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The Political Economy of Large-Scale Food Fortification in West Africa

Pathways Toward Harmonization

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Abstract

For two decades, there have been ongoing efforts at harmonizing large-scale food fortification (LSFF) policies and procedures in West Africa. Despite some notable successes, micronutrient deficiencies in the region remain elevated. To identify which bottlenecks exist towards greater harmonization on LSFF, this study adopted a political economy perspective to consider areas of contention over interests, ideas, and institutions between domestic stakeholders, across countries, and within regional bodies. The study finds that West African governments have made impressive strides with harmonizing their LSFF standards and committing to the importance of fortification as one of several instruments for improving micronutrient deficiencies. Likewise, the donor and technical community have worked closely with the West African Economic and Monetary Union (UEMOA), the Economic Community of West African States (ECOWAS), as well as specialized institutions of ECOWAS, such as the West African Health Organization (WAHO), to advance the LSFF agenda, support the private sector and national fortification alliances, and identify new food vehicles for fortification. At the same time, incoherent trade, tax, and macroeconomic policies in a context of multiple shocks and crises, protectionist impulses aimed at building up domestic agro-industries, lack of financial commitment to LSFF structures in the absence of donor support, and uneven financial contributions to ECOWAS and WAHO remain barriers to progress. Learning from these lessons and considering how to address LSFF from a holistic perspective that accounts for West Africa's unique demographic, economic, and political characteristics will not only benefit extant harmonization efforts in ECOWAS but also help with broader continental alignment on fortification under the African Union's 2025-2036 food and nutrition security strategy.

Keywords: Large-scale food fortification, nutrition policy, political economy, West Africa

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Contents

I. Introduction

What are the main drivers of greater regional harmonization for large-scale food fortification? Large-scale food fortification (LSFF) represents an important area of regional policy attention since it requires cross-country coordination on common standards, enforcement mechanisms, and tax and tariffs rules, among others. In West Africa, there have been ongoing efforts at greater harmonization for at least thirty years. There are several reasons why regional harmonization has been prioritized. First, the region continues to face a high level of micronutrient deficiencies. For instance, of West Africa's more than 62 million children under five years of age, over one-third are stunted and almost half have vitamin A deficiency (Diedhiou and Jalal 2018). Anemia remains a major issue for almost half of the region's women of reproductive age (Diedhiou and Jalal 2018). As one of the fastest growing regions of the world, with a population of over 500 million, the need to tackle these deficiencies is of urgent concern.[1] Second, the porous nature of land borders and the high-level of cross-country trade (Bouët, Cissé, and Traoré 2020; OECD and Sahel and West Africa Club 2017) necessitate a supranational approach to food regulation. Third, the main regional economic organizations, namely the Economic Community of West African States (ECOWAS) and the West African Economic and Monetary Union (UEMOA), have demonstrated a concerted willingness to push member states towards greater harmonization.

Nevertheless, after two decades, the LSFF regionalization agenda is at a crossroads. Compliance with standards is uneven across the region and micronutrient deficiencies remain elevated (Touaoro and Ndiaye 2022). Projections based on the Food and Agriculture Organization (FAO) data and Demographic Health Surveys show, for instance, that no West African country will meet its anemia goals by 2030 (Chadare et al. 2022). In 2024, under the leadership of one of ECOWAS' specialized institutions, the West African Health Organization (WAHO), the region commenced efforts to implement a regional fortification alliance and a regional fortification strategy. As such, it is imperative to understand the historic bottlenecks that have inhibited greater progress on LSFF and identify notable successes that offer useful lessons and possible opportunities for scaling.

To do so, this paper adopts a political economy perspective to identify where there have been conflicts between interests, ideas, and institutions in the region. Regional policy initiatives are akin to multi-level repeated "games" (Putnam 1988) whereby national decisionmakers are dealing with the preferences of stakeholders in their country, negotiating their policy priorities with other sovereign states in their region, and navigating the rules and processes of regional and global institutions. In low-income countries, the role of international donors and technical partners—who have distinct internal, organizational priorities, development objectives with national governments, and relationships with each other—adds further complexity. These interactions are simultaneous and endogenous, and therefore must be examined comprehensively to ensure a holistic understanding of constraints to, and opportunities for, effective regional coordination.

Methodologically, this paper relies predominantly on the vast secondary literature over the last thirty years about regional and West African country efforts to implement LSFF. This was

[1] Population figures from the UN Population Fund: https://www.unfpa.org/data/world-population-dashboard

complemented by participant observation of a March 2024 meeting of ECOWAS member states in Cotonou, Benin to establish a regional LSFF alliance and several interviews with informed stakeholders. Recent informative reports on regional harmonization efforts were also instrumental to the analysis (see Nyumuah and Ojomo 2023; Ojomo and Nyumuah 2023; Touaoro and Ndiaye 2022).

The following section briefly elaborates on the political economy perspective on regional harmonization. This is followed by a discussion on the nature of malnutrition and the history of LSFF efforts in West Africa, as well as the landscape of actors who have been active in this policy arena. The subsequent sections discuss the domestic, cross-country, and regional political economy issues that are relevant to LSFF. The recommendations section then focuses on two dimensions of interventions, including ones at a systemic level that are intended to help anticipate risks to the LSFF agenda in West Africa and ones at a more targeted level aimed at rectifying longstanding issues that have been repeatedly identified by stakeholders working in the region.

II. Political Economy of Regional Harmonization

When considering potential barriers to regional harmonization from a political economy perspective, a multi-level perspective is useful. The first level is the domestic political economy where private sector actors, donors and technical partners, health professionals, and different government ministries and agencies negotiate what to prioritize and how to implement different provisions to support LSFF. The second level considers cross-national dynamics to situate areas of concern and congruence among the objectives of different governments and regional private sector associations. These include managing the broader range of issues confronting the region—such as food price inflation, cheaper overseas imports, and volatile agricultural productivity that affects processors' access to raw materials. Moreover, governments in the region increasingly are pursuing more protectionist agro-industrial agendas that undermine the objectives of harmonization, despite rhetorical commitments to the African Continental Free Trade Area (AfCFTA). Nutrition policy and trade policy frequently can be conflictual precisely because options to improve consumer health may come at the expense of building up domestic industries or lead to a greater influx of unhealthy foods (Baker et al. 2019; Hawkes 2015). The third level considers the ways that regional organizations, especially ECOWAS, WAHO, and UEMOA, function vis-à-vis their member states and with each other. Since supranational bodies are often essential to ensure effective harmonization, identifying coordination challenges and capacity constraints within and among these bodies, and with respect to extant efforts with LSFF, can help identify where efforts should be prioritized.

At each of these levels, interests, ideas, and institutional factors interact with each other to create trade-offs or barriers to improved LSFF coordination. Interests may be related to stakeholders' differential concerns around the costs and benefits of interventions needed to support LSFF. There are also strong ideas around LSFF harmonization, including which food vehicles are most appropriate to support and how to retain national sovereignty over policies and standards. Institutions encompass regional economic communities, National Fortification Alliances (NFAs), relevant ministries, and donors' organizational mandates. They structure expectations about who is included and excluded, the range of coordination challenges they encounter, and the scope of acceptable policy actions.

III. Status of Malnutrition and LSFF in West Africa

To contextualize the political economy dynamics around LSFF in the region, it is necessary to first understand the status of malnutrition and fortification efforts thus far. Notably, there is large variability in the main malnutrition challenge facing West African countries. While anemia is generally high in the region, it is most pronounced in Côte d'Ivoire, Guinea, Ghana, Gambia, Mali, Togo, and Senegal (average of 54%) while stunting is most problematic in Burkina Faso, Niger, and Nigeria (average of 40.1 %). For this latter group, stunting also has been increasing again since 2015 after some significant downward trends in the previous decade. Both issues are a concern in Benin, Guinea-Bissau, Liberia, and Sierra Leone, but these four countries also represent the highest prevalence of children overweight, albeit at only 6 percent (Chadare et al. 2022).

According to the FAO (2024), almost 17 million children under five are acutely malnourished in West and Central Africa. A confluence of factors exacerbates malnutrition in the region; between 2019-2024, the price of major staple grains rose by more than 100 percent on average due to currency devaluations, rising import costs due to declining cereal production, conflict in the region, and ECOWAS sanctions against the military juntas in Burkina Faso, Mali, and Niger.

As seen in Appendix 1, the largest economies in the region were also among the earliest adopters of these standards, including Nigeria (2002), Côte d'Ivoire (2007), Ghana (2009), and Senegal (2009). Currently, 13 of the 15 ECOWAS countries have mandatory standards for vegetable oil, 14 have mandatory standards for wheat flour, and 14 have such standards for salt iodization.[2] Nigeria (along with Liberia) mandates sugar fortification with vitamin A while Nigeria and Côte d'Ivoire also mandate maize flour fortified with vitamin A (Diedhiou and Jalal 2018; Grant, Tsang, and Garrett 2018). Ghana and Nigeria also mandate vitamin A for wheat flour.

In addition, some countries are considering standards for additional food vehicles. Nigeria and Côte d'Ivoire are leading the way on domestic rice fortification with many other countries in the region working with the World Food Program (WFP) on rice fortification pilot programs in schools.[3] Rice fortification has been facilitated by self-sufficiency schemes in the region and has been attributed to the 2008 food price crisis when the region's rice import dependency caused prices to skyrocket, and governments invested in enhancing domestic rice production (Tsang, Montgomery, and Garrett 2018). For instance, rice fortification in Nigeria has been facilitated by the government's Anchor Borrower's Program (ABP), which started in 2015 and aimed at providing low interest loans to rice farmers. The ABP, combined with large-scale subsidies and a rice import ban collectively were aimed at increasing domestic rice production (Egbejule 2019). Rice fortification was piloted in a school feeding program in Kebbi state, which has Nigeria's highest rice production capacity. The fortification program has been heavily influenced by the experience of India and adopts similar micronutrients for its fortified rice kernels (FRKs), including folic acid, B12, iron, B3, zinc, B1, and B6 (GAIN and WFP 2022).[4] In Côte d'Ivoire, the government was committed to rice self-sufficiency by 2020 (WFP 2019). Currently, the FRKs are imported but the WFP is trying to establish a regional

[2] According to the Global Fortification Data Exchange, Sierra Leone remains a notable exception by only having voluntary salt iodization.
[3] Regional LSFF workshop, Cotonou, Benin, March 2024.
[4] Vitamin A has been excluded since it is already included in other food vehicles and B2 was excluded because of its impact on the color of FRK (GAIN and WFP 2022).

fortified rice kernel supply chain to make the FRKs available locally.[5] A few countries are also considering bouillon as a potential food vehicle for fortification. As discussed later, the choice of bouillon is very contentious in the region and likely one where harmonization will take longer to occur.

