

Case Study

Circular Economy Adoption in Rwanda's Agri-food Sector: Policy Levers and Lessons for SMEs

African Circular Economy Network



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Case Study: Circular Economy Adoption in Rwanda's Agri-food Sector: Policy Levers and Lessons for SMEs

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Executive summary

Rwanda was the first African country to adopt a national Circular Economy Action Plan (January 2022). It later hosted the first World Circular Economy Forum in Africa (2022) and co-founded the African Circular Economy Alliance. Agri-food has been a policy priority from the outset, as Rwanda's largest economic sector, contributing an estimated 25% of GDP and 43% of employment, with agro-processing its largest manufacturing sub-sector and export revenues of USD 839 million in 2023–2024. This case study examines whether Rwanda's circular economy policy framework has translated into demonstrable change in Micro, Small and Medium Enterprises (MSME) behaviour, drawing on a desktop study and 16 semi-structured interviews across government, development partners, regulators, enterprise-support organisations, coalitions, and agro-processing companies. Findings are organised around five levers that together shape an enabling environment for circular agri-food MSMEs.

Governance and coordination. Rwanda's principal circular economy platform was deliberately co-chaired by the Ministry of Environment and the Ministry of Agriculture and Animal Resources from the outset, a design choice that gave circular economy principles a direct channel into the Fifth Strategic Plan for Agriculture Transformation (PSTA-5), the strategy governing agricultural investment and extension. Replicating this requires designing multi-stakeholder platforms to span the ministries they aim to influence from the start, rather than building cross-ministerial reach afterwards, and developing standardised outcome measurement so policy integration translates into something policymakers can actually track.

Certification and market access. Standards bodies have created new standards for organic fertiliser and Black Soldier Fly products in direct response to gaps that came to light through engagement on the platform. This is opening up markets that were previously closed not because the products fell short on quality or performance, but simply because no official standard or definition existed for them yet. The clearest unresolved barrier sits on the input side: certification cannot make organic products price-competitive while mineral fertiliser subsidies keep conventional alternatives artificially cheap, making subsidy reform, already under active government consideration, a precondition for certification investment to pay off.

Finance and MSME readiness. Circular economy enterprises have been formally recognised as an eligible investment category within mainstream Rwandan financial institutions, creating a channel that can outlast individual donor programme cycles. Reaching beyond the roughly 50 enterprises served to date by explicit CE-finance instruments depends less on capital availability than on investment-readiness support, since fewer than one in twenty applicants currently meet basic documentation requirements.

CE innovation and enterprise development. Pilot enterprises that document both technical performance and financial returns — such as a cassava-peel processing model with an indicative 49.4% five-year internal rate of return — create a template that other enterprises and investors can assess and replicate. Extending this proof of concept beyond a narrow cluster of business models requires dedicated post-incubation support and local-language terminology that can carry the concept beyond formal programme participants. Peer visits have proven to be a successful approach for transferring circular practices between companies.

Infrastructure and spatial planning. For the first time, Rwanda is designing two new agro-processing parks with circularity considered from the onset rather than an afterthought. Whether this becomes the norm

rather than the exception depends on extending mandatory waste segregation, shared treatment infrastructure, and park-level monitoring to Rwanda's existing parks, not only its newest ones.

Rwanda demonstrates a genuine policy-to-practice pathway: the Circular Food Systems for Rwanda (CIRF) platform's direct influence on PSTA-5 shows how strong governance architecture can translate intent into action, with commercial outcomes already driving MSME uptake. Building on this momentum, five priority actions explicit platform-to-policy channels, sector-level adoption indicators, input market distortion analysis, design-stage circularity assessments, and evidence-based commercial framing can extend this success across the full breadth of Rwanda's circular agri-food sector.

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Acronyms

ACEA	African Circular Economy Alliance
ACEN	African Circular Economy Network
BSF	Black Soldier Fly
CE	Circular Economy
CIRF	Circular Food Systems for Rwanda
CPCIC	Cleaner Production and Climate Innovation Centre
EMF	Ellen MacArthur Foundation
FONERWA	Rwanda Green Fund
GGGI	Global Green Growth Institute
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IITA	International Institute of Tropical Agriculture
HQCP	High-Quality Cassava Peel
ISO	International Organization for Standardization
ISO/DIS	International Organization for Standardization / Draft International Standard
MINAGRI	Ministry of Agriculture and Animal Resources
MNB	Moulins du Nil Blanc
MSME	Micro, Small and Medium Enterprise
MSP	Multi-Stakeholder Platform
NAEB	National Agricultural Export Development Board
NISR	National Institute of Statistics of Rwanda
NST-2	Second National Strategy for Transformation
PACE	Platform for Accelerating the Circular Economy
PSTA-5	Fifth Strategic Plan for Agriculture Transformation
ROAM	Rwanda Organic Agriculture Movement

RSB	Rwanda Standards Board
RUNRES	Rural-Urban Nexus: Establishing a Nutrient Loop to Improve City Region Food System Resilience
SNV	SNV Netherlands Development Organisation
UNIDO	United Nations Industrial Development Organization
UN PAGE	United Nations Partnership for Action on Green Economy

1. Introduction

The transition to a circular economy (CE) holds significant potential for sustainable economic growth, resource efficiency, and job creation — particularly in developing economies where resource dependence is high and the costs of a linear model fall disproportionately on small producers and communities. Realising this potential, however, requires more than policy commitments on paper. It demands **purposeful enabling conditions**: governance frameworks that coordinate action across institutions, financial instruments that reach small enterprises, market mechanisms that reward circular practices, and infrastructure that makes resource recovery economically viable.

This case study examines **how those conditions are being built in Rwanda's agri-food sector**, drawing out lessons and transferable insights for governments, development partners, and programme implementers seeking to accelerate CE transitions in comparable contexts.

Rwanda was selected as the African case study country based on its demonstrated progression from national CE policy commitment to sector-specific implementation — a trajectory that generates transferable evidence for governments and development partners at earlier stages of that process. Further, Rwanda was the first African country to introduce a national CE Action Plan (Ministry of Environment, 2022), the country hosted the World Circular Economy Forum in 2022 and co-founded the African Circular Economy Alliance (ACEA) in 2016 alongside South Africa and Nigeria (Trinomics et al., 2020).

Within that policy architecture, the **agri-food sector is explicitly designated as a priority sector for circular transition**, and a growing ecosystem of programmes, financial instruments, and enterprise support organisations has since emerged to translate policy intent into practice. This makes Rwanda a particularly instructive case for understanding what an enabling environment for circular transition of MSMEs could look like — and where its limits lie. The agri-food sector was selected because of its central importance to Rwanda's economy and its direct relevance to circular economy entry points: closing nutrient loops, valorising organic by-products, improving resource efficiency in processing, and reducing food loss.

