HACCP and Circularity

How Food Safety Supports a Sustainable Food System

About This Guide

As part of the **Circular Food Systems for Rwanda (CIRF)** programme — a four-year initiative funded by the IKEA Foundation to accelerate the transition to circular agri-food systems in Rwanda — specialized Technical Assistance Providers (TAPs) were engaged to deliver tailored, on-the-ground support to participating small and medium enterprises (SMEs). TAPs worked directly with SME operators to assess their circular economy needs and deliver practical training, coaching, and tools to help them adopt more sustainable and circular business practices. One area that consistently emerged as both a regulatory requirement and a circular economy enabler is food safety — specifically, the implementation of a **Hazard Analysis and Critical Control Points (HACCP) plan**.

This guide introduces HACCP for SME operators and food production staff, explains its direct contribution to circular food system goals, and provides practical guidance on how to begin integrating HACCP principles into everyday operations in the Rwandan context.

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WHAT IS HACCP?

01 A preventive, science-based system for managing food safety risks.

1.1 Understanding HACCP

HACCP — **Hazard Analysis and Critical Control Points** — is an internationally recognised, science-based system for identifying and managing food safety risks throughout the food production process. Rather than relying solely on end-product testing, HACCP takes a **preventive approach**: identifying where hazards could occur in the production process and putting controls in place before problems arise.

1.2 The Seven Core Principles

STEP 1 **Conduct a hazard analysis.**

Identify biological, chemical, and physical hazards at each stage of production.

STEP 2 **Identify Critical Control Points (CCPs).**

Determine the points in the process where controls are essential to prevent or eliminate hazards.

STEP 3 **Establish critical limits.**

Set the maximum and minimum values — such as temperature, pH, or time — that must be met at each CCP.

STEP 4 **Establish monitoring procedures.**

Define how and how often each CCP will be monitored.

STEP 5 **Establish corrective actions.**

Determine what steps to take if a CCP falls outside its critical limit.

STEP 6 **Establish verification procedures.**

Confirm that the HACCP system is working effectively.

STEP 7 **Establish record-keeping and documentation.**

Maintain written records of all monitoring, corrective actions, and verification activities.

1.3 HACCP in the Rwandan Context

In Rwanda, HACCP implementation is overseen by the **Rwanda Food and Drug Authority (Rwanda FDA)** and governed by standards set by the **Rwanda Standards Board (RSB)**, including **RS 179** — Rwanda's core food safety standard.

Rwanda FDA

Provides regulatory oversight, technical support, and inspection services for food safety compliance.

Rwanda Standards Board (RSB)

Issues HACCP certification and sets food safety standards including RS 179, Rwanda's core food safety standard.

EAC Harmonised Standards

Rwanda's membership in the East African Community requires alignment with EAC food safety standards and international Codex Alimentarius guidelines.

National Food Safety Policy (2019)

Explicitly links food safety compliance to sustainable food systems — reinforcing HACCP as both a regulatory requirement and a strategic circular economy tool.

02 How food safety and circular economy goals are a natural partnership.

2.1 A Shared Logic

Food safety and circular economy may appear to be separate concerns — one focused on preventing harm, the other on reducing waste. In practice, they are deeply interconnected. HACCP operates as a **cyclical process of continuous improvement**: each step informs the next, hazards are reassessed as processes change, and the system evolves over time. This mirrors the circular economy's emphasis on ongoing refinement and resource optimisation.

2.2 Four Ways HACCP Supports Circularity

1 Reduced Food Waste

By preventing contamination and spoilage at critical points in the production process, HACCP **extends the shelf life of products** and reduces the volume of food that must be discarded. For SMEs in Rwanda, where food loss and waste represents a significant financial and environmental cost, this is one of the most immediate economic benefits of HACCP compliance.

2 Resource Efficiency

HACCP promotes disciplined and efficient use of water and energy during food processing and storage — monitoring temperature, cleaning protocols, and process times with precision. This **reduces unnecessary consumption and operating costs**, both of which are priorities for small-scale producers.

3 Byproduct Utilisation

One of HACCP's less visible contributions to circularity is enabling the **safe handling and repurposing of food byproducts**. When a business has documented food safety controls in place, it can confidently redirect organic by-products — such as fruit peels, vegetable trimmings, or processing residues — into alternative uses like animal feed or compost, rather than disposing of them as waste. Without a food safety framework, the safety of these byproducts for secondary use cannot be assured.

