Food Fortification in Uganda

Mass fortification is defined as the addition of micronutrients to edible products (staples and condiments) commonly consumed by the general public. Such products are oil/fats, cereals, sugar, salt, and milk. Fortification efforts started in Uganda with salt iodization when, in 1994, the country mandated that all imported salt be iodized. In 2001, Makerere University, with the support of the U.S. Agency for International Development's MOST project, produced a food assessment report focused on vegetable oil and maize flour as potential vehicles for food fortification.

In 2002, the National Working Group of Food Fortification (NWGFF) was constituted with the participation of delegates from several public institutions, universities, private companies, and consumer associations. The NWGFF facilitated the preparation and approval of fortification standards for oil, sugar, wheat and maize flour in 2004. These standards were modified in 2006 to come into alignment with fortification guidelines established for the East, Central and Southern Africa region.

In 2004, the largest oil manufacturer in Uganda began voluntary fortification with technical support and minor financial contributions by USAID/MOST. When a second oil manufacturer - using entirely its own resources – also began fortification in 2005, the combined production covered 85% of the market. Recently, a third oil manufacturer has joined these efforts.

Oil fortification has helped to create a positive environment around food fortification, and now efforts to extend this practice to wheat and maize flour are ongoing. Today, fortified oil production covers at least 90% of the market, under a voluntary system of fortification in compliance with national standards. Vegetable and palm oils have become the main source of Vitamin A to the Ugandan population. Although the biological results necessary to prove quantitative impact are still pending, surely oil fortification is contributing to the improvement of the nutritional and health status of the Ugandan population.
Once Upon a Partnership: A Model for Sustainable Fortification Interventions

Uganda, like many countries in Great Lakes Africa, has seen many development efforts over the years. Many projects have potential for lasting impact often fail to remain sustainable due to insufficient funding, loss of technical expertise, and/or a lack of local ownership. To address these recurring constraints, Uganda has leveraged public-private partnerships with the hopes of creating lasting impact. The Ugandan Government identified one sector in particular, food fortification, as an ideal mechanism to engage the private sector to address the issues of malnutrition in the country. “It’s important to realize private sector’s role in sustainability,” says Kamal Roy Miller, Director of MOST, the USAID Micronutrient Project (1998-2005). "Oil fortification in Uganda is surely one of them.”

In those first years, Mukwano Industries changed flooring equipment, and will continue to do so. It is the history of that commitment and that collaborative action that serves as an example of how relatively little money, used judiciously, in an environment where the public and private sectors have different but mutually supportive objectives, can go a long way toward addressing a public health issue, if there is a success story out there, oil fortification in Uganda is surely one of them.’" - Roy Miller, Director of MOST, the USAID Micronutrient Project (1998-2005)

The Ugandan Ministry of Health has understood the importance of responding to vitamin A and other micronutrient deficiencies since the early to mid-1990s. Universal mandatory salt iodization in 1994 and vitamin A supplements for pre-school-aged children were followed by diet diversification initiatives. None of these were sufficient, however, to address the profound degree of micronutrient deficiencies in children under five years-old and pregnant mothers manifesting in chronic disease, disability, severe anemia, poor growth, and weakened immune systems. In the early 2000s, the Ministry of Health with support from USAID, commissioned a study that examined consumption patterns to search for evidence that would justify considering the fortification of commonly consumed foods. In the beginning, oil and maize flour were assessed as possible vehicles for vitamin A fortification. Maize posed limitations due to the lack of large-scale producers within the country, but oil represented an ideal industry for a large-scale, country-wide fortification intervention.

