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USAID Advancing Nutrition Uganda Final Report

Fiscal Years 2021–2023



About USAID Advancing Nutrition

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, led by JSI Research & Training Institute, Inc. (JSI), and a diverse group of experienced partners. Launched in September 2018, USAID Advancing Nutrition implements nutrition interventions across sectors and disciplines for USAID and its partners. The project's multi-sectoral approach draws together global nutrition experience to design, implement, and evaluate programs that address the root causes of malnutrition. Committed to using a systems approach, USAID Advancing Nutrition strives to sustain positive outcomes by building local capacity, supporting behavior change, and strengthening the enabling environment to save lives, improve health, build resilience, increase economic productivity, and advance development.

Disclaimer

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, addressing the root causes of malnutrition to save lives and enhance long-term health and development.

Recommended Citation

USAID Advancing Nutrition. 2023. USAID Advancing Nutrition Uganda Final Report Fiscal Years 2021–2023. Arlington, VA: USAID Advancing Nutrition.

Photo Credit: A Production Personnel at Mandela Millers Limited sealing a 50-kg bag of fortified maize flour at the packaging section of the production process. Daudi Murungi for USAID Advancing Nutrition.

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Acknowledgments

U.S. Agency for International Development (USAID) Advancing Nutrition Uganda would like to thank USAID and the USAID Mission in Uganda, particularly the Department of Health and HIV, for their helpful guidance and support over the project lifetime, which contributed to the successful implementation of the project and its resulting achievements in the country.

We wish to extend our appreciation to the National Working Group on Food Fortification (NWGFF) for their partnership, collaboration, commitment, and hard work in advancing the food fortification program in the country. This group of dedicated stakeholders is comprised of different ministries, departments and agencies, including the Ministry of Health (MOH), Ministry of Trade Industries and Cooperatives, Uganda National Bureau of Standards, Uganda Bureau of Statistics (UBOS), Uganda Revenue Authority, Ministry of Education and Sports, Ministry of Agriculture, Animal Industries and Fisheries, Ministry of Gender Labour and Social Development, Office of the Prime Minister, development partners, private sector entities (including the fortifying food industries), academia and research institutions, and civil society actors.

We extend a special thanks to the MOH's Nutrition Division, which houses the Secretariat for the NWGFF, for their leadership, guidance, coordination, and oversight that enabled USAID Advancing Nutrition to successfully achieve our mandates.

We acknowledge the different USAID implementing partners including the USAID Uganda Learning Activity, USAID Feed the Future Inclusive Agricultural Markets, and the USAID Social and Behavior Change Activity (SBCA) for their and partnership.

Finally, we thank the USAID Advancing Nutrition leadership, country support team, and all the project staff in Uganda for their dedication and hard work, which enabled us to attain the results and achievements we share in this report.

Acronyms

CLA	collaboration, learning, and adaptation
CNA	capacity needs assessment
CSP	capacity strengthening plan
DEAS	Draft East African Standard
FACT	Fortification Assessment Coverage Tool
FY	fiscal year
GAIN	Global Alliance for Improved Nutrition
GOU	Government of Uganda
IAM	Inclusive Agricultural Markets
LSFF	large-scale food fortification
M&E	monitoring and evaluation
MDAs	ministries, departments, and agencies
MOES	Ministry of Education and Sports
MOH	Ministry of Health
MTIC	Ministry of Trade Industry and Cooperatives
NDA	National Drug Authority
NDP	national development plan
NWGFF	National Working Group on Food Fortification
OPM	Office of the Prime Minister
PMP	performance monitoring plan
PSE	private sector engagement
PSFU	Private Sector Foundation Uganda
SBCA	Social and Behavior Change Activity
TOR	terms of reference
UBOS	Uganda Bureau of Statistics
ULA	Uganda Learning Activity
UMA	Uganda Manufacturers Association
UNAP	Uganda Nutrition Action Plan
UNBS	Uganda National Bureau of Standards
URA	Uganda Revenue Authority
USAID	United States Agency for International Development

Executive Summary

Background and Objectives

USAID Advancing Nutrition implemented a set of activities in Uganda from June 2021 to September 2023. Employing a multi-sectoral approach, the primary goal was to bolster the Government of Uganda's (GOU) efforts to combat micronutrient deficiencies through a program of industrial food fortification. Throughout the project lifetime, various activities were carefully identified, designed, and executed to address the specific challenges in the enforcement of and compliance with food fortification regulations and standards, and in monitoring the quality of four fortified food vehicles—salt, maize flour, wheat flour, and edible oils and fats.

Major Accomplishments

Objective 1: Increase the capacity of the public sector to enforce food fortification standards and regulations.

Strengthening the enabling policy and legal environment is essential for effective public-private sector engagement, enforcement, and compliance with food fortification standards. During the two-year period, USAID Advancing Nutrition assessed the effectiveness of the current food and drug laws and fortification regulations, provided technical input in the review of food fortification standards, and conducted a landscape analysis of the food fortification program. To reinforce regulatory monitoring, the project documented the functionality, strengths, gaps, opportunities, and lessons of the regulatory processes and systems. The project utilized the findings to support the development of simple and low-cost actions to address regulatory monitoring gaps. The identified gaps in premix access, quality, and affordability informed the inspection of 28 fortifying industries by the National Drug Authority. Relatedly, USAID Advancing Nutrition conducted a market surveillance study to determine the availability of fortified food brands at the retail level, and the presence and concentration of the required micronutrients in the four fortified food vehicles.

Objective 2: Increase the capacity of the private sector to comply with food fortification standards and regulations.

Improving the production and testing capacity of food processors allows them to effectively meet the quality standards set in the national food fortification regulations, thus ensuring the quality and safety of fortified food products. To achieve this, USAID Advancing Nutrition and governmental ministries, departments, and agencies (MDAs) undertook the following activities: conducted a capacity needs assessment for 58 food processors, trained 36 master trainers and staff from 28 food processing industries, developed training manuals on the theoretical and practical application of food fortification, and profiled the food fortification processing industries and business models to elaborate a whole-of-business approach that developed the value proposition for food fortification. In addition, the project documented industry marketing strategies, messages, and interventions for fortified foods in Uganda, and engaged the National Working Group on Food Fortification (NWGFF) stakeholders to streamline the use of the food fortification logo as a tool for the identification of fortified foods by consumers. We also sensitized 34 food industries on the value proposition of scaling up production of fortified foods in Uganda, and identified 36 champions to increase advocacy efforts. To support initiatives to expand the coverage of fortified foods and guide national strategic investments in large-scale food fortification (LSFF), USAID Advancing Nutrition completed a detailed profiling and industry analysis of fortified and fortifiable foods in Uganda (USAID 2023).

Objective 3: Strengthen partnerships and stakeholder coordination in food fortification.

To strengthen partnerships and stakeholder coordination in food fortification, USAID Advancing Nutrition conducted a network mapping of institutions in food fortification, developed a capacity strengthening plan (CSP) for the NWGFF, revised the NWGFF and Secretariat terms of reference for sustained coordination efforts, and documented food fortification priority actions to strengthen institutionalization of the food fortification program by key institutions. This included a sustainability plan with short-, medium-, and long-term priorities to guide future food fortification programming. Leveraging these partnerships, USAID Advancing Nutrition developed an advocacy brief to lobby and promote the procurement and consumption of fortified foods in public and private institutions. The Ministry of Education and Sports utilized the brief to integrate procurement and consumption of fortified foods in the School Health Policy's School Feeding Guidelines, which are currently under development.

Objective 4: Raise awareness of the benefits of fortified foods.

USAID Advancing Nutrition worked with USAID Social and Behavior Change Activity to review the current and former promotion messages, industry marketing strategies, interventions, and materials for fortified foods in Uganda, and engaged stakeholders to streamline the use of the already existing F-Logo guidelines by the fortifying industries. USAID Advancing Nutrition focused efforts in the recognition of fortifying and compliant industries, and documented initiatives to promote the identification of fortified brands. Specifically, the project worked with the Private Sector Foundation Uganda to integrate fortifying industries and fortified food brands in the annual private sector framework, and recognized key MDAs, private sector, civil society, and academia for their collaboration and commitment to sustain food fortification in the country.

Key Evidence and Learning

USAID Advancing Nutrition's strategic approach leveraged collaboration, learning, and adaptation (CLA) principles to promote learning and adaptation across the four project objectives. CLA approach facilitated the documentation of key achievements, learnings, and strategic recommendations for future investments, which were summarized in a technical brief.

Specifically, USAID Advancing Nutrition documented the following learnings. Strengthening public-private engagements and partnerships, joint identification of priority actions using evidence-based data and continuous dialogues with institutions supporting food fortification program catalyzes holistic systems approaches to strengthen the program. The commitment of public and private sectors and existing functional structures, platforms, and information systems across sectors offers an opportunity for institutionalization through integration food fortification activities and indicators, strengthen data management, sharing, and utilization. Relatedly, basing the LSFF program implementation on local context and data is critical. From the synthesis of the 2018–2019 UNPS, the prevalence of low serum retinol/vitamin A deficiency, using the most preferred modified relative dose response method of testing, was determined in 5 percent in children and 0.5 percent in women. This was seen as an indication that vitamin A deficiency is no longer a major public health problem for women and is a mild public health problem for children in Uganda. Furthermore, the median urinary iodine concentration results at 231.5 micrograms per liter ($\mu\text{g/L}$) for nonpregnant women and 197.5 $\mu\text{g/L}$ for pregnant women, confirm the positive impact of salt iodization and suggest that iodine deficiency disorders are no longer a public health problem in the country. In addition, involving the government stakeholders at the inception of the project, effective communication with regular follow-ups and feedback, created buy-in among sectors and ensured smooth implementation of prioritized activities.

