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Rice Fortification in Senegal Landscape Analysis



World Food Programme



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Preface

Globally, more than two billion people are affected by micronutrient deficiencies, or hidden hunger. These deficiencies, defined as the lack of one or more of the essential vitamins and minerals required for healthy growth, development, and functioning, affect all ages and socio-economic groups.

Hidden hunger impacts socio-economic development at household as well as national level, and its short- and longterm consequences include maternal and child mortality, increased illness, mental retardation, and poor cognitive and physical development. All of these negatively impact a country's GDP. As affirmed by the 2008 and 2013 Lancet Series on Maternal and Child Nutrition, the 2012 Copenhagen Consensus and the global Scaling Up Nutrition (SUN) Movement, multi-micronutrient fortification is among the most cost-effective strategies to reduce malnutrition.

Rice is a staple food for more than three billion people across the globe where it can contribute up to as much as 70 percent of daily energy intake in some countries. This presents a nutritional problem: milled rice is a good source of energy, but a poor source of micronutrients. Where rice is a staple food, making it more nutritious through fortification with essential vitamins and minerals is a proven and cost-effective intervention to increase micronutrient intake among the general population. Consumption of fortified rice increases micronutrient intake without requiring consumers to change their buying, preparation or cooking practices.

Several programmes have been implemented in Senegal to address micronutrient deficiencies (MNDs), including mandatory fortification of wheat flour, cooking oil and salt, vitamin and mineral supplementation, home fortification using micronutrient powder, and promotion of dietary diversity at household level. MNDs, however, have persisted and more needs to be done to overcome the issue in Senegal.

In Senegal, rice fortification has a great potential to reduce the prevalence of iron deficiency and other MNDs since rice is the most widely consumed cereal, with consumption estimated at 198g¹ per person per day. Recognizing the potential of rice as a vehicle for fortification, World Food Programme is considering rice fortification as one strategy to prevent and control MNDs of its beneficiaries and is therefore taking steps to assess the feasibility and acceptability of including fortified rice as part of its food basket.

This landscape analysis builds on the 2016 analysis supported by the Food Fortification Initiative (FFI) and the Global Alliance for Improved Nutrition (GAIN) by presenting the most up-to-date data and information from recent interviews undertaken in Senegal in October and November 2018. This analysis aims to provide decisionmakers with a comprehensive understanding of the factors that will influence the feasibility and sustainability of rice fortification as an intervention to improve the Senegalese population's micronutrient status. It provides a data refresh on the current status of malnutrition in the country and a detailed value analysis of the Senegalese rice value chain. This landscape assesses different delivery options and ways to integrate rice fortification into the Senegalese rice supply chain while estimating the potential public health impact of such intervention.

This report is a joint collaboration between the World Food Programme (WFP) and Nutrition International (NI) and is intended to inform the government, the private sector and the civil society of the potential of introducing rice fortification as a public health strategy to prevent MNDs in Senegal.

¹ FAO Food Balance Sheet.

Executive summary

Map of Senegal²



In Senegal, micronutrient deficiencies remain a major public health problem, with anemia rates of 66 percent for children, and 50 percent for women of childbearing age³ and vitamin A deficiency rate of 40 percent in children. To cope with this problem, the Government of Senegal has included fortification as a major strategy in its Multisectoral Strategic Plan on Nutrition (PSMN) 2017-2021. By 2025, this plan aims to reduce the prevalence of anemia by 25 percent among vulnerable groups and by at least 20 percent the prevalence of deficiencies in the vulnerable groups for other micronutrients (iodine, zinc and vitamin A).

Ten years after the launch of the mandatory wheat flour and cooking oil fortification programmes and nearly twenty years after salt fortification became mandatory, Senegal is entering an evaluation and consolidation phase. The focus is now to assess the degree to which it has achieved its nutritional goals and to identify the potential gaps.

The Government of Senegal has made food autonomy, and in particular self-sufficiency in rice, a major priority for the nation. In 2014, the National Rice Self-Sufficiency Program (PNAR) was launched under the supervision of the Ministry of Agriculture to strengthen the promotion and development of the local rice sector. The objective was to increase the cultivated areas, modernize production and processing, and professionalize all actors to improve food security and contribute to the fight against poverty. Currently, there are 8 mills with a total capacity of 5+MT/h in the country. At full scale, these mills represent a total potential capacity of 144'000 MT per year i.e. enough to reach nearly 2 million beneficiaries i.e. 12 percent of the population

Rice is by far the most daily consumed cereal across all age groups in Senegal. It is estimated that on average Senegalese consume 198g of rice every day and as such, rice constitutes a great alternative or addition to current national fortification programmes.

