

# STRENGTHENING LARGE-SCALE FOOD FORTIFICATION PROGRAMMES IN RWANDA

April 2025

## Key Messages

- **Micronutrient Deficiencies (MND)** remain a major public health concern in **Rwanda**, particularly among children and women of reproductive age. Nearly 40% of children (age 6–59 months) and a quarter of pregnant women are anaemic.
- **Large-Scale Food Fortification (LSFF)** is a cost-effective, widely implemented strategy to improve public health outcomes by increasing micronutrient intakes through commonly consumed staple foods.
- **Despite Rwanda's policy frameworks and LSFF mandates**, there are significant challenges in achieving compliance and coverage, including limited enforcement capacity, lack of industry incentives, and inadequate access to fortified foods particularly for vulnerable populations.
- **Reinforcing governance, cross-sectoral collaboration, capacity building, and integrating fortified foods into social protection programmes such as school feeding are critical** to realizing the full benefits of LSFF.
- **Integrated actions across policy, systems, and supply chains are urgently needed** to reduce the burden of MND and strengthen national health and economic resilience.



## Strategic Objectives

This brief aims to:

1. Describe the micronutrient malnutrition and LSFF programme context in Rwanda.
2. Identify challenges and opportunities to strengthen existing programs.
3. Provide practical, evidence-informed policy and programmatic recommendations.
4. Catalyse multi-stakeholder collaboration to reduce micronutrient deficiencies.

# The Problem

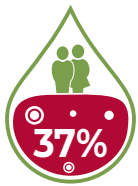
## Persistent Burden of Micronutrient Deficiencies in Rwanda

MND remain a public health concern in Rwanda, despite improvements in national nutrition policies and international engagement through initiatives like the Scaling Up Nutrition (SUN) movement. MNDs negatively impact health outcomes, cognitive development, and economic performance (Black 2013; Bailey, 2015). Rwanda continues to rank among the sub-Saharan African countries with the highest prevalence of micronutrient deficiencies (Global Nutrition Report, 2022).

Only **23%** of children aged between **6 to 23 months** receive a minimum acceptable diet indicating **poor dietary diversity** and frequency of meals (CFSVA, 2024)



**Anaemia rates in Rwanda are high:**



**37% of children (6–59 months)** are anaemic (NISR, 2021).



**25% of pregnant women** are anaemic.



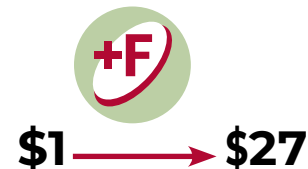
**Vitamin B12 deficiency rates are over 40% for pregnant women and 16% for children 6–59 months** (NISR, 2021).

## Economic and Developmental Consequences

Micronutrient malnutrition (or “hidden hunger”) **has serious economic implications:**



Rwanda **loses between 3% and 11% of GDP annually** due to reduced labour productivity, learning difficulties, and health system burdens associated with malnutrition (World Bank, 2021).



Studies show that every **\$1** invested in fortification generates **\$27** in economic return driven by gains in productivity and reduced disease burden (Garrett, 2024)

## Large Scale Food Fortification – A Critical Tool in the Fight Against Micronutrient Malnutrition

Improving micronutrient intakes is the ultimate solution to addressing MNDs. This can be accomplished through several complementary interventions, including dietary diversification, supplementation, and food fortification.

**Large-scale food fortification (LSFF)** – also known as industrial or mass fortification – is the process of adding essential micronutrients to widely consumed foods during processing. These foods often include staples like wheat flour, maize flour, cooking oil, salt, rice, and sugar. LSFF works without requiring any major changes in consumer behavior because it targets foods which are consumed regularly by large segments of the population already. It is a highly

effective strategy for reducing MNDs such as anemia, and deficiencies in iodine, vitamin A, zinc, and folate. LSFF is often used alongside other interventions to improve public nutrition and health.

Over 143 countries worldwide mandate fortification of at least one staple food. Mandatory large scale food fortification (LSFF) has been proven to significantly reduce micronutrient deficiencies and improve health outcomes when fortified foods are widely available and consumed. In low and middle-income countries, LSFF has led to a 34% reduction in anaemia, a 74% decrease in goitre risk, a 41% drop in neural tube defects, and improved vitamin A status for 3 million children in just one year (Keats, 2019). The most notable global success is iodized salt, now consumed by 89% of households, preventing over 720 million cases of goitre (Gorstein, 2020; UNICEF 2023).

In Rwanda, **mandatory regulations** are in place for the fortification of staple foods including **edible oil, maize flour, salt, sugar, and wheat flour** with important micronutrients such as iron, folic acid, vitamin A (RFDA, 2020; GFDx).

These regulations apply to both domestically produced and imported products.

**Rwanda harmonized their fortification standards with the East African Community (EAC)** ensuring consistency and benefitting health and trade across the region (EAC, 2022).