Challenges

Despite many accomplishments, USAID Advancing Nutrition identified and encountered a few challenges. These included overlapping institutional roles and mandates (especially in regulatory monitoring); limited financing for the food fortification program across the MDAs for effective enforcement of the regulations; the COVID-19 pandemic impacted 76 percent (44/55) of food processors who reported increased cost of production due to disruptions to transportation within the country and across borders leading to significant challenges in access and increased costs of inputs like wheat and maize grains and premix. The adverse effects of COVID-19 had three wheat producers close operations; challenges with maize-flour fortification due to multiple millers operating at small- and medium-scale below the recommended threshold of 20 MT as per the Uganda food fortification regulations; and weak information-sharing and data linkages between agencies that affected evidence-based decisions to inform programming for food fortification in the country. The short timeline affected efforts to implement and follow-through some of the strategic recommendations emanating key technical resources like the landscape analysis reports, priority actions for strengthening institutionalization of the food fortification program among others.

The Way Forward

To sustain investments in the food fortification program, there is a need for increased investments in the multi-sectoral engagement and coordination of both the public and private sectors. Building onto the technical assistance provided by USAID Advancing Nutrition, continued support to key MDAs to routinely plan and budget the prioritized activities into subsequent financial year plans and budgets, and the upcoming fourth National Development Plan for sustained funding for the food fortification program is essential. Additionally, focusing efforts on harmonizing and aligning roles among different departments (particularly the regulatory bodies by the NWGFF), implementation of targeted interventions while ensuring alignment to the GOU legal frameworks and USAID Global Guidance on LSFF are critical for strengthening and sustaining the food fortification program.

Overview

1. Project Duration

Two years (June 2021–September 2023)

2. Geographic Focus

National level

3. Project Objectives

Building on previous investments, USAID Advancing Nutrition supported the Government of Uganda (GOU) to identify, design, and implement interventions to overcome challenges of compliance with food fortification standards, enforcement, and monitoring across four food vehicles (maize and wheat flours, salt, and edible oils and fats). Specifically, the project aimed to achieve the following objectives:

1. Increase the capacity of the public sector to enforce food fortification standards and regulations.
2. Increase the capacity of the private sector to comply with food fortification standards and regulations.
3. Strengthen partnerships and stakeholder coordination in food fortification.
4. Raise awareness of the benefits of fortified foods.

Working in partnership with the public and private sectors, civil society organizations, academia, and implementing partners including USAID-funded mechanisms and other key stakeholders, the project leveraged and promoted multi-sectoral nutrition engagements and collaboration activities.

Background

Country Context

Micronutrient Status

Micronutrient deficiencies can lead to devastating health consequences, including higher risks for anemia, blindness, cognitive impairments, poor birth outcomes, infections, and mortality (Micronutrient Forum and GAIN 2022). The 2018–2019 Uganda National Panel Survey (UNPS) micronutrient biomarker results show progress in the reduction of vitamin A deficiency, with 5 percent of children 6–59 months and 0.5 percent of women 15–49 years being reported as deficient in vitamin A. Folate deficiency was not found in children or in women, and iodine deficiency remains under control thanks to the program of salt iodization. The median urinary iodine concentration among pregnant women is at 197.5 micrograms per liter ($\mu\text{g/L}$) and among nonpregnant women at 231.5 $\mu\text{g/L}$, confirming the success of the salt iodization program. However, vitamin B12 deficiency and depletion affects 5 percent and 16 percent of preschool-age children, respectively, and 9 percent and 29 percent of women of child-bearing age, respectively. Anemia prevalence still remains high in preschool-age children (32 percent) while it is 17 percent in women of reproductive age. Anemia is caused by both non-nutritional—mainly malaria and infections—and nutritional causes—iron deficiency was found in 14 percent of children and 7 percent of women (UBOS and CDC 2020).

Dietary Practices

Dietary quality in Uganda are suboptimal, as “nearly three-quarters (73 percent) of the population cannot afford a nutritious diet, a trend that is widespread across the regions, especially among children and among women of reproductive age” (WFP, OPM, and UNICEF 2019). One-sixth of children ages 6–

23 months achieved minimum dietary diversity, 1 in 2 met the requirements of minimum meal frequency, but only 10.8 percent received a minimum acceptable diet (UBOS and CDC 2020). This shows the likelihood that low dietary diversity contributes to the country's micronutrient deficiencies.

Investments in Food Fortification

Over the years, the GOU has sustained commitments and adopted multiple strategies to decrease malnutrition, including the National Development Plan (NDP) III 2020–2025, Uganda Nutrition Action Plan (UNAP) II (2020–2021 to 2024–2025), Maternal, Infant, Young Child and Adolescent Nutrition Strategy and Plan (2021–2025), and other supportive sector policies, strategies, and legal frameworks. UNAP II has adapted five strategies to improve micronutrient malnutrition in the country: dietary diversification, food fortification, biofortification and supplementation (including vitamin and mineral powders), and other health programs addressing health issues (such as poor hygiene and sanitation, malaria infection, frequent births, and worm infestation) that may contribute to micronutrient deficiencies.

Food fortification is a high-impact and cost-effective strategy for preventing micronutrient malnutrition, when appropriately implemented, was adopted by the GOU through the mandatory regulation of four food vehicles by the Ministry of Health (MOH). The 2011 Food and Drugs (Food Fortification) (Amendment) Regulation made compulsory the fortification, which started a few years earlier, of maize and wheat flours, salts, and edible oils and fats with essential vitamins and minerals as guided by national standards. The 1997 Food and Drugs (Control of Quality) (Iodized Salt) Regulation supports mandatory salt iodization.

In Uganda, USAID invests in the scaling up of nutrition interventions, including food fortification that has been a priority intervention for USAID over the last twenty years through investments in a number of projects to which USAID Advancing Nutrition work was built on, and these include:

- A five-year Micronutrient Operational Strategies and Technologies (MOST), through which USAID provided technical assistance at the start of the of Uganda food fortification programme in the year 2000.
- The Micronutrient and Child Blindness Project, known as A-to-Z that worked to build capacity for the quality assurance and control of fortified foods. This project also facilitated professional exchange between researchers and practitioners.
- The Strengthening Partnerships, Results and Innovations in Nutrition Globally (SPRING) activity, built on the gains of the previous projects and supported the Government of Uganda to implement mandatory food fortification regulation between 2012 and 2018
- USAID Advancing Nutrition activity started in 2021, supported large-scale food fortification in Uganda, and has strengthened public and private sector capacity to enforce and ensure compliance with the national food fortification regulation and standards. Additionally, strengthened partnerships and improved stakeholder coordination has been achieved, including targeted advocacy based on the benefits of producing and consuming fortified foods within the concept of health

The Fortification Assessment Coverage Tool survey on the consumption coverage of fortified foods at the household level found consumption at 54.4 percent for oil, 8.5 percent for wheat flour, 6.5 percent for maize flour, and 93.3 percent for salt (GAIN, Makerere University, and CDC 2017).

The UNPS results found that 82.6 percent of oil samples from households showed the presence of vitamin A, with a mean retinol content of 18.5 mg/kg, high enough to contribute to the daily requirements of the vitamin. Only 46 percent of cooking fat was fortified with a mean retinol content of

13.2 mg/kg and a median of <6.0 mg/kg. At a rate of 99.3 percent, nearly all salt samples were compliant with iodine content at >15 mg/kg, which is considered adequate at the household level (UBOS and CDC 2020).

The performance of the program in Uganda is based on the food vehicle, with only salt, vegetable oil and cooking fats, and wheat flour required for sustenance, while the feasibility of maize-flour fortification needs to be assessed. The significance and expected reach of the program in the country is critical to inform Uganda's strategic direction.

Project Goal and Objectives

Building on previous efforts, USAID Advancing Nutrition supported the GOU to identify, design, and implement activities to overcome challenges of compliance with food fortification standards, enforcement, and monitoring across all four fortified food products (salt, maize and wheat flours, and edible oils and fats). While working to achieve high-quality fortified food products, we also supported public and private sector efforts to raise awareness of the benefits of fortified food. Additionally, we encouraged the periodic assessment of the contribution of fortified foods to the population's diets. We engaged stakeholders from the multi-sectoral National Working Group on Food Fortification (NWGFF), including Uganda National Bureau of Standards (UNBS), Ministry of Health (MOH), Uganda Bureau of Statistics (UBOS), Ministry of Trade Industries and Cooperatives (MTIC), Private Sector Foundation Uganda (PSFU), civil society, and key country team partners to implement and support actions to strengthen food fortification for public health benefit. Specifically, we:

1. **Increased the capacity of the public sector to enforce food fortification standards** and regulations among large- and medium-scale maize and wheat flours, edible oil processors, and imported iodized salt by strengthening the regulatory monitoring capacity of government missions, departments, and agencies (MDAs), suggesting realistic means of ensuring quality production using existing resources, and producing periodical reports on food fortification performance.
2. **Increased the capacity of the private sector to comply with food fortification standards** (with a focus on noncompliant maize-flour processors that meet the production capacity cutoff requiring them to fortify) and regulations by strengthening the enabling environment for food fortification (including the exploration of effective business models and incentives), and expanding the coverage of fortified foods by conducting industry-level sensitization on food fortification.
3. **Strengthened partnerships and stakeholder coordination in food fortification** to ensure sustainability and promote multi-sectoral collaboration.
4. **Raised awareness of the benefits of fortified foods** by leveraging advocacy and social and behavior change communication that targeted policymakers, processors, and consumers.

