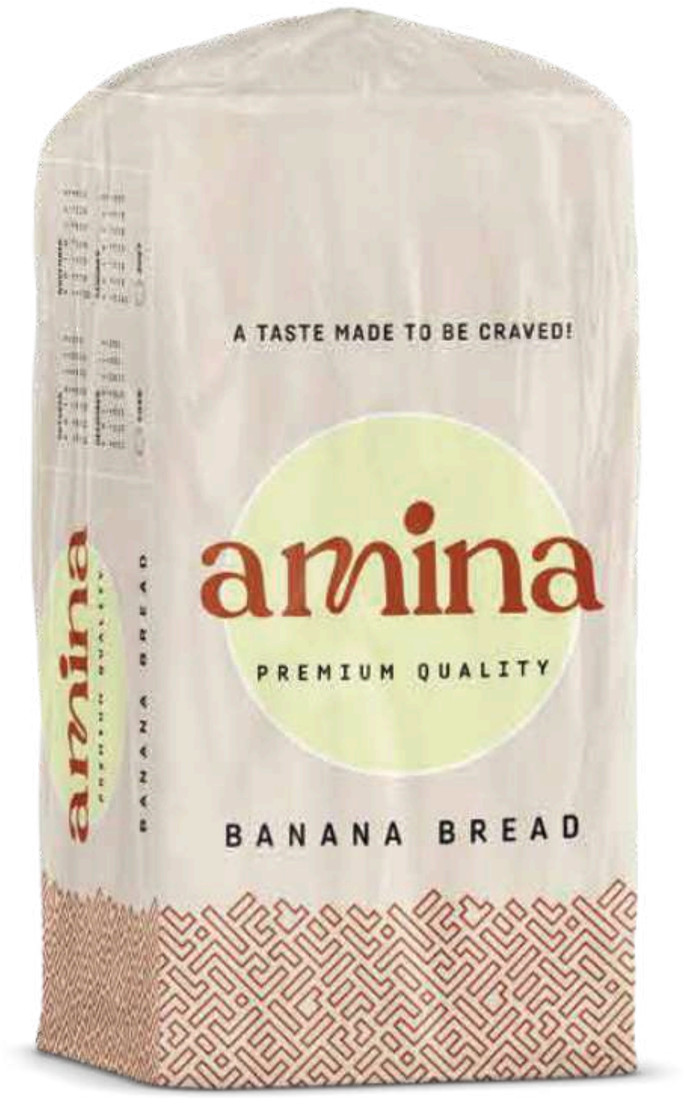
THERE IS MORE TO EVERY BANANA



ZEAN Ltd is a food processing company that produces high-quality banana chips and maize flour and is committed to sustainable practices.

Previously, banana by-products from processing were considered waste, creating waste management challenges for the company. Through the CIRF programme, Zean transformed these by-products into valuable ingredients and developed new food products, such as banana bread, doughnuts and cookies.

The banana bread is soft and moist, prepared with bananas, upcycled flour made from banana by-products, vegetable oil, sugar and baking powder. It provides natural sweetness, energy and fibre from bananas, and can be eaten at breakfast, as a snack or as dessert.



ZEAN LTD
creating healthier vibes

The 100% recyclable and industrially compostable paper packaging, made with plant-based or beeswax coating, provides a non-stick, moisture-resistant layer that helps keep bread fresh.

The packaging was developed to eliminate harmful environmental residues at end-of-life, providing consumers with a sustainable alternative that can enter appropriate recycling or industrial composting streams.

FRESHNESS THAT LASTS BEYOND THE HARVEST



MNB is a Rwandan social enterprise committed to a zero-waste, circular approach to mushroom production and processing. The company transforms agricultural residues, such as dried coffee pulp, into nutrient-rich substrates for growing mushrooms, giving these materials a valuable second life and supporting local coffee farmers.

To reduce food loss and waste, MNB processes mushrooms into innovative value-added products such as mushrooms sambusa, ravioli, and mushrooms in salted water.

Fresh mushrooms are preserved in salted water to lock in their freshness and rich, full flavour for longer. By extending their shelf life, we help reduce food loss and waste while making the most of every harvest, bringing fresh taste and delicious flavour within easy reach at home.

Preserved Today. Delicious tomorrow.



MNB operates a zero-waste mushroom value chain, where waste is composted, reused, or recycled.
As part of strategy, and through the support of CIRF, the company has also designed a full circular product - including the packaging for mushrooms in salted water.

Glass jars are the best option for packaging and preserving mushrooms:

- They are recyclable
- Offer high product visibility
- Extend shelf life and o er high product visibility
- Protect contents from moisture and pests better than plastic or paper.