4 Traceability

HACCP's documentation requirements create a clear record of every stage of the production process. In the event of a food safety issue, this traceability enables **targeted and precise responses** — removing only the affected batch rather than discarding entire product lines. This minimises waste from recalls and protects both consumer safety and business resources.

03 A practical starting point for smaller agri-food businesses.

3.1 Getting Started

For smaller agri-food businesses, implementing HACCP does not need to be an overwhelming undertaking. The following steps provide a practical starting point:

STEP 1 **Start with a product-by-product assessment.**

For each product you produce, map the production process from raw material sourcing through to packaging and distribution. At each step, ask: what could go wrong here, and what are the consequences?

STEP 2 **Identify your hazards by type.**

Hazards fall into three categories:

- **Microbiological** — bacteria, fungi, pathogens (among the most common in Rwanda, particularly in animal proteins, fermented foods, or warm/humid conditions).
- **Chemical** — pesticide residues, cleaning agents, allergens.
- **Physical** — foreign objects such as glass, metal, or stones.

STEP 3 **Consider your ingredients and their sources.**

The safety of a product is directly tied to the integrity of its ingredients and the reliability of its supply chain. New or unfamiliar ingredient sources should trigger a reassessment of existing food safety controls.

STEP 4 **Document everything.**

Even basic written records of temperature checks, cleaning schedules, and batch information constitute the foundation of a HACCP system — and are required for RSB certification and Rwanda FDA compliance.

STEP 5 **Seek support.**

The Rwanda Standards Board offers guidance and certification services. The Rwanda FDA provides technical support and inspection services. SMEs can also engage accredited food safety consultants or TAPs with food safety expertise to support plan development.

3.2 Hazard Types at a Glance

HAZARD TYPE	EXAMPLES	COMMON SOURCES IN RWANDAN AGRI-FOOD
Microbiological	Bacteria, fungi, viruses, pathogens	Animal proteins, fermented products, fresh produce handled in warm and humid conditions.
Chemical	Pesticide residues, cleaning agents, allergens	Agricultural inputs, post-harvest treatments, cross-contamination during processing.
Physical	Glass, metal, stones, bone fragments	Raw material contamination, equipment wear, inadequate screening at intake.

3.3 Frequently Asked Questions

Do I need a dedicated food safety manager to implement HACCP?

Not necessarily. A designated team member who receives food safety training can lead HACCP implementation for smaller operations. External consultants or TAPs can provide expert support during set-up.

How long does it take to get HACCP certified?

This depends on the complexity of your operation and how much documentation you already have in place. With the right support, many SMEs can achieve RSB certification within several months of beginning the process.

What records do I need to keep?

At minimum: temperature monitoring logs, cleaning and sanitation schedules, batch production records, corrective action logs, and supplier records. These form the documentary backbone of a HACCP system.

Can HACCP help me access new markets?

Yes. Premium buyers, export markets, and public procurement contracts increasingly require verified food safety credentials. RSB certification signals that your products meet recognised standards.

What is the difference between a CCP and a control measure?

A control measure is any action that can prevent or eliminate a food safety hazard. A Critical Control Point (CCP) is a specific step where a control measure is essential — where failure to control the hazard would result in an unacceptable food safety risk.

04 Certification pathways and key takeaways for agri-food SMEs.

4.1 Getting Certified in Rwanda

Formal HACCP certification in Rwanda is issued through the **Rwanda Standards Board (RSB)**. For SMEs seeking to access premium buyers, export markets, or public procurement contracts — all of which increasingly require verified food safety credentials — RSB certification is an important and achievable goal.

FOR MORE INFORMATION

Rwanda Standards Board (RSB)
Certification guidance and food safety standards
www.rsb.gov.rw

Rwanda Food and Drug Authority (Rwanda FDA)
Technical support and regulatory compliance
www.rwandafda.gov.rw

4.2 Conclusion

HACCP is not simply a regulatory checkbox — it is a practical framework that, when implemented well, directly strengthens a business's ability to reduce waste, use resources efficiently, and manage food by-products safely.

For agri-food SMEs in Rwanda working toward more circular operations, HACCP represents one of the most accessible and impactful steps available. By placing food safety at the centre of the production process, businesses protect their customers, their products, and their contribution to a more sustainable food system.