WFP
World Food Programme

SAVING LIVES
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Harnessing market forces to combat anaemia through rice fortification in Peru

Case study and lessons learnt

July 2022

In short

Efforts to scale up large-scale food fortification often start with advocating for a law that mandates the private sector to fortify. In Peru, the World Food Programme (WFP) supported the government with a novel approach: first create the demand by including fortified rice in social assistance programmes that serve millions, then support the private sector to respond to this new market with increased supply.

Following this strategy, in less than four years more than 150 rice millers applied for certification to produce fortified rice, and by 2022 over 3 million people were receiving fortified rice through social assistance programmes. The increased capacity of the private sector and predictable demand created a favourable environment to introduce a mandatory fortification law, which was passed in 2021.

This brief presents lessons learnt from this regional success story in scaling up rice fortification to address micronutrient deficiencies, particularly iron-deficiency anaemia. Documenting these insights aims to inform fortification efforts in other countries and contribute to the global evidence base on food fortification as a strategy to combat micronutrient malnutrition.

WFP in Peru

WFP has been supporting the government of Peru to improve food security and nutrition for over 50 years. The 2018–2022 Country Strategy Plan includes a strategic objective to end malnutrition, with outcomes to improve the nutrition status of the most vulnerable groups. This represents a shift in WFP's work in the country, moving from the provision of food and technical assistance to enhanced advocacy, partnerships and communications, and a more systematic approach to capacity strengthening.

Anaemia: a stubborn public health problem

Despite being a national priority, anaemia is a persistent public health issue in Peru, as it is in many other countries. In 2021, 38.8% of children under 3 and 18.8% of women of reproductive age were affected[1], and progress towards the target for anaemia agreed upon at the World Health Assembly (WHO 2014) is static[2]. National figures mask a more worrying situation in some regions and socioeconomic groups, with anaemia more than twice as common in poor children under 3 compared to their wealthier peers (50.2% of children with mothers in the lowest wealth quintile versus 22.6% of children with mothers in the highest wealth quintile)[1].

Poor quality diets and low iron intake contribute to anaemia, which hampers the cognitive and physical development of children and the productivity of adults and increases the risk of poor health and death[3]. With the government increasingly mindful of the detrimental effects of malnutrition—thanks in part to two decades of advocacy on the issue—anaemia and nutrition have risen in importance on the national agenda and are prioritised in several policies and commitments.

Malnutrition in Peru at a glance	
Women of reproductive age who are **anaemic**[1]:	18.8%
Children under 3 who are **anaemic**[1]**:**	38.8%
Children under 5 who are **stunted**[4]**:**	15.7%
Children under 5 who suffer from **wasting**[5]**:**	0.4%
Children under 5 who are **overweight**[6]**:**	6.6%
Women of reproductive age who are **overweight**[2]**:**	60.1%
Children 6-23 months who receive **minimum dietary diversity**[5]**:**	84%

Rice fortification: a logical strategy for a rice-eating country

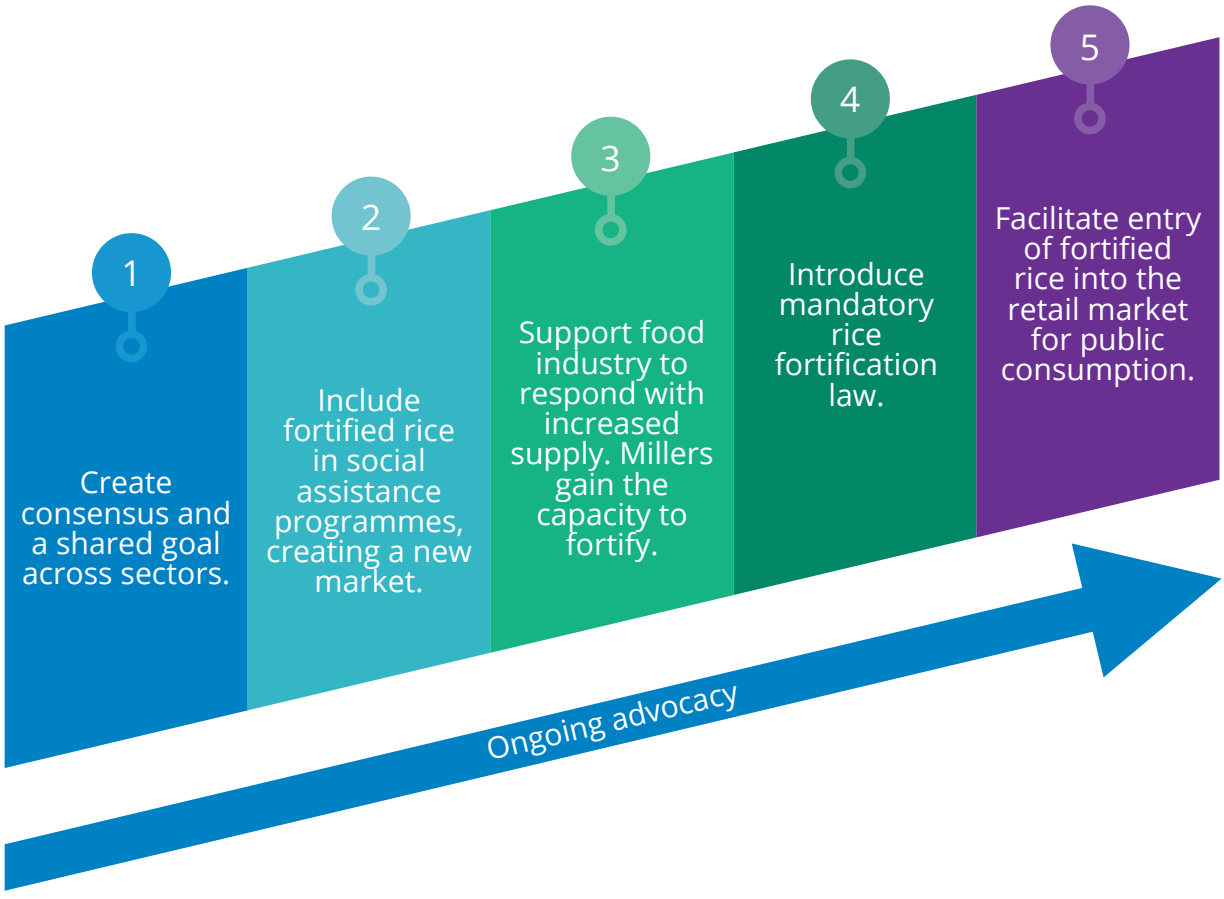
Fortifying staple foods with vitamins and minerals is an effective strategy to reduce micronutrient deficiencies, including anaemia. While globally, fortification of wheat, salt and other staples has been carried out successfully starting around a century ago, using rice as a food vehicle is a more recent development and represents an enormous opportunity to reduce micronutrient deficiencies in countries where rice is commonly eaten.