RWANDA'S PACKAGING OVERVIEW

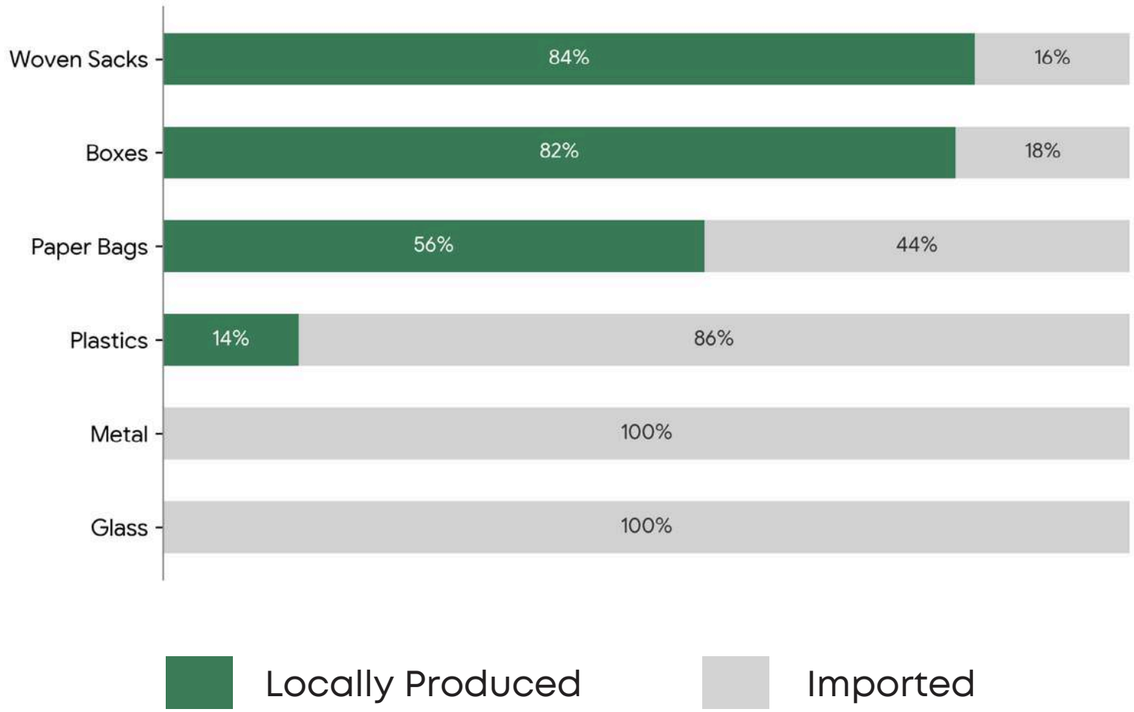
Rwanda's packaging industry remains too small to meet demand, so agro-processors rely on costly imports, undermining regional competitiveness.

The country has no domestic glass or metal packaging production (glass is 100% import-dependent) and faces shorrtages of viable plastic alternatives after the ban, pushing some firms toward wax paper or newspapers.

Key Insights

- Rwanda has relatively high local production capacity for woven sacks (84%) and boxes (82%), and about half of paper bags (56%) are produced domestically.
- There is a heavy reliance on foreign markets for plastics (around 86% imported) and 100% import dependency for glass and metal packaging.

Figure showing packaging material origins in Rwanda



1. Cost Challenges

Across all three SMEs, sustainable packaging options are significantly more expensive than conventional plastics, squeezing margins and retail competitiveness.

- **Kigasali Coffee Company:** Multi-layer kraft paper with sisal stiching avoids plastic but is costlier than standard lined or laminated bags; with no local glass or metal production, any shift to those materials would mean fully imported, higher-cost packaging.
- **ZEAN:** The 100% recyclable and industrially compostable paper packaging with plant-based or beeswax coating carries a significant price premium over conventional plastic films, raising unit costs and putting pressure on retail margins for produced goods.
- **MNB:** Glass jars offer superior protection but are 100% import-dependent in Rwanda, making them substantially more expensive than plastic alternatives and raising unit costs for a social enterprise operating on thin margins.

2. Material Constraints and Availability

Across all three companies face limited local availability of suitable packaging, forcing reliance on imports and small-batch solutions.

- **Kigasali Coffee Company:** While kraft paper is more , there is limited local availability of the specific multi-layer kraft packs with sisal closures it requires.
- **ZEAN:** High-performance compostable papers with plant-based or beeswax coatings are not routinely stocked in Rwanda. ZEAN must source from a narrow of suppliers or import, risking stock-outs and inconsistent specs.
- **MNB:** Glass jars in the required sizes and closures are entirely imported; local alternatives such as plastic and paper, are either restricted or unsuitable for wet, shelf-stable products, leaving MNB with few affordable, locally available options.

3. Supply Chain Challenges

Rwanda's packaging sector remains infant and under-invested, limiting what SMEs can access in terms of design, quality and specialisation.

Minimal investment leaves the sector unable to produced specialised formats at scale; technological capability gaps prevent affordable, high-quality local design and conversaion; and there is severe shortage of specialized industrial expertise and craftsmanship in packaging engineering and finishing.

- For **Kigasali Coffee Company,** this means limited local ability to develop and trial custom kraft constructions with sisal closures at competitive cost.
- For **ZEAN,** it constraints access to locally designed, certified compostable structures tailored to moist, oily products like banana bread.
- For **MNB,** there are few options for locally designed, food-grade glass systems and integrated reuse/refill models.

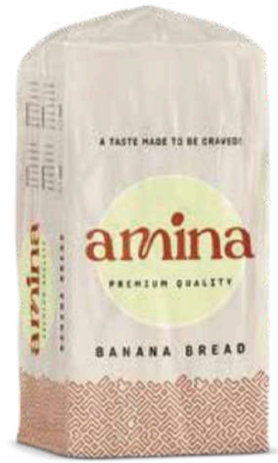
PACKAGING END-OF-LIFE MANAGEMENT



SIRIMUKA COFFEE PELLETS

REUSE: Strong kraft sacks can be reused for storage or as liners before disposal.

COMPOSTING: If soiled or when recycling isn't accessible, bags biodegrade in composting environments over weeks to months.



AMINA BREAD

The material is 100% biodegradable and suitable for organic waste treatment.

To accelerate the breakdown, it is recommended to tear the paper into small pieces to assist the composting process.



MNB MUSHROOMS

REUSE FIRST (STORAGE/REFILLS): When no longer usable, customers can send to glass recycling where collection exists.

PAPER WRAPS: Place in general waste to avoid contaminating paper recycling.

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