



World Food Programme

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Harnessing market forces to combat anaemia through rice fortification in Peru

Case study and lessons learnt

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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 affected¹, and progress towards the target for anaemia agreed upon at the World Health Assembly (WHO 2014) is static². 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 death³. 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%

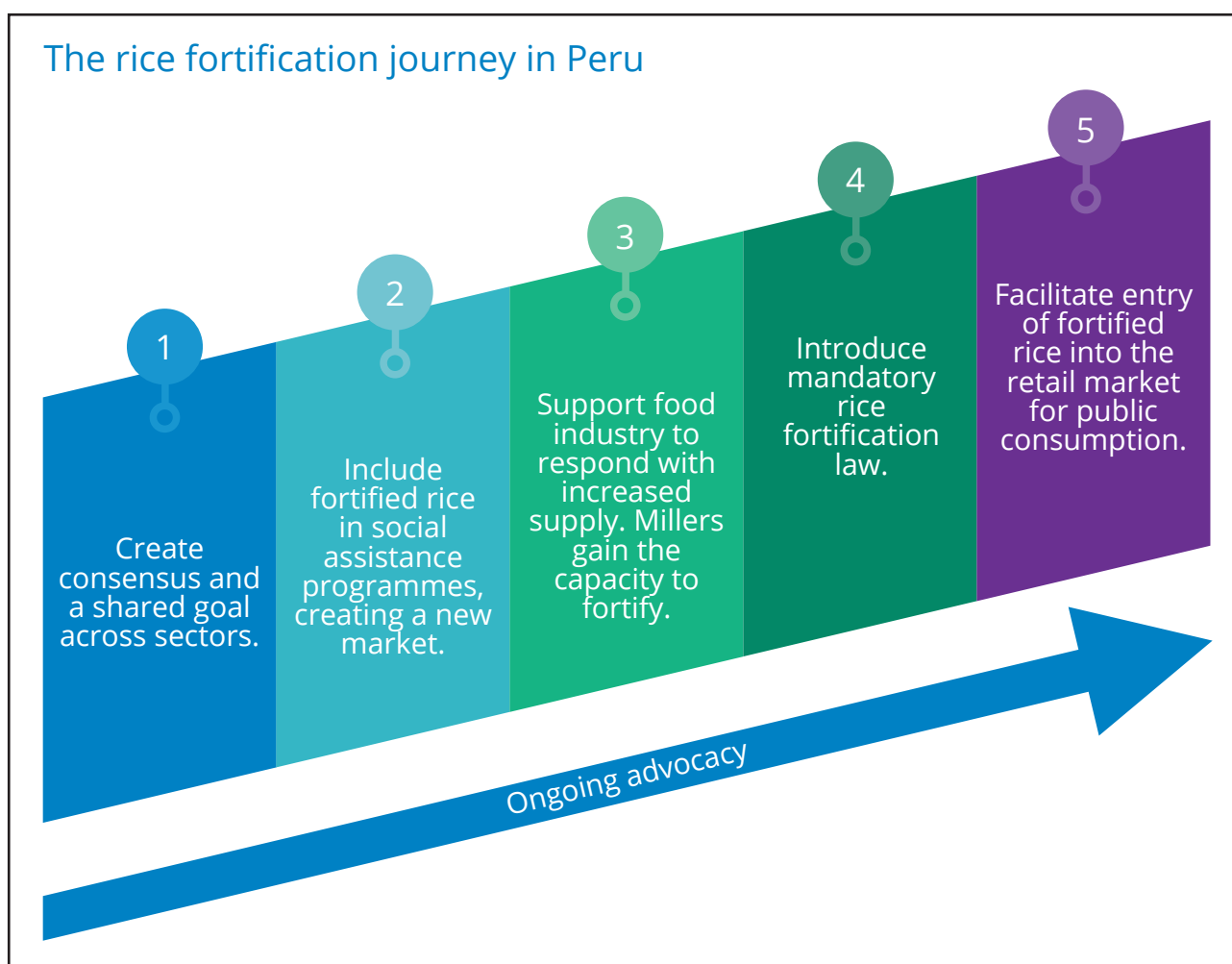
Rice fortification: a logical strategy for a rice-eating country

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 daily⁷. The country is also an important rice producer, growing around 2 million tons per year⁸. 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%.