To attain these results, USAID Advancing Nutrition Uganda focused its efforts at the national level and supported the subnational level through engagement with private sector food industry corporations especially maize millers across the Central, Western, Northern and Eastern regions, as needed. Where feasible, we integrated and delivered our activities via existing partners and networks, including the NWGFF, Feed the Future Inclusive Agricultural Markets, USAID Social and Behavior Change Activity (SBCA), USAID Maternal Child Health and Nutrition Activity, and other investments in nutrition (including other U.S. Government and non-U.S. Government-funded opportunities) resulting in increase in visibility of USAID investments in food fortification in the health, nutrition, agriculture and private sector platforms where these partners work.

Accomplishments

Objective 1: Strengthened capacity of the public sector to enforce food fortification standards and regulations

USAID Advancing Nutrition's support in building the capacity of the MDAs was essential in improving the effective enforcement of the food fortification regulation and standards. Key achievements included:

1. Strengthening the enabling environment for food fortification policy and legal framework
 2. Reinforcing regulatory monitoring efforts to ensure quality of fortified foods
1. **Strengthening the enabling environment for food fortification policy and legal framework**

Mandatory fortification in Uganda has led to improved health outcomes, as seen in the fortification of salt and edible oils and fats, has contributed to the reduction of iodine and vitamin A deficiencies in Uganda, respectively. With the progress in implementation of the mandatory regulations and new global developments in food fortification, USAID Advancing Nutrition assessed the effectiveness of the current food and drug laws, and the enforcement and compliance with fortification regulations for salt, wheat and maize flour, and edible oils and fats. The findings have contributed to the ongoing food fortification Regulatory Impact Assessment (RIA) conducted by the MOH.

The project also provided technical assistance in the review of the following food fortification standards including: 1) the *Draft East African Standard (DEAS) 768:2022-Fortified milled maize (corn) products-Specification*; 2) *Working Draft (WD) nnn-n:2022-Fortified Processed Cereal Based Foods for old children and adults-Specification*; 3) *DEAS 72:2022-Processed cereal-based Foods for older infants and young children-Specification (approved and in use)*; 4) *WD-*nnn-n:2022-Ready to use therapeutic foods-Specification by the UNBS 206 Nutrition and Special Dietary Foods*, by the technical committee and key stakeholders for the regional harmonization of standards meeting, which took place in February 2023.*

Relatedly, USAID Advancing Nutrition conducted a comprehensive analysis of the food fortification landscape, which documented the milestones, gaps, lessons, opportunities, and strategic actions to guide future investments in the food fortification program. Findings from the landscape analysis necessitate the GOU and MDAs to align the regulatory frameworks, regulatory mandates, and new global developments in food fortification with the review of the current Food and Drug bill and new Food Act. The findings from the landscape analysis were used for policy discussions and building consensus on key priorities and or simple and low-cost actions for integration into MDA fiscal year work plans and budgets. In addition, the findings have built consensus on the key policy and program areas for the food fortification program in Uganda.



GOVERNMENT OF UGANDA

LANDSCAPE ANALYSIS REPORT FOR THE FOOD FORTIFICATION PROGRAM IN UGANDA



December 2022

2. Reinforcing regulatory monitoring efforts to ensure quality of fortified foods

Regulatory monitoring is critical for the continuous collection and review of information at key delivery points of the production and trade chain to ensure fortified foods meet national standards, and this is achieved through a multi-agency system at import, industry, and market levels in Uganda.

USAID Advancing Nutrition and the MOH in collaboration with key stakeholders from the NWGFF and the private sector documented the functionality, strengths, gaps, opportunities, and lessons of the regulatory processes and systems within the policy, external, internal, import, and commercial monitoring contexts for fortified foods and premix, including information flow, linkages, and utilization. The results informed dialogue with national level and technical officials from the National Drug Authority (NDA), Uganda Revenue Authority (URA), UNBS, and MOH to identify and implement simple and low-cost actions to address the regulatory monitoring gaps. Premix access, affordability, and quality were identified as major gaps during the mapping exercise. The premix quality gaps at production were confirmed through inspection of premix storage suitability of 28 industries fortifying wheat and maize flour, and edible oils and fats. Other gaps, such as the overlapping roles of regulatory bodies, necessitate streamlining the delegated roles by the MOH and review of the fortification regulations.



USAID Advancing Nutrition. A Laboratory Analyst at Bidco (U) Limited conducting a quantification test for A content in oil sample picked from a production shift. Photo Credit: USAID Advancing Nutrition Uganda.



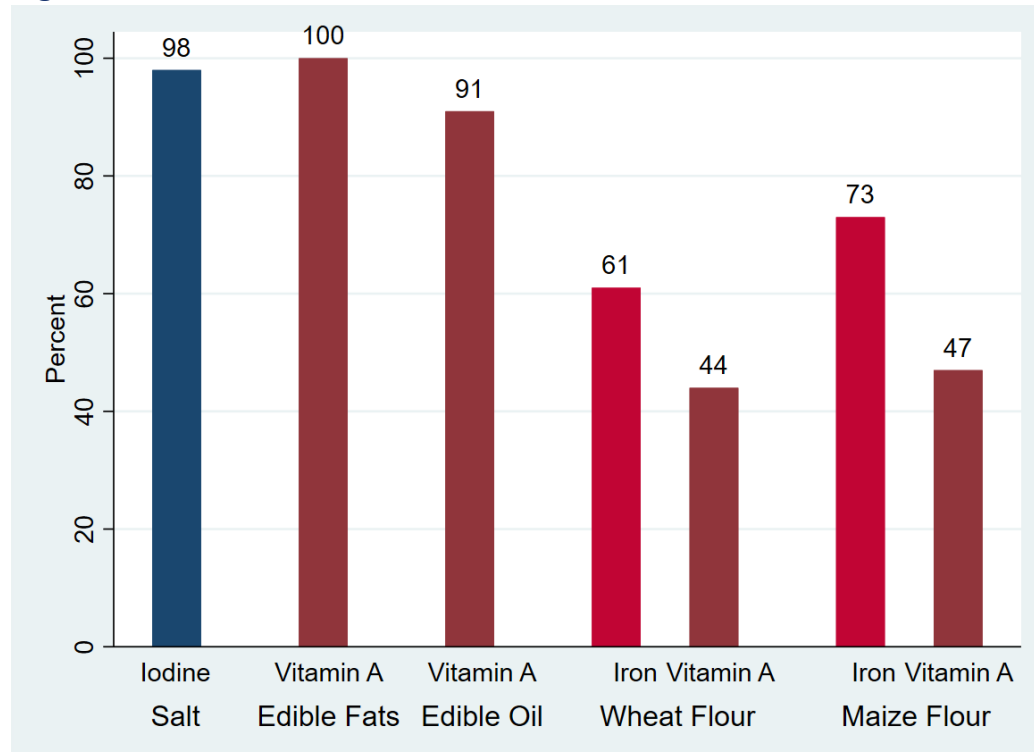
USAID Advancing Nutrition. Dr. Benard Sibwomu and NDA presenting on premix regulation during the Strategic Technical Workshop on food fortification in Entebbe. Photo Credit: USAID Advancing Nutrition Uganda.

USAID Advancing Nutrition conducted a market surveillance study, in collaboration with the NWGFF members including MTIC, Spina Bifida Hydrocephalus Association of Uganda, Uganda Industrial Research Institute, food industries, and industry national trainers. The study assessed the availability of fortified foods at the retail level in selected sentinel sites in the four regions (Central, Western, Eastern, and Northern) of Uganda, and obtained samples for qualitative and quantitative laboratory analysis of micronutrients. Specifically, the following micronutrients in their respective food vehicles (vitamin A in

edible oils and fats, iodine in salt, and zinc, vitamin A, and Iron in both wheat and maize flour) were assessed. In total, 216 samples were collected (49 salt samples from 24 brands, 75 edible oil samples from 17 brands, 11 samples from 3 fat brands, 15 samples from 8 maize flour brands, and 66 wheat samples from 29 wheat flour brands). A qualitative analysis was carried out on all samples, while a quantitative analysis was carried out on composite samples from each brand that showed the presence of the target micronutrients.

The qualitative test results (Figure 1) showed that all the **edible fat** samples and 91 percent of the **edible oil** samples contained vitamin A; 98 percent of **salt** samples contained iodine; 60 percent of **wheat flour** samples contained iron, and 44 percent contained vitamin A; and 73 percent of **maize flour** samples contained iron and 47 percent contained vitamin A.