In October/November 2018, World Food Programme conducted a situational analysis to build upon the World Food Programme previous rice fortification landscape analysis conducted by the GAIN / FFI in 2015. The objective of the analysis was to understand the current fortification situation in Senegal, the opportunities, constraints, technical feasibility and challenges linked to the potential introduction of rice fortification, as well as to evaluate different systems or combination of systems for possible introduction of rice fortification.

The information in this report was compiled from primary and secondary sources collected in the last quarter of 2018 and has been used to formulate a general situational analysis and develop projections and scenarios for rice fortification in Senegal.

In 2013, GAIN conducted a national fortification assessment coverage toolkit (FACT) in Senegal and found compliance and coverage of fortifiable flour and oil to be high. However, the extent to which they significantly contribute to adequate intake of micronutrients needs to be further assessed. To that end, in 2018, the Food Technology Institute (ITA) and the Senegalese Committee for the Fortification of Foods in Micronutrients (COSFAM) have started an end line survey to provide the latest data on the status of micronutrient deficiencies in the country. The results of this survey, which should be available during the course of 2019, will provide policy-makers with additional, up-to-date information to make informed, evidence-based decisions on the next steps of food fortification programmes.

A recent Fill the Nutrient Gap (FNG) study showed that, on average, fortified rice alone can provide about 1/3 iron recommended nutrient intake (RNI) across all age groups in West Africa. Fortified rice being just one of the sources in the diet, and considering that other staples are fortified, the opportunity to reach 30 percent RNI for iron through rice only represents a great opportunity.

² https://www.nationsonline.org/oneworld/map/senegal-map.htm

³ UNICEF, 2016 Global Nutrition Report https://data.unicef.org/resources/2016-global-nutrition-report/ (accessed 21 February.

With high nutritional needs, high rice consumption and broad population coverage, Senegal is a very attractive market for rice fortification. Although considerations for fortification remain due to the cultural perception of rice and price sensitivity of Senegalese households, the current political environment is favourable.

To progress rice fortification in Senegal, the analysis highlights 5 key programmatic areas for immediate intervention:

- Social safety net programmes that provide food assistance should be utilized as a first step to introduce fortified rice in Senegal. Both school meal programmes operated under World Food Programme and the Government of Senegal distribute rice as part of their daily ration. Further discussions with the Division of School Canteens should be held to ascertain how nonfortified rice could be substituted for fortified rice in the short and medium run. Piloting introduction of fortified rice through World Food Programme school meals using non-fortified rice sourced locally and imported FK is a concrete step that should be investigated to serve as proof-of-concept.
- 2. **Mandatory fortification** of all locally produced and imported rice is may be impractical at this stage in Senegal given the fragmentation of the milling industry where around 87 percent of rice is still milled through small-scale mills.
- 3. **Voluntary fortification of rice** should be encouraged, in particular amongst the largest local rice mills.

Growing concentration of the rice milling industry coupled with the strategic and political will to improve the rice sector and reach self-sufficiency in rice, has prompted significant investments in the domestic rice value chain in recent years. The largest mills are favourable entry points to perform voluntary fortification and should therefore be incentivized to pursue voluntary fortification.

- 4. Fortifying imported rice represents the biggest, immediate opportunity in Senegal where 60-70 percent of rice consumed is imported. Fortifying imports of rice could drive significant nutrition impact with a relatively limited investment or modification of the current rice supply chains. Fortification of imported rice directly at country of origin constitutes the quickest and easiest opportunity for rapid implementation. To rapidly explore this opportunity, discussions must hold between Ministry of Health and Commerce to assess whether and how a mandate for imported rice can be implemented.
- 5. Advocacy, communication and social marketing will be essential to strengthen and reinforce the messages conveyed through past campaigns. Rice being such a sensitive commodity in Senegal, it will also be important to confront possible misconceptions amongst key stakeholders and the general public towards fortified rice. Awareness, information dissemination and behavioural change campaigns promoting rice fortification will be paramount to ensure credibility of programmes, projects and voluntary initiatives.

Acknowledgements

The Landscape Analysis was developed with the support of

Panagides from the World Food Programme and Ms

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