Peru is one such rice-loving nation, with an average of 173g of rice (or about 2½ cups cooked rice) consumed per person per day, with 83% of people eating rice daily[7]. The country is also an important rice producer, growing around 2 million tons per year[8]. Rice was therefore a logical vehicle for fortification with multiple micronutrients.

Fortified rice in Peru contains:	
Micronutrient	**Quantity per 100g uncooked rice***
Vitamin A	800 IU
Thiamine (Vitamin B_1)	0.35 mg
Niacin (Vitamin B_3)	4 mg
Pyridoxine (Vitamin B_6)	0.36 mg
Folate (Vitamin B_9)	120 mcg
Cyanocobalamin (Vitamin B_{12})	0.64 mcg
Vitamin D	1.4 mcg
Vitamin E	3.1 mg ET
Iron	4.2 mg
Zinc	3.2 mg

*Achieved by blending fortified kernels with unfortified ones at a ratio of 1% or 3%.

The rice fortification journey in Peru



While efforts to scale up large-scale fortification often start with advocating for mandatory fortification which obliges the private sector to fortify, in Peru, WFP supported the government with a novel approach that harnesses market forces of supply and demand.

First, create demand by including fortified rice in social assistance programmes.

In 2017, WFP began work to introduce fortified rice in national social assistance programmes which serve millions of Peruvians, including some of the poorest and most nutritionally vulnerable in society (See table 1). Since rice was already being provided as part of these programmes, replacing unfortified with fortified rice was considered a low-hanging fruit, offering the ability to improve diets by piggybacking on existing distribution systems and requiring minimal behaviour change on the part of participants.

Table 1: Fortified rice in social assistance programmes

Programme	Description	Target group	Rice distribution mechanism
Qali Warma	National school feeding programme	School children	Children are served rice in midday meals. Take-home rations were distributed during COVID-19 lockdowns.
Programa de Complementación Alimentaria (PCA)	National food supplement programme	People living in poverty, people with Tuberculosis	Rice is served in hot meals in shelters and as take-home rations.
Cuna Más	Large-scale early childhood development programme	Children under 3 living in poverty	Rice is served in meals at early childhood day-care centers. Take-home rations were distributed to parents during COVID-19 lockdowns.
Programa Integral Nacional para el Bienestar Familiar (INABIF)	Family welfare programme	Children under 18 living in residential care centres	Rice is served in meals in residential centres.

