

Fortifying Food Markets

Unlocking the potential of food fortification partnerships to improve nutrition



PARTNERSHIP PROFILE

Smarter Futures



Fortifying commonly consumed staple foods and condiments with essential micronutrients, such as minerals and vitamins, offers untapped potential to help scale up access to nourishing diets for millions of people affected by malnutrition.

There is growing recognition among governments, donors and large corporations that the local millers and food processors who are responsible for fortifying staple foods in most countries play a crucial role in reducing malnutrition, and that more needs to be done to support and unlock their vital contribution.

A new report: "Fortifying Food Markets", developed by the Corporate Responsibility Initiative, Harvard Kennedy School and Endeava, identifies six opportunities to remove barriers that prevent millers from achieving the scale, quality and reliability that are needed for successful food fortification.

The report is informed by a series of profiles that identify learnings and good practices from existing food fortification partnerships engaged in building the capacity of millers. We thank the Bill and Melinda Gates Foundation for supporting this research.

Introduction to the initiative

Smarter Futures was a public-private-civic partnership focused on grain fortification, including wheat flour, maize flour and rice. Smarter Futures supported marginalized communities, providing essential vitamins and minerals, notably iron and folic acid, to adolescent girls and women in Africa in a sustainable manner. The initiative started in 2007 at the request of the former Minister of Foreign Affairs of the Netherlands and has since provided fortification support to grain millers, micronutrient suppliers, international organizations, governments, and academic institutions across 26 African countries.¹

Smarter Futures focused on bringing together key stakeholders to stimulate the exchange and sharing of experiences in grain fortification at the regional, national and local levels. Through the activities of its partners, the initiative provided technical support to millers, governments, monitoring agencies, and other stakeholders to create robust grain fortification programs.² As such, Smarter Futures did not invest large resources itself but focused on supporting and strengthening the activities of its partners.

The partners³ of the initiative included the Food Fortification Initiative (FFI) as the main implementing partner, the Global Alliance for Improved Nutrition (GAIN), the International Federation for Spina Bifida and Hydrocephalus (IF), Bühler, Helen Keller International (HKI), Mühlenchemie, Nouryon (formerly AkzoNobel), Nutrition International (NI), and the World Food Programme (WFP). The initiative was funded by the Dutch Ministry of Foreign Affairs.^{4,5}

Through the involvement and actions of IF, Smarter Futures placed a particular focus on the involvement and inclusion of civil society actors such as disability groups, consumer associations, physicians and neurosurgeons, and parent associations related to Spina Bifida and Hydrocephalus. For example, IF specializes in decreasing the birth prevalence of spina bifida and other neural tube defects (NTDs), which can be caused by vitamin and mineral deficiencies. IF represents member associations in 14 countries across Africa that all support the advocacy activities of the Smarter Futures initiative. In some countries, the initiative brought in parents' groups to interface with the millers directly and to demonstrate

1 Food Fortification Initiative (FFI). Smarter Futures. Atlanta, USA: FFI, 2022. Available from www.FFInetwork.org. Accessed on 16.02.2022

2 www.smarterfutures.net/about#:~:text=We%20aim%20to%20support%20and,people%2C%20especially%20the%20most%20vulnerable.

3 Partners as of 2020; founding members were Food Fortification Initiative, the International Federation for Spina Bifida and Hydrocephalus, Helen Keller International and Nouryon (formerly AkzoNobel) with funding from the government of the Netherlands

4 Food Fortification Initiative (FFI). Smarter Futures. Atlanta, USA: FFI, 2022. Available from www.FFInetwork.org. Accessed on 16.02.2022

5 www.smarterfutures.net/about

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Table 1 **Smarter Futures partners and roles**

Sector	Donors	Civil society organizations	Business	Development partners
Partners	Dutch Ministry of Foreign Affairs	International Federation for Spina Bifida and Hydrocephalus (IF)	Mühlenchemie Bühler Nouryon	Food fortification Initiative (FFI) GAIN Helen Keller International (HKI) Nutrition International (NI) World Food Programme (WFP)
Role	Funding	Advocacy support, steering team members	Technical assistance support and steering team members	Technical and implementation support and steering team members

the health benefits of adequate food fortification on the population and to encourage improved levels of compliance to national fortification standards.