Circular economy and regenerative agriculture: a distinction worth drawing

While sustainable and regenerative agriculture focus primarily on farm-level practices such as improving soil health, composting and reducing chemical inputs, the circular economy situates these practices within a broader, system-wide framework. It connects multiple actors across the agri-food value chain, including farmers (smallholders and MSMEs), agro-processors, input suppliers and other supporting industries, and operates across scales, from farm and value chain level to national and regional systems. In this context, circular economy approaches enable the transformation of organic waste into valuable resources at scale for example, converting food processing waste into fertilisers or animal feed, while also linking agriculture with sectors such as waste management, energy and manufacturing.

The case study combines desk research with primary data collection. Desk research drew on policy documents, programme reports, and peer-reviewed literature. Primary data was collected through 16 semi-structured interviews conducted between January and March 2026 with government institutions, development partners, regulatory authorities, enterprise support organisations, sector coalitions, and agro-processing companies (see Section 5: References).

2. Circular economy in Rwanda's agri-food sector

2.1 Characteristics of Rwanda's agri-food sector

Production

The agri-food sector is a central pillar of Rwanda's economy, contributing significantly to employment, rural livelihoods and national food security. The sector employs a large share of the population, with most rural households engaged in farming activities, estimates range from approximately 43 per cent of the total workforce (World Bank, 2025) to approximately 55 per cent when smallholder and subsistence labour is fully counted (ACF, 2025). Production is dominated by smallholder farmers operating on relatively small plots of land, often through individual households or farmer cooperatives. Many farmers practise **mixed farming systems**, combining crop and livestock production on the same farm. **Staple crops**, including beans, maize, cassava and sweet potatoes, are widely cultivated and form the backbone of food security and subsistence livelihoods across rural households. In parallel, **horticultural production**, including fruits and vegetables, is increasingly important, particularly for income generation and market-oriented production, although it remains less widespread than staple crop cultivation (*MINAGRI, 2019; NAEB, 2024*).

In 2023–2024, agricultural exports generated USD 839 million in revenues, representing approximately 37 per cent of total export earnings, with **coffee, tea, and pyrethrum** as the principal commodities and horticulture growing rapidly in volume and value (NAEB, 2024).

Agro-processing

Agro-processing has emerged as Rwanda's largest manufacturing sub-sector. It links farm-level production to domestic value addition and export market access, spanning key value chains such as coffee, tea, dairy, banana products, and horticulture.

Its economic weight is substantial. Gross value added reached approximately RWF 864 billion in 2022, around **64 % of total manufacturing sector** value added (World Bank, 2025). PSTA-5 sets a target of 10 % annual growth in agro-processing value added through 2028/29, up from an 8.8 % baseline in 2023 (MINAGRI, 2024).

Processing capacity, however, remains underutilised across several value chains. In dairy, only around 8 per cent of milk production passed through Milk Collection Centres in 2021. These centres themselves operated at roughly 53 % of capacity (World Bank, 2025). Horticulture shows a similar pattern. Export revenues grew by 136 % over five years, yet horticultural products still account for only around 7 % of agricultural exports — well below the USD 205 million target set for 2024. Approximately 70 % of produce is retained for household consumption or sold domestically (World Bank, 2025).

This means that under-processed value chains suffer higher **post-harvest losses, estimated at 20 to 49 % for horticultural produce.** Yet they also represent **latent capacity for circular interventions** in processing efficiency, by-product recovery, and value addition.

Market orientation: export and domestic value chains

Rwanda's agri-food value chains serve both domestic and export markets (Table 1), and this duality shapes the conditions for circular economy adoption across the sector. The tension is most visible in sustainable packaging: Rwanda's single-use plastic ban creates a domestic market signal for alternative materials, yet export standards for horticultural produce often require conventional plastic to meet cold chain and shelf-life specifications — a trade-off exporters must navigate.

Table 1: Export-oriented and domestic value chains in Rwanda's agri-food sector

	Export-oriented value chains	Domestic value chains
Key value chains	Coffee, tea, pyrethrum, horticulture	Staple crops, dairy, processed foods
Governing standards	Internationally set quality, food safety, and packaging requirements	National standards; directly responsive to domestic policy signals
Circular opportunities	By-product valorisation (coffee pulp, tea waste); resource efficiency in processing	Organic fertiliser and animal feed supply to smallholders; post-harvest loss reduction
Key constraint	Export packaging standards may require conventional plastic, limiting uptake of circular alternatives	Subsidy asymmetry between mineral and organic fertilisers suppresses demand for circular inputs

2.2 Policy and support frameworks

Policies and regulatory frameworks

Rwanda's enabling policy environment for circular economy in agri-food has developed substantially since 2019, progressing from early pilot initiatives and awareness-raising to formal national strategy, and most recently to mainstreaming within the agricultural sector's governing framework through PSTA-5.

Table 2 summarises the key policy and regulatory frameworks shaping circular agri-food systems in Rwanda and highlights their relevance for MSME development and entrepreneurship.

Table 2. Overview of relevant policies and regulations and their link with circularity in Rwanda's agri-food sector

Policy	Key policy objective	Link to circularity in agri-food sector	MSME / enterprise relevance
Revised green growth and climate Resilience strategy	Establish a low-emission, climate-resilient development pathway aligned with Vision 2050.	Promotes green industrialisation, sustainable agriculture, efficient land and water use, improved food security, biodiversity protection and climate-resilient food production.	Creates a broad enabling environment for green enterprise development, climate-resilient agriculture and resource-efficient business models.