**School feeding guidelines in Rwanda have incorporated fortified foods** such as edible oil with vitamin A (MINEDUC, 2021, GCNF 2024).

## Policy and Institutional Commitments to Improve Nutrition

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Rwanda has further made significant policy and institutional commitments towards improving health, with a focus on addressing micronutrient deficiency:



**Rwanda joined the SUN Movement in 2011**, indicating strong political will.



**Revised National Food and Nutrition Policy (2024)** supports the Scale-up of food fortification initiatives and standardize labels with nutrition information on fortified and processed foods or commodities to ensure quality integration of LSFF into health and agriculture strategies.



**Rwanda has committed to achieving universal school meals for basic education by 2030 as part of its commitment to the global school meals coalition.**

Rwanda has made a significant commitment to achieving universal school meals for basic education by 2030 as part of its participation in the Global School Meals Coalition and all food to be procured locally from local farmers through supervision and management by local governments and schools (SMC, 2023).



**The Fifth Strategic Plan for Agriculture Transformation (PSTA5)**, Rwanda's comprehensive agricultural roadmap for 2024–2029, launched by the Ministry of Agriculture and Animal Resources (MINAGRI) promotes partnerships to scale fortified foods, diversify diets, and reduce stunting cost-effectively.

# Challenges in Implementation of Large-Scale Food Fortification Programmes

Rwanda still faces significant challenges in operationalizing these programmes and ensuring they are reaching their full potential.

Key challenges include:

## 1. Policy and Institutional Gaps

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- Governance:
  - Lack of a dedicated and empowered custodian for LSFF implementation.
  - Inactive National Food Fortification Alliance (NFA).
  - No comprehensive fortification roadmap or national action plan.
- Fortification standards:
  - Need for specific standards for some key emerging staples (e.g., fortified rice standards).

## 2. Limited Monitoring and Enforcement Capacity

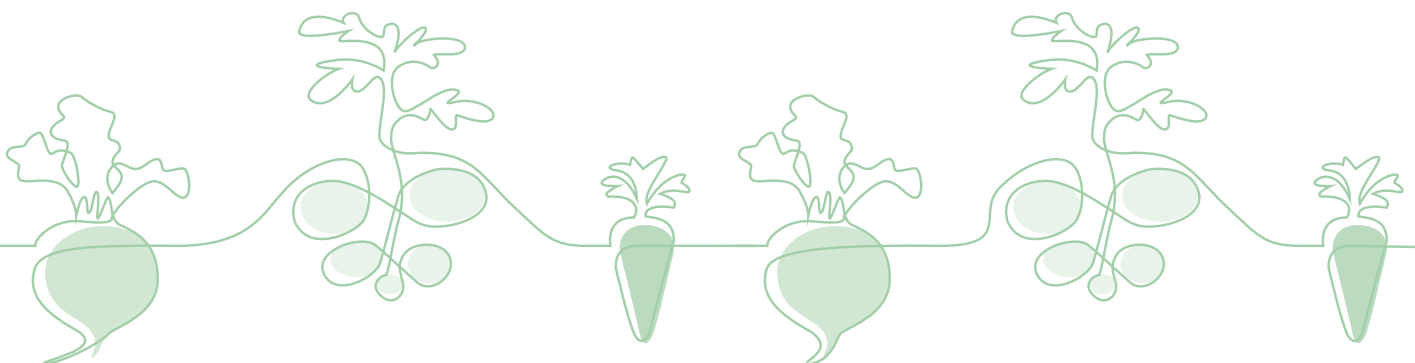
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- Unlevel playing field for producers; Improvement required for regulatory monitoring processes and protocols; certification and compliance mechanisms to reach all producers for mandated foods countrywide.
- Shortages in technical human resources, lab equipment and rapid test kits.
- Weak quality assurance and quality control (QA/QC) systems among food producers.

## 3. Supply Chain and Market Constraints

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- Both vitamin and mineral premixes and equipment are imported.
- Lack of local agents for food fortification inputs such as premix and feeders or dosifiers.
- Customs duties and taxes on food fortification inputs.
- No incentives for private sector to fortify.



# Strategic Recommendations for Rwanda

## A. Strengthen Governance and Policy Leadership

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- Appoint a lead agency to coordinate LSFF policy implementation.
- Develop a **National Food Fortification Action Plan and Roadmap**.
- Revive and institutionalize the **National Food Fortification Alliance (NFA)**.

## B. Enhance Regulatory and Monitoring Systems

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- Launch a **Technical Assistance Programme (TAP)** to strengthen capacity of Rwanda Food and Drug Authority (RFDA) and Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA):
  - Invest in rapid test kits for market monitoring and regional quality control units.
  - Build human resource competencies in food analysis and QA/QC systems for laboratories.
  - Support development of regulatory monitoring protocols including inspection checklists for production sites or at import, or market checks, as well as sampling protocols, workplans and allocation of appropriate budgets.
  - Industry support for food fortification certification and integration of fortification criteria into producer QA/QC.
- Once protocols and processes are defined, establish a real-time digital system to track production, distribution, and impact of fortified foods.