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

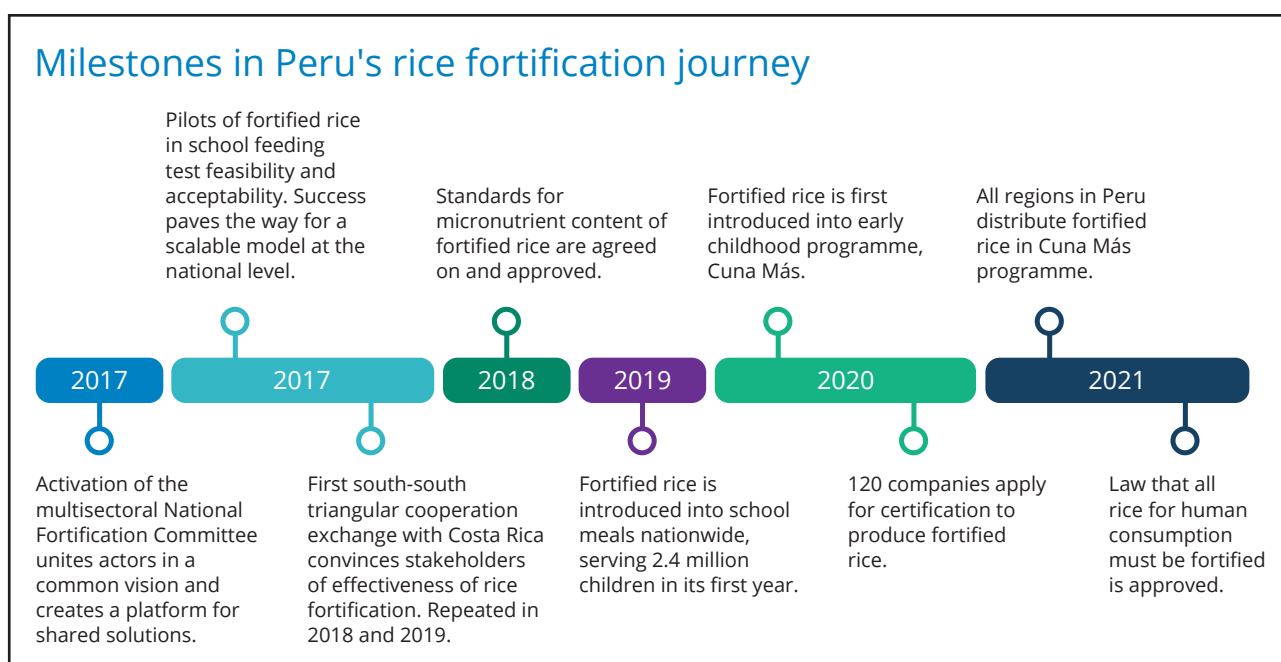
Programme	Description	Target group	Rice distribution mechanism
Qali Warma	National school feeding programme	School children	Children are served rice in midday meals. Take-home rations were distributed during COVID-19 lockdowns.
Programa de Complementación Alimentaria (PCA)	National food supplement programme	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.



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 a high political turnover, with frequent changes of heads of government programmes. This meant that WFP staff often had to repeat their advocacy on fortification with new authorities, resulting in unexpected delays while ministers and programme heads transitioned.

WFP country office staff quickly realized they had to broaden their engagement beyond the high-level authorities and work with technical staff and lower-level managers who were less likely to change when the government did. This meant that while WFP still had to connect and advocate with new authorities after transition, the processes continued more seamlessly in the meantime due to the ongoing engagement of a wider and more stable network within government.

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. Subsequently, WFP created a specific SBCC plan for communities that had voiced concern.

It was also found that face-to-face communication played an important role in some communities and involving respected community figures proved to be the most effective communication channel. This understanding allowed WFP to create a tailored approach of, firstly, identifying the most influential community figures (such as village chiefs) and then partnering with them and allowing them to positively influence public opinion. Innovative techniques were also well received: Tasting sessions and workshops for example were found to be more effective than simply explaining the benefits of fortified rice.

Find champions: influencers of change

One congressman in the San Martín region was particularly influential in driving the legislative process. Having been introduced to fortified rice by the local government and convinced of its benefits, he worked to draft the rationale ('Exposicion de motivos') that justified why a national law was needed. WFP supplied the necessary evidence to make the case for rice fortification, including the potential benefits to local rice-producing economies and the experience of Costa Rica which had managed to drastically reduce anaemia through fortification of a number of commonly consumed foods including rice.

Another champion was the Municipality of Lima, which not only led the way with including fortified rice in its own programmes, but also convinced other municipalities to follow suit.

Learn the language of the law: The advantage of understanding processes

When advocating for a mandatory fortification law, it proved strategic for WFP staff to learn the inner processes of congress, the steps in creating a law, and how to prepare the essential documentation. This enabled WFP to provide vital support throughout the process; advocating alone was not enough. In Peru, this was facilitated by country office staff who had previous experience inside the Peruvian government and in law, but the same could be achieved by identifying external expertise.

Persist: Success is not achieved overnight

Unwavering engagement and constant 'nudging' on the part of WFP paid off. WFP engaged in a long-term strategy involving multiple stages and many

hurdles to achieve immense scale up and legislation of rice fortification in Peru. This strategy included continuously prioritizing and investing in advocacy, pilots, publications and research, and hiring skilled and dedicated staff with the necessary expertise.

Rice fortification success factors in brief

- Creating a platform to align sectors (the Fortification Committee).
- Showing how rice fortification supported national priorities.
- Working with a broad network to ensure continuity through political turnover.
- Implementing pilots to test programmes before scaling up.
- Working directly with communities to deliver tailored social and behaviour change communication approaches.
- Securing champions to advocate for fortification within government.
- Knowing how the law-making process works.
- Investing for the long-term.

The journey continues...

While the mandatory rice fortification law in Peru was passed in 2021, WFP continues to support the government, producers and retailers to keep scaling up fortification. This work includes support for commercial monitoring, surveillance and quality assurance and conducting research to elicit consumer and retailer perceptions of fortified rice. Introducing fortified rice into the retail market will expand access to the wider population, increasing the potential to reduce anaemia and improve nutrition on a previously unimaginable scale.



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Acknowledgments

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WFP promotes and enables the scale up of staple food fortification as one strategy to improve diets. We source and provide fortified foods for our programmes and food distributions, advocate for fortification in policy, and play a facilitating role in countries, connecting key actors. In 2021 WFP committed to increasing the proportion of fortified staples out of fortifiable staples (wheat flour maize flour and rice) from 60% to 80% by 2025, together with fortified vegetable oil and salt, as part of the global Nutrition for Growth commitments. WFP supports food fortification as one strategy to improve nutrition, complementing dietary diversification, micronutrient supplementation, public health measures and nutrition and health education.



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