

# Rice Fortification

## An Opportunity to Improve Nutrition in West Africa

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### Introduction

A two-day workshop, Rice Fortification – An Opportunity to Improve Nutrition in West Africa, took place in Dakar, Senegal on November 27–28, 2017. This event brought together over 50 stakeholders, including country delegates and global and regional technical partners, to raise awareness and discuss opportunities and challenges around rice fortification and its potential role in improving dietary quality and reducing micro-nutrient deficiencies in the region.

Country delegates in attendance came from Benin, Côte d'Ivoire, The Gambia, Ghana, Guinea-Bissau, Liberia, Nigeria, Senegal and Mali. One representative from Madagascar, which is outside the region, also attended. This two-day event was organized by the UN World Food Programme (WFP) with the support of an Organizing Committee that included members from the UN Food and Agriculture Organization (FAO), the Food Fortification Initiative (FFI), the Global Alliance for Improved Nutrition (GAIN), Helen Keller International (HKI), Nutrition International (NI), *Sight and Life* (SAL), and the United Nations Children's Fund (UNICEF).

### Key objectives:

The key objectives of the workshop were to:

- share the latest global evidence on the impact of fortification on nutritional status;
- share operational experience on rice fortification in West Africa and from other regions;
- ensure an understanding of current rice fortification technology and delivery models;
- hold a general discussion on opportunities and challenges for rice fortification in West Africa; and

- determine outstanding information needs to further rice fortification efforts in West Africa.

Facilitated by Jane Badham, the workshop combined plenary presentations with facilitated exchanges, interactive country delegation working groups, and moderated question-and-answer discussion sessions. Participants learned about the global evidence for rice fortification, technical aspects of production and the feasibility and potential for rice fortification in West Africa. Three country experiences were featured, which highlighted different delivery models: Costa Rica (mandatory), Bangladesh (safety net/voluntary/corporate social responsibility), and Mali (school meals using imported fortified kernels blended with locally produced rice). Throughout the workshop, technical presentations gave the opportunity for country delegation teams to discuss the applicability and feasibility of rice fortification in their respective countries. The country teams concluded their discussions with specific action points to move rice fortification forward.

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### Highlights of the workshop

Participants were welcomed to the event by Dr Laila Lokosang, Senior CAADP (Comprehensive Africa Agriculture Development Programme) Advisor, Food Security and Nutrition at the African Union Commission Department of Rural Economy and Agriculture. In his opening speech Dr Lokosang highlighted that a multisectoral approach to nutrition is key to the Africa Regional Nutrition Strategy and that fortification is a cost-effective nutrition intervention that needs to be scaled up in Africa over the



Group photo at the Rice Fortification workshop in Dakar, Senegal

next decade. Lauren Landis, Global Director of WFP's Nutrition Division, and William Affif, Senior Regional Programme and Policy Advisor for West and Central Africa for WFP, also highlighted the important role that fortified rice can play in reducing micronutrient deficiencies in the region.

The aim of the first session was to give insight into the nutrition and rice fortification landscape in West Africa. This was communicated through an interactive quiz in which participants' knowledge of nutrition deficiencies and consumption in West Africa was put to the test and results communicated instantaneously, followed by a discussion. Greg Garrett (GAIN), Dr Noel Zagre (UNICEF), Dr Balla Moussa Diedhiou (NI) and Dr Mawuli Sablah (FAO) made sure to answer any outstanding questions from the audience and provided more detail where necessary.

This informative session also served as an ice-breaker and helped set the stage for the first presentation of the workshop which was given by Fred Grant (HKI). This provided an overview of food fortification strategies in the region, recapping the various steps in fortification and further explaining six common strategies that have been adopted across the region, namely:

1. Prioritizing feasibility and scale
2. Leveraging regional coordination and leadership
3. Facilitating national-level action and commitment
4. Assessing and building public and private sector capacity
5. Mobilizing communities and sensitizing the population
6. Monitoring, evaluating and reassessing

This introductory presentation provided an important backdrop against which all fortification efforts should take shape – namely, the added value in looking at rice fortification in the context of a broader public health environment, with complementary strategies to fill the micronutrient gap. Furthermore, the presentation emphasized that it was the complementarity of regional actions and country actions that led to progress. This effort should be further encouraged in light of the current window of opportunity which did not exist 15 years ago. In countries where fortification has already begun, there is an opportunity to reassess the situation, investigate to what extent the needs of the population are currently being met, explore improved ways of linking fortification data within national health information systems, and consider new micronutrients, vehicles and technologies.