Figure 1: Qualitative Assessment of Micronutrients in the Four Food Vehicles



Based on the micronutrients tested in comparison to the food fortification standards for the food vehicles, the concentration of iodine in the salt brands ranged from 2.1-52.0 mg/kg, and 54 percent (13/24) brands of the salt passed; the range of vitamin A reported in µg retinol activity equivalents/kg in edible fat 19.9-22.9, and 11.4-26.2 in edible oil, and 67 percent (2/3) of the edible fat brands and 65 percent (11/17) of the edible oil brands passed

We assessed the concentration of vitamin A, iodine, iron, and zinc in the relevant food vehicles and assessed whether the concentration against two criteria—one whether the concentration was above the minimum cutoff of the Uganda national standards for those micronutrients at the production level, and another where we lowered the minimum cutoff below the national standard, with due consideration that these cutoffs at the production level are being imposed at the retail level. We found that the average concentration of iodine in the salt brands was 28.3 mg/kg with 54 percent of the brands meeting the minimum level (30 mg/kg) of Ugandan cutoffs and 75 percent meeting our more tolerant threshold of 20

mg/kg. The average concentration of vitamin A for edible oils and edible fats was 20.1 and 21.6 µg retinol activity equivalents/kg. 61 percent of the edible oil brands met the minimum level (20 µg retinol activity equivalents/kg) of the Uganda standards and 89 percent met our more tolerant standards (15 µg retinol activity equivalents/kg). All of the edible fat brands met both the standards. The average vitamin A concentration in the three maize brands was 0.5 mg/ kg. 13 percent of maize flour brands met the minimum level (0.5 mg/kg) of the Uganda standards and 38 percent met our more tolerant standards (0.3 mg/kg). The average vitamin A concentration in wheat flour was 0.39 mg/ kg. 10 percent of wheat flour brands met the minimum level (0.5 mg/kg) of the Uganda standards and 38 percent met our more tolerant standards (0.3 mg/kg). The average zinc concentration in maize and wheat flour brands was 25.3 and 35 mg/ kg. 50 and 52 percent of maize and wheat flour brands, respectively, met the minimum level (33 mg/kg) of the Uganda standards. The average iron concentration in the maize and wheat flour brands was 34.4 and 32.1 mg/kg, respectively. 63 percent of maize and 97 percent of wheat flour brands met the Uganda national standards requirement for total iron in flour. The absence of iron in the maize and wheat brands for the iron spot test and yet detected during a quantitative test need further investigation into the premix, because they may be using a premix whose source of iron is FeNaEDTA or reduced iron or they are high extraction flours. Overall, based on the three micronutrients tested in maize and wheat flour brands, only 38 percent (3/8) of maize brands and 28 percent (8/29) of wheat brands conformed to the minimum standards for all micronutrients.

Based on the above results, we suggest that these types of market surveillance studies are carried out at intervals to assess the availability and concentration of micronutrients in fortified food vehicles at the retail level. Conditional on resources and funding, we recommend that the market surveillance studies are conducted annually. Currently, UNBS conducts quarterly market surveillance visits but it is not specific to food fortification. The results will also fill the gaps in the fortification data value chain at the production level and status at the household levels from surveys like the Uganda National Panel Survey and may complement data from enforcement and monitoring activities undertaken by regulatory bodies like UNBS. Strengthening regulatory efforts to ensure fortificant/premix quality by addressing challenges in accessibility, affordability, and non-compliance of fortificants and premixes, is essential for an effective food fortification program.

The market surveillance report will be shared with relevant stakeholders to influence policy discussions, for regulatory bodies and industries to assess the root cause of the non-compliance, and for advocacy by the civil society to influence and demand for conformity at all levels.

Objective 2: Increase the capacity of the private sector to comply with food fortification standards and regulations

USAID Advancing Nutrition provided training support to the private sector entities, particularly fortifying food industries focused on sustainable initiatives to enhance compliance to the national food fortification standards for quality and safety of fortified foods. The following key outcomes were the achieved through this work:

1. Profiling and strengthening engagements of the private sector in policy and program deliberations
2. Building the capacity of fortifying and new industries to improve compliance to national standards
3. Elaborating the business case for fortifying and new food processors

I. Profiling and strengthening engagements of the private sector in policy and program deliberations

USAID Advancing Nutrition conducted a profiling exercise for 9 maize flour, 14 wheat flour, 2 salt, and 8 edible oils and fats fortifying industries across the country, and cumulatively engaged 248 food processing industries at national and regional levels to contribute to the food fortification policy and program discussions. The engagements of the private sector institutions like PSFU, Uganda Manufacturers Association (UMA), industry associations, and fortifying industries a) accentuated the contribution of the private sector investments in the prevention and reduction of micronutrient deficiencies in the country; b) increased commitment by the industries to ensure compliance to standards to ensure quality and safety of fortified foods; and c) identified challenges and solutions to the policy environment and enforcement by the MDAs that affect compliance by industries. Relatedly, a stepping stone to understanding the landscape and investments in food fortification and estimates of the contribution of fortified foods to population nutrient needs was industry analysis of the a) regional distribution of fortifying industries as seen in Figure 2; b) installed and production capacities of fortifying food industries and fortified brands as seen in table 1; c) market analysis of fortified foods; d) capacity of sugar and bouillon cubes as potential food vehicles for fortification; and e) premix brands and suppliers.

Figure 2. Regional distribution of fortifying industries

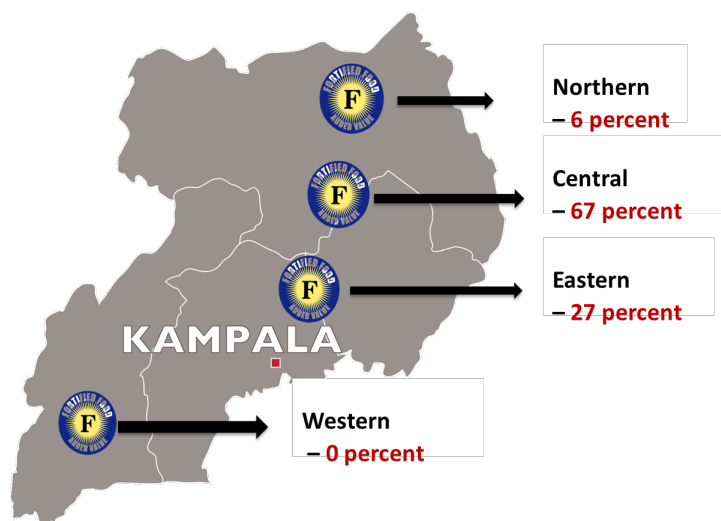


Table 1. Installed and Production Capacity of Fortifying Industries Across the Fortified Brands.

Installed and Production Capacity	Edible Oils and Fats	Maize Flour	Wheat Flour	Salt
Average daily installed capacity (Metric Ton[MT])	382.5	64.8	264.4	310
Average daily production capacity (MT)	288.8	43.3	179.2	80
Average annual capacity (MT)	633.3	41.3	614.7	11.6
Fortified brands	31	9	51	4

2. Building the capacity of fortifying and new industries to strengthen compliance to national standards

USAID Advancing Nutrition collaborated with the MTIC and MOH to conduct a capacity needs assessment (CNA) of 58 fortifying and new industries starting fortification (32 maize flour, 14 wheat flour, 10 edible oils and fats, and 2 salt processors). The assessment documented best practices, opportunities, lessons, and key actions to improve compliance with food fortification standards and regulations. Specific capacity needs identified included; training on fortification processes, access to efficient testing services and reduction on testing fees, access to affordable premixes, standard operating procedures, and access to post-harvest handling services to ensure quality of raw materials among others. During the assessment, the need for routine technical assistance through training and mentorships was identified by the industries as a sustainable approach to encourage compliance.



USAID Advancing Nutrition. A production personnel at Njojo Agro-based Industries demonstrates how the dosifier installed after training on food fortification is used. Photo credit: USAID Advancing Nutrition.

The project, in collaboration with the NWGFF and key stakeholders, developed training manuals for fortifying maize and wheat flour, and edible oils and fats. The training manuals were used to train a pool of 36 trainers who then trained and mentored 132 personnel from 26 industries who indicated technical assistance through training of personnel as a capacity need. These industries have continued to engage the trainers based on technical assistance needs, while meeting the costs. The project also measured the effectiveness of the training and participants exhibited knowledge food fortification application and processes, and a 22-percent improvement in adherence to good manufacturing practices, good hygiene and sanitation practices, and improved documentation and record-keeping on quality assurance and quality control processes within a period of 3–6 months.

In addition, USAID Advancing Nutrition, MTIC, MOH, NDA, and PSFU sensitized 34 food industry corporations with 205 food industries represented across nine sub-regions on the value proposition of scaling up production of fortified foods across the country. This training focused on the a) importance of investments in fortification; b) the need for routine profiling of food industries; and c) fortification training and mentorship opportunities for new industries in preparation for acquiring certification from UNBS. Regional sensitization meetings on food fortification were conducted and thirty-six champions across the regions were also identified by MTIC to cascade advocacy efforts for food quality and increased production of fortified foods within the existing platforms and structures.

3. Amplifying the business case for fortifying and new food processors

USAID Advancing Nutrition and PSFU developed and disseminated business case models to guide food processors to take the lead in articulating the economic value of food fortification, and identifying business models, incentives, and opportunities to promote the scale-up and adoption of food fortification by fortifying and new food industries. The documented business models focused on business-to-business, business-to-consumer, and business-to-business-to-consumer approaches with

emphasis on businesses that fall within the mandatory fortification thresholds. The synthesis of these approaches identified and costed three models: a) product model; b) input-process-output model; and (c) economies of scale model. However, subsequent support to industries that recognize industry needs in business planning, financial services, operation efficiencies, quality control and quality assurance, and marketing will maintain market share, profitability, and compliance in an effort to promote the whole-of-business approach in food fortification beyond the public health benefit.