National action plan for the circular economy	Embed circular economy principles in economic decision-making by 2035, focusing on construction, collaboration and capacity building, sustainable waste management, circular agriculture and integrated water resource management.	Promotes organic waste valorisation (e.g. composting), reduced post-harvest losses, regenerative agriculture and circular farming inputs.	Explicitly supports circular business opportunities in waste valorisation, organic inputs, regenerative agriculture and resource recovery.
Strategic plan for agriculture transformation (PSTA-5)	Develop a resilient and sustainable agri-food system that supports economic growth and food security.	Advances circular food systems through organic inputs, waste-based animal feed, reduced post-harvest losses, agro-processing and regenerative agricultural practices.	Supports agribusiness development, value addition, reduced post-harvest losses and market-oriented agricultural enterprises.
National sanitation policy	Ensure sustainable, equitable access to sanitation and waste management services while protecting public health, the environment and poverty reduction objectives.	Supports the development of waste management and pollution prevention systems and promotes circular principles through private sector participation.	Provides indirect opportunities for MSMEs in sanitation services, waste collection, treatment, recycling and resource recovery.
National integrated solid waste management strategy	Enable a transition to a zero-waste, circular economy by 2035 through improved waste management systems and services.	Promotes separation and recovery of organic waste (e.g. composting and biogas), facilitates nutrient recycling in agriculture and encourages private sector participation in waste valorisation.	Creates entry points for waste recovery enterprises, composting businesses, private sector participation and circular waste services.
National Industry Policy (2024–2034)	Accelerate structural transformation and foster a competitive, export-oriented private sector.	Supports circular integration within industry, incubation of circular ventures, circular agri-food value chains, food waste-to-fertiliser solutions and sustainable packaging.	Supports industrial upgrading, SME competitiveness, innovation, circular agri-food processing and sustainable packaging solutions.

Rwanda's policy framework demonstrates a clear shift from standalone environmental interventions towards a more integrated approach that links agriculture, industry, waste management and climate resilience through circular economy principles. Collectively, these policies create multiple entry points for MSMEs in resource recovery, organic inputs, value addition, agro-processing and circular service provision.

The single-use plastics ban warrants specific note: Enacted in 2019, it is among the most comprehensive in sub-Saharan Africa and has created a structural market signal for sustainable packaging innovation across the agri-food sector. Its implementation has driven demand for alternative packaging materials and,

according to interview partners, has been a significant driver of interest in circular packaging solutions among agro-processors.

The Fifth Strategic Plan for Agriculture Transformation (PSTA-5), launched in December 2024, introduces two spatial production models — planned, geographically defined sites that concentrate production, processing, and market infrastructure in the same location — which reshape the conditions for circular interventions:

Agri-hubs are market-oriented commercial sites of at least 500 hectares, designed to attract private agro-processors and input suppliers. **Food Basket Sites** (FoBaSi) are smaller consolidated sites of at least five hectares, managed by farmer organisations with a focus on food security and domestic trade (MINAGRI, 2024; ACF, 2025). Both models create the **physical clustering that reduces transaction costs for waste exchange, shared infrastructure, and circular input supply** — a precondition for the enterprise innovations described in Section 3.

Programmes and support initiatives

Rwanda's circular agri-food ecosystem combines policy frameworks with financing mechanisms, innovation programmes, standards systems and enterprise support initiatives. Together, these interventions address different constraints faced by MSMEs, including access to finance, technical assistance, certification, market development and business incubation (see overview in Table 3).

The Circular Food Systems for Rwanda (CIRF) project has established a Multi-Stakeholder Platform (MSP), co-chaired by the Ministry of Environment and MINAGRI, bringing together government, private sector, civil society, SME, academic and development partner representatives. The MSP functions as a national forum for policy dialogue, shared learning and validation of circular economy initiatives in the agri-food sector. Its purpose is to strengthen the enabling environment for circular food systems: aligning regulations and standards, embedding circular principles into government strategies, and translating stakeholder input into concrete policy recommendations and implementation pathways.

What distinguishes Rwanda's programme environment is not the volume of individual initiatives — though these are substantive — but the degree to which they have been institutionally connected. The CIRF model, bringing together the Ministry of Environment, MINAGRI, development partners and the private sector within a shared coordination platform, directly influenced the embedding of circular economy principles in PSTA-5. Further, the ZU (Zamukana Ubuziranenge) Programme could be leveraged by MSMEs to receive certification support for circular products. The ZU program was launched by the Rwanda Standards Board in January 2025 and offers MSMEs free standardisation support, technical assistance, testing and calibration to help them meet certification requirements and access formal markets. Rwanda's circular economy agenda therefore sits within the mainstream agricultural strategy governing public investment, extension service delivery and private-sector engagement across the entire agri-food sector, rather than within a parallel environmental policy track. Section 2.3 turns to the circular economy achievements this institutional architecture has helped enable.

Table 3. Overview of relevant programmes on circular agri-food systems

Programme	Partners	CE Focus
CIRF (Circular Food Systems for Rwanda¹)	World Resource Institute (WRI), African Circular Economy Network (ACEN), Cleaner Production and Climate Innovation Centre (CPCIC), Resonance / IKEA Foundation	Multi-stakeholder platform co-chaired by Ministry of Environment and MINAGRI; SME technical assistance; policy advocacy; CE mainstreaming into national strategy
AfriCircular Programme²	African Development Bank (AfDB), African Circular Economy Alliance (ACEA), Africa Circular Economy Facility (ACEF), Impact Hub	Supports early-stage circular economy start-ups; current cohort of 30 start-ups across Rwanda, Côte d'Ivoire, and Ghana
RUNRES (Rural-Urban Nexus)³	ETH Zurich / Swiss Agency for Development and Cooperation (SDC)	Black Soldier Fly larvae and High-Quality Cassava Peel (HQCP) flour pilots in Kamonyi District; city-region organic waste valorisation; both innovations confirmed commercially viable and in Phase 2 scaling
GIZ Waste and Circular Economy Project⁴	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) / Ministry of Environment	Supports government and private-sector implementation of circular economy approaches in the waste sector; established the GIZ CE Accelerator that subsequently expanded Ireme Invest's eligible sectors to include CE
Ireme Invest⁵	Rwanda Green Fund (FONERWA) / Development Bank of Rwanda (BRD); financed by Green Climate Fund, Agence Française de Développement (AFD), European Investment Bank (EIB), IMF, Sweden, Germany, UK, Danida, African Development Bank, UNDP, and Bill & Melinda Gates Foundation	Green and CE enterprise financing: grants up to 300 million RWF; CE added as eligible sector following GIZ CE Accelerator; 250+ applications received; 30 companies in CE Accelerator cohort
Urumuri Programme⁶	Bank of Kigali Foundation / GIZ	Interest-free loans of 5–30 million RWF; revolving fund structure enabling continued deployment without additional donor capital; entrepreneurship capacity support

¹ Circular Food Systems for Rwanda (CIRF): <https://circularfoodsystemsrwanda.org/about>

² AfriCircular Programme: <https://www.africircularinnovators.com/about-us>

³ RUNRES (Rural-Urban Nexus, ETH Zurich / SDC): <https://runres.ethz.ch>

⁴ GIZ Waste and Circular Economy Project: <https://www.giz.de/en/projects/supporting-sustainable-waste-and-circular-economy-rwanda>