The second session gave an overview of the basics of rice fortification, laying out the various approaches that exist to address micronutrient deficiencies and underscoring that rice is widely consumed throughout West Africa. As it is an important staple food for much of the population, it should be added to the existing list of fortified staple foods (wheat and maize flour, condiments and oil). Existing rice fortification technologies (par-boiling, dusting, coating and extrusion) were also introduced, as well as considerations in selecting the best option. The main takeaway was that rice fortification can be done with the existing technology yet the chosen fortification technology must be context-specific and must also be in line with a country's rice preparation and cooking habits.



Participants hard at work shaping the future of rice fortification in West Africa

The next presentation looked at the evidence for impact of rice fortification. Dr Saskia de Pee (WFP) and Dr Diego Moretti (ETH) addressed many common questions concerning the acceptability, bioavailability, nutrient losses, adequate nutrient levels and other requirements for effective rice fortification, and explained the target of ensuring that the nutrient intakes are above the Estimated Average Requirement (EAR). The key message was that rice fortification is a safe and highly acceptable method for the population and its contribution to micronutrient status has been proven. Efforts are now required to implement at scale, beginning with deciding jointly to pursue fortifying rice and focusing on how to implement this.

### Country case studies

The following session focused on rice fortification delivery options and shared country experiences. Jose Antonio Martinez Fonseca (Executive Director, INDUARROZ) presented the mandatory fortification model being implemented in Costa Rica, and Bikash Das (Ministry of Planning, Bangladesh) shared experiences around voluntary rice fortification in social safety net programs and corporate social responsibility.

Anna Horner (WFP) explained how in Mali, WFP – together with Malô (a local social enterprise founded by young entrepreneurs) – is implementing a groundbreaking project in West Africa that aims to test whether imported fortified kernels mixed with local rice could work as a sustainable business model. She said that, since October 2017, 1,500 metric tons of fortified rice had been produced through this model for distribution by WFP

to children in the national school feeding program. Moving forward, Malô aims to extend production facilities beyond its current factory in Segou to the cities of Bamako and San in 2018 and to produce fortified kernels and manufacture Supermalô fortified rice for the population using locally grown rice and locally produced fortified kernels.

Mali's social safety rice fortification example has also proven that local rice fortification not only addresses micronutrient deficiencies but also creates economic and job opportunities, particularly among young people. It also demonstrates the feasibility of distributing this fortified rice through existing social safety net programs. The story of Malô – shared by its founder, Salif Romano Niang, on p. 76 of this issue – is an inspiring and eye-opening one that teaches us that implementation barriers are good to experience: “There will be challenges,” concedes Salif, “but if you do not take any risks, you will not know what the challenges and opportunities are.”

A presentation by Scott Montgomery (FFI), “Feasibility and Potential for Rice Fortification in West Africa,” extended the focus to the wider West African region and gave a high-level overview of the supply chain in West African countries, which consume more than 75 g of rice per day. The main message was that collaboration across countries will be key to scale up rice fortification and to consolidate demand for fortified rice. The presentation entitled “Integrating Rice Fortification into Supply Chains for Cost-efficiency” looked at key characteristics from the country case studies to establish some of the lessons learned from rice fortification and, more specifically, what the

**TABLE 1:** The role of stakeholders in rice fortification

<b>Government</b>	Policy framework
	Political will and commitment to leadership
<b>Private sector</b>	Developing and reinforcing the technical capacity to produce quality fortified kernels and fortified rice
	Advocacy to develop an enabling environment
<b>International organizations</b>	Resource mobilization
	Knowledge transfer and technical support
<b>Regional bodies</b>	Regional mobilization   Multisectoral coordination
	Harmonized monitoring & evaluation framework   Standards and legislation
<b>Civil society</b>	Communication & advocacy
	Watchdog function to protect the consumer

key factors are for feasibility. Rizwan Yusufali (Technoserve) identified the following key points here:

#### Key factors for integrating rice fortification into supply chains for cost efficiency

1. Scale must be sought for a higher impact on micronutrient deficiencies and to establish what the real cost is.
2. It is essential to understand and map the rice value chains in order to identify at what levels fortification becomes feasible.
3. Engaging with the private sector at an early stage is necessary for all delivery models.
4. A supportive legislation and policy framework, which does not add an additional administrative and compliance burden, is important.

#### The role of stakeholders in rice fortification

The second and final day of the workshop focused on the ‘how’ of fortifying rice in West Africa. A brainstorming exercise on the role of stakeholders underlined the importance of early multi-stakeholder collaboration across the rice fortification process. **Table 1** shows the main key focus areas in which each stakeholder group can have the most impact in creating a favorable environment for rice fortification.

The session that followed, “Linking Rice Fortification Opportunities with Nutrition Objectives,” built on the stakeholder exercise and emphasized the added value in bringing all stakeholders to the table. A methodology-focused presentation, “Fill the Nutrient Gap (FNG) study: Modeling the Potential of Rice Fortification for Improving Micronutrient Intake among Different Target Groups,” is a good example of this being put into practice, whereby, through modeling methods, the FNG tool strengthens the nutrition analysis linked to decision-making and aims to establish consensus on cost-effective programmatic strategies to improve nutrition. Dr Saskia de Pee, lead of the FNG team, ex-

plained how the tool involves a variety of stakeholders throughout the process by enhancing dialogue across sectors. The FNG tool helps to bring all the relevant players to the same table and to find consensus with stakeholders in the country.

#### Rice fortification: one strategy toward achieving development goals

In this panel discussion, regional bodies including the African Union Commission, ECOWAS and the West African Health Organization (WAHO) gave their insights and elaborated on the close relationship between rice fortification and the achievement of the Sustainable Development Goals (SDGs). Dr Laila Lokosang (ECOWAS) and Dr Modibo Traore (WAHO) emphasized that while rice fortification clearly links to SDG 2.2, aiming to end all forms of malnutrition, it also has the potential to create jobs

Balla Moussa Diedhiou (NI), Noel Marie Zagre (UNICEF) and Greg Garrett (GAIN) (left to right)





Introduction to the Iron Spot Test – a simple, rapid test that indicates qualitatively whether iron has been added to the flour

and reduce poverty, as confirmed through the Mali case study. Furthermore, they discussed how there are many political and economic aspects that are intrinsically linked to rice production. Rice fortification provides a window of opportunity to expose some of these issues and join forces to address these. If West Africa were to create a demand, it could have an impact in the entire region but also at the global level.

**“Not only is rice a strategic commodity for West Africa; it can also be a pull factor aiming to bring the private sector to the table”**

Not only is rice a strategic commodity for West Africa, it can also be a pull factor aiming to bring the private sector to the table. Moreover, rice has a privileged position: the significant amount of rice imports represents a quick and yet tremendous opportunity to shift to fortified rice – “from rice to fortified rice is just a step.” The region can also build on its experience with wheat, cereal and oil fortification and leverage its expertise in rice fortification. While the current collaborations are encouraging, it is now up to the region to pursue these and to make rice fortification a priority.

#### **Meeting the experts, and the way forward**

Country delegates gathered in four roundtables to discuss rice fortification topics with experts in various fields: rice fortifica-

tion evidence and standards; rice fortification delivery models; rice fortification technologies and supply chain; and balancing a fortified food basket. This was an opportunity for participants to ask further questions on ‘burning’ issues.

Regarding the way forward and the next steps for participating countries, a session was dedicated entirely to in-country discussions in which country delegates reflected in small groups on key issues relevant to their specific context. Below are a few action points on rice fortification agreed by country delegations.