Objective 3: Strengthen Partnerships and Stakeholder Coordination in Food Fortification

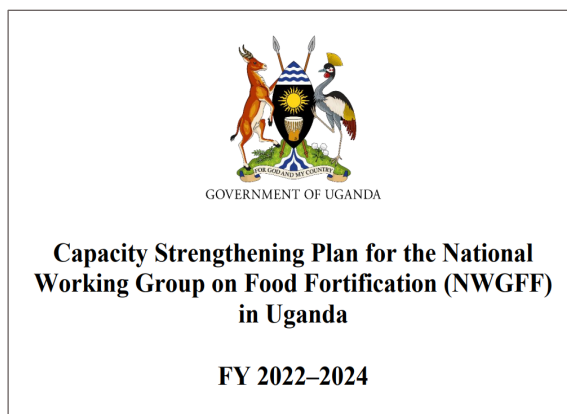
A sustainable and effective food fortification program requires strong public-private partnerships, with the private sector fortifying products and promoting them through marketing, while the public sector ensures the quality and safety of the fortified foods. USAID Advancing Nutrition achieved the following in these regards:

1. Reinforcing coordination among food fortification stakeholders
2. Enhancing commitment and institutionalization of food fortification priorities by MDAs

I. Reinforcing coordination among food fortification stakeholders

To strengthen partnerships, USAID Advancing Nutrition involved multi-sectoral and multiple stakeholders to ensure effective leadership and coordination, engaged and worked closely with the MOH Nutrition Division, mandated to provide oversight and guide the implementation of the food fortification program to achieve the intended health outcomes.

The project conducted a network map of key institutions and identified key gaps including a non-functional NWGFF group, limited or no coordination and information sharing across key stakeholders and these provided insights on who was participating, who was sharing information and knowledge on food fortification with the different stakeholders and platforms, and whether the activities influenced strategic decisions in policy and programming for food fortification. This was also important from the start of the project to understand stakeholder and institutional mandates and whether they were operational, and assess the needs of the public and private sector institutions to address the gaps, most of which were addressed during the course of implementation as elaborated further in this section. USAID Advancing Nutrition provided technical assistance to the NWGFF Secretariat and the NWGFF to review and update the terms of reference (TORs) for the multi-sectoral NWGFF committee and thematic subcommittees. (See the [National Working Group on Food Fortification Terms of Reference](#) here.) Relatedly, the project worked with MOH to revitalize the NWGFF committee functions



through the appointment and orientation of new NWGFF members representing key MDAs, with emphasis on mandates and roles articulated in the revised TORs, especially for institutions and MDAs that were not fully implementing their mandates.

2. **Enhancing commitment and institutionalization of food fortification priorities by MDAs**

USAID Advancing Nutrition assessed the capacity needs and oriented MDAs on capacity-strengthening concepts and how it is used to strengthen capacity needs. A capacity strengthening plan (CSP) was developed, and aims to enhance the functionality and sustainability of the food fortification program in areas including coordination and governance; institutionalization; monitoring and evaluation (M&E); and resource mobilization (see [Capacity Strengthening Plan for the National Working Group on Food Fortification \(NWGFF\) in Uganda](#) here).

The engagements with MDAs, and data from the synthesis of the 2018–2019 UNPS results on micronutrient biomarkers and quality of salt and edible oils and fats at the household level, ensured inclusiveness that fostered joint planning and implementation across all stakeholders. This guided the identification of priority needs and actions to strengthen institutionalization efforts, and prompted the development of a sustainability matrix that guided integration into the fiscal year (FY) 2023–2024 work plans and budgets for the Ministry of Education and Sports (MOES), MOH, MTIC, and UNBS. (See [Priority Actions for the Strengthening Institutionalization of the Food Fortification Program](#) here). These efforts are intended to expand, improve, and sustain mandates to attain the public health goal. The CSP and the sustainability matrix are a living document that will subsequently be reviewed annually based on the country’s priority needs and new developments in food fortification.

The project also collaborated with the Office of the Prime Minister, MOH, MOES, and the NWGFF to develop an advocacy brief to lobby and promote the procurement and consumption of fortified foods in public and private schools. The MOES used the advocacy brief to integrate procurement and consumption of fortified foods in the School Health Policy, the School Feeding and Nutrition Policy, and the School Feeding Guidelines, which are currently under development and review. The MOES also allocated funds to promote fortified foods in schools in the FY 2023–2024 work plan and over \$81,000 was allocated by the Ministry of Finance, Planning and Economic Development (MOFPED).



USAID Advancing Nutrition. The NWGFF members’ joint planning meeting to inform the USAID Advancing Nutrition FY23 work plan. Photo Credit: USAID Advancing Nutrition.

Objective 4: Raise Awareness of the Benefits of Fortified Foods

USAID Advancing Nutrition focused its support on amplifying the contribution of industries in the food fortification program while documenting and supporting initiatives that promote the identification of fortified food brands that contribute to the consumption of nutrient-rich and diversified diets. The following key successes were achieved:

1. Amplifying public recognition on the contribution of industries to the food fortification program
2. Supporting initiatives to ease the identification of fortified foods

1. Amplifying public recognition on the contribution of industries to the food fortification program

USAID Advancing Nutrition collaborated with the PSFU to integrate recognition of fortifying industries and fortified food brands into the annual private sector award framework. This was intended to promote the fortification of food as a social incentive for sustained compliance, as well as amplifying private sector efforts in marketing using appropriate messages on food fortification. This event will be organized under the leadership of PSFU in collaboration with fortifying food industries, the NWGFF, and other partners.

At the closeout event, USAID Advancing Nutrition recognized key MDAs, private sector institutions, civil society, and academia for their collaboration and commitment to sustaining food fortification efforts in Uganda. Using fortification data, selected food processing industries fortifying maize and wheat flour, salt, and edible oils and fats that have a record of compliance with standards according to the latest information published by the UNBS Certification Information Management System.



USAID Advancing Nutrition. Recognition of the maize and wheat flour, salt, and edible oils and fats fortifying industries by USAID, MOH, and USAID Advancing Nutrition. Photo credit: USAID Advancing Nutrition.

2. Supporting initiatives to ease the identification of fortified foods

USAID Advancing Nutrition collaborated with USAID SBCA to review existing industry marketing strategies, promotional messages, and materials for fortified foods in Uganda. The results revealed barriers and motivators that are influencing the purchase and uptake of fortified foods, and the marketing strategies employed by the food industries. Key barriers included; limited awareness, and misconceptions regarding fortified foods among others, while motivational factors focused around the added nutritional value of consuming fortified foods. This informed the need to strengthen advocacy efforts and guide the design of appropriate advertising and social marketing messages to increase demand for diversified diets, while appreciating the contribution of fortified foods for adequate nutrient intake. USAID Advancing Nutrition provided technical assistance in the integration of fortified foods into

USAID SBCA, and supported national family health campaigns, which included promoting the consumption of diversified diets.

Relatedly, USAID Advancing Nutrition supported the MOH to convene key stakeholders, including the UNBS, MTIC, UMA, PSFU, URA, Unilever, Uganda Consumers Protection Association, and food processors (maize and wheat flours, salt, and edible oils and fats) to streamline the use of the food fortification logo on fortified food products. As the next course of action in the process of streamlining the mandatory use of the Fortification (F)-Logo by the fortifying industries, the meeting built consensus on the need to (i) review, update, and disseminate guidelines on the use and application of the F-Logo, and (ii) accelerate registration of the F-Logo with the Uganda Registration Bureau, for easy identification of fortified food brands by consumers.



USAID Advancing Nutrition. A mother in Ndeje village in Wakiso district prepares a meal for her household using Cowboy fortified cooking fat for her household. Photo credit: USAID Advancing Nutrition.

Core-Funded Activity Accomplishments

Implementation research on fortification and supplementation

We carried out additional analysis on data from a costing study on the private and public sector costs of mandatory maize-flour fortification for small-scale maize millers in Uganda. This study was carried out by the Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project in 2018, at the request of the MOH (SPRING 2018). The private sector costs were assessed for maize millers at three scales of production: micro- (<5 MT/day), small- (5–20 MT/day), and medium-scale (>20 MT/day). We reanalyzed the data to inform the policy question the GOU is currently debating: should Uganda include small-scale maize millers in the fortification program? The answer is nuanced, but if fortification was mandatory, up-front costs of fortification equipment and materials would be daunting for micro- and small-scale millers to continue operating. We presented the results of our additional analysis at a national workshop hosted by the MOH, with support from USAID Advancing Nutrition Uganda. This “Strategic Workshop for Analysing the Contributions and Limitations of the Food Fortification Programme in Public Health in Uganda” took place on February 13–14, in Kampala.¹ The results of the analysis are being published in a peer-reviewed journal.

Activity 2.5.K.1 Finalization of the “How to Better Measure Nutrition Training Programs Brief”

In 2022, USAID Advancing Nutrition created two briefs on capacity strengthening design and measurement. These briefs described approaches to assessing the context and needs and a more in-depth description of how to evaluate training. As a third brief in that series, we worked with the USAID Advancing Nutrition Uganda team to develop a case example to further illustrate these concepts, based on training delivered on food fortification. The training aimed to prevent micronutrient deficiencies by improving the knowledge and skill of food processors.

In the brief, we describe how USAID Advancing Nutrition Uganda assessed the capacity for large-scale food fortification. First, a capacity needs assessment was conducted by the NWGFF, with support from USAID Advancing Nutrition, and identified two key gaps limiting producers’ ability to fortify: the lack of the proper industrial conditions for many food processors and insufficient knowledge/skill related to the regulations and the process of fortification. The working group gathered information to understand what content and learning approaches would be most effective for this audience (Phase 1: Training Preparation and Design). Then they designed a monitoring and evaluation plan to assess the value and outcomes of the training (Phase 2: Monitoring and Evaluation Design and Implementation).