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One year later, a new oil company, Bidco Oil Refineries Ltd., emerged on the market. Bidco realized that Mukwano Industries, like many countries in Great Lakes Africa, has seen many development efforts over the years. Many projects that have potential for lasting impact often fail to remain sustainable due to insufficient funding, loss of technical expertise, and/or a lack of local ownership. To address these recurring constraints, Uganda has leveraged public-private partnerships with the hopes of creating lasting impact. The Ugandan Government identified one sector in particular, food fortification, as an ideal mechanism to engage the private sector to address the issues of malnutrition in the country. “It’s important to realize private sector’s role in sustainability,” says Kamal Roy Miller, Director of MOST, the USAID Micronutrient Project (1998-2005). "Oil fortification in Uganda is surely one of them.” - Roy Miller, Director of MOST, the USAID Micronutrient Project (1998-2005)

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In those first years, Mukwano Industries changed flooring in its laboratories that did not meet acceptable regulations; replaced tanks, pumps and pipes used for adding pre-mixes and fortificants; and raised the standards of its marketing and production. While Mukwano initially received some USAID funding for equipment to carry out oil fortification, the oil manufacturer willingly undertook these changes, and even today makes its own investments without complaint. Mukwano even assumed the responsibility to purchase the vitamin A fortificant, which is the highest-cost item in food fortification under formal industry settings.

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Back to Basics:
The Ultimate Goal

The problems impeding food fortification are rarely technical, but very often human in nature. When outcomes are not immediate and clear, sustaining momentum and cooperation to arrive at a shared goal becomes a major challenge. This is especially true in public-private partnerships where each sector has distinct and sometimes conflicting goals. Each has its strengths and weaknesses.

There are several areas of divergent opinion in the field of food fortification. Some of these differences revolve around matters of policy while others are about technical implementation. For example, should compliance with fortification be voluntary or mandatory or should small industries be exempted? How feasible is it to solve the myriad of challenges that exist in supporting small-scale manufacturers to fortify the foods they produce? Should more vehicles be considered as a means of fortifying foods with essential vitamins and minerals, or does limiting the vehicles have a particular advantage? "More communication and messaging, more partners, more vehicles, and a wider, more creative outlook is what we need to advance food fortification interventions and regain our focus on how we can have real impact. Also critical is appreciating what is being done by industry, and recognizing that industry won’t stick with us on the Social Corporate Responsibility ticket if we don’t recognize, reward and appreciate them. We need to say thank you to them for what they have done in oil fortification, especially since they have motivated others to fortify as well,” says Maureen Ndahura, former program assistant for the Uganda Ministry of Health’s Food Fortification Program (funded under a GAIN grant), as well as for the MOST project funded by the U.S. Agency for International Development (USAID).

She continues: “Advocacy [that targets] policymakers, industry or businessmen – this is great. But it is the mother who makes the decision about what cooking oil to buy. As a result, creative and sustained advertising and sensitization is a requirement.”

The Ugandan experience with food fortification is an example of what is possible when individuals from the public and private sector set aside potential differences and work together for a common goal. "I always put myself in the position of a child. Children are wholly dependent on their mothers to make the right choices for them. These choices affect their lives forever, and it includes what they eat. A mother’s decision knowingly or not will impact the degree to which a child’s brain functions or body develops. We must not lose sight of this perspective," says Ndahura.

USAID, UNICEF, the World Food Programme, GAIN, and others have worked closely with the government and industry to support Ugandans implementing their own fortification solutions to public health concerns around micronutrient deficiencies. “Involving key policy people in the ministry and decision-makers in industry, as well as implementers on the ground, is critical. We need to remind ourselves where we all were and how we came together and how we laid that groundwork – keeping the ultimate goal in focus. So as we look forward, we should be working together and exploring all the possibilities for furthering food fortification. After all, it’s for the health of the people, especially the child,” Ndahura concludes.
Micronutrient malnutrition in Uganda, as in most countries in Sub-Saharan Africa, is due to various deficiencies. Two of the more widespread deficiencies, vitamin A and iron, contribute to the country’s high rates of anemia. According to 2006 Department of Health Statistics data, 49 percent of women of reproductive age, 64.4 percent of pregnant women, and 73.2 percent of children under the age of five in Uganda are affected by anemia. Dr. Elizabeth Madraa, former Head of Nutrition at the Ministry of Health from 2008-2010 admits, “The evidence of the prevalence of micronutrient deficiencies in Uganda in the mid-1990s was so far beyond what would necessitate a public health intervention. It was dire and we had no capacity to deal with these deficiencies. People didn’t know the magnitude of the health impact that lack of vitamin A, iron, and iodine was having on our communities.” Micro-nutrient deficiencies more often than not cause irreparable and irreversible damage. In 2002, the National Working Group on Nutrition at the Ministry of Health from 2008-2010 admits, “The evidence of the prevalence of micronutrient deficiencies in Uganda in the mid-1990s was so far beyond what would necessitate a public health intervention. It was dire and we had no capacity to deal with these deficiencies. People didn’t know the magnitude of the health impact that lack of vitamin A, iron, and iodine was having on our communities.” Micronutrient deficiencies more often than not cause irreparable and irreversible damage. In 2002, the National Working Group on Food Fortification (NWGFF) was established by the Ministry of Health and consisted of government ministries, private sector industries and development partners such as the U.S. Agency for International Development (USAID), UNICEF and the World Health Organization. The NWGFF’s members dedicated themselves to food fortification as one of the interventions necessary for tackling micronutrient deficiencies in Uganda.

