



# **NUTRIENT SMART PROCESSING AND TRADE (NSPT) PROJECT**

**Large-Scale Food  
Fortification Workshop**

**April 19  
2023**

## CONCEPT NOTE

# Introduction of the Nutrient Smart Processing and Trade (NSPT) Project

The NSPT project under AKADEMIYA2063 aims to generate evidence to guide the formulation of policies and strategies to increase the capacity of food systems in Senegal and Rwanda to provide sufficient nutritious food. The project focuses in particular on the contributions of domestic supply local food processing sectors, and cross-border trade to ensure adequate levels of nutrition. The AKADEMIYA2063 project team will identify priority policies, strategies and investments to enhance nutrition security through local production, processing technologies and practices, and trade opportunities and will communicate findings and recommendations to decision-makers in collaboration with partners.

**These objectives are pursued under five main components in addition to a set of supplementary activities to assess large-scale industrial fortification opportunities:**

- 1 Identification of nutrient gaps and priority foods
- 2 Enhancing domestic supply of nutrient-dense crops
- 3 Identification of nutrient smart trading opportunities
- 4 Integration with country policy processes
- 5 Communications and outreach
- 6 Large-scale food fortification

## Background on Large-Scale Food Fortification

Food systems in most low- and middle-income countries (LMICs) fail to deliver nutritionally adequate diets. This may be due to the production and consumption of just a few major starchy food crops (maize, rice, wheat) with low micronutrient content and/or bioavailability, resulting in deficiencies in essential micronutrients (Mkambula et al., 2020). Additionally, poverty is linked to inadequate access to food, sanitation and safe water and to a lack of knowledge about the safe handling of food and best feeding practices (FAO, 2022). Micronutrient deficiencies (MNDs) (also known as hidden hunger) may also be caused by impaired absorption or utilization of nutrients in these foods, partly as a result of infection and parasitic infestation, which also increase metabolic needs for many micronutrients (FAO, 2022). MNDs compromise the physical and cognitive capacity of people, lead to

perinatal complications and increase the risk of morbidity and mortality. Consequently, MNDs affect human capital and economic development, especially in LMICs.

Food fortification has been proven to decrease MNDs effectively (Olson et al., 2021). Large-scale food fortification is an excellent strategy as it can reach large segments of at-risk populations through existing food delivery systems without requiring significant changes in existing consumption patterns (Osendarp et al., 2018). Notably, population-wide food fortification programs have been linked to 34% reduction in anaemia, 74% reduction in the odds of goitre, and 41% reduction in the odds of neural tube defects (Keats et al., 2019).

Food fortification is one of Senegal's strategies to scale up its Multisectoral Strategic Plan of Nutrition 2017–2021 (PSMN), integrated with micronutrient supplementation, nutrition education and the promotion of dietary diversity (WFP & Nutrition International, 2019). Rwanda's food fortification effort is evidenced by the law passed by its government, "Regulations No CBD/TRG/003 Rev. No 1 governing Food Fortification in Rwanda" in 2019, making micronutrient fortification mandatory for maize flour, wheat flour, edible oil, sugar, salt and cereal-based foods (WHO, 2020). Irrespective of the food fortification efforts in both Rwanda and Senegal, MNDs are still high.

### **Senegal Context**

Senegal is West Africa's largest salt producer, with an estimated annual salt production of 450,000 tons (Kupka et al., 2012). However, less than 50% of the salt produced by Senegal is adequately iodized (Nutrition International, 2010). This may explain the high prevalence of iodine deficiency, with 28% of women having iodine deficiency and only 47% of the Senegalese population consuming adequately iodized salt (Nutrition International, 2022). The prevalence of anaemia among children of 6 – 59 months, women of reproductive age and pregnant women in Senegal is very high at 68%, 47.3% and 56%, respectively (Kinyoki et al., 2021; WHO, 2019). Some of the reported causes of anaemia in Senegal include malaria parasitaemia, sickle cell disorders, alpha-thalassemia, and stunting, and anaemia has been documented to be associated with the type of residence, socio-economic status, and maternal education (McCuskee et al., 2014; Tine et al., 2012). To reduce anaemia in children under 5 in Senegal, improving mothers' literacy level and sustainably improving the families' socio-economic level by creating income-generating activities may effectively reduce MND (Diouf et al., 2013).

### **Rwanda Context**

In Rwanda, the Demographic and Health Survey 2019–20 (NISR & MOH-Rwanda, 2021) revealed that the prevalence of anaemia in children 6 – 59 months, women of reproductive age, pregnant women and breastfeeding women is 37%, 13%, and 25%, respectively. Findings from the Rwanda Demographic and Health Survey 2019–20 (NISR & MOH-Rwanda, 2021) showed that consumption of foods rich in vitamin A among children 6–23 months increased from 74% to 84%, and that of foods rich in iron increased from 20% to 24%, from 2014–15 to 2019–20. Additionally, 87% of children of 6–59 months were given vitamin A supplements in the past six months, and 82% were given deworming medication in the past six months. Concurrently, the intake of iron supplements among women for 90 days or more during their most recent pregnancy reportedly increased from 3% to 16% from 2014–15 to 2019–20, while that for deworming medication during pregnancy decreased from 49% to 43% from

2014–15 to 2019–20. The data further showed no significant association between anaemia and education or household wealth. It has also been reported that anaemia in Rwanda partly attributed to malaria is approximately 2% (WFP, 2019). The results from the survey suggest that MND in Rwanda may be due to other factors. This is in agreement with a survey by Angel et al. (2017) involving 408 households in the Northern and Southern Provinces of Rwanda, which reported low iron deficiency among children (4%) and women (2%), and yet the prevalence of anaemia was high in the children (31%) and women (12%). The findings suggested that iron deficiency was not the primary cause of anaemia in the studied provinces.

There is a scarcity of data on the overall prevalence and causes of anaemia and other micronutrient deficiencies in both Senegal and Rwanda. These need to be determined to develop sustainable interventions to eliminate MNDs from both countries. Identification of lessons, constraints, and challenges in LSFF, especially in Rwanda and Senegal, as well as recommendations to enhance the effectiveness of LSFF efforts, is therefore needed.

## About the Large-Scale Food Fortification Workshop

AKADEMIYA2063, in partnership with the Senegalese Conseil National de Développement de la Nutrition (CNDN), has organized a virtual workshop on large-scale food fortification (LSFF). The workshop will involve consultation with experts from the project countries and other African countries.

The goal of the workshop is to assess lessons, constraints, and challenges in LSFF and to provide policy recommendations to enhance the effectiveness of LSFF efforts in general and in the two project countries (Rwanda and Senegal). This would contribute to the identification of opportunities for macro-industrial fortification by large formal-sector processing firms, which would consequently contribute to filling nutrient gaps.

## Objectives of the Workshop



Take stock of evidence on LSFF in Africa with focus on Rwanda and Senegal



Discuss factors for LSFF failures and successes.



Explore actions and strategies to increase the effectiveness of current and future LSFF efforts.