## C. Incentivise and Support Industry Participation

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- Introduce fiscal incentives (e.g., import duty exemptions for premix and fortification equipment).
- Support local premix distribution to ease availability or bulk procurement schemes to reduce costs.
- Industry capacity assessments and technical assistance on food fortification, including integration of fortification into the production process and QAQC protocols and processes.
- Linkages to markets, distribution channels e.g. school feeding.

## D. Strengthen Supply Chain and Improving Access

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- Integrate fortified products into various delivery channels including SFPs, food assistance, and social protection programmes.
- Support innovation in low-cost, decentralized processing technologies to boost rural production.





## E. Promote Research and Evidence Generation

- Fund and coordinate research on:
  - Dietary intake and coverage of fortified foods of different population groups.
  - Understand key supply and distribution channels to improve delivery of additional MNs to the most vulnerable through integration of fortified foods into identified delivery channels.
  - Assess market availability of both locally produced and imported products and their adherence to fortification standards.
  - Cost-effectiveness of different LSFF models in Rwanda.
- Build data and analytics capacity in universities and research institutions through training and public-private research partnerships.
- Strengthen evidence-based decision-making through improved reports, dashboards for various stakeholders (private sector, government (regulatory and public health / fortification actors).



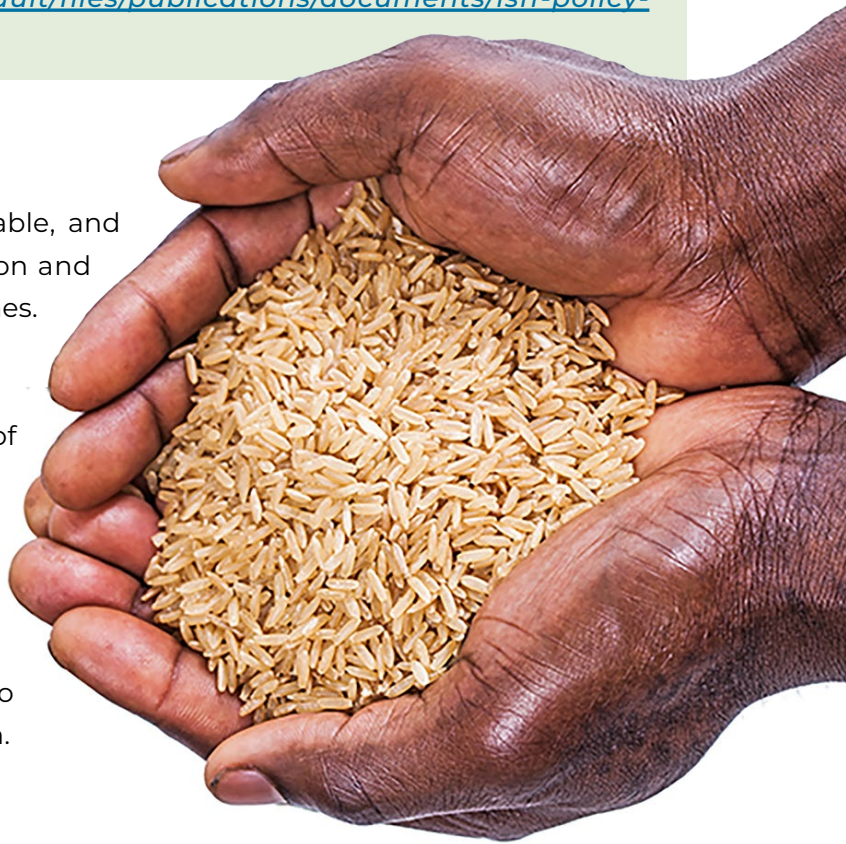
## F. Strengthening LSFF Alongside and in Coordination with Complementary Interventions

- Fund and coordinate research on:
  - Dietary intake and coverage of fortified foods.
  - Cost-effectiveness of different LSFF models in Rwanda.
  - Consumer demand and barriers to uptake.
- Biofortification of crops (e.g., vitamin A-rich sweet potato, iron-rich beans) has gained ground, but requires complementary strategies like LSFF for micronutrients to reach population-wide coverage.

More information on strengthening LSFF programmes can be found here: (GAIN 2024) <https://www.gainhealth.org/sites/default/files/publications/documents/lsff-policy-brief-3rd-08dec24.pdf>

## Conclusion

Food fortification is a cost-effective, scalable, and proven intervention to combat malnutrition and improve national development outcomes. Rwanda has made important steps towards launching LSFF, but success in implementation and sustained coverage of the programme depends on champions/ leadership, enhancing systems, and uniting stakeholders around a shared roadmap. With coordinated investment, innovation, and political will, Rwanda can lead the region in contributing to micronutrient intakes through fortification.



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