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It was clear to the Ministry of Health that additional strategies with a much broader reach to the Ugandan population were needed to combat the public health crisis. As a result, strategic food fortification interventions were explored. The government of Uganda worked with the food industry to create a program for the delivery of vitamin A through vegetable oil which had the potential to reach almost every household in the country based on what the government knew about food consumption patterns. Now, nearly 90 percent of the cooking oil available in Uganda is fortified and this availability of fortified oil on the market is augmenting the importance of other public health and nutrition interventions. For example, the oil industry has stimulated other food industries to follow suit. Thus, wheat flour is starting to be fortified with nine vitamins and minerals, and some efforts have been conducted to initiate fortification of maize flour and sugar. “As an intervention, food fortification is an efficient and low-cost intervention. We know, for example, oil is being consumed consistently at the household level and that oil and salt are part of the daily diet in rural, urban, North, South, East and West of Uganda. That means we are reaching the people,” concludes Dr. Madraa.
The Ministry of Health approached Makerere University at the very beginning of its exploration of food fortification as a strategy to combat micronutrient deficiencies in Uganda. Makerere saw the contribution it could make and has since been a trusted collaborator in the public-private sector partnership process. The Food Science and Technology Department, which has since grown into the School of Food Technology, Nutrition and Bioengineering, researched the types of food vehicles micronutrients would best be suited for in terms of their delivery to consumers. These studies found that oil was the most effective, immediate and safest vehicle for fortification. “I’m involved in food fortification for academic purposes. I want to see a population that is nutritionally secure. I want to see a food industry that is functioning. But as an academic institution, we want to contribute to this with quality research and critical thinking,” states Kyamuhangire.

Makerere University is essential to the evolution and sustainability of food fortification in Uganda. Neither the government nor private sector needs to look outside of Uganda for quality researchers who can initiate and produce country-wide, in-depth studies, household and community level food consumption surveys, and evidence-based policy memos and papers on nutrition and food science. The University has developed the reputation of expressing itself independently on various issues, regardless of the government’s position. “As a university we are not here to dictate the food fortification process, but only to influence the actors and institutions that are part of the process based on convincing evidence found through quantitative and qualitative assessment,” Kyamuhangire states. This university has been a driving force behind food sciences while contributing to Uganda’s in-country knowledge base of nutrition and surveying and assessment methodologies.

“We have fortified foods on the shelves now. But it’s not enough to put these foods on the shelves and stop there. We have to assess impact and penetration of this intervention, as well as we need to devise complementary strategies to reach vulnerable groups within the country,” Kyamuhangire looks out over the hill to the slums below the university and says assuredly, “Food fortification is not an end; it is only a beginning.”

“I see a bright future for food fortification in Uganda because the middle class is growing, and so is the industrial food sector. People are becoming more and more aware of healthy, in relationship to diet. I think food fortification is really coming along. Indeed, it is one of the most effective and promising strategies for delivering micronutrients to many people.”