**“We will include rice fortification as a point of discussion in our next meeting with the National Nutrition Council. It will be an opportunity to revisit regulations and reinvigorate this platform and add rice fortification to it.”**

**“Presently in our country, local production of rice is being promoted by the government. This provides an opportunity to lobby the decision-makers to fortify imported rice at a national level.”**

**“We will organize a multistakeholder meeting to discuss the strengths, comparative advantages, and benefits of rice fortification for the population.”**

**“In our country, every effort should go toward reducing iron deficiency and anemia. We will initiate wide consultations and identify and include key stakeholders as part of our strategy and gather evidence that will support the adoption of rice fortification.”**

**“I will present the rice fortification strategy to the members of the fortification committee at our next meeting in 2018 and discuss with WFP the potential of setting up a social safety net delivery model throughout school feeding programs.”**

**“We will bring this good news where needed and will advocate to relevant stakeholders for our voice to be heard by the relevant government authorities (nutrition, agriculture, economy) as well as by the private sector and at the parliamentary level.”**

#### **Summary**

Micronutrient deficiencies are widely prevalent in West Africa. Despite programmatic responses aiming at combating these micronutrient deficiencies, rates remain high. Beyond the impact on morbidity and mortality, the social and economic effects of these deficiencies are devastating. Food fortification has been recognized as an important strategy for addressing this public health problem. Many countries have mandatory legislation on

fortification of staple foods (such as wheat flour and edible oils) and salt.

Data presented at this workshop showed the large consumption of rice in a number of West African countries and a trend toward consumption of rice replacing other grains in the diet, but little in the way of efforts to scale up rice fortification in the region. Because of this, it was agreed that it is timely to consider fortification of rice in the overall approach to ensuring the availability of micronutrient-rich staple foods. It has the potential to fill a clear gap in the current fortification landscape. The evidence presented confirmed that with appropriate levels of micronutrients and appropriate fortificant forms, as well as with effective technology, fortified rice is an effective intervention to improve micronutrient status. Participants were thanked during the closing session and given a copy of the “Scaling up Rice Fortification in Latin American and the Caribbean” supplement of *Sight and Life Magazine*. To conclude, Scott Montgomery (FFI) and Lauren Landis (WFP) shared some closing remarks and summarized a set of opportunities that were discussed throughout the workshop.

never been greater, and it will be important to identify these at an early stage in the process. Finally, contextual and regional solutions should be developed and engagement with the private sector will be a key priority for any successful outcomes.

Africa’s enabling environment shone throughout the workshop, revealing a relative consensus and a strong base of technical partners who can provide analysis and guidance and can share country experiences. This meeting was only a step in the journey. Participants agreed that they would debrief partners in their respective countries. Finally, it was jointly agreed that further sensitization among policymakers and other key decision-makers will be necessary and several organizations have already made this a top priority. WFP, for instance, is currently in discussion with key countries in the region to support the advancement of national-level dialogue and the inclusion of rice fortification in WFP program streams when appropriate, and also to conduct deep-dive landscape analysis for a few selected countries to generate a complete picture of potential delivery models for the region.

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“There is sufficient evidence to move ahead with scaling up fortified rice as part of an integrated approach to reduce micronutrient deficiencies”

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There is sufficient evidence to move ahead with scaling up fortified rice as part of an integrated approach to reduce micronutrient deficiencies. In fact, not only does West Africa benefit from a large consumption of rice and a trend toward increased consumption, but rice has become a strategic commodity in the region and is rooted in the food security and politics of the region. The region already values and accepts fortification as other commodities (wheat, oil, cereal) are being fortified, thereby enabling countries to build on existing preliminary standards to make the case for rice fortification and to transfer, for instance, from voluntary to mandatory fortification. Nonetheless, despite the high level of interest in large-scale fortification in Africa, acceptability to the local context should be a key priority and there are other challenges to rice fortification that need to be taken into account, such as countries’ needs to acquire the necessary technology and the need for financing more generally. Poor fortification in mandatory settings needs to be combated through increased monitoring, human resources, infrastructure, equipment, and, most importantly, political will. The need for champions to advocate rice fortification and advance its progress has