Our Uganda case example illustrates a method for measuring training (including tools used) that can help others who are designing training assessments. These include involving local stakeholders, dedicating time and resources for evaluations, improving survey comprehension, training data collectors, allowing time for a behavior assessment and incorporating ongoing learning opportunities into those jobs and budgeting for outcome evaluations of the training. We created this brief to show an approach to measuring the effectiveness of training, promoting targeted skill development and advancing food fortification efforts in Uganda.

¹ USAID Advancing Nutrition. 2023. “USAID Advancing Nutrition Supports the Government of Uganda in Organizing a Strategic Workshop to Review Uganda’s Food Fortification Program.” March 10, 2023. <https://www.advancingnutrition.org/news/2023/03/10/usa-id-advancing-nutrition-supports-government-uganda-organizing-strategic-workshop>.

2.5.A Moderate Acute Malnutrition treatment with local foods: Documentation of approaches

The Nutrition in Humanitarian Contexts Team, in close collaboration with the Uganda Country team and a local consultant, documented three approaches to treating moderate acute malnutrition using locally available foods (this did not include locally produced ready-to-use products). These three approaches included primary and secondary research in three different regions of the country. The findings were compiled into one case study, which is part of a larger report for USAID's Bureau for Humanitarian Assistance. Findings and recommendations for the global nutrition community will be presented in a webinar in September 2023.

Key Evidence and Other Learning

USAID Advancing Nutrition's strategic approach leveraged collaboration, learning, and adaptation (CLA) principles to promote learning and adaptation across the four project objectives. Data on activity implementation and performance indicators informed the pause-and-reflect meetings. This enabled the project to review and discuss implementation progress, and take necessary steps to adopt new lessons.

Annex I illustrates the project performance indicators and reflects on the effectiveness of the different strategies employed. Through the application of CLA, USAID Advancing Nutrition identified learning priorities and contributed evidence for the effective design and implementation of multi-sectoral engagements to maximize synergies. Additionally, USAID Advancing Nutrition conducted different assessments and documentation that is being utilized by key stakeholders to inform evidence-based programming for food fortification as detailed under the best practices, lessons learned, and recommendations detailed below. In the same vein, USAID Advancing Nutrition collaborated with the MOH Nutrition Division to consolidate and create a [repository of key food fortification technical resources](#) on the existing MOH website for easy access to food fortification reference resources, and to facilitate learning and informed decisions among stakeholders, including researchers.



Bev Roberts COP USAID/ULA Facilitating a plenary session during the USAID Advancing Nutrition Pause and Reflection meeting with key stakeholders at Onomo Hotel, Kampala. Photo credit: USAID Advancing Nutrition.

Similarly, to strengthen knowledge, information-sharing, and learning, and to document key achievements and strategic recommendations for the food fortification program, USAID Advancing Nutrition collaborated with USAID Uganda Learning Activity and conducted pause-and-reflect meetings with key stakeholders. In addition, the project convened a strategic workshop with key NWGFF stakeholders to analyze the contributions and limitations of the food fortification program in public health in Uganda, which provided critical inputs to strengthen the food fortification program in the country. The project produced the following publications and tools documenting progress, achievements, lessons, gaps, and strategic recommendations for the food fortification program:

- Landscape Analysis Report for the Food Fortification Program in Uganda
- Profile and Industry Analysis report for industries involved in food fortification and those producing fortifiable foods

- Mapping of Food Fortification Regulatory Monitoring Systems and Processes for Quality and Safety of Fortified Foods in Uganda
- CSP for the NWGFF in Uganda
- CNA for processors for maize and wheat flour, salt, and edible oils and fats
- Report on Market Surveillance Study for fortified foods in Uganda
- Priority Actions for the Strengthening Institutionalization of the Food Fortification Program
- Technical brief: Status of Micronutrients and Delivery Interventions, and its Implications in the Reduction of Hidden Hunger in Uganda
- Business Models/Investment Case Model for Food Fortification in Uganda
- The NWGFF TORs

The Way Forward

Best Practices and Lessons Learned

This section details key lessons learned and best practices documented during USAID Advancing Nutrition's two-year implementation of the large-scale food fortification (LSFF) program in Uganda.

Best Practices

Joint planning and implementation across all stakeholder groups has been embraced by the NWGFF as effective for improved stakeholder inclusiveness to expand, improve, and sustain mandates to attain public health objectives.

Strengthening public-private engagements and partnerships was essential as it contributed to strategic guidance to inform the development and or review of policies, legal frameworks, and guidelines. The engagements also built consensus on cost-effective approaches to expand the production of quality and safe fortified foods for the population.

Joint identification of priority actions using evidence-based data and continuous dialogues among the food fortification MDAs helped to catalyze a holistic systems approach and commitment to jointly address gaps through joint program-based planning and explore opportunities for joint implementation and monitoring of the program.

Basing the LSFF program implementation on local context and data is critical while taking into consideration the nutritional need and usual intake of fortification vehicles, coverage, and estimation of the potential impact of food fortification.

Involving the government stakeholders at the inception of the project, effective communication with regular follow-ups and feedback, created buy-in among sectors and ensured smooth implementation and collaborations.

USAID Advancing Nutrition facilitated implementation of target priorities identified during scoping and at the inception of the project, while ensuring alignment to the GOU legal frameworks and USAID Global Guidance on LSFF.

Lessons Learned

Strengthening the institutional and technical capacity of MDAs contributed to improved coordination and institutional commitment to prioritize, plan, and advocate for sustainable actions.

The commitment of public and private sectors through implementation of the designated roles and responsibilities, and existing functional structures, platforms, and information systems across sectors—such as the Uganda Electronic Single Window for URA and UNBS, Health Management Information System for MOH, and Education Management Information System for MOES—offered an opportunity to institutionalize through integration of food fortification activities and indicators, and strengthen data management, sharing, and utilization.

From the synthesis of the 2018–2019 UNPS, the prevalence of low serum retinol/vitamin A deficiency, using the most preferred modified relative dose response method of testing, was determined in 5 percent in children and 0.5 percent in women. This was seen as an indication that vitamin A deficiency is no longer a major public health problem in Uganda, and for now the country should sustain the efforts. , the median urinary iodine concentration results at 231.5 micrograms per liter (µg/L) for nonpregnant women and 197.5 µg/L for pregnant women, confirm the positive impact of salt iodization and suggest that iodine deficiency disorders are no longer a public health problem in the country.

A desk and participatory review and analysis of the progress of implementation of the food fortification regulations for salt, maize and wheat flour, and edible oils and fats in ensuring enforcement and compliance, has been pivotal in supporting the ongoing RIA by the MOH, as a preliminary stage in updating the regulatory frameworks.

Supporting a whole-of-business approach in business planning, financial services, operation efficiencies, quality control and quality assurance, and marketing was pivotal to helping private sector partners maintain market share and profitability while being compliant with food fortification standards.

Maintaining a dual-communication channel with routine information flow with all stakeholders in the program goes a long way in averting implementation challenges. This made engagements with MDAs and other partners easy with the presence of internally harmonized work plans to align with stakeholders as joint engagements promote inclusivity and sustainability of activities.

Challenges and Solutions

Despite several accomplishments of the project, a few challenges were encountered during implementation. USAID Advancing Nutrition also recommends solutions to these challenges as detailed in the following:

Overlapping institutional roles emanating from unclear mandates in the food and drug (food fortification) regulation, especially in regulatory monitoring of fortificants/premix, which compromises quality and promulgates noncompliance of the fortified foods. We recommend alignment of enforcement and regulatory monitoring mandates with the current food bill.

Resource mobilization and funding for food fortification priorities and institutionalization remain a gap, with only MOES, MOH, and UNBS having priorities and corresponding indicators in the Performance Improvement and Assessment Plans in the NDP III. We recommend that the MDAs develop an issues paper to build a case using the developed priority actions for food fortification for integration into the NDP IV and harmonize indicators for inclusion into the sector plans and the national Program Budgeting System, for adequate allocation of funds by the MOPPED.

The COVID-19 pandemic affected the start-up of the project from June 2021, as the country was under lockdown. A post pandemic capacity needs assessment in 2022 by USAID Advancing Nutrition, showed that the COVID-19 pandemic also impacted 76 percent (44/55) food processors who reported increased cost of production due to disruptions to transportation within the country and across borders leading to significant challenges in access and increased costs of inputs like wheat and maize grains and premix. The adverse effects of COVID-19 and Ukraine-Russia war had three wheat producers close operations. COVID-19 also affected regulation enforcement because the industries were delayed in the submission of their samples for testing, alongside increased testing costs and resultant delays in the UNBS returning the test results to the submitting industries. Quality assurance and quality control activities were also affected. We recommended the government through the designated MDAs in collaboration with the office of the prime minister, to strengthen measures to counteract shocks that affect food fortification as a safety net intervention.

Despite efforts to promote maize fortification in Uganda, production of fortified maize flour remains low across the country, largely because the sector is dominated by micro- and small-scale millers operating below the thresholds of mandatory fortification, with about 46 percent operating 1–5 MT per day. We recommend targeted production of fortified maize flour for target consumers of the staple food, such as learning institutions, hospitals, humanitarian beneficiaries, and security institutions (prisons, police, defense), and monitor impact.

Weak information-sharing and data linkage between agencies has inhibited informed decision-making such as use of evidence based regulatory monitoring data to inform policy and programming. We

recommend the integration and linkage of systems for data collection, aggregation, sharing, and utilization (for example, compliance monitoring should be integrated into existing digital management information systems). We also recommend a centralized data repository for food fortification.