There are also some variations in the standards on the micronutrients applied to different vehicles. For instance, while a few countries have mandatory legislation requiring the addition of zinc to wheat flour (e.g. Nigeria, Togo), most do not due to the lack of data on zinc deficiencies and the impact of zinc fortification as well as the relatively higher cost of premix procurement that includes zinc oxide (Grant, Tsang, and Garrett 2018; Tarini et al. 2021; Touaoro and Ndiaye 2022).

IV. Landscape of Actors

A broad range of actors have overseen these LSFF efforts across the region since the mid-1990s. These include regional institutions, private sector associations, and a vast range of donor, technical, and civil society partners.

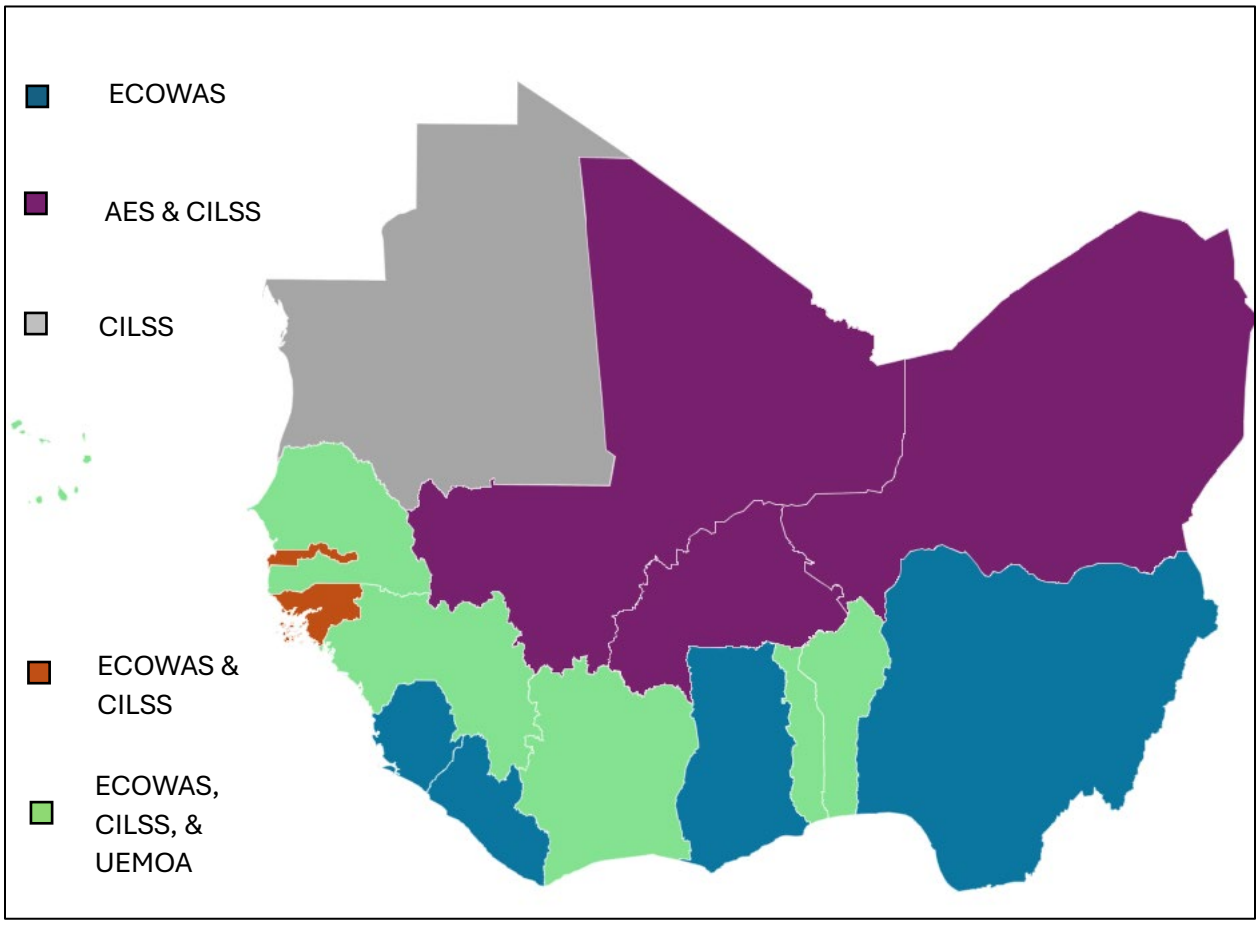
Regional Institutions

Regional harmonization on LSFF in West Africa is led by three main institutions: UEMOA, ECOWAS, and WAHO. UEMOA, established in 1994, encompasses eight franco- and lusophone countries in West Africa (Benin, Burkina Faso, Guinea-Bissau, Côte d'Ivoire, Mali, Niger, Senegal, and Togo) that are united in their use of the CFA Franc and a common monetary policy. ECOWAS, which emerged in 1975, includes 15 countries, inclusive of all the UEMOA countries as well as Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone, and is the officially recognized regional economic community (REC) for the region by the African Union (see Figure 1).

Due to its common currency and need for common public financial management and harmonized tax policies, UEMOA has relied heavily on cooperation among Ministries of Finance. By contrast, national Foreign Affairs Ministries lead on ECOWAS issues which, in addition to its emphasis on trade coordination, also is distinguished by its peace and security role (Byiers and Dieye 2022). WAHO was originally created by Protocol A/P2/7/87 in 1987 to harmonize health policies of West African states. Its headquarters were established in Bob-Dioulasso, Burkina Faso in 1998 but it did not become operational as a specialized ECOWAS agency until 2000 (Ojomo 2017). In 2002, it also became the UEMOA regional health agency and works closely with members' ministries of health (Jarvis 2009). Another important institution in the region, albeit one that is less involved in the LSFF agenda, is the Permanent Interstate Committee for Drought Control (CILSS), which both monitors as well as invests in research to enhance food and nutrition security across the region.

[5] Regional LSFF workshop, Cotonou, Benin, March 2024.

Figure 1: Country Memberships in West Africa



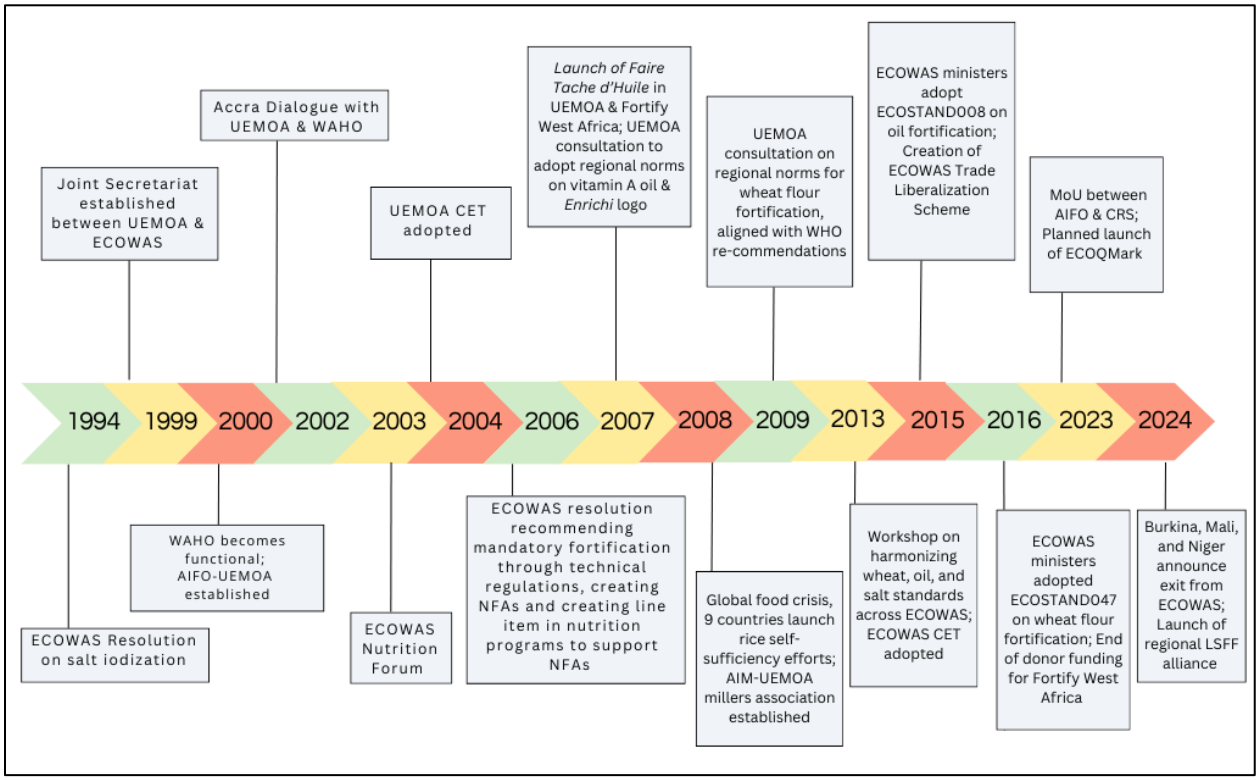
Source: Author's rendering.

As seen in Figure 2, there have been many efforts to improve harmonization between UEMOA and ECOWAS, including the establishment of a Joint Technical Secretariat in 1999 to improve efficiency and efficacy, seek joint funding, and adopt common positions (Byiers and Dieye 2022). This was followed by an UEMOA-ECOWAS cooperation and partnership accord in 2004 and then a protocol in 2014 that established an institutional platform to define modalities and mechanisms to developed coherent community norms (Byiers and Dieye 2022).