Smarter Futures worked mainly with large scale roller mills that process wheat and maize flour and, depending on the fortification status of each country, included millers already fortifying as well as new mills not fortifying. IF, together with FFI, provided training to millers, regulatory inspectors, program managers, and regional and international agencies on quality assurance and quality control, monitoring and surveillance, cost-benefit analyses, and fortification advocacy.

For the advocacy and monitoring activity, civil society actors, including IF parent associations and associated experts, such as neurosurgeons, were particularly effective with millers, who often did not know why they should fortify.

The methodology used by Smarter Futures included regional meetings and workshops, bringing together multi-sectoral (public and private sector teams) of participants from several African countries. This allowed for both formal and informal discussions on their nutritional situation, fortification needs, flour production, industry capacity, willingness to fortify, legislation and other aspects related to the feasibility of flour fortification in Africa.

The meetings fostered good understanding between millers and government to improve compliance.

Prior to country-level activity commencing, Smarter Futures undertook an assessment of the country context, including extensive research on consumption and disease patterns to identify concrete opportunities to achieve the greatest impact. A critical component of the landscape analysis was to understand the supply chain and industrial milling structure for the appropriate cereal grains (wheat, maize and rice). Private sector companies had insight into the milling infrastructure, the milling companies and trade practices and were a key source of information in completing this analysis. They also maintained personal connections with mill staff and facilitated introductions to the Smarter Futures team.

Key facts

Partners: Food Fortification Initiative (FFI), Global Alliance for Improved Nutrition (GAIN), International Federation for Spina Bifida, Hydrocephalus (IF), Bühler, Helen Keller International (HKI), Mühlenchemie, Nouryon (formerly AkzoNobel), Nutrition International (NI), the World Food Programme (WFP), Ministry of Foreign Affairs of the Netherlands

Timeline: 2007-2021

Countries: Angola, Botswana, Burkina Faso, Côte D'Ivoire, Egypt, Ethiopia, Kenya, Malawi, Mauritius, Morocco, Mozambique, Namibia, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Uganda, Zambia, Zimbabwe. Additionally, provided assistance in developing standards in Algeria, Congo, Ghana, Lesotho, Sudan, Tunisia

Budget: US 3.3 million

Vehicle: Wheat flour, maize flour, and rice

Since its formation in 2007, the initiative has reached about 723 million people, provided specialized support to 26 African countries, and convened 27 trainings and stakeholder meetings. The overall budget of the project was US 3.3 million.⁶

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Building local capacity with the private sector

The engagement of the private sector (milling industry and food processors) as equal partners in each country and at the regional level has been critical to the successful implementation of mandatory fortification. Through the Smarter Futures partnership, three international private sector companies, Mühlenchemie, Nouryon and Bühler, each contributed their respective expertise in food fortification. For each company, Smarter Futures provided an opportunity to build stakeholder relationships and strengthen commercial relationships with existing and potential miller customers. Furthermore, the partnership created opportunities to connect, exchange and formalize collaborations with other partners within the food fortification space.

Strengthening miller technical expertise, improving quality premix availability and facilitating multi-stakeholder collaboration

- **Mühlenchemie**, a member of the Stern-Wywiol Gruppe, has long-established experience in flour fortification in the milling industry. The company contributed to the initiative by offering technical know-how, hosting workshops and training, enabling access to a strong industry network, providing premix samples and supporting local distribution of quality premix.⁷

Rather than focusing on millers only, many workshops conducted as part of Smarter Futures included multiple stakeholders, with the aim of bringing together government actors, regulatory and lab experts as well as other international micronutrient suppliers to explore and discuss more collaborative, holistic solutions, including strengthening the enabling environment for grain fortification.