Uganda still has gaps in accessibility, affordability, and ensuring the quality of fortificants and premixes. Audits have slowed down in recent years, and only one supplier has renewed the three-year tenure with the NDA. This compromises the quality of premixes, and potentially the quality of fortified foods. We recommend that, where appropriate, premix supply systems should be put in place (including transparent procurement mechanisms based on a competitive tendering process) so premix suppliers are forced to compete with one another on quality and price. This will help prevent premix suppliers from monopolizing the supply of micronutrient fortification in any context.

Recommendations

This section provides additional recommended actions for strengthening the enabling environment for the food fortification program, including institutionalization, policy and legal framework capacity strengthening, targeted advocacy, and sustainability efforts.

Building on the previous and current investments, all MDAs should continue with efforts to prioritize integration of the food fortification activities into their subsequent annual work plans and budgets for sustained funding and effective implementation of the food fortification program by all designated institutions. The report on the priority actions to strengthen the institutionalization of the food fortification program and the CSP should be leveraged by the NWGFF to inform the development of NDP IV, and subsequent MDA annual work plans and budgets.

USAID Advancing Nutrition and NWGFF contributed in the review of the food and drug bill, and a desk review with key stakeholders on the progress of implementation of the food regulations for salt, wheat, maize, edible oils and fats, which provided understanding on the need to harmonize the food fortification regulatory frameworks, and streamline institutional mandates and roles, as the review and potentially the development of a food law by the Ministry of Agriculture, Animal Industry and Fishers.

Building on the support by USAID Advancing Nutrition in identification of gaps and needs and consensus on the simple and low cost actions to improve regulatory monitoring efforts, the government, through regulatory agencies, needs to increase the efficiency of regulatory monitoring to ensure uniform quality of fortified foods, including periodic reporting and dissemination of information to track the performance and impact of the food fortification program in Uganda, using a functional streamlined M&E and learning framework for the food fortification program.

While food fortification provides a safety net for the intake of essential micronutrients added to and consumed with staples and condiments, increased consumption should not be promoted based on their fortification status, nor should they be considered a substitute for the consumption of recommended portions of fruits and vegetables, legumes, and animal-source foods in a healthy diet.

Drawing on the key learnings from the two-year implementation, USAID Advancing Nutrition recommends increased investments in multi-sectoral engagement and coordination for the public and private sectors to further strengthen the food fortification program, and sustainability by the private sector.

The establishment of champions within food industry leadership is crucial to sustaining private sector exploration of strategies to provide routine and expanded technical assistance to member industries across regions. The MITC intends to leverage on the existing food industry structures and platforms to in collaboration with private sector entities to strengthen technical assistance and information sharing within the food industries, with the aim of improving self-regulation for sustained production of quality and safe foods.

Advocacy programs are key to creating and maintaining a high level of interest in critical policy initiatives, resource mobilization, and accountability for reducing malnutrition at all levels. For example, the advocacy brief for the integration of fortified foods into the procurement of foods for schools through the school feeding program developed with support from USAID Advancing Nutrition, and building onto the technical assistance provided in the integration of food fortification into current school feeding policies and the guidelines, and the financial year 2023/24 work plan, should be used to increase the consumption of fortified maize and other fortified foods in schools.

The landscape analysis supported by the project, recommends the need to explore targeted fortification of maize flour, if possible, versus mandatory fortification. Contrary to the recommendation to review the current regulations, based on observations and experience with the product certification program, regulatory bodies such as UNBS contend that small-scale food processors are a long way from being able to adapt to and meet recommended general manufacturing practices and other quality requirements, making universal fortification untenable, especially for maize flour.

Mapping of the regulatory monitoring systems and process, draws to the urgent need for data digitization and linkages for all regulatory institutions for effective data collection, analysis, dissemination, and utilization by key stakeholders. This will require establishing a supportive system, and building the capacity of regulatory institutions and program managers in the synthesis and interpretation of fortification data for effective data utilization to guide evidence-based policy and program decision-making.

The two year implementation, also identified the need to demonstrate the effectiveness and impact of LSFF of staple foods in the prevention and reduction of micronutrient deficiencies through evidence based studies, to guide effective investments across the different micronutrient delivery interventions.

Sustainability

Leveraging existing national coordination mechanisms such as the NWGFF, joint stakeholders' planning and reviews, harmonization of activity plans, and implementation progress tracking, USAID Advancing Nutrition attained focused, inclusive, and synergistic implementation. This sectoral prioritization of activities is fundamental to sustaining food fortification efforts and investments among the MDAs. Engaging the different stakeholder institutions in the identification of priority areas of focus for the NWGFF CSP, and identification of key activities for integration in their work plans and budgets was key in facilitating ownership of the food fortification activities, thereby contributing to the sustainability of investment efforts.

In addition, the commitment from the public and private sectors, supported by existing functional structures, platforms, and information systems across sectors, offers an opportunity to integrate food fortification indicators, sharing, and utilization. The established pool of local experts from the private sector and MDAs is key for routine and targeted technical assistance to food processors to optimize technical skills, improve operational efficiencies, and track industry compliance to standards.

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Annex I. Performance Indicators

USAID Advancing Nutrition Uganda identified a set of indicators in the performance monitoring plan (PMP) to measure performance, and these formed part of quarterly and annual reporting mechanisms through the DevResults and Development Information Solutions systems. The narrative set of indicators have been central in consolidating and documenting our experiences, learnings, and best practices around stakeholder engagements, which is a key part of USAID Advancing Nutrition’s global PMP.

Overall, the project achieved most set targets (67 percent, or 10 of 15). The variations in the achieved versus planned targets were due to changes in the implementation modalities following feedback from key stakeholders. For instance, during the CNA, knowledge gaps among food processors were established, prompting the team to cascade the training and sensitization about food fortification applications to more food processors. This resulted in an overachievement (280 percent) on the indicator “IR2.1.25,” which initially had a training target of 60. Consequently, the number of organizations supported (organizations receiving various types of technical assistance) increased tremendously from 20 targeted during project setup to 78 at the end of the project. Relatedly, the average percentage point change in score between pre- and post-tests of training participants was above the set target by 7 percent, all pointing to the reach and quality of our training strategies and stakeholders’ engagements.

However, the performance on knowledge gain post-training indicator “number and proportion of training participants \geq **80 percent** on the post-test result” was affected negatively by a change in design where the training activity was cascaded to processors, especially the maize millers who had never interfaced with the food fortification training.

Though USAID Advancing Nutrition did not meet the target for the number of evidence-sharing events (29 of 36), the number of participants (1,048) surpassed the project target of 640 participants (164 percent). Additionally, USAID Advancing Nutrition reported on the Private Sector Engagement (PSE) standard indicators as a USAID Advancing Nutrition Mission requirement by convening private sector actors—including PSFU and food processors—during its technical assistance support to strengthen the food fortification value chain. Despite taking on the PSE indicators midway through the project implementation, the performance attained was above target on both indicators (173 percent for PSE_1 and 346 percent for PSE_2). Through efforts to expand coverage of fortified foods, the number of PSE_1s increased by 73 percent (19 over 11), subsequently surpassing the target for the number of private sector enterprises engaged with PSE_2 by 246 percent (270 over 78).

In summary, the overachievement on many of the performance indicators, especially those contributing to strengthening partnerships and multi-stakeholder coordination is indicative of the USAID Advancing Nutrition robust strategies and the effectiveness of multi-sectoral engagements with key stakeholders. For the “Number of documents developed/revised with support from USAID Advancing Nutrition,” the project missed only one document to meet the target, and there were three documents (Food Fortification Advocacy Brief, UNPS Food Fortification Technical Brief, and the Food Fortification Training Manuals) pending finalization by the time of preparing the end-of-project report. Nevertheless, USAID Advancing Nutrition strongly contributed to dissemination, evidence-sharing, and engagements with the broader nutrition community. Also, note that other indicators, such as Number of technologies and tools under development, CNA conducted, and Number of individuals receiving nutrition-related professional training through U.S. Government-supported programs were prioritized for FY 2022.

Table 1: Life of Project Performance Indicators

Indicator	FY 2022 (Jan–Sept)			FY 2023 (Oct–Aug)			End of Project		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved	Target	Achieved	% Achieved
Number of organizations supported by USAID Advancing Nutrition (sum of organizations receiving various types of technical assistance from USAID Advancing Nutrition) <i>USAID Advancing Nutrition Global PMP Indicator, P.11</i>	20	74	370.0%	9	14	155.6%	20	78	390%
Narrative description of joint planning across government sectors for multi-sector nutrition, as a result of USAID Advancing Nutrition	1	1	100.0%	1	1	100.0%	1	1	100%

Indicator	FY 2022 (Jan–Sept)			FY 2023 (Oct–Aug)			End of Project		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved	Target	Achieved	% Achieved
<i>USAID Advancing Nutrition Global PMP Indicator, IR 2.23</i>									
Number of technologies and tools under development. <i>USAID Advancing Nutrition Global PMP Indicator IR 3.2.42</i>	15	8	53.3%	N/A	N/A	N/A	15	8	53%
Number of organizations supported by USAID Advancing Nutrition to improve the monitoring and evaluation (M&E) of nutrition programs. <i>USAID Advancing Nutrition Global PMP Indicator, IR 2.4.55</i>	5	3	60.0%	2	1	50.0%	5	3	60%
Capacity Needs Assessment conducted to	1	1	100.0%	N/A	N/A	N/A	1	1	100%