One of the most significant efforts at harmonization, with implications for LSFF, was the common external tariff (CET) convergence process. UEMOA adopted a CET in 2004, and this was then expanded to ECOWAS in 2015. The CET sets the same customs duties for goods entering ECOWAS, with a set of five tariff bands: 0 percent for essential social goods, 5 percent on goods of primary necessity or raw goods, 10 percent on intermediate goods and inputs, 20 percent on final consumption goods or finished products, and 35 percent for specific goods for economic development. The latter band, which did not exist for UEMOA, was introduced to help protect the region's agricultural sector against import competition (de Loma-Ossorio, Lahoz, and Portillo 2014). As discussed later, Nigeria is particularly well-known for using non-tariff measures—especially

import bans—while the CET is in effect (von Uexkull and Shui 2014). The trade harmonization agenda has been somewhat disrupted by the trend in bilateral and plurinational trade agendas concurrently happening. For instance, both Ghana and Côte d'Ivoire have Economic Partnership Agreements (EPAs) with the European Union (EU), which provides them with preferential access to the EU market by, in return, gradually removing import tariffs over 20 years for EU imports into their countries (see Figure 2).[6]

Figure 2: Chronology of Selected Regional Developments, 1994-2024



Source: Compiled by author from multiple reports, articles, and media stories.

In many ways, UEMOA was the early leader on LSFF, working with WAHO, Helen Keller International (HKI), Micronutrient Initiative (MI) [re-named Nutrition International in 2017], and United Nations International Children's Emergency Fund (UNICEF) to host a public-private dialogue in Accra, Ghana, in 2002 that really served as the origins for regional, cross-stakeholder engagement on food fortification (Jarvis 2009). Several years later, UEMOA standardized salt iodization norms in the region. In 2007, during another public-private dialogue in Bamako, Mali, UEMOA, WAHO, and HKI announced the $2.7 million *Faire Tache d'Huile* vitamin A oil fortification program, with support from multiple donors. Fortification of cooking oil with vitamin A was already occurring in Côte d'Ivoire and Mali in UEMOA (Sablah et al. 2012). In parallel, the Clinton Global initiative supported the launch of Fortify West Africa, which focused on fortifying wheat flour with

[6] The EPA is ultimately intended to cover all of West Africa, but Nigeria remains the only country yet to sign the EPA agreement.

iron and folic acid, among other micronutrients (Jervis 2006; de Loma-Ossorio, Lahoz, and Portillo 2014; Sablah et al. 2012). These two initiatives were particularly notable because their reach extended beyond the UEMOA and ECOWAS states, leading to an expansion of food fortification programs in Cameroon, Mauritania, Mozambique, and Tanzania (Sablah et al. 2013).

In the same year, UEMOA adopted the *Enrichi* logo, which is registered and managed by the Professional Oil Producers Association or the *Association des Industrielles de la Filière Oléagineuse* (AIFO), for packaging of fortified foods (Ojomo and Nyumuah 2023); the logo is now used in all eight UEMOA countries and three non-UEMOA ones, including Cape Verde, Guinea, and Liberia (Grant, Tsang, and Garrett 2018). Two years later, the UEMOA commission held a consultation to adopt regional norms for wheat flour fortification, aligned with World Health Organization's (WHO) recommendations, which were then subsequently mandated in all eight member states. Between 2013-2018, UEMOA spent about $1 million on food fortification efforts, bringing together industry associations and national fortification focal points twice a year to discuss progress (Grant, Tsang, and Garrett 2018).

LSFF developments in ECOWAS largely followed those in UEMOA. In 2006, the Assembly of the ECOWAS Ministers of Health adopted resolutions recommending its member countries adopt mandatory fortification regulations; at the time, only Nigeria had such regulations. In subsequent years, there were various consultations with UEMOA about fortification harmonization, with a workshop about standards harmonization for wheat flour, vegetable oil, and iodized salt across ECOWAS in 2013. This harmonization was to occur through the ECOWAS Harmonization Model, known as ECOSHAM, which provides the framework for aligning commodity standards across West Africa (Grant et al. 2018).[7]

These standards were revised after review in each member country before being submitted to the Regional Technical Harmonization Committee for Food Products. After adoption by the ECOWAS Ministers of Industry, they were finally then endorsed by the Council of Ministers for African Integration (see Table 1). Thereafter, countries were expected to incorporate the new standard by modifying their national legal frameworks accordingly (Grant et al. 2018). Yet, several countries, such as Ghana, Liberia, Nigeria, Sierra Leone, and Togo are not aligned with the ECOWAS standards because they either have additional micronutrients, such as zinc, and/or deviate from the standard range by allowing slightly lower levels of relevant micronutrients (Nyumuah and Ojomo, 2023; Tarini et al. 2021).[8] Other vehicles are now being considered by ECOWAS for harmonized standards, including bouillon, sugar, and maize flour (Grant et al. 2018). ECOWAS

[7] Under ECOSHAM, there are nine technical committees and LSFF falls under the second committee on food products. The head of each member country's national standard body is part of this ECOWAS technical committee will work member state to work on a common standard that also complies with other regional and international standards (Interview with ECOWAS representatives, April 2024).

[8] By way of comparison with other RECs in Africa, the SADC Secretariat approved in 2020 that region's Minimum Standards for Food Fortification that include iodized salt, edible vegetable oil (with vitamin A) and wheat and maize flours with vitamin A, vitamin B12, iron, zinc, and folic acid (Enzama and Ronald 2022). The East African Community approved standards for the same food vehicles in 2012, with updates in 2017 (Theriault et al. 2022).

standards need to be revisited and potentially revised every five years, unless there is new evidence that necessitates an earlier revision.[9]

Table 1:ECOWAS Standards

Food vehicle	Micronutrient	Required range	Deviating countries
Salt	Potassium iodate	At least 50ppm (production)	Liberia, Nigeria
		30-60 ppm (import/export)	
		20-60 ppm (retail)	
Vegetable oil	Vitamin A	16-24 ppm (production)	Ghana, Liberia, Nigeria
		11-24 ppm (retail)	
Wheat flour	Iron	Ferrous Fumarate: 60 ppm +/- 10%	Ghana, Nigeria
		Ferrous Sulphate: 60 ppm +/- 10%	
		Ferric sodium EDTA: 40 ppm +/- 10%	
	Folic acid	2.6 ppm +/- 10%	Ghana, Sierra Leone

Source: Compiled from Nyumuah and Ojomo (2023). All four deviating countries, plus Togo, include zinc in their standards, which has not yet been adopted at the ECOWAS level.

Private Sector Organizations

There are two main private sector organizations that represent industry actors across several countries in the region. One is the AIFO, which was established in 2000.[10] The organization represents processors in the cotton, peanut, soya, palm, peanut, and shea oil industries, and it was born out of concern about UEMOA's negotiations with the World Trade Organization (WTO) and EU to move towards the CET. By adopting the CET, UEMOA had agreed that import duties on cooking oil imports into the region would fall to 20 percent on refined oil and 10 percent on unrefined oil, compared to the previous 45 percent and 20 percent, respectively. Because this reduction in import duties would make overseas imports more affordable to UEMOA's citizens, AIFO members were concerned that the CET would result in a flood of edible oil imports from southeast Asian countries that would jeopardize domestic industry. In addition, AIFO members wanted UEMOA's value-added tax of 18-20 percent on edible oil to be reduced (Jarvis 2009).

After a presentation in 2004 by HKI on the health benefits of fortifying oil with vitamin A, AIFO members became strong advocates because they saw that it was a way to differentiate their products from unfortified oil imports from overseas (Jarvis 2009). Seeing fortified oil as a major addition to their corporate social responsibility, AIFO was a key partner in the launch of the 2007 *Faire Tache d'Huile* initiative to catalyze vitamin A oil fortification in the region (see more below).[11]

[9] Interview with ECOWAS representatives, April 2024.

[10] AIFO has, in the past, been identified with the name AIFO-UEMOA to originally indicate its presence in the UEMOA region. More recently, it has used the name AIFO-UEMOA-CEDEAO to indicate that it has expanded to the ECOWAS countries, which in French is known as CEDEAO. For purposes of simplicity, this report just refers to AIFO.

[11] The term *Faire Tache d'Huile* is an idiom that roughly translates as something that slowly spreads over time, like an oil slick. The intention was to convey that the program would gradually expand in the region.

Despite efforts to expand to anglophone countries, AIFO is still predominantly a francophone organization, with members from Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Togo.[12]

The second main organization is the Professional Millers Association, or the Association des *industries meunières ouest-africaines* (AIM). Established in 2008, the AIM was instrumental with the implementation of the Fortify West Africa wheat flour fortification project that commenced the year before. Overseen by a Senegalese billionaire and owner of the *Nouvelle Minoterie Africaine* (NMA) Sanders mill, AIM was an active force in the francophone countries, particularly lobbying for more protective measures to protect local millers and prevent the importation of wheat flour from Europe, North Africa, and Asia (Marot 2014). However, it became dormant at some point in the mid-2010s.

Multinational actors have been focused on LSFF for some time. Nestlé, for instance, began mapping micronutrient deficiencies in West Africa back in 2009 and subsequently launched several products to address nutrient gaps. These include Maggi bouillon, Cerelac infant cereals, and Nido Milk. In Nigeria, it even partnered with the Federal Ministry of Agriculture to source locally produced biofortified maize for processing of its breakfast cereals (Ejel 2019).

Donors and Technical Partners

There have been several efforts to map the range of donor and technical partners active in LSFF globally (see Hoogendoorn et al. 2016), many of whom have been active in West Africa to differing degrees over the last thirty years. Nyumuah and Ojomo (2023) delineate three main stages of partner engagement on LSFF in the region. The first occurred in the mid-1990s with the adoption of universal salt iodization, supported by UNICEF and Nutrition International (NI). This was followed by two large-scale projects in the mid-2000s described above, which focused on fortifying vegetable oil and wheat flour and largely were supported by HKI, Global Alliance for Improved Nutrition (GAIN), United States Agency for International Development (USAID), Clinton Global Initiative, and the Government of Taiwan. Much of the financial backing for regional LSFF then ended in 2016 (Touaoro and Ndiaye 2022).

In recent years, funding and interest by donors has been revitalized. Several new and old partners are active in the LSFF landscape in West Africa, including UNICEF, FAO, GAIN, HKI, Catholic Relief Services (CRS), TechnoServe, USAID, Bill & Melinda Gates Foundation (BMGF), GIZ, and WFP. These partners have all been supporting efforts towards greater regional harmonization and/or for looking into potential additional vehicles for LSFF, including rice and bouillon cubes. CRS in particular began playing a larger role in the LSFF sphere in 2022 through support from BMGF and GIZ, with specific attention to enhancing a regional alliance for LSFF. Through several recent workshops with donor, technical, and national government partners that were in Abidjan (2023), Cotonou (2024), and Abuja (2024), CRS has worked with WAHO and ECOWAS to launch a regional alliance for food fortification in West Africa. In addition, it has been extremely active at holding workshops at national level to help establish or reinforce national NFAs, to strengthen the capacities of public sector institutions responsible for regulatory monitoring, and it has provided several governments iCheck devices (see Appendix 1).