-Dr. Joyce Kakuramatsi-Kikafunda
Professor of Food & Nutrition Sciences, Makerere University

Challenges to the process of oil fortification abound, with some small manufacturers not fortifying their products and trying to undersell their competitors at marginally lower prices, or co-opting the labels of the known producers to confuse consumers. In addition, Uganda is considering making oil fortification mandatory, despite the success achieved under a voluntary program, to ensure that the progress reached thus far is not put in jeopardy by risks associated with importation of unfortified oil on the market. Moreover, public awareness and understanding around food fortification is weak. According to Agnes Chandia Baku, Acting Head of the Nutrition Section in the Ministry of Health, “Even though some people are not informed, most of the big players in the oil industry are fortifying. So, we know the public is benefitting even though they are consuming unknowingly.”

Mukwano Industries is a large-scale manufacturer that recognizes its debt to the people of Uganda and has led oil fortification interventions in the private sector. Mukwano posters can be seen on billboards throughout Kampala, promising products that make families healthy. Established in 1986, the Mukwano Group’s labels are present in about 90 percent of Ugandan households. At a time when Uganda was importing almost 100 percent of its soap and oil due to the absence of essential commodities within the country, the Karimbi family invested in the oil refining and commercial soap producing equipment and set up operations in Kampala. The Mukwano Group has grown exponentially and employs an estimated 10,000 personnel. It is now one of the largest domestic manufacturers of edible oils and fats, soap, detergents, personal care and hygiene products, domestic and commercial plastics, energy food drinks, and drinking water in Uganda.
Mukwano has been a key player since the first public-private sector food fortification standards and regulations began in the early 2000s under the leadership of the Ministry of Health, and in collaboration with the Ministries of Agriculture and Finance, the National Bureau of Standards, and international partners. Bidco Oil Refineries Limited was soon to follow Mukwano’s example and now is the largest player in the oil manufacturing industry, wholly committed to and supportive of oil fortification. “We fortify 100% of our oils and fats,” says Levi Katababarukye, quality manager for Bidco. “We have the vision from the top of the company.”

Reflecting on the people affected by their manufacturing operations, their executive director, Ronald Manyindo, spoke about the importance of fortification. “We fortify 100% of our oils and fats. We have fortification officers who are employed for this purpose. As we did fortify, we can show that we are having an effect on the public-private sector alliance without unwittingly reinforcing myths about fortification, and working with the revenue authority to agree on customs fees and clearance procedures. According to Paul Mubiru, Quality Control Officer for Bidco, the fortification program officers will speak of the overwhelming importance of UNBS’ contribution to the food fortification process.

“The Uganda National Bureau of Standards (UNBS) became operational in 1989 and its roles are clear: consumer protection, public health and trade regulation. “Once we talk of adding something to food, people think of something toxic,” states Dr. Ben Manyindo, Deputy Executive Director for the UNBS, and in the region, “we are the leaders in food standards enforcement.”

UNBS partners with the Ministry of Health and plays a key role in the food fortification process, verifying claims and logo, providing laboratory testing for the presence of fortificants, and conducting market surveillance and inspection of foods claimed to be fortified. When the Ministry of Health started promoting food fortification as a large-scale strategy for reducing micronutrient deficiencies countrywide in the early 2000s, UNBS created regulation standards on fortification and enforcement procedures of these standards to roll out a safe and effective intervention. "Proper packaging and validated, and we are entrusted to check other claims on manufactured products, as is just one of many…now you see why it takes so long to receive the results back. But it makes it difficult when we really need to check on whether something on the market is meeting the standard or not," says Enaru Francis, UNBS Standards Officer. Another challenge is technical capacity. Two food fortification officers are employed at UNBS to provide surveillance and inspection, as well as to verify claims on fortified products being produced in Uganda. But with such limited staff, they are easily overstretched. "Through the East, Central and Southern Africa Health Community’s laboratory network, we have had access to capacity building. And without Uganda Industrial Research Institute and its work, it would not be manageable," says Johnson Ssubi, another Standards Officer with UNBS.

UNBS serves as a reference bureau for other National Bureaus and International Reference Bureaus. It is engaged in dialogue as well as in action. “We are confident that we have safe and wholesome fortified oil on the market here in Uganda. The dangers could be great if we didn’t do our jobs. We end up doing our people more good than harm. Imagine trying to combat micronutrient deficiencies and ending up with a toxic product on the market instead!” states Ssubi, illustrating the importance of UNBS’ contribution to the food fortification process.