Indicator	FY 2022 (Jan–Sept)			FY 2023 (Oct–Aug)			End of Project		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved	Target	Achieved	% Achieved
<p>assess and evaluate the capacity needs of maize millers who are not fortifying</p> <p><i>Custom</i></p>									
<p>Number of documents developed/ revised with support from USAID Advancing Nutrition, by IRs and sub-IRs and type.</p> <p><i>USAID Advancing Nutrition Global PMP indicator. IR3.3.44</i></p>	1	1	100.0%	14	13**	92.9%**	15	14**	93%**
<p>Number of individuals receiving nutrition-related professional training through U.S. Government-supported programs,</p>	60	168	280.0%	N/A	N/A	N/A	60	168	280%

Indicator	FY 2022 (Jan–Sept)			FY 2023 (Oct–Aug)			End of Project		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved	Target	Achieved	% Achieved
disaggregated by sex. <i>MSNS M&L IR 2.3; HL 9-4 USAID Advancing Nutrition Global PMP Indicator, IR 2.1.25.</i>									
Average percentage point change in score between pre- and post-tests of participants of trainings. <i>USAID Advancing Nutrition Global PMP (PY4) Indicator IR 2.1.59</i>	20%	27.0%	135%	N/A	N/A	N/A	20%	27.0%	135%
Average percentage post-test score compared with 80% benchmark score. <i>USAID Advancing Nutrition Global PMP (PY4) Indicator IR 2.1.60</i>	80%	77.8%	97%	N/A	N/A	N/A	80%	77.8%	97%

Indicator	FY 2022 (Jan–Sept)			FY 2023 (Oct–Aug)			End of Project		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved	Target	Achieved	% Achieved
Number and proportion of training participants who improved from pre-to post-test results. <i>USAID Advancing Nutrition Global PMP (PY4) Indicator IR 2.1.61</i>	90%	97.0%	108%	N/A	N/A	N/A	90%	97.0%	108%
Number and proportion of training participants >=80% on the post-test result. <i>USAID Advancing Nutrition Global PMP (PY4) Indicator IR 2.1.62</i>	80%	60.1%	75%	N/A	N/A	N/A	80%	60.1%	75%
Number of evidence-sharing events hosted by USAID Advancing Nutrition, by type (webinar, workshop, expert consultations, etc.)	25	18	72.0%	11	12	109.1%	36	30	83%

Indicator	FY 2022 (Jan–Sept)			FY 2023 (Oct–Aug)			End of Project		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved	Target	Achieved	% Achieved
<i>(USAID Advancing Nutrition Global PMP Indicator IR 3.3.45)</i>									
Number of participants at evidence-sharing events hosted or supported by USAID Advancing Nutrition, by type (webinar, workshop, expert consultation, etc.) <i>(USAID Advancing Nutrition Global PMP Indicator, IR 3.3.56)</i>	400	735	183.8%	240	334	139.2%	640	1069	167%
Number of US Government engagements jointly undertaken with the private sector to achieve a U.S. foreign assistance objective. <i>PSE-1*</i>	9	17	188.9%	2	3	150.0%	11	20	182%

Indicator	FY 2022 (Jan–Sept)			FY 2023 (Oct–Aug)			End of Project		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved	Target	Achieved	% Achieved
Number of private sector enterprises that engaged with the USG to support U.S. Foreign Assistance objectives. PSE-2*	78	261***	334.6%	30	34	113.3%	78	270	346%

*<https://www.state.gov/wp-content/uploads/2021/11/Public-PPR-Full-MIL-Standard-Indicators-Report.xlsx>

https://www.usaid.gov/sites/default/files/documents/1865/usaid_psepolicy_final.pdf

<https://usaideallearninglab.org/resources/pse-mel-standard-agency-pse-indicators-and-harmonizing-indicator-tool>

** Data to be updated on completion of the pending activities.

*** This indicator is a snapshot indicator and cannot be summed across reporting years to calculate a total for the life of an activity (USAID PIRS). Enterprises are counted once

Annex 2: Environmental Mitigation and Monitoring Report

During FY 2023, USAID Advancing Nutrition implemented several activities to support the project’s mandate in Uganda. Of these, seven activities required measures to reduce COVID-19 transmission and promote the mitigation of environmental impact. These included technical assistance to the public and private sector actors to strengthen enforcement and compliance with food fortification regulations and standards, respectively; strengthening partnerships and stakeholder coordination in food fortification; raising awareness on the benefits of fortified foods; collaborative learning and experience-sharing; knowledge management; and M&E.

There were no environmental consequences from any of the implemented activities, and the project did not cancel any activities due to the COVID-19 pandemic. Due to the low literacy levels and the limited ability of the private sector players (particularly maize millers) to use virtual platforms for meetings, the project used several in-person engagements for meetings, workshops, and training. During these activities, the project followed the MOH COVID-19 standard operating procedures, and maintained proper hygiene and sanitation measures, social distancing, use of face masks and hand sanitizers, and followed the recommended COVID-19 behaviors and practices. The meetings, workshops, and training generated a small to moderate amount of paper and non-paper wastes, which were properly disposed of to mitigate environmental harm.

In addition, the project staff visited the venues before the workshops to ensure they were spacious enough to accommodate the number invited to the different activities. The total number of participants invited for each of the meetings was in line with the recommended number for meetings by the MOH. It is also important to note that by FY 2023, the total number of COVID-19 cases in the country had drastically dropped, and the GOU had relaxed several COVID-19 restrictions. These actions prompted the project to focus more on measures to reduce the environmental impact from paper and non-paper waste.

Table 2: Status of Environmental Mitigation Measures

Mitigation measure from column 3 in the Environment, Mitigation and Management Plan (EMMP) (part 2 of 3)	Status of mitigation measures	Outstanding issues to required conditions	Remarks
Education, technical assistance, training	USAID Advancing supported the MOH to convene a technical workshop to discuss the strategic direction of the food fortification program and a follow-on meeting to build consensus on the key actions that arose from the meeting. A spacious meeting room was secured, and the project engaged the hotel to	No outstanding issues	

Mitigation measure from column 3 in the Environment, Mitigation and Management Plan (EMMP) (part 2 of 3)	Status of mitigation measures	Outstanding issues to required conditions	Remarks
	ensure proper paper and non-paper waste disposal. Proper hygiene was maintained throughout the two-day workshop.		
	The project supported MOH to convene a NWGFF stakeholders meeting to discuss and build consensus on simple and low-cost actions in areas including policy and legal courses of action on the role and mandates of the different regulatory bodies in LSFF; and actions to address the premix challenges on accessibility, quality, and affordability. A spacious meeting room was secured, and the project engaged the hotel to ensure proper paper and non-paper waste disposal. Proper hygiene was maintained throughout the two-day workshop.	No outstanding issues	
	In FY 2023, USAID Advancing Nutrition will engage MDAs' technical, planning, and budgeting departments through meetings during their FY 2023–2024 planning cycle to identify food fortification priorities and indicators for the NWGFF, the Secretariat, and NWGFF individual institutions for integration into their annual plans and budgets. A spacious meeting room was secured, and the project engaged the hotel to ensure proper paper and non-paper waste disposal to mitigate environmental impact. Proper hygiene was maintained throughout the two-day workshop.	No outstanding issues	
	USAID Advancing Nutrition facilitated a meeting to streamline the use of the F-Logo. Participants included members of the NWGFF. A spacious meeting room was secured, and the project engaged the hotel to ensure proper paper and non-paper waste disposal to mitigate	No outstanding issues	

Mitigation measure from column 3 in the Environment, Mitigation and Management Plan (EMMP) (part 2 of 3)	Status of mitigation measures	Outstanding issues to required conditions	Remarks
	environmental impact. Proper hygiene was also maintained throughout the two-day workshop.		
	The project engaged partners in the drafting of advocacy materials to facilitate the procurement and consumption of fortified foods in public and private institutions. The activity involved meetings with key stakeholders. To minimize COVID-19 transmission, the project secured a spacious venue for the meetings to ensure social distancing. Proper COVID-19 hygiene and sanitation measures were adhered to. All participants were given face masks, and enough sanitizers were bought by the participants.	No outstanding issues	
	USAID Advancing Nutrition convened a closeout meeting to disseminate key learnings and recommendations from its technical assistance support to GOU and the private sector. The project engaged the hotel to ensure proper paper and non-paper waste disposal to mitigate environmental impact. Proper hygiene was also maintained throughout the meeting.	No outstanding issues	
2. Research and development	USAID Advancing Nutrition conducted a market surveillance study in FY 2023. The study involved collection of food samples across the country and subjecting them to laboratory testing to ascertain their compliance with the fortification standards. The project procured boxes and bags for the storage of the collected samples. The laboratory will destroy the samples after three months using the recommended guidelines for sample disposition. All paper materials that will be used during the validation meeting for the draft	No outstanding issues	

Mitigation measure from column 3 in the Environment, Mitigation and Management Plan (EMMP) (part 2 of 3)	Status of mitigation measures	Outstanding issues to required conditions	Remarks
	report will be destroyed to mitigate environmental impact. The project will also ensure proper hygiene at the meeting venue.		
3. Public health commodities	No public health commodities were planned for procurement.		
4. Small-scale construction	N/A	None	N/A to Uganda activity
5. Small-scale water and sanitation	N/A	None	N/A to Uganda activity
6. Nutrition	No nutrition commodities (e.g., vitamins, tablets, micronutrient powders) were procured or distributed.		
7. Vector control	N/A		
8. Emergency response	N/A		



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August 2023

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, addressing the root causes of malnutrition to save lives and enhance long-term health and development.

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of JSI Research & Training Institute, Inc. (JSI), and do not necessarily reflect the views of USAID or the United States government.