[12] In the past, SONACOS Senegal also was a member of AIFO but they are no longer listed on AIFO's website.

Other partners have had specific roles in the LSFF of certain countries. For instance, World Vision was involved in Senegal through the MICAH program that focused on rural community engagement in fortification (see Mildon et al. 2015). Gret, the French NGO, has, with financing from the French *Agence Française de Développement* (AFD), been supporting fortified infant flours in certain countries like Burkina Faso, Mali, and Niger for more than 15 years (Gret 2022). In doing so, it has supported the creation and distribution of quality standards as well as tax-free status for nutritional inputs (Sirdey and Moisa 2020). The African Development Bank (AfDB) has been involved episodically and funded a feasibility study in 2008 about the viability of a harmonized approach to LSFF (Traore 2008). More recently, the AfDB prioritizes LSFF in its Multi-Sectoral Nutrition Plan (2018-2025), emphasizing its efforts to improve harmonization of quality assurance standards for food processing and fortification (AfDB 2018). United Nations Industrial Development Organization (UNIDO), supported by the EU, also has been an important player in the development of the ECOQMARK logo with ECOWAS and strengthening laboratories in the region (Traore 2008; UNIDO 2024).

V. Domestic Political Economy

The root of many political economy challenges at the regional level related to LSFF can be linked to challenges over varying interests and incentives among domestic stakeholders. Four broad groups of binding constraints are highlighted here. The first relates to the functioning and sustainability of national fortification alliances. The second constraint relates to coordination issues among relevant ministries overseeing LSFF efforts. The third relates to conflicts between the domestic private sector and the state over the business enabling environment. As one of the more conflict-affected regions of the world, a fourth concern is how war and insurgent violence generates unequal access to fortified foods. Each of these are reviewed in detail below.

National Fortification Alliances

National fortification alliances (NFAs) are a common tool used across many countries in West Africa and elsewhere for bringing together government, private sector, technical and donor partner stakeholders relevant to LSFF. In some cases, civil society also has been involved. As a convening body, these alliances are critical for communicating priorities across stakeholder groups and diffusing new information. Ojomo and Nyumuah (2023) offer a highly comprehensive review of LSFF alliances in West Africa and the strengths and weaknesses of their different operational structures, as well as variations between anglophone and francophone countries.

Importantly, the efficacy of these alliances varies according to their financing modalities and which ministry is in the lead. Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Niger were among the earliest to have established alliances in 2002 and 2003.[13] Senegal and Nigeria followed in 2006 and 2007, respectively. Other countries in the region, such as Guinea, Guinea-Bissau, Liberia, Sierra Leone, and Togo established NFAs from the 2010s onwards (Jarvis 2009; Ojomo and Nyumuah 2023). The primary challenge for these NFAs is funding, which disproportionately comes from donors and technical partners (Touaoro and Ndiaye 2022). Several ones that started in the early 2000s, such as in Côte d'Ivoire and Mali, became non-operational as soon as donor project

[13] For Burkina Faso, Mali, and Niger, their original alliances were more technical committees.

cycles ended, and they have only recently been re-activated. Benin's Food Fortification Commission, established in 2012, has been inactive for many years due to a lack of funding (Santos et al. 2024). Likewise, Guinea's is not fully functioning.[14] Even more than a decade ago, observers noted that in Guinea, "The Guinea Alliance for Food Fortification has not yet demonstrated that it is able to function without significant technical support from HKI or other partners" (Nielsen and Ibrahim 2014). Ghana's NFA also began to flail when donor funding stopped (Ojomo and Nyumuah 2023), but since June 2023, the country has tried to reactivate it.[15] In Sierra Leone as well, the NFA has become largely dormant, with a representative noting that the country's fortification program effectively ended when HKI support ended.[16] Cape Verde has never had an NFA, leading one representative from the country to note, "Due to the lack of an alliance, we really fragment our actions and don't have enough collaborations at the national level and don't have many stakeholders involved or collaboration with the industries or with the ministries."[17] In 2024, CRS began exploring establishing an NFA in Cape Verde while also working with Liberia's NFA to review its strategic priorities and, along with BMGF and USAID, working to reinvigorate Togo's NFA (see Appendix 1). Nigeria's NFA has been much stronger, with substantive support from GAIN (Ojomo and Nyumuah 2023).[18]

Most countries do not have a consistent budget line for the department that chairs the NFA in the national budget, even though, as seen in Figure 2, ECOWAS Ministers of Health recommended as far back as 2006 that national nutrition programs should create a line item in their activities to support NFAs (Touaoro and Ndiaye 2022). Senegal is an important exception. The country's food fortification strategy and program (2006-2011) was financed by GAIN, NI and HKI (Abdoulaye and Manus 2018). However, its NFA body, known as the *Comité Sénégalais pour la Fortification des Aliments en Micronutrients* (COSFAM), is officially supposed to be supported through a government grant of approximately CFA 100 million (approximately USD 150,000) per year (Touaoro and Ndiaye 2022). Nevertheless, COSFAM has not always received this allocation, and most of the grant is simply to cover operational expenses rather than those for fortification activities (Touaoro and Ndiaye 2022). The nutrition council in which it is embedded, known as the National Nutrition Development Council (CNDN), has not received funding for supporting oil and flour fortification activities since 2017 (Touaoro and Ndiaye 2022).

Another important variation among the region's NFAs relates to ministerial leadership. Several, such as in Burkina Faso, Côte d'Ivoire, and Liberia, are overseen by ministries of health (Touaoro and Ndiaye 2022), and this likely improves linkages to other sectoral activities, including multi-sectoral nutrition programs. Other NFAs, as in Mali and Senegal, are led by ministries of commerce and industry (Touaoro and Ndiaye 2022), which allows for a greater awareness of how LSFF policies affect the private sector. In Nigeria, the NFA was originally under the National Planning Commission but more recently is chaired by the private sector with National Agency for

[14] Regional LSFF workshop, Cotonou, Benin, March 2024.
[15] Ibid.
[16] Ibid.
[17] Ibid.
[18] There is little recent published information about the cost of NFA meetings, but one older study reported that in Nigeria, the NFA meetings cost $40,000 every quarter to cover the costs of travel for members to attend (Traore 2008).

Food and Drug Administration and Control (NAFDAC) serving as the secretariat (Ojomo and Nyumuah 2023).

Collectively, these issues about NFAs raise several priorities at the regional level. First, if sustainable financing has already been identified as a binding constraint for NFAs at the country level, it is imperative to avoid duplicating this challenge at the regional level. Second, the fact that countries' NFAs are so unequally capacitated means that there is a likelihood for biased negotiations at the regional level over key issues related to standards, enforcement, and the enabling environment for the private sector. Third, there is the possibility of different ministerial priorities being integrated into regional negotiations that reflect the heterogeneous institutional arrangements that countries have via their NFAs, i.e. some NFAs led by nutrition and others by trade and industry.

Programmatic and Multi-agency Coordination

The fact that different ministries lead LSFF efforts raises several additional important issues because there often are sometimes divergent preferences across ministries. LSFF requires coordination with not only ministries of health but also ministries of commerce and trade on customs regulation, import duties, and wholesale and retail distribution. Ministries of industry are key for regulation of agro-processing, and ministries of agriculture are critical for prioritizing investments in commodity value chains that are essential fortification vehicles. This requires a high level of coherence across policy initiatives that fall across these multiple ministries. At the same time, past experience with, for example, fortifying edible oil has revealed that there are strong power asymmetries and hierarchies across ministries, often with ministries of commerce and industry exerting more influence than health over policy regulation related to LSFF (Jarvis 2009).

The roles and responsibilities of different government ministries and agencies can also be confusing for the private sector, especially regarding the difference between standards agencies that prescribe rules and regulations, inspections agencies that can sanction non-compliance, and testing agencies that verify (non)conformity but lack sanctioning power. In Côte d'Ivoire, for example, the manufacturers believe that the distinct roles and responsibilities of the various bodies in charge of inspection and testing (e.g. LNSP, DPAN, and ANEA) are not well-specified (Touaoro and Ndiaye 2022). Similarly, in Burkina Faso, multiple agencies have duplicative mandates, undermining clarity by private sector actors about who is primarily responsible for monitoring compliance (Ojomo and Nyumuah 2023). Previously, a similar dynamic was apparent in Nigeria with perceived overlaps among mandates between NAFDAC, the Standards Organization of Nigeria, and the Federal Competition and Consumer Protection Commission (FCCPC. This confusion can also exist at the level of coordinating bodies; for instance, in Senegal, stakeholders note a lack of awareness about the distinct responsibilities of the CNDN and the Senegal Committee for Food Fortification with Micronutrients (Touaoro and Ndiaye 2022).