⁵ Ireme Invest: <https://iremeinvest.rw>

⁶ Urumuri Programme (Bank of Kigali Foundation / GIZ): <https://www.giz.de/sites/default/files/media/pkb-document/2025-11/giz2025-en-factsheet-urumuri-revolving-fund-climate-circular-economy.pdf>

Programme	Partners	CE Focus
SNV REALMS⁷	IKEA Foundation / SNV	Regenerative agriculture SME market development; bank engagement for CE enterprises; approximately 63% of supported SMEs reported revenue growth (approximate; 2024 data not finalised at time of publication)
W2R (Waste to Resources)⁸	Global Green Growth Institute (GGGI)/ Government of Luxembourg	Municipal organic waste treatment; sorting infrastructure; compost production for agri-food; 5-tonne-per-day biowaste facility operational

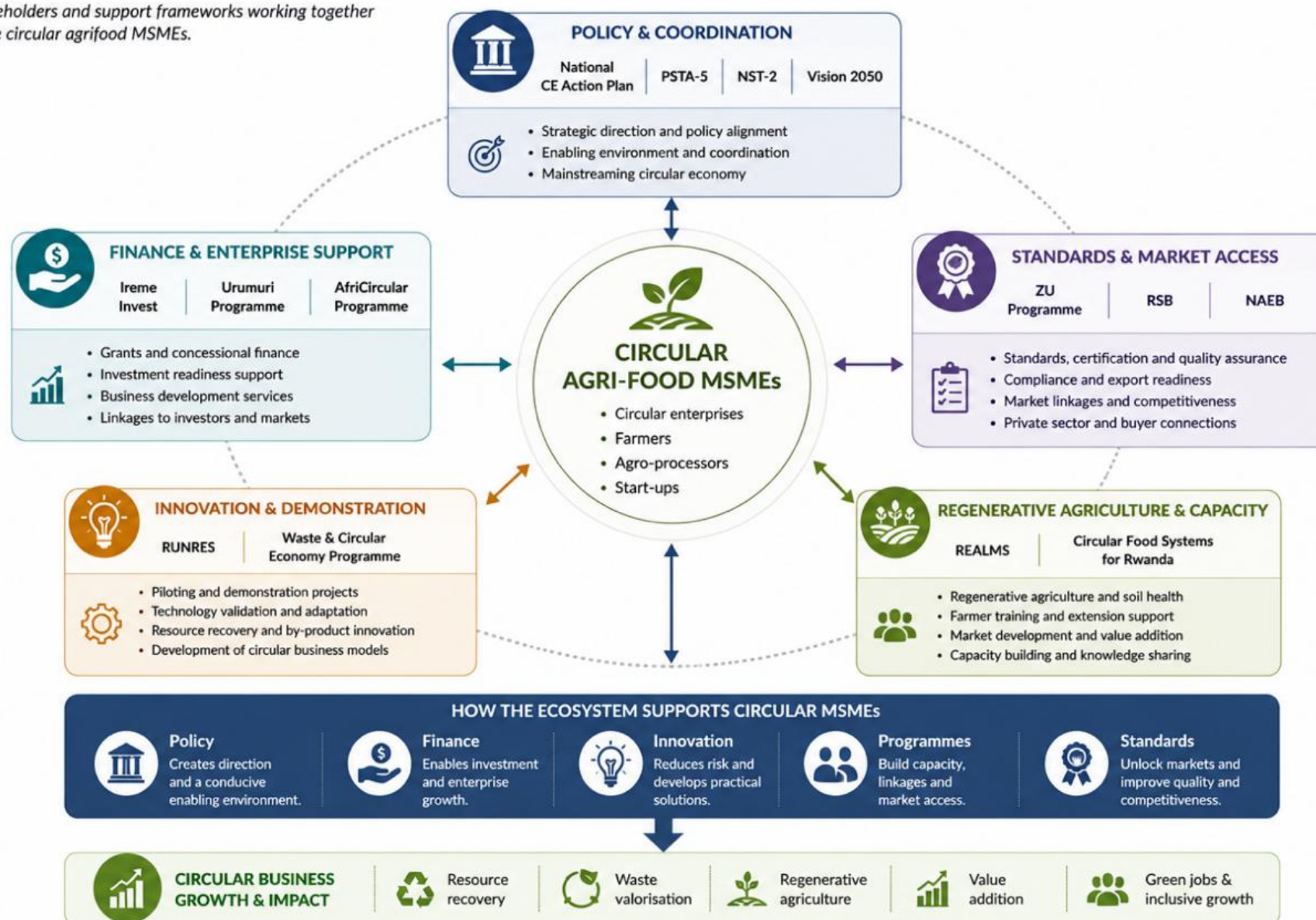
Figure 1 maps how these policies and programmes function together as a connected ecosystem around circular agri-food MSMEs.

⁷ SNV REALMS: <https://www.snv.org/project/regenerative-agricultural-practices-improved-livelihoods-and-markets-realms>

⁸ W2R / GGGI Rwanda: <https://gggi.org/advancing-circular-economy-goals-rwanda-on-track-to-valorise-municipal-waste/>