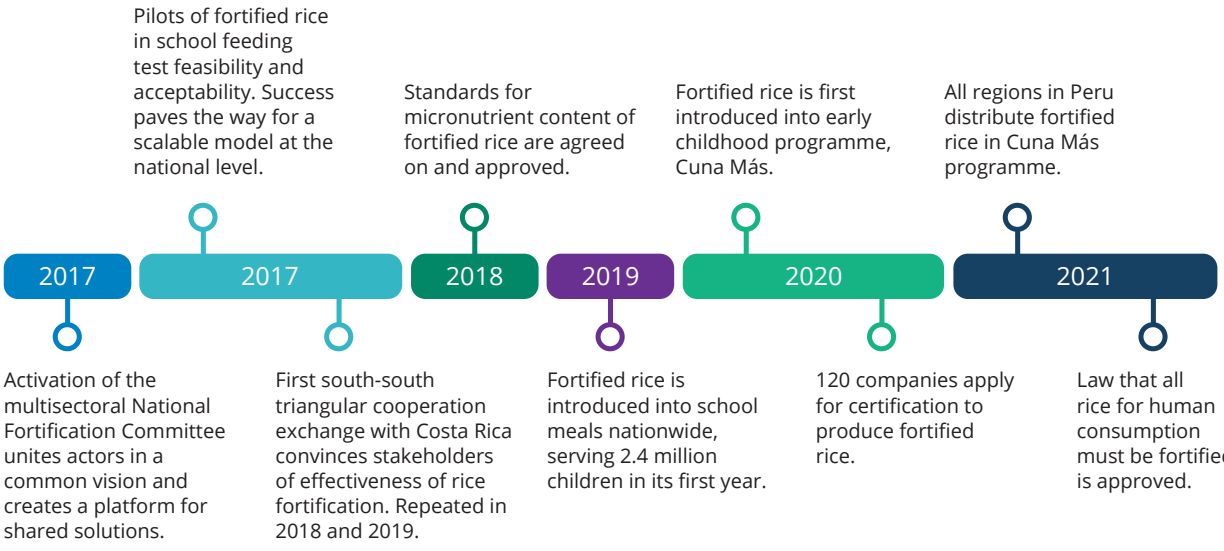
Second, support the private sector to respond to this new market with increased supply.

WFP provided capacity building and knowledge transfer activities to over 60 medium- and large-scale millers and facilitated coordination between the government and the association of millers (Asociación Peruana de Molineros de Arroz - APEMA), allowing them to meet the demand created by social assistance programmes.

At the same time, support the public sector to advocate for and draft a mandatory rice fortification law.

The work to build the capacity of millers, generate predictable demand and foster widespread conviction in the benefits of fortified rice created fertile ground for a law mandating rice fortification, which was passed in 2021.

Milestones in Peru's rice fortification journey



Lessons learnt

Get all sectors on board: The value of a fortification committee

In 2017, the multisectoral National Fortification Committee was established. The working group, led by the National Center for Food and Nutrition (Centro Nacional de Alimentación y Nutrición - CENAN), united several government ministries, multinational and local private sector entities, millers' associations, civil society groups, academia and WFP. Its role was to collectively drive the rice fortification journey in Peru, design a rice fortification strategy and foster consensus on key issues across diverse sectors.

The committee proved essential in ensuring that plans were made with the input of all parties so processes were not blocked later on, and that challenges were detected ahead of time. For example, the standards for micronutrient content requirements of fortified rice were determined by this committee. While WFP provided the evidence for establishing standards and models from other countries, the process was undertaken collectively by the committee which led to the creation of specifications that were acceptable to all relevant parties.

Demonstrate alignment with national priorities: Opening the door for the rice fortification conversation

WFP's support to scale up rice fortification in Peru built on two decades of advocacy which had seen anaemia and nutrition rise to national priorities. This meant that convincing stakeholders of the importance of reducing micronutrient deficiencies was not necessary; the challenge was to persuade them that rice fortification was an effective strategy to do so. As anaemia reduction was traditionally associated with micronutrient supplementation, once the links between fortified rice and anaemia reduction were understood, all activities to scale up rice fortification were accepted and supported.

Ensure continuity: Strategically expanding the network

Throughout the fortification journey, Peru experienced

Test, demonstrate, convince: The benefit of starting small

Starting small allowed for the intervention to be tested on a limited scale before going national. Initially, pilots were conducted in three school meal programmes and the national food supplement programme (PCA). This was followed by the introduction of fortified rice into all social assistance programmes in two strategic rice-producing regions, Lambayeque and San Martín.

This enabled WFP to test acceptability, identify bottlenecks, and trial technical specifications, communication strategies and legal and administrative procedures. The approach aimed to limit the risk of encountering the same challenges when the initiative was rolled out nationally, which could have hampered progress on a larger scale.

Starting small also allowed government ministry stakeholders to 'see to believe', demonstrating that rice fortification was feasible, inexpensive and acceptable. It also addressed some initial doubts that rice fortification would not be possible with Peru's decentralised industry. This helped create the support necessary to scale up to a national level and provided the opportunity to generate evidence through operational research.

Tailor communications: The importance of speaking to all audiences

Soon after schools had started serving fortified rice, a video made by a concerned teacher claiming that children were being fed 'plastic rice' went viral on social media. Although the teacher later retracted the statements, the experience highlighted the importance of communicating with participants ahead of implementation. If community members are engaged upfront, made aware of fortified rice and its benefits and given the opportunity to have their concerns addressed, they may be more likely to favour the intervention.

While WFP had developed social and behaviour change communication (SBCC) materials for distribution in school feeding programmes across the country, it was soon clear that this was not enough and that tailored community-level communication was also essential