Another coordination challenge relates to the NFAs vis-à-vis other nutrition efforts in a particular country. A weakness of NFAs is that they are perceived as advocating for a singular nutrition intervention, rarely well-integrated into national nutrition and food security structures (Touaoro and Ndiaye 2022), and sometimes seen as parallel structures to the Scaling Up Nutrition networks. Several stakeholders have further noted that nutrition professionals sometimes organize according to very specific micronutrient issues that causes a disconnect with broader nutrition

interventions, draining participants' time: "In Sierra Leone, we are concerned that we are using the same people all the time…How do we coordinate all these players? We don't need separate committees for anemia, salt iodization, etc."[19] When NFAs operate in parallel to other existing nutrition security bodies, donor and partner resources are spread even thinner while the transaction costs of coordination further increase. Consequently, in Burkina Faso, nutrition professionals have chosen not to develop a national fortification strategy because they do not want to create confusion with the country's existing multi-sectoral nutrition strategy.[20]

Business Enabling Environment

One of the most contentious domestic political economy issues revolves around the enabling environment for the private sector to implement LSFF. Taxation on premix imports represent a longstanding grievance of the private sector. Premix refers to the vitamins and minerals, typically blended into a powder, that are combined with specific foods during processing in order to enhance nutrition value. The global price of vitamin A has risen from $40 to $67 between 2012 to 2021 (Touaoro and Ndiaye 2022). Once import duties are added to the cost, this affects the affordability of fortifying, especially for smaller domestic companies. Larger domestic companies and foreign-owned ones, which play a dominant role in most West African countries outside Nigeria (Traore 2008), typically are more capable at absorbing these costs. By contrast, members of AIFO-UEMOA have complained that they are struggling with not only the costs of pre-mix import tariffs for fortified oil but also the reagents for testing and the VAT on the raw materials.[21] They claim that the costs of fortification add about 1.11 percent to their costs of production but that they do not pass on the costs to consumers, which affects their profits. As such, they are trying to conduct advocacy with decision makers about improving their access to raw materials.[22] Much like food safety and certification standards, mandatory LSFF standards can generate inequalities among large and small and between foreign and domestic industries, potentially exacerbating corporate concentration for particular food vehicles.[23] One study across multiple markets in Burkina Faso

[19] Regional LSFF workshop, Cotonou, Benin, March 2024.
[20] Ibid.
[21] One option is to pursue at regional level Touaoro and Ndiaye's (2022) idea of a Fortification Support Fund, which is a financing scheme intended to help companies sustainably obtain premix, equipment, and rapid test kits. A regional bank, such as the AfDB could provide financing to companies that are recognized by the regional food fortification alliance and that have already demonstrated a commitment to LSFF.
[22] Regional LSFF workshop, Cotonou, Benin, March 2024.
[23] In the past, domestic processors in West Africa have worried about the arrival of foreign multinationals involved in oil and wheat flour processing. For instance, in 2014, AIM was upset about the arrival of Singaporian group Olam into the Senegalese wheat flour processing scene and Olam's receipt of a loan from the African Development Bank of more than $80 million to support its processing activities in Africa. AIM felt that the milling landscape in Senegal was already oversaturated and processing more wheat than demanded, forcing some smaller actors to have to leave the industry (Marot 2014). Moreover, major international companies are involved in importing rice into West Africa, including Olam, Stallion Group, Louis Dreyfus Company, and Phoenix Trading while the percent of milled rice imports exceeds 60 percent in about one-third of ECOWAS member countries (FFI and GAIN 2016). This means that scaling up domestically fortified rice through WFP and others could be challenging if domestic millers ultimately cannot compete with these importers.

found that imported oil and salt made up a larger share of fortified products than those domestically-produced (GAIN 2018).

Two countries in the region have been able to reduce import tariffs for vitamin and mineral premixes. The first is Côte d'Ivoire, though it is unclear whether such reductions were part of any explicit lobbying by the fortification community or simply the outcome of the country's package of trade reforms initiated in 2008 to lower or remove tariffs for a wide range of goods. The second country is Nigeria where premix tariffs of 20 percent long have been a major issue of contention between industries involved in food fortification and the government. Nigeria's NFA played a major role in this process by lobbying directly to the Director General of Customs in 2023 to argue that premix is not a finished product and that by taxing it as one, there were potential disincentives to the private sector and implications for the health objectives of the public sector. After obtaining approval from the Customs Authority, the premix taxes were reduced from 20 to 5 percent.[24] This case demonstrates the value for the private sector of an effective NFA lobbying entity.[25]

Several countries are trying to follow suit. Senegal's COSAM is drafting a document for submission to the government that argues for exemptions for premix imports and is developing a lobbying strategy.[26] In Burkina Faso, partners are considering ways to integrate premixes into the list of essential drugs to reduce the taxes.[27] At the regional level, this suggests that a regional fortification alliance needs to be capacitated enough to identify a concerted approach for lobbying for the exemption or reduction of premix taxes.

Besides the premix taxes, accessibility to premix is a common concern in the region outside of Nigeria. Access and affordability have often been facilitated in the short-term by the different donor and technical partners who are active in the region. Several of these have even subsidized the price to incentivize LSFF. Yet, in several cases documented by Touaoro and Ndiaye (2022), the lack of a proper exit strategy by partners can sometimes leave industry scrambling to sustain their LSFF efforts and relying on substandard or even counterfeit premix products.

Another component of the business enabling environment is commodity price inflation that affects private sector competitiveness and the ability to source raw materials for fortified foods. In 2009, for instance, a crash in cotton prices resulted in several domestic oil processors in countries like Burkina Faso and Mali no longer able to source sufficient raw materials—such as cottonseed for cotton seed oil—and consequently, foreign oil imports flooded those markets to meet domestic demand (Jarvis 2009). More recently, food price inflation in West Africa has been a concern due to the impacts of the Ukraine War as well as currency devaluation in Nigeria, conflict in the Sahel, and climate impacts on agricultural production (Adetayo 2023).

A key source of vulnerability for wheat flour fortification is that much of West Africa depends on importing raw wheat rather than producing it locally. Just like during the 2008-2009 global food

[24] Regional LSFF workshop, Cotonou, Benin, March 2024.
[25] Outside the West African region, several other countries have successfully negotiated reductions or exemptions of import tariffs on fortifications and equipment, such as Tanzania and Malawi (Mildon et al. 2015).
[26] Regional LSFF workshop, Cotonou, Benin, March 2024
[27] Ibid.

price crisis, one way that governments have dealt with spikes in food prices is to impose price ceilings on certain staple foods, such as bread, wheat flour, and oil. While this protects food access for the poorest households, millers are often bearing the cost. In Senegal, in June 2024, wheat flour millers announced that they would stop producing flour for bakeries as a result of a government-imposed price ceiling that would undermine the economic viability of the millers (AFP 2024). Two years prior, during Covid-19, Senegalese millers also went on strike to demand that the Ministry of Commerce review the prices set for bread and flour (Touaoro and Ndiaye 2022). A similar situation exists in Mali where the government approves the ceiling price of flour to ensure consumer welfare.

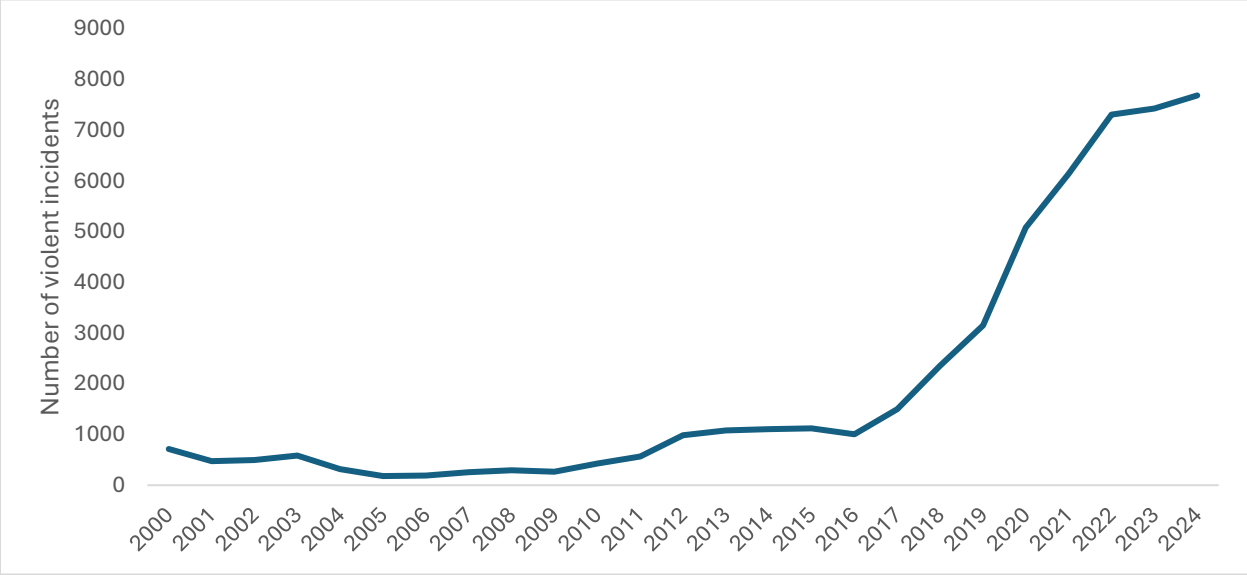
Members of AIFO have made the same complaint, noting that the price ceilings set for sources of edible oil, such as cottonseed in Benin, Burkina Faso, Côte d'Ivoire, and Togo, may benefit cotton ginners and farmers but be disadvantageous for oil mills and consumers. They have also called for an export ban on peanuts produced in the region, especially in Senegal, to ensure enough raw material for oil processors (Bouda 2016). More generally, they believe that at least in UEMOA, oversight of the borders and enforcement of food safety standards is too lax, allowing for the import of oils from Asia that do not adhere to regional standards (Akonga 2018).

Conflict and Political Turnover

Unfortunately, West Africa is considered one of the most conflict-prone regions of the world, a trend that has become exacerbated in recent years due to instability in the Sahel region (see Figure 3). This has important implications for LSFF efforts in the region because historically, conflict has both disrupted LSFF programs and resulted in large subnational gaps in fortified food coverage. For instance, as a result of civil war in Côte d'Ivoire in the late 2000s, samples of vegetable oil showed that 81 percent was adequately fortified with vitamin A in the South while the equivalent was 12 percent for oil samples in the North of the country. The lack of government control and porous borders in the North of the country were identified as key reasons for the disparity (Jarvis 2009).[28] Similarly, Guinea had a relatively vibrant LSFF program at one point and was the first francophone African country to fortify all cereal wheat flour with iron, folic acid, and B-group vitamins (Traore 2008). However, the biggest wheat flour industry, *Le Grand Moulin du Guinea,* ultimately went bankrupt at the time HKI finished its initiative there. Subsequent political conflict in 2013 disincentivized other partners from getting involved to support the wheat flour industry (Nielsen and Ibrahim 2014). Appendix 1 highlights episodes of conflict and coups in certain ECOWAS member states over the last thirty years in tandem with their LSFF policy efforts.

[28] See also Gaber and Patel (2013) for further details of how conflict in Côte d'Ivoire undermined the country's broader health system.

Figure 3: Conflict Trends in West Africa since 2000



Source: Calculated from the Armed Conflict and Location Event Database (ACLED). Violent incidents refer to battles, targeting of civilians, and explosions.

More recently, the security challenges in Burkina Faso, Mali, Niger, and Nigeria are perceived to disrupt the movement of supply and distribution of fortified products in the region (Touaoro and Ndiaye 2022), and vast areas of ungoverned territory undermine efforts at enforcement and surveillance of fortified products. In Burkina Faso, for example, the Burkinabe Agency for Standardization lacks a presence in the interior of the country, meaning there is no guarantee that products in those areas are meeting fortification standards (Touaoro and Ndiaye 2022). Beyond conflict, political turnover has been observed as a barrier to momentum on LSFF at the national level (Jarvis 2009; Sablah et al. 2012). This turnover can result from either an election whereby a new leader comes in and changes his/her cabinet or when there is volatility in ministerial appointments, particularly among ministries that lead LSFF efforts, such as health and industry.