For example, at Smarter Futures' multi-stakeholder workshops, such as in Lusaka in 2017, Mühlenchemie created cost assessments for different fortification scenarios and trained mills on topics including premix handling, storage and analysis. Multi-stakeholder workshops also

offered the opportunity to include all stakeholders in the discussion of technical topics. For example, analysis of fortified flour often has led to disputes between millers and monitoring authorities. Joint training for millers and regulators by Mühlenchemie and FFI helped to build a shared understanding of flour fortification analytical processes and helped to smooth the implementation of fortification programs.

Through the initiative, Mühlenchemie also helped to strengthen access to sustainable, cost-effective quality premixes, which was a particular challenge for grain millers in Uganda. The company also provided regular Training of Trainer sessions in Uganda and across the East Africa region to help overcome the challenge of high turnover of milling staff with fortification experience.

Mühlenchemie also conducted site visits to provide direct technical support to millers, which included helping them to adapt products to individual mill contexts. Mühlenchemie also provided after sales services to support millers in their fortification efforts, including ensuring correct premix feeder calibration and optimal storage conditions. Furthermore, Mühlenchemie trained millers in interpreting fortifications standards and shared general knowledge about vitamins and minerals and the importance of fortification.

- **Nouryon**, an international speciality chemicals company, supported the Smarter Futures initiative through in-kind contributions,⁸ which included the provision of an iron compound (NaFeEDTA) called Ferrazone®, which is used in grain fortification to prevent iron deficiencies.⁹ They also provided rapid tests for measuring iron levels in flour,¹⁰ as well as technical support and training to facilitate deficiency prevention measures.¹¹

- **Bühler**, a Swiss-based company, is the world's largest supplier of cereal grain milling equipment. Through Smarter Futures workshops, Bühler provided expert information to

⁸ www.smarterfutures.net/about

⁹ www.nouryon.com/markets/food-applications/

¹⁰ www.smarterfutures.net/about

¹¹ www.ifglobal.org/news/if-hki-and-ffi-renew-the-smarter-futures-partnership-with-nouryon/

⁷ www.smarterfutures.net/about

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millers on the latest flour and rice fortification solutions and technologies,¹² including premix feeder options. Tapping Bühler's vast network of private sector millers also helped the Smarter Futures team to assess local milling infrastructure as part of their landscape analysis work.

Harnessing digital technologies to track compliance and assess effectiveness

Smarter Futures leveraged two major digital monitoring solutions to track fortification compliance and to measure the effectiveness of its activities.

Firstly, the initiative used the management information system FortifyMIS, which provides a simplified means for millers and governments to monitor the quality of fortified products and collect data on compliance. FortifyMIS digitizes all monitoring metrics by the public sector and the private sector into one tool and, in the process, reduces time and costs of monitoring. The system was originally developed by Project Healthy Children (PHC) and GAIN. Key metrics include the total amount of fortified food produced, imported, and marketed and the total amount of fortification premix purchased and utilized.¹³ FFI trained millers, consumer advocacy groups, lab staff, and regulatory inspectors on using the system. FortifyMIS can be used through computers, tablets and mobile devices and allows users to automatically track food quality and create real time data dashboards.¹⁴ In Mozambique for example, the initiative collaborated with Millhouse, a South Africa based premix supplier, who developed a similar web-based application for sugar fortification that can be linked to FortifyMIS.¹⁵

Secondly, as a means to measure program effectiveness, the initiative developed the Flour Fortification Monitoring and Surveillance System (FORTIMAS), a tool that tracks the impact of a flour fortification program using a combination of population-level data and industry data. The purpose of FORTIMAS is to confirm sustained population coverage of adequate fortified flour within defined geographic areas and track trends in iron deficiencies of women as well as the prevalence of NTDs among new-borns in hospitals. Examples of population-level data used are demographic and health surveys, national household expenditure surveys as well as data from health clinics and birth centres on the prevalence of anaemias and deficiencies. Data on the amount of fortified food produced is collected from the flour industry including millers and importers and on the quantity of fortified flour that meets the correct quality standards from the Food Control Agency. The data is then triangulated based on these complementary data sources, which over time allows for interpretation of the impact of a program.¹⁶