Figure 1: Enabling ecosystem for circular agri-food MSMEs

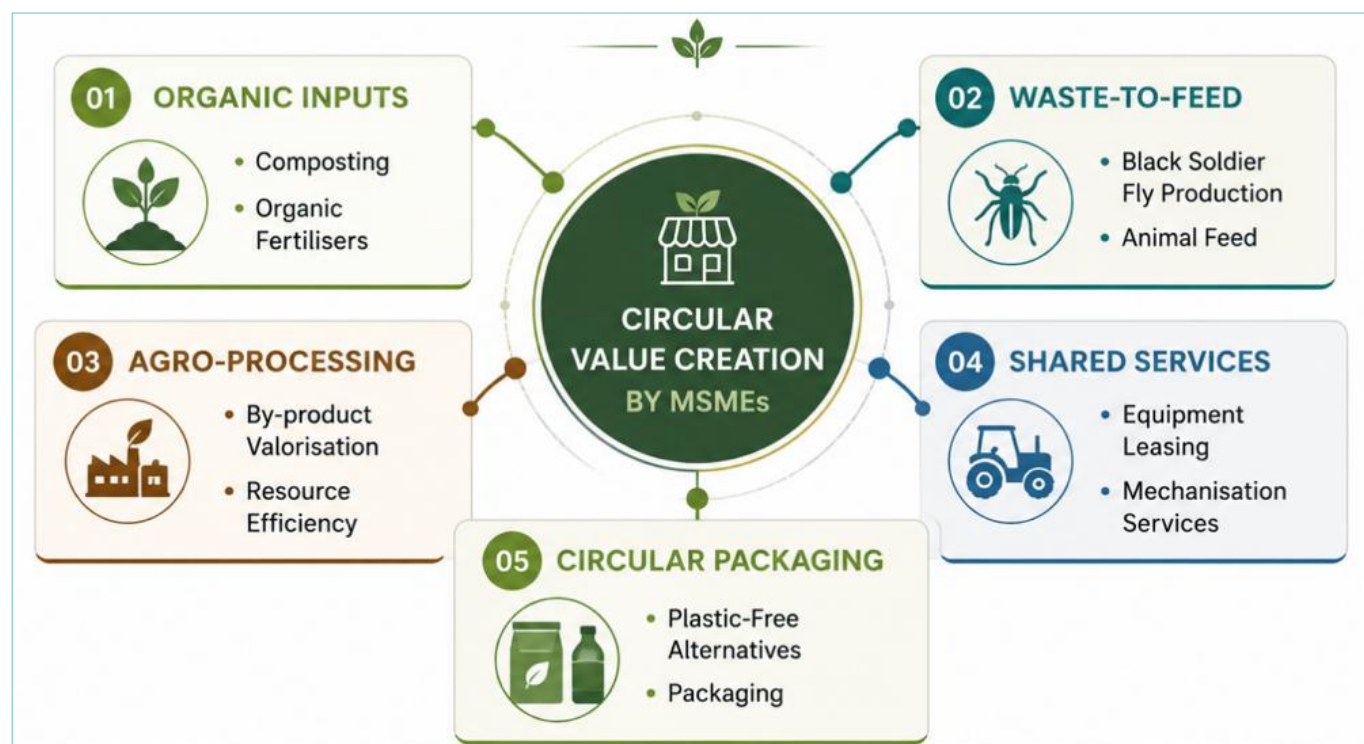
Key stakeholders and support frameworks working together to enable circular agrifood MSMEs.



2.3 Circular economy practices of MSMEs

The enabling structural conditions outlined above lead to five categories of circular value creation already taking shape among Rwandan MSMEs. Current practices can be grouped into five broad categories (Figure 2).

Figure 2: Emerging circular economy practices in Rwanda's agri-food sector



Organic inputs

- Production of compost and organic fertilisers from agricultural and organic waste streams.
- Conversion of organic waste into alternative inputs such as animal feed and soil amendments.

Circular agro-processing

- Recovery and utilisation of agricultural by-products, including coffee husks, fruit residues and cassava peels.
- Efforts by agro-processors to improve resource efficiency through waste reduction and by-product utilisation.

Waste-to-feed

- Increased use of organic inputs and nutrient recycling practices.
- Adoption of farming approaches that improve soil health while reducing dependence on external inputs.

Shared services and circular support models

- Emerging service-based approaches that improve access to equipment, mechanisation services, training and technical support.
- Collaborative models that enable smallholder farmers and MSMEs to access resources that would otherwise be unaffordable individually.

Sustainable and circular packaging

- Adoption of biodegradable or compostable packaging materials derived from agricultural residues to reduce reliance on conventional plastics.
- Initiatives promoting packaging reuse, lightweighting and recyclable material choices to lower waste generation across the agri-food value chain.

Company examples

The company examples in Figure 3 illustrate how circular economy practices are being translated into commercial activities by Rwandan MSMEs. While operating in different segments of the agri-food value chain, all four enterprises demonstrate how agricultural residues, organic waste streams and underutilised resources can be converted into marketable products, new revenue streams and local employment opportunities. In practical terms, the examples show coffee pulp and agricultural residues being converted into mushroom substrate and compost; cassava peels being processed into livestock feed; coffee pulp and husks being reused for organic fertiliser, pellets and briquettes; and scrap steel being repurposed into agricultural equipment. Together, they provide practical evidence of the opportunities and constraints associated with scaling circular business models in Rwanda's agri-food sector.

An emerging circular opportunity: Black soldier fly farming

Black soldier fly (BSF) farming shows how a circular practice closes a loop rather than simply being “sustainable”: organic waste enters the system, and two circular products leave it. Farmers rear *Hermetia illucens* larvae on agricultural and food waste, then harvest the larvae as a protein-rich feed ingredient and the residue (“frass”) as an organic fertiliser. Waste that would otherwise be discarded re-enters the agri-food value chain as an input (Adamtey et al. 2023).

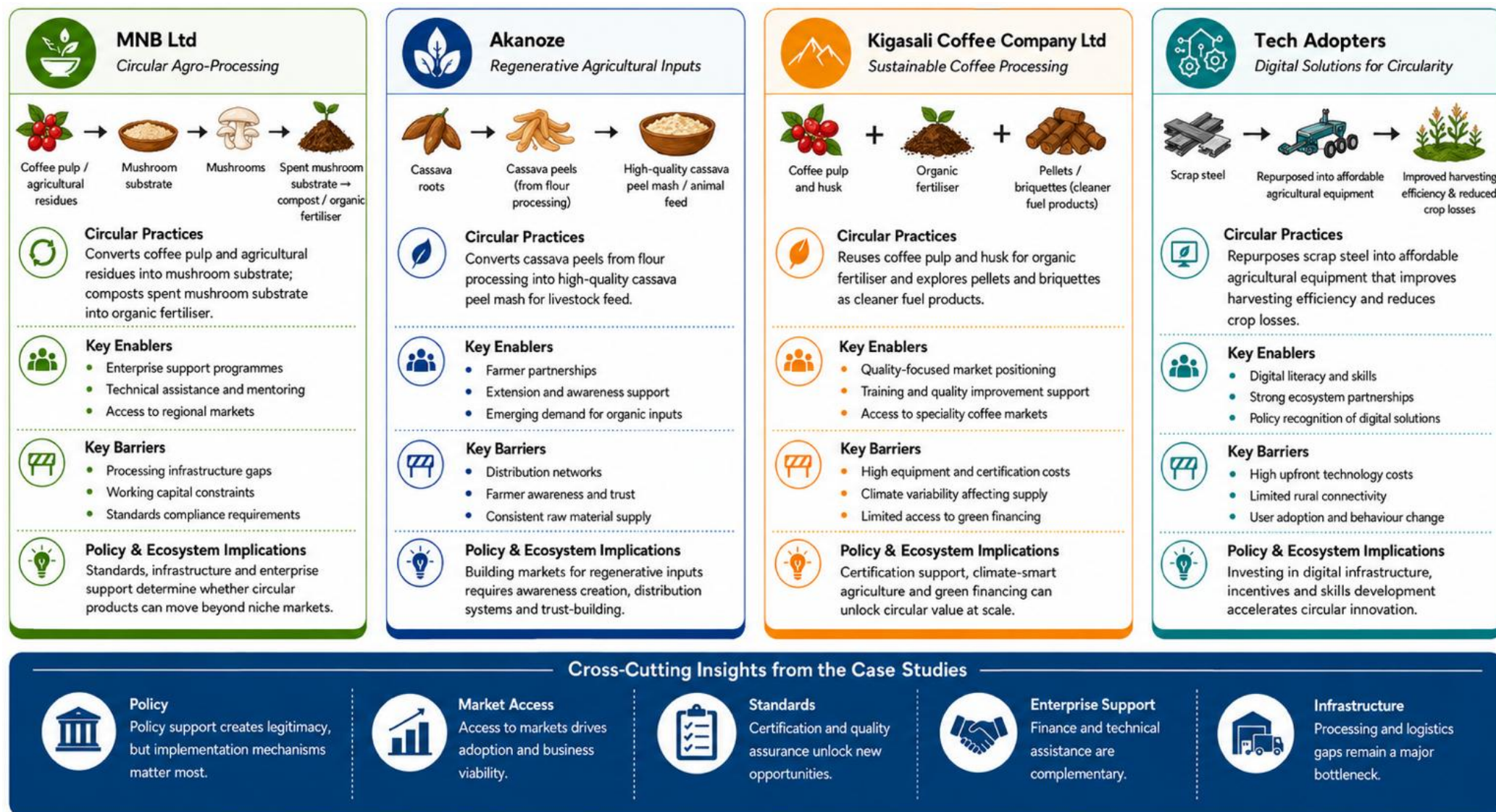
Relevance to Rwanda's circular agri-food transition