For regional harmonization efforts, these lessons suggest that there will need to be mechanisms for LSFF surveillance in the ungoverned spaces across the region, which are often where the neediest communities are located. In addition, regional harmonization efforts ideally should incorporate political risk mechanisms to anticipate where conflict may emerge and to keep countries involved in LSFF programming even when conflict may relegate this intervention behind other priorities. Furthermore, remaining alert to the electoral calendar and factions within governing parties could assist with anticipating possible shifts in leadership that could affect LSFF efforts.

In sum, there are several key domestic factors that influence the sustainability of a regional harmonization agenda. First, national fortification alliances are the main coordinating mechanism for dialogue and policy engagement at the national level, and a similar entity is being replicated at the West African level. As such, it is critical to both address the frailties of extant NFAs and prevent

them from being elevated at the regional level, including the lack of sustainable funding to these NFAs for in-depth research and analysis, meetings, and strategy development. Second, integrating LSFF into broader nutrition policy mechanisms, rather than creating duplicative coordinating platforms and strategies just for fortification, or just for specific food vehicles, could mitigate the thin distribution of scarce domestic resources—both financial and human—across multiple initiatives. Third, it is imperative that domestic decisionmakers reconcile policy inconsistencies that deter or frustrate the business community from investing in LSFF. Primary amongst these are the taxes on pre-mix imports, but additional concerns include the use of price ceilings on bread in some countries that further escalate the business costs of millers fortifying wheat flour. Fourth, conflict perpetuated by non-state actors is a growing concern in the region and threatens supply chains for raw materials and vitamin premixes as well as accessibility to, and affordability of, fortified foods for the most vulnerable.

VI. Cross-country Political Economy Issues

While the previous section highlighted various factors within each country that need to be considered to scale up LSFF in the region, this section focuses more on political economy bottlenecks that affect cross-country cooperation in this policy domain. Foremost among these are the region's highly porous borders, which encourage smuggling and propel governments to erratically implement different trade bans. Variations in fortification standards, as well as different views over appropriate food vehicles, also undermine efforts towards creating a unified regional approach to food fortification.

Porous Borders

Informal cross-border trade poses a particular challenge to oversight of adherence with LSFF standards in West Africa. In fact, informal unrecorded cross-border trade in ECOWAS, especially for agricultural products, is estimated to exceed formal trade (Aikins 2024). This is largely due to the lack of full implementation of the CET and the ECOWAS trade liberalization scheme and because various non-tariff barriers, including bureaucratic processes at the border, checkpoints, licensing, and registration procedures make smuggling more attractive (Apiko, Woolfrey, and Byiers 2020; Odijie 2023; Ramanzini Júnior and Luciano 2020). Trust networks based on ethnic, familial, and political ties also facilitate these activities in the region (OECD and Sahel and West Africa Club 2017), as do the benefits that certain political elites with agricultural trading interests accrue from differential trade and tax policies across borders that benefit their businesses (Odijie 2024).

This context can also affect the business environment for processors committed to LSFF and the broader access to fortified foods for consumers. In particular, imported products that are deemed fortified by one ECOWAS country may fall short of regional standards depending on the quality of the oversight and testing in the country that represents the first port of call into the REC. According to Nyumuah and Ojomo (2023), not all ports of entry are equipped with rapid test kits, and customs officials are not always best-placed to regulate adherence to fortification standards. For intra-regional trade of food vehicles that should be fortified, certain categories of vehicles—like peanut oil ("segal") or cottonseed oil—are both produced and traded informally in the region but rarely fortified with vitamin A and escape enforcement efforts (Touaoro and Ndiaye 2022).

Trade Protectionism

Porous borders, along with government ideology about building self-sufficiency, has been a motivation for protectionist policies by some West African countries. As seen in Figure 4 below, Nigeria is the most protectionist country in West Africa based on import restrictions, followed by Ghana and Senegal.[29] This is particularly a concern for harmonization of LSFF around edible oils and rice. Such protectionist impulses can reflect both government ideology and be especially pronounced during periods of crisis when there are concerns about food security; during the 2008 food price crisis, for instance, many countries in the region enacted rice self-sufficiency policies that were problematic for regional cooperation on LSFF. As noted by Tsang et al. (2018, 22), "significant barriers to rice fortification in West Africa include 'protective national rice self-sufficiency' policies and unofficial trade across porous land borders."

Nigeria has taken the most extreme approaches to protectionism. Despite approving the CET, the country retains many different supplemental levies and duties on the imports of certain goods. This includes import duties that exceed the 70 percent limit set by ECOWAS for several food vehicles that it fortifies, including rice (120 percent), wheat flour (100 percent) and sugar (80 percent) (USTR 2024). Most dramatically, it closed its land borders in 2019 for more than a year to avoid rice imports from Benin; Benin had reduced its rice import tariffs from 35 to 7 percent in 2014, and the disparity with Nigeria's rates made the latter attractive for Benin's importers to bring in Thai rice and then gain a higher profit by reselling into Nigeria (Kassa and Zeufack 2020). If West African countries move to a mandate for fortified imported rice, and such tariff disparities persist along with poor border enforcement, domestic processors might be disincentivized to incur extra fortification costs when also competing with cheaper imports. At the same time, fortified imports into one country need proper oversight and testing to ensure that consumers are indeed receiving fortified goods that move across borders.

A similar concern has been observed with vegetable oil. Imports of oil into Benin and Togo are often re-exported to Nigeria due to low tariffs in the former and higher in the latter (Joseph-Palmer 2019). Yet, trade disputes are also a source of contention for West African processors fortifying their oil with vitamin A. A representative of AIFO has lamented that oil processors in Benin cannot be registered with Nigeria's NAFDAC and that without that registration, no product can enter Nigeria.[30]

More broadly, Nigeria has, since 2015 to 2023, imposed foreign exchange restrictions for domestic producers to import more than 40 different product categories, including refined vegetable oils (USDA 2023), and it has retained an import ban on about 45 categories that includes most fortified food vehicles (USTR 2024). However, in July 2024, in order to deal with food price inflation, Nigeria allowed a temporary, duty free window for food imports for 150 days to deal with price inflation and provide processors with affordable raw materials (S&P Global 2024).

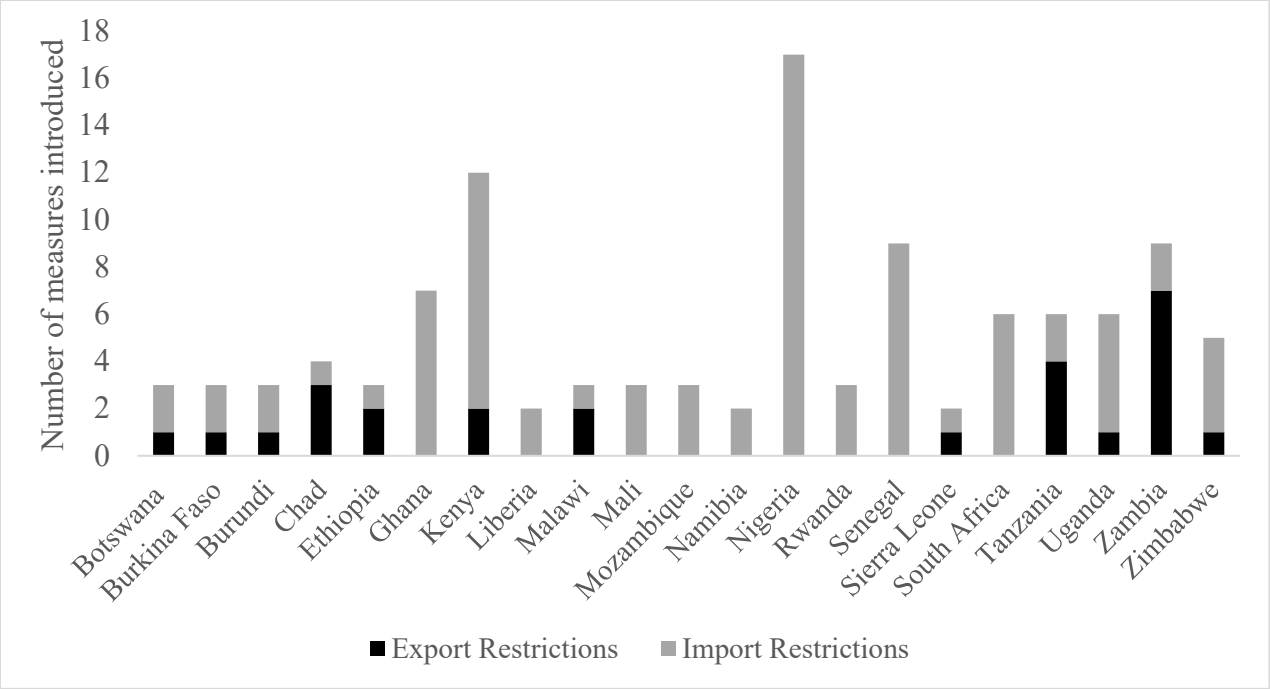
In Côte d'Ivoire, almost all raw wheat is imported but there is an expanding wheat flour industry, with three large players (*The Grands Moulins d'Abidjan, Les Moulins de Côte d'Ivoire, and*

[29] There are two main informal cross-border trade corridors in West Africa, Benin-Nigeria-Togo and The Gambia-Senegal (Joseph-Palmer 2019).
[30] Regional LSFF workshop, Cotonou, Benin, March 2024

Les Moulins Modernes de Côte d'Ivoire) as well as two others preparing to enter the market. However, high costs of wheat flour over the last three years have prompted civil society groups to launch a "buy local" campaign to encourage a switch from wheat flour to cassava and corn flour in bread-making (Yao 2024). These types of price shocks and campaigns, if sustained and scaled, can have implications for the types of food vehicles that are prioritized for fortification. Moreover, high prices of wheat flour have prompted export bans with knock-on effects for neighbors. For instance, in 2022, to deal with price inflation, Côte d'Ivoire banned the export of wheat flour for six months and lowered the VAT on wheat flour from 18 to 9 percent. This resulted in a large price differential from the wheat flour sold in Ghana and stimulated illegal smuggling by traders across the borders, prompting Ghana's flour milling companies to protest. One of their main arguing points was that the cheaper Ivoirian flour lacked the required vitamins and minerals required by the Ghanaian Food and Drugs Authority (Asare 2022).