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A visit to UIRI's laboratories shows young technicians hard at work taking food samples from all over Uganda and testing for the presence and content level of vitamin A. For cooking oil products, the presence of vitamin A will form a bluish cast in the sample. If no blue cast appears, the oil has not been fortified. UIRI has received both equipment and skills training from partners like the U.S. Agency for International Development (USAID) and others to develop its expertise on site. The quantity of fortificant added to oil must be verified by machines which feed the information into a computer that then provides graphics showing the maximum level of vitamin A present in the product sample. This allows technicians to see whether the product sample meets the legal standards. UIRI also is the coordinating laboratory that provides mentorship and capacity building for sampling and reviewing of micronutrient proficiency testing performed in laboratories throughout the East, Central and Southern Africa Health Community network. For a research institute that began from nothing, UIRI is now a key partner like the U.S. Agency for International Development (USAID) in bringing the fortification message out with a bang,” shares Tabley Bakyaita, a Senior Health Educator at the Health Communication Department of the Ministry of Health.

Food fortification messaging for the Ministry of Health remains general through the use of a special “good-nutrition” logo in order to cover all the possible vehicles on the market. Creating promotional materials for the industry is a delicate balancing act, as marketing the critical message skirks misperceptions of the government promoting one manufacturer over another. “Focus demands sacrifice,” says Bakyaita with a professionalism that shows he is used to walking a fine line between appealing to industry’s core business interests and aligning these with the government’s duty to protect its people and promote better health and nutrition in this case. “We cannot move forward in our social marketing without industry. We have an environment ready for a coordinated fortification campaign launch-able through multiple distribution channels and strengthened and promoted by industry,” envisions a day in the near future when it will appear on trucks transporting fortified goods throughout the country.” Bakyaita envisions a day in the near future when it will appear on trucks transporting fortified goods throughout the country.”

Getting the Message Out: the Importance of Social Marketing

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With 40 official languages currently spoken throughout Uganda, communicating critical public service announcements is a tricky business. Depending on whom you ask or what document you look at, Uganda has either 28 official stations or 188 operational and licensed radio outlets. FM radio is seen even today as the best dissemination channel for advertising and marketing – even more than television, newspapers and magazines, which may not have the most penetration in remote rural areas or the broadest coverage in the country. “Public awareness print messages on food fortification were created but distributing them is challenging and has yet to be done in local communities. The process for sensitizing the media on the health benefits of fortified foods has been done successfully and now these journalists are ready allies in promoting community education around food fortification. However, raising awareness throughout the country to create market demand for food fortification has been disjointed, with only one communication channel being used at a time instead of a mix to form synergy and provide greater impact. We need to get the fortification message out with a bang,” shares Tabley Bakyaita, a Senior Health Educator at the Health Communication Department of the Ministry of Health.

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Generating Domestic Growth through Local, Innovative and Healthy Solutions: The Unintended Positive Consequences

The Ministry of Agriculture has worked alongside the Ministry of Health since the early days when food fortification was explored as an innovative large-scale strategy to combat micronutrient deficiencies in Uganda. “We have deficiencies as a country and in the villages, especially. Expanding the coverage of essential vitamins and minerals through fortification of products seen in the market every day is critical,” states Connie Magomu Masaba, Project Coordinator for the Vegetable Oil Development Project at the Ministry of Agriculture.

Vegetable Oil Development Project in coordination with food fortification efforts across the country. The project has worked closely with Mukwano and Bidco oil manufacturers to encourage them to work with more local farmers and millers. At the same time, the Vegetable Oil Development Project in the Ministry of Agriculture has worked alongside the Uganda Oil Seed Producers & Processors Association (UOSPA) to support oil seed producers and processors and return domestic production will surpass importation may take some time, but it is moving in the right direction. The Ministry of Agriculture would agree with Agong. It is excited by the prospect of these new oil fortification activities in the North and its potential for economic as well as health benefits for the entire region. All of these opportunities for economic growth will further encourage the millers, both small and large scale.

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