As a landlocked country, Rwanda imports much of its animal-feed protein, such as soybean and fishmeal, at high cost — locally reared insect protein offers a cheaper substitute. It diverts organic waste from disposal while supplying feed and soil-fertility inputs, connecting resource recovery, livestock, and crop systems in one practice. Emerging enterprises generate jobs and income for smallholders, youth, and women, often through low-investment out-grower models. A supportive regulatory base is in place, with national standards for edible insects and insect-based feed adopted since 2022.

In practice — Maggot Farm Ltd (Kamonyi District)

- Works with around 150 smallholder farmers, of whom 45% are women
- Has trained 30 farmers and set them up with home-based BSF production units
- Supplies 125 farmers across five cooperatives buying its BSF products
- Distributes through a network of around 320 agro-dealers
- Offers BSF feed at about 800 RWF per kg, against up to 2,000 RWF kg for fishmeal.

Figure 3: Four MSME examples illustrating how circularity creates value



3. Enabling levers for circular transition: Findings and lessons

The preceding sections set out Rwanda's agri-food sector, the circular practices already emerging within it, and the policy and programme environment surrounding them. This section turns to the conditions that determine whether those practices scale and sustain. Five enabling levers shape whether circular economy practices take root among agri-food MSMEs in Rwanda: governance and coordination, certification and market access, finance and MSME readiness, innovation and enterprise development, and infrastructure and spatial planning. For each lever, this section presents evidence of what is working, identifies the remaining gaps and draws out the lessons and recommendations they hold for those designing or financing circular agri-food initiatives.

3.1 Governance and coordination

Circular economy adoption depends first on whether the right institutions are aligned behind it. In a centralised state like Rwanda, that alignment is shaped less by market signals than by how ministries, agencies and platforms are working together. This lever examines how Rwanda's governance structure, working through deliberately designed cross-ministerial platforms, has translated circular economy from policy ambition into practice in the agri-food sector — and how far that coordination reaches beyond any single platform.

Main findings:

- **A jointly chaired platform put circular economy into Rwanda's core agricultural strategy.** CIRF Multi-Stakeholder Platform, co-chaired by the Ministry of Environment and the Ministry of Agriculture and Animal Resources, was built to span the two ministries it needed to influence. That overlap carried CE principles into PSTA-5, the strategy that shapes agricultural investment and extension — helped by the fact that one person sat on both the CIRF discussions and the PSTA-5 drafting team (Wangu et al., 2024; MINAGRI, 2024; primary interview data).
- **The same multi-stakeholder platform delivered results at two levels at once.** It fed new product standards into the regulatory system, with the standards body adapting standards directly with producers rather than through the usual formal channels. It also reached farmer organisations: the Rwanda Conservation Agriculture Coalition grew from 14 to 26 members between 2023 and 2026 and channelled regenerative practices into PSTA-5 (Kantengwa et al., 2026; primary interview data, 2026).
- **Circular economy is now written into the wider policy architecture, not just one plan.** CE principles appear across national frameworks beyond the original CE Action Plan, including PSTA-5, the New Industry Policy, and the National Environment and Climate Change Policy (Ministry of Environment, 2022; Sangwa et al., 2023).
- **One strong platform has not fixed the wider coordination problem.** Ministries still hold overlapping and unaligned mandates, and the National CE Forum — meant to address exactly this — has met only once, in August 2019 (Tabler et al., 2025; Ministry of Environment, 2022; PAGE, 2023). Some value chains also lack a collective voice: coffee and tea have established industry bodies, but mushroom

and horticulture processors have none, despite being central to several circular models in this study (MINAGRI, 2019).

- **Two gaps limit how far this progress can travel.** Outcome measurement has not kept pace with policy integration — system-level monitoring of CE is not yet standardised, making it hard to tell which mechanisms work well enough to scale (Kantengwa et al., 2026). Awareness remains concentrated among formal programme participants; whether extension services can carry CE practice to the wider base of smallholders is plausible but undocumented (Ntawuhiganayo et al., 2023; primary interview data, 2026).

Governance and cooperation: Lessons

- Co-chair platforms and projects across the ministries they need to reach — CIRF's joint chairing allowed CE principles to be integrated straight into PSTA-5.
- Design one platform to work at several levels — the same mechanism can shape regulation and reach farmer organisations at once.
- Build in measurement from the start — without standardised monitoring, even broad policy uptake can't tell you what's working well enough to scale.

3.2 Certification and market access

A circular product only delivers value if it can reach a market, and for genuinely new products that market often does not exist until a standard defines it. This lever examines the standards, certification systems, and input-market price signals that determine whether circular agri-food products in Rwanda can compete in formal markets — and whether the costs of compliance are treated as a barrier to remove rather than one left to the producer.