In the wake of these incidents and following Nigeria's example, Ghana introduced the Import Restrictions Bill in 2023 to implement import restrictions on 22 products, including agricultural goods such as rice and sugar (GoG 2023). While the Bill ultimately was rescinded, it did implement in August 2024 a ban on rice, along with maize and soya beans, to improve food security in the country (Nana and Kwafo 2024).

Figure 4: Trends in Trade Policy across Selected African Countries, 2010-2024



Source: Data calculated from the Food and Agriculture Policy Decision Analysis database (FADPA) of the FAO. Import restrictions include import tariffs, import bans, and import quotas. Export restrictions refer to export taxes, export bans, and export quotas. Data are up to January 2024 and does not capture the length of time that policies were imposed.

Different Approaches to Standards

Several countries in the region have adopted different standards from their counterparts and deviated from the ECOSHAM standards provided in Table 1. Most notably, Nigeria's iron levels for wheat flour are lower (40 ppm instead of 60 ppm) while its vitamin A specifications for vegetable oil are exactly 20ppm rather than allowing for fortification to fall within a 16-24ppm range. Ghana's standard for vitamin A in vegetable oil is even lower at 10 ppm, plus or minus 10%. Both countries are also outliers in that they fortify their wheat flour with vitamin A (Nyumuah and Ojomo 2023). One reason for the variation in standards is because UEMOA countries all initiated their fortification efforts at the same time with support from HKI under the Fortify West Africa initiative, and ECOWAS largely adopted those standards. By contrast, other countries relied on support from other donors, such as GAIN and FAO, which led to lack of standards coordination (Nyumuah and Ojomo 2023).[31]

Many years ago, it was recommended that both Ghana and Nigeria should increase their vitamin A in oil and remove it from wheat since cereal flours are not good vehicles for vitamin A. This was also seen as a way to reduce the cost of the premix for cereal flour and therefore better incentivize the private sector (Traoré 2008). However, this was never done. One hypothesis from a representative at ECOWAS was that, at least in the case of Ghana, fortification was being used as a non-tariff measure.[32] According to Ghana's 2010 Food Law (Gazette No.92), it is mandatory for all wheat flour (and vegetable oils) imported or locally produced to be fortified with vitamin A, along with the other micronutrients that Ghana requires (iron, folic acid, etc.) (Nyarko 2024). This therefore means that if wheat flour is only being fortified to ECOSHAM levels by other countries (besides Nigeria) in the region, *without vitamin A,* then Ghana protects its wheat flour millers from regional competition. At the same time, variation in standards and logos means that Ghanaian wheat and oil processors need to have different products for different markets (i.e. domestic and regional), thereby increasing the private sector's operational costs (Nyumuah and Ojomo 2023).

Controversy over Certain Food Vehicles

The porosity of West Africa's borders has created concerns among nutrition professionals about the implications of adopting fortification mandates for new vehicles in one country that are not supported, and even opposed, in another country. Bouillon, which is used for making soups and sauces, represents the most immediate food vehicle for which there is a clear lack of harmonization across countries in the region. As far back as 2005, there has been discussion about bouillon cubes as a potential vehicle for LSFF due to its high levels of consumption in the region (Traore 2008). Several countries in the region are also considering mandates for bouillon and exploring its potential with the support of HKI, including Burkina Faso, Ghana, Nigeria, and Senegal, which are part of the West Africa Bouillon Initiative. Nigeria has gone the furthest by introducing in September 2024 voluntary specifications for adding minimum levels of iron, zinc, folic acid, and vitamin B12 to bouillon cubes (Adebayo 2024).

Yet, at a regional fortification workshop in March 2024, many public health professionals, including from several of the region's smaller countries (Benin, Guinea) as well as from WAHO,

[31] Harmonization on standards, however, needs to be cognizant of different types of consumption patterns and micronutrient deficiencies in the region.
[32] Interview with ECOWAS representatives, April 9, 2024.

opposed the choice of fortifying bouillon. They raised concerns that it will encourage overconsumption of a product that is high in sodium, and they are resistant to a regional standard that recommends all countries pursue bouillon fortification.[33] As one attendee noted, "It's not good enough to say that just because it's consumed, it should be fortified. Bouillon has salt levels higher than the WHO recommends."[34]

On the other hand, advocates pointed to analysis by the University of California at Davis, which found that in Senegal, only 14 percent of salt consumption in the country comes from bouillon while the remainder is from dried fish and direct salt consumption. Proponents further pointed to the fact that despite decades of salt iodization, there is no evidence that salt fortification has led to overconsumption of the condiment.[35] Similarly, a representative of a UN organization noted that "Whether you fortify bouillon or not, people will eat it. The vehicle is not risky, it's the quantities that are consumed."[36]

VII. Regional Political Economy

At the regional level, there are several issues that affect the efficacy of especially ECOWAS to support LSFF harmonization. These include the possible exit of some of its members, insufficient resources for operations, a lack of clarity over the fortification logo, and lingering incongruencies with UEMOA.

Potential Exit of ECOWAS Members

On the political front, a pivotal binding constraint to West Africa's LSFF harmonization agenda relates to the planned exit of three ECOWAS members—Burkina Faso, Mali, and Niger. This trio of countries are currently run by military juntas who came to power by usurping power from democratically elected leaders through coups in 2021 (Mali), 2022 (Burkina), and 2023 (Niger). Given that ECOWAS functions simultaneously as a trade and governance body, with member states passing a Democracy and Governance Protocol in 2001 that condemns military coups, it has imposed sanctions on all three countries, as well as Guinea. Although food was exempted from the sanctions, the increase in transport times and other logistical hurdles contributed to food price inflation in a region already considered one of the world's most expensive in which to do business. In Niger, for instance, the price of rice rose from 8 to 38 percent in the four months after sanctions were imposed.[37] At the same time, non-sanctioned ECOWAS countries were also badly affected; Benin experienced a dramatic fall in its revenues at the Port of Cotonou, which is the main transit source for goods going into Niger (Chemam 2023), while the sanctions on Mali badly hurt revenue generation at the port of Dakar (Assoko and Diallo 2022).

Claiming that it was unfairly treated by ECOWAS, the trio declared in January 2024 that they would leave ECOWAS and form their own Alliance for Sahelian States (*Alliance des États du Sahel,*

[33] Regional LSFF workshop, Cotonou, Benin, March 2024.
[34] Ibid.
[35] Ibid.
[36] Ibid.
[37] See the World Bank's monthly price estimates by product and market for fragile and conflict-affected countries: https://microdata.worldbank.org/index.php/catalog/4502

AES), a position that was re-affirmed in July 2024 during their first AES summit and again in ECOWAS' December 2024 summit. Burkina Faso and Niger have also suggested they may leave UEMOA because the monetary union cut them off from regional financial markets. The implications of exit are most obvious for trade relations because the trio will be outside the customs union and therefore obliged to adhere to the CET rates while, in return, these countries will revert to using the WTO's Most Favored Nation rates on the remaining ECOWAS members (Pender 2024).

There are several implications of the exit of these three countries from ECOWAS for the regional LSFF agenda. First, access to imported fortified goods and raw materials for domestic processors to fortify mandated food vehicles, such as wheat flour and edible oils, will become more expensive for the trio due to the higher tariff rates they will encounter. For instance, in 2022, more than 80 percent of Mali's imports of wheat flour came from Senegal.[38] In addition, Mali is a main export market for bouillon produced in Senegal (Assoko and Diallo 2022)—a key consideration as that condiment is being considered for LSFF scaling. Similarly, while Burkina Faso produces cottonseed oil, its domestic supplies do not meet consumption demand for edible oils, requiring it to import about half of its palm oil from Côte d'Ivoire.[39] Second, the main ECOWAS body overseeing the LSFF harmonization agenda, WAHO, is located in Burkina Faso. There would be notable transaction costs and momentum lost to relocating the agency and staff to another non-AES country. Third and relatedly, all the institutions of ECOWAS, inclusive of WAHO, are funded through a community levy that each ECOWAS member state contributes. A reduction in ECOWAS members implies a reduction in resources for WAHO (and other ECOWAS bodies), which would affect resources for WAHO's leadership in overseeing LSFF harmonization.

Sufficient Resources for Regional Coordination

A longstanding observation about food and nutrition security programs within ECOWAS is that such programs are reliant on international aid and therefore dependent on the ebbs and flows of development partners because a large portion of the ECOWAS budget is solely focused on operational expenses (FAO 2014). This is equally relevant to a food and nutrition intervention such as LSFF given that WAHO announced in March 2024 its commitment to leading a regional fortification alliance (RFA). In doing so, WAHO intends to serve as a coordinator across the national alliances and help operationalize those that are weaker.[40] To serve this coordinating role, however, the RFA will need a dedicated secretariat that convenes meetings, disseminates standards, and facilitates communication among stakeholders in NFAs. This, in turn, will require resources.

Historically, implementation of planned WAHO activities has been hampered by limited annual budget growth within ECOWAS and volatile disbursement of resources to WAHO (Yeates and Surender 2021). Despite a budget increase as a result of the Covid-19 pandemic, WAHO receives only about 7 percent of the ECOWAS budget as of 2022.[41] Importantly, several member states are in chronic arrears in their payments to ECOWAS while Nigeria and Côte d'Ivoire remain

[38] Data is from the International Trade Centre's World Trade Map database.
[39] Ibid.
[40] Regional LSFF workshop, Cotonou, Benin, March 2024.
[41] Calculated from multiple years of ECOWAS' consolidated financial accounts. The budgets were converted from ECOWAS' Unit of Accounts currency into USD.

the largest funders of the REC, which is perceived to give them an outsized role in shaping policy orientations (Bossuyt 2016).

If an RFA and accompanying secretariat will be institutionalized within WAHO given the current funding landscape, then this will require either a diversion of resources from other health priorities within WAHO, a different distribution of resources between WAHO and the other ECOWAS institutions, or an expansion of revenue raising efforts. If it is to be funded through donor and technical partners, there then need to be safeguards against ensuring that an RFA will not divert donor resources from supporting country-level NFAs. Moreover, a sustainability plan should be established *ex-ante* to avoid replicating at the regional level many of the challenges related to financing and sustainability that have been experienced through national alliances.