In addition, due to the global pandemic, the initiative was forced to find alternative modes of engagement since in-person workshops were no longer allowed. Therefore, the partnership leveraged digital modes of communication to conduct virtual workshops. For example, a recent Monitoring 'Challenge' Workshop was hosted virtually from August to October 2020 to address persistent challenges around non-compliance. The workshop was hosted on Zoom and attended by participants from ten African countries.¹⁷

¹² www.smarterfutures.net/about

¹³ static1.squarespace.com/static/5e1df234eef02705f5446453/t/5f63fc2394293b4fd79fa301/1600388174660/FortifyMIS+User+Manual+Version+2.0-+July+2019+FINAL.pdf

¹⁴ static1.squarespace.com/static/5e1df234eef02705f5446453/t/5f32fd64070da6660ca46563/1597177212373/FFI_2019AnnualReport_Spreads_2s_FINAL.pdf

¹⁵ Input FFI

¹⁶ Smarter Futures. FORTIMAS: an approach for tracking the population coverage and impact of a flour fortification program. Available at: www.smarterfutures.net/fortimas (accessed 17.02.2022)

¹⁷ Smarter Futures Project Annual Narrative Report January 2021

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Results

Assessments of the effectiveness of the initiative have been based mainly on activities carried out across countries and their impact on the progress of mandatory fortification in these countries. Success indicators include the number of workshops and training sessions conducted, the number of people participating, the number of countries reached by the initiative and concrete changes achieved in terms of food fortification mandates. The progress of mandatory fortification was tracked via real time monitoring.

Over 15 years, Smarter Futures reached 723 million people, provided specialized support to 26 African countries, and convened 27 trainings and stakeholder meetings. Furthermore, a total of 41 African countries participated in workshops, training and other events on fortification in Africa, out of which 29 countries adopted the legislation to make grain fortification mandatory, and six countries allow fortification on a voluntary basis.¹⁸

Now that Smarter Futures has come to an end, FFI has documented its hopes to scale up fortification on the continent in *The Final Sprint*, which lays out a strategy to complete the work started by Smarter Futures using learnings and best practices gleaned from the initiative over the past 15 years. FFI aims to replicate its successful and cost-effective model of placing individuals on the ground in selected countries instead of setting up permanent country offices in each country. As such, one individual is responsible for the country he/she is physically located in as well as one additional neighboring country. The strategy proposes to leverage existing networks in the countries to host these individuals and cost-share office space and resources. Sustainability will be achieved through several activities such as mentoring for government staff to build local capacities, incorporating food fortification trainings into the curriculum of local universities with milling and food science programs, and advocating for governments to include fortification as a line item in budgets.

¹⁸ www.smarterfutures.net/

Insights

Smarter Futures has been shaping the food fortification space in Africa for 15 years. The initiative started with a focus on advocacy when food fortification was not widely adopted across the continent. Over time, the initiative's focus grew to include implementation support.

Overall, Smarter Futures was an initiative with relatively flexible structures that focussed on bringing different players together, fostering exchange and creating space to identify opportunities for collaboration and alignment among grain fortification stakeholders. As such, it acted as a formal platform for diverse organisations working on food fortification to be informed, share knowledge and learn from each other. This is seen as a major strength of the initiative. The initiative placed a strong focus on showcasing to millers why their work is important and expressing appreciation for it. For example, the involvement of civic society, including neuro-surgeons and parents of children with neural tube defects in their engagement with millers allowed Smarter Futures to showcase the actual impact millers can have when fortifying to the standards informed by World Health Organization recommendations and set by their government.

There have been several learnings along the way. First and most importantly, an initiative like Smarter Futures needs appropriate funding. Funding is essential for activities to be carried out and enables scaling of the initiative over time. Secondly, the initiative thrived through consistency of efforts. This relates to being organised, focussed and constantly ensuring sufficient resources behind activities. Thirdly, working with organisations with capacities on the ground helped to engage local stakeholders and provide targeted support. Lastly, recognizing the variance in industry and government structures and grain consumption patterns in each country, Smarter Futures adapted and tailored solutions to each country's requirements.

Sources

Interviews

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Additional Inputs in Writing

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