Main findings:

- **When no standard existed, the Standards Board can create one.** For a genuinely new circular product, market access may not exist until a standard does — no amount of producer quality can substitute. Acting on gaps raised through CIRF, the Rwanda Standards Board issued three organic fertiliser standards (RS 485, RS 486, RS 487-1) and a Black Soldier Fly operating procedure, opening markets that had been closed by definition rather than by performance (Kantengwa et al., 2026; primary interview data, 2026).
- **Once a standard exists, cost becomes the next barrier.** Testing and certification once ran smallholders over 10,000 RWF per parameter, prohibitive regardless of how ready their product was. The ZU programme, launched in 2025, now covers much of that cost alongside the new standards (primary interview data, 2026).
- **Cheaper verification routes are widening access where full certification is out of reach.** The Kilimohai mark, a Participatory Guarantee System, gives domestic producers a credible alternative, while export markets still reward third-party organic certification. For example one enterprise's EU and Japanese certification for pineapple and coffee demonstrated the strongest certification business case among the cases reviewed (primary interview data, 2026).
- **Certification cannot fix a price gap that subsidies create.** Mineral fertiliser subsidies keep conventional inputs artificially cheap, whatever the organic alternative's certification. The Ministry of Agriculture and Animal Resources is reconsidering these subsidies — a shift the CE Action Plan already

anticipates (Intervention #12), though PSTA-5 does not yet reflect it (Ministry of Environment, 2022; primary interview data, 2026).

Certification and market access: Lessons

- Create the standard first — for a genuinely new circular product, the market may not exist until a standard defines it.
- Pair every new standard with cost support — subsidising compliance, as the ZU programme does, is what turns a standard into actual access.
- Fix input prices, not just certification — certification can't offset a subsidy that keeps the conventional alternative artificially cheap.

3.3 Finance and MSME readiness

Circular enterprises need capital that matches their current maturity level, moving in stages from grant-funded pilots toward commercial viability rather than in a single leap. This lever examines whether Rwanda's financial institutions have created not just available finance, but investment-ready pathways for circular agri-food MSMEs and where the gap between well-designed instruments and broad-based reach still lies.

- **Circular enterprises are now an eligible category inside mainstream finance, not just in donor schemes.** Ireme Invest, run by the Rwanda Green Fund (FONERWA) and the Development Bank of Rwanda, added CE as an eligible sector after a GIZ-supported accelerator. Urumuri, a Bank of Kigali Foundation/GIZ scheme, works as a revolving fund: after receiving the loan, companies will repay over a 36-month period, with the repaid money flowing back into the fund. The fund keeps its capital rather than relying on repeated donor top-ups (GIZ, 2025; primary interview data, 2026).
- **Seeing a circular business in action changed how a bank judged the risk.** Bank of Kigali Foundation staff visited a poultry farm running a Black Soldier Fly system, and afterwards began treating such enterprises as bankable. This was a documented shift in a commercial bank's own risk assessment, supported by the pilot returns shown in Section 3.4 (SNV REALMS, 2024; primary interview data, 2026).
- **The most effective instruments blend different types of capital, even if they are not labelled that way.** Access to formal credit is low: only about 4.7% of Rwandan farmers took out a loan in 2017, almost all of it from non-commercial sources, and informal credit for fertiliser tends to keep farmers tied to conventional inputs (MINAGRI, 2019). Urumuri and Ireme Invest already combine grant, concessional and commercial capital in a single instrument, which lets an enterprise reduce its risk step by step rather than jump straight from grants to commercial terms — though neither programme uses the term "blended finance" (Tabler et al., 2025).
- **The main constraint is investment readiness, not the supply of capital.** Of more than 400 applicants to Urumuri, only 20 met the investment-readiness criteria; the rest were held back by gaps in documentation, language barriers and incomplete financial records. Together, Urumuri and Ireme Invest have reached around 50 enterprises so far (primary interview data, 2026).

Finance and MSME readiness: Lessons

- Get CE recognised inside mainstream institutions — eligibility creates a channel that outlasts any single donor programme.
- Let lenders see it work — a site visit can shift a bank's risk view faster than any report.
- Fund readiness, not just capital — most applicants are stopped by missing documentation and records, not a shortage of money.

3.4 Innovation and enterprise development

Policy and finance matter only if enterprises can turn circular ideas into working businesses. This lever follows how individual firms in Rwanda's agri-food sector translate circular concepts into viable, repeatable models, and how far that proof of concept has spread beyond a small set of pioneers — the point at which a few demonstration cases either become a sector norm or stall.

- **A pilot that documents its finances, not just its output, is one others can learn from.** RUNRES's AKANOZE Nyamiyaga model shows how this works: cassava peels that were once thrown away now supply a processing line of animal feedstock with 481 farmer suppliers and 169 buyers, at an indicative five-year internal rate of return of 49.4%. It also addresses a real cost pressure, since imported maize makes up around 60% of livestock feed in Rwanda (RUNRES, 2024).
- **Circular business models are already more varied than the programmes tracking them suggest.** Most attention goes to composting and animal feed, but the range is wider. Kigasali Coffee Company turns coffee husks into cooking pellets — over 5,000 kg sold for about USD 1,000 in two months, from an annual husk supply of up to 500 tonnes — and also makes vermicompost from coffee pulp and recycles water at its washing station (WRI/CIRF, 2026). Gensi Farms runs an integrated dairy, poultry and agroforestry operation that reuses organic waste for compost and biogas (Vincent & Remy Paul, 2025), and Africa Food Supply converts pineapple pulp and food waste into animal feed and fertiliser (WRI/CIRF, 2026).
- **One visible example encourages others to follow.** After visiting Kigasali Coffee Company, other coffee businesses started composting and recycling water themselves, reportedly surprised by how much value a by-product they had been discarding could hold (primary interview data, 2026).
- **Targeted support turns general advice into measurable results.** Of 20 SMEs supported through CIRF, 11 developed new circular products, 10 opened new income streams, 9 reduced their operating costs, and together they created 73 direct jobs (WRI/CIRF, 2026). Impact Hub Kigali's accelerator offers comparable support, including business development, training, mentoring and guidance on packaging (Kim et al., 2026; primary interview data, 2026).
- **Awareness is increasing, but it is still a trend rather than the norm.** In a 2023 survey of 16 agribusiness firms, 69% knew the term "circular economy" at least somewhat and 31% knew it well (Kim et al., 2026). This is a considerable rise from 2020, when it was largely unfamiliar (Trinomics et al., 2020). Because the sample is small and purposive, this signals anecdotal evidence rather than a sector-wide insight though.

- **Three gaps are holding back the next stage of growth.** First, support still clusters around composting, Black Soldier Fly farming and fertiliser, leaving input substitution, eco-design and industrial symbiosis underserved. Second, enterprises that have proven a concept often struggle with the organisational and financial management that scaling up demands. Third, there is no Kinyarwanda term for "circular economy," which keeps outreach tied to English- and French-speaking networks (Kim et al., 2026; primary interview data, 2026).

Innovation and enterprise development: Lessons

- Document pilots in money, not just output — costs, revenue and returns are what make a model legible to other enterprises and to lenders, as AKANOZE shows.
- Use field visits to spread practice — one credible local example does more persuading than written guidance.
- Invest in local-language communication — without a Kinyarwanda word for "circular economy," outreach

3.5 Infrastructure and spatial planning

Circular systems need physical and institutional foundations to work at scale: cold storage to cut losses, industrial parks where one firm's waste can become another's raw material, and laboratories to verify quality. This lever looks at that backbone in Rwanda. The key question is one of timing, because it shapes the cost later: is new infrastructure being designed for circularity from the start, or is circularity being added on afterwards – with potential retrofitting costs.

- **New cold-storage investment is building the base for reliable processing.** NAEB is building a cold store in the Kigali Wholesale Market to anchor a national cold chain linking PSTA-5's farming hubs (primary interview data, 2026), adding to 2019/2020 investments in drying shelters, storage and cold rooms nationwide (Trinomics et al., 2020).
- **For the first time, industrial parks are being designed to be circular from the start.** The new agro-processing parks at Nyagatare and Nyabihu, developed with UNIDO, are building circularity into their feasibility studies — realising a recommendation from Trinomics et al. (2020) and backed by the 2024–2034 Industrial Policy's first-ever mandate for in-park waste infrastructure (AllAfrica, 2025).
- **A working composting pilot has shown that organic-waste valorisation is viable in Rwanda.** The Waste to Resources facility processed over 660 tonnes of organic waste in four months, producing around 165 tonnes of compost (GGGI W2R, 2024).
- **Laboratory and standards capacity support certification, but it is still stretched.** The Rwanda Standards Board and IITA provide testing and compliance services (primary interview data, 2026), yet one processor reported slow lab turnaround and missing tests — the same bottleneck identified in Section 3.2.
- **Infrastructure is being built faster than the systems that would be needed to use it.** No park yet requires source segregation, and the composting pilot's 5-tonnes-a-day capacity is a fraction of what a single park would generate (GGGI W2R, 2024); on farms, 15–30% of produce is still lost after harvest while cold rooms sit empty for lack of transport links from farms to cold storage (primary interview data, 2026).

- **New facilities are missing the chance to design in circularity.** Chilli and onion processing centres are being built with no circular features — "nothing has been considered in these facilities regarding circularity" (primary interview data, 2026) — and no framework yet tracks how circular a park is, leaving financiers without the evidence to back shared infrastructure.

Infrastructure and spatial planning: Lessons

- Design circularity in before you build — Nyagatare and Nyabihu are Rwanda's first parks planned for waste segregation and by-product exchange from the start, not retrofitted.
- Pair the infrastructure investments with the systems to use it — idle cold rooms show that hardware alone won't change behaviour without transport links and outreach.
- Measure at park level — without data on waste, valorisation and effluent, no potential investor can calculate a business case and return on investment of shared infrastructure.

4. Conclusion and recommendations

Rwanda's experience with circular economy adoption in agri-food shows that comprehensive policy architecture, however well designed, is necessary but not sufficient to change MSME behaviour on its own. The country's most consequential governance achievement — the CIRF multi-stakeholder platform's direct influence on PSTA-5 — demonstrates what a genuine policy-to-practice pathway looks like, built from the outset to feed evidence into a specific policy instrument rather than to generate advocacy alone.

Yet this institutional strength sits alongside structural barriers that policy frameworks cannot resolve unassisted. Mineral fertiliser subsidies continue to disadvantage organic circular enterprises on price, even as the Ministry of Agriculture now actively reconsiders this position. Newly built agro-processing facilities in several districts illustrate how infrastructure investment windows, once missed, become costly to retrofit for circularity. Findings show that what persuaded enterprises to adopt circular practices was evidence of economic results — revenue growth, cost savings, and job creation — not environmental messaging. This indicates that economic outcomes, not environmental framing, are what change enterprise behaviour. Donors and programme designers should therefore place the economic business case at the centre of their engagement and communication, with environmental benefits presented as a supporting argument rather than the entry point.

Together, these findings sharpen the distinction this case study set out to draw between policy intent and policy outcome: Rwanda's policy intent is genuinely advanced, but its translation into MSME-level circular economy outcomes remains partial and uneven across levers, depending on the institutional connection, subsidy reform, design-stage intervention, and economic framing set out in the five priority actions below:

- **Build an explicit platform-to-policy channel into multi-stakeholder initiatives from the outset**, naming institutional counterparts, documenting feedback loops, and identifying the specific policy instrument the platform is intended to influence.
- **Pair circular economy policy development with sector-level adoption indicators from the outset**, so that gaps between intent and implementation are measurable and addressable rather than discovered years later.
- **Include an input market distortion analysis as a standard component of circular economy programme design**, identifying subsidy asymmetries early and engaging relevant ministries before committing to enterprise-level support.
- **Treat circular economy design assessments as a standard requirement at the planning stage for agro-processing or industrial park expansion**, ideally embedded within public investment appraisal criteria, so circularity is considered before construction, not after.
- **Frame enterprise support around documented commercial outcomes and build economic indicators** — revenue growth, cost reduction, job creation — into circular economy programme monitoring from inception, making the case for replication evidence-based and communicable to private-sector audiences.

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Primary sources (Interviews)

Unless otherwise cited, findings presented in this case study are based on the primary interviews conducted for this research.

Organisation Group	Name
International development partners and programmes	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Rwanda; International Institute of Tropical Agriculture (IITA); SNV; United Nations Industrial Development Organization (UNIDO); World Food Programme (WFP)
Government institutions and regulatory authorities	Ministry of Environment; National Agricultural Export Development Board (NAEB); Rwanda Standards Board (RSB); Cleaner Production and Climate Innovation Centre (CPCIC); Ministry of Agriculture and Animal Resources (MINAGRI)

Innovation and entrepreneurship support organisations	Impact Hub Kigali
Coalitions and sector platforms	Regenerative and Conservation Agriculture Coalition, Rwanda Organic Agriculture Movement (ROAM);
Private sector (agro-processing companies)	Kigasali Coffee Company; MNB; ZEAN



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