ECOWAS and UEMOA incongruencies

Despite the many advantages to a regional harmonization approach, national sovereignty still dominates decisionmaking with respect to LSFF and many other policy domains. As one study notes, the translation of regional commitments into national legislation and implementation often encounters resistance by different interest groups (Byiers and Dieye 2022). Not all countries have actually transcribed ECOWAS LSFF standards into their national catalogue of standards, which leads to uneven enforcement across the region; in fact, as of 2022, only Senegal had done so (Touaoro and Ndiaye 2022). Moreover, these challenges of coordination can sometimes be exacerbated by the fact that the two organizations have different types of ministerial representatives, leading to coordination issues and ministerial turf wars about what is being discussed in each organization. Countries sometimes engage in "forum shopping", especially when there are discrepancies in trade and customs policies that enable the francophone countries to choose to uphold the rules of the organization that offers them the most latitude (Byiers and Dieye 2022).

Logos

A final regional issue relates to the fortification logo. The *Enrichi* logo remains a private logo, managed by AIFO who registered their logo with the African Regional Intellectual Property Organization. NFAs were supposed to allow industries operating in their countries to use the logo, but this does not always happen. For this reason, some processors have noted that it is difficult to use the logo or believe they must be an AIFO member to use it. In Burkina Faso, one specific oil processor exerts that it has an exclusive right to use the logo, barring others from using it.[42] In Gambia, the private sector complains that it takes too long to receive permission to use the logo.[43] In addition, because the French labelling does not resonate with consumers in anglophone countries, Ghana and Nigeria use separate logos in their domestic markets (Nyumuah and Ojomo 2023).

In 2023, the ECOQMARK was launched at the ECOWAS Council of Ministers, which is an ECOWAS product certification mark. It indicates to consumers that a product meets ECOWAS standards (UNIDO 2024), and it can be applied next to the logos from national standards

[42] Regional LSFF workshop, Cotonou, Benin, March 2024.
[43] Ibid.

agencies.[44] As such, this is being piloted in several countries and with several private sector companies to see how well it might work at the regional level. Thus far, however, the logo is not specific to fortification, which could be a deterrent towards increasing public awareness about fortified foods.

VIII. Summary and Recommendations

While the need and potential for regional harmonization for LSFF is widely-recognized, several bottlenecks exist within and across West African countries to realize this goal. This section summarizes several of the key findings based on the political economy bottlenecks discussed in the previous sections and provides some recommendations for addressing them. Some of these issues require systemic and anticipatory interventions based on rapidly changing dynamics in the region while others are targeted recommendations that reflect longstanding challenges that are frequently reiterated by stakeholders.

Systemic and Anticipatory Interventions

Although LSFF is a technical intervention (i.e. adding micronutrients in specific proportions to certain foods to address particular deficiencies), its efficacy ultimately depends on a more holistic awareness of, and engagement with, the larger policy ecosystem in which such interventions are made. This is particularly true for West Africa, which is concurrently dealing with food price shocks, conflict, and climate vulnerabilities. This means that there are competing priorities for resources and policymaker attention in the nutrition space between satisficing basic food security for a rapidly growing population and ensuring that consumed foods address widespread micronutrient deficiencies.

On the whole, the LSFF technical partner community focuses heavily on the business landscape and building processors' capacities, access to equipment, and inputs for fortification. Yet, the experience with LSFF in West Africa suggests a more holistic bundle of support is needed that accounts for a country's macroeconomic environment, aligns with national agro-industrial strategies, and is resilient to global trade shocks. In several instances, currency devaluations, food price inflation, trade bans from other ECOWAS countries, and poor harvests have reduced processors' access to inputs, or consumer price ceilings on flours and edible oils have reduced their competitiveness and, in some cases, put them out of business. A regional market intelligence unit focused on mandated food vehicles and that works with FEWSNET, the Agricultural Market Information System (AMIS), and others could provide donors and technical partners with useful information to support processors with deriving robust business strategies to help them anticipate and adapt to input price shocks.

Besides economic shocks, political risks should be monitored and anticipated given that in the past, conflict has not only stopped donor programming in some places but also undermines the efficacy of LSFF interventions when populations are displaced or resources are diverted to humanitarian efforts. At a larger-scale, and in light of the emergence of AES, monitoring the political risks to a regional LSFF agenda would be useful given that ECOWAS has an expansive mandate, traversing health, trade, peace, and democracy goals, and actions to uphold one goal (e.g.

[44] Ibid.

sanctions against coups) may undermine cooperation in others. To this end, there could be greater opportunities for the LSFF community to utilize the Early Warning System in ECOWAS—housed under the Political Affairs, Peace, and Security Commission and known as ECOWARN—to anticipate possible risks to extant LSFF programs and strategies.

In addition, as both economic and consumption patterns shift in the region and as some governments promote "buy local" campaigns and domestic foodstuffs, new food vehicles are gaining attention over time while others that have long been fortified, such as wheat flour, might become less popular. For instance, governments in several West African countries have used the wheat price crisis as a way to shift towards promoting cassava flour. In Senegal, the government revived in 2023 its earlier 1979 decree that millet needs to be incorporated into breadmaking. In Ghana, the Ministry of Agriculture's Investing in Food and Jobs strategy focused on expanding maize flour. These national decisions could affect where LSFF partners should anticipate building up capacities and supply chains. At the same time, where controversies exist in the region about certain vehicles, such as bouillon, partners could support a process of regional dialogues to identify priority concerns of different constituencies and align data and analysis accordingly.

Targeted Interventions

Beyond systemic issues and those that require adopting an anticipatory approach, the experience with LSFF harmonization in ECOWAS over the last two decades reveals several longstanding problems that have yet to be resolved. First and foremost are the recurrent concerns about the financial sustainability of NFAs in the absence of donor funding; indeed, only Senegal has incorporated a budget line to support the activities of its NFA despite ECOWAS recommending the inclusion of such a budget line to all its member states back in 2006. While NFAs have provided an opportunity for information exchange between public, private, civil society, and research actors, establishing an NFA in every country appears to be a case of "isomorphic mimicry," i.e. the tendency to import structures that have been successful in one context in the expectation that the same success will be replicated (Andrews, Pritchett, and Woolcock 2017). This is particularly true given that there does not yet seem to be much cumulative learning about what makes an NFA successful. Instead, and especially in ECOWAS' smaller countries or those that receive fewer donor resources, the objective should be to integrate the LSFF community into extant multi-sectoral nutrition or food system bodies and processes to reduce transaction costs and time while simultaneously improving coherence with a country's larger nutrition agenda.

Another recurrent issue relates to pre-mix taxes and how the private sector can gain concessions from financial, industry, and customs agencies on these taxes so as to ensure they remain competitive or at least solvent when pursuing LSFF. In this regard, there is a real opportunity to establish a virtual learning lab with nutrition professionals, donors, and technical partners who have worked in countries such as Côte d'Ivoire and Nigeria as well as Malawi and Tanzania where reductions in pre-mix taxes were achieved by the LSFF community. The decisionmakers who were targeted, the evidentiary base they used, and the strategies for persuasion would be a useful public good. In the ECOWAS region, there has been some outreach with the ECOWAS Customs Directorate about whether premixes could be reclassified as an "ingredient," which qualifies them

for a lower tax category.[45] A taxation landscape analysis across the region could help identify who else needs to be targeted for lobbying efforts at the regional level and what types of analysis could be useful for those efforts.

With respect to lobbying at the regional level, there could be distinct advantages to supporting existing regional business associations or facilitating linkages among them across countries. AIFO's sustainability and achievements in the area of edible oils presents a useful reminder that one of the best ways to build up commitment to a regional agenda and reduce nationalist, protectionist impulses is for businesses in the same value chain to share their common challenges and to identify as allies rather than competitors when investing in LSFF. However, such regional business associations appear absent for other value chains that are targeted for fortification. For instance, the AIM-UEMOA is no longer functional in the wheat milling space, and there are no cross-country associations for salt producers.[46] With rice—a very politicized commodity—becoming a more popular vehicle for fortification in ECOWAS, a regional rice producers and millers association could prove a useful vehicle for facilitating cross-country dialogue to advance LSFF goals and thereby increase public and private sector incentives to keep regional rice trade liberalized, even when price shocks occur.

Finally, the informal economy appears to be relatively ignored in current LSFF efforts in the region. Several authors have argued that fortification's ability to exert greater coverage in Africa remains limited because most consumers rely on informal retailers for their food, but such actors are less regulated and also less informed about how to appropriately handle and package fortified foods in the marketplace (see Sirdey and Moisa 2020). More broadly, LSFF efforts appear to be more concentrated on the informal *production* side of LSFF, especially identifying ways to aggregate artisanal producers in larger groups for purposes of ensuring they can be monitored and trained in cost-effective ways. The informal *marketing and trade* dimensions of food are given less attention, mostly because they are more complex and often need to involve local authorities (mayors, district councils, etc.) as well as national ones (Resnick et al. 2019). Given the size of informal cross-border trade in West Africa, the porosity of the region's borders, and the importance of informal retailers as sources of food for the poorest and most food insecure populations, much more effort is needed to identify ways to build up the capacity and incentives of border customs officials and other relevant public sector actors. Partnerships with mayors' and market traders' associations could be a useful way to both educate those stakeholders about LSFF and for donor and technical partners to learn about additional challenges that affect adherence to fortification standards.

IX. Conclusions

After thirty years, West African governments have made impressive strides with harmonizing their LSFF standards and committing on paper to the importance of fortification as one of several instruments for improving micronutrient deficiencies. Likewise, the donor and technical community have worked closely with ECOWAS, UEMOA, and WAHO to help advance the LSFF agenda, support the private sector and NFAs, and identify potentially new food vehicles for support. At the same time, this long trajectory provides the opportunity to reflect on the ways in which political economy

[45] Interview with ECOWAS respondents, April 2024.
[46] Regional workshop in Cotonu, Benin, March 2024.

factors within and across countries intersects with LSFF efforts and sometimes undermines progress. Incoherent trade, tax, and macroeconomic policies in a context of multiple shocks and crises, protectionist impulses aimed at building up domestic agro-industries, lack of financial commitment to LSFF structures in the absence of donor support, and uneven contributions to ECOWAS and WAHO remain barriers to progress. Learning from these lessons and considering how to address LSFF from a holistic perspective that accounts for West Africa's unique demographic, economic, and political characteristics will not only benefit extant harmonization efforts in ECOWAS but also help prepare the region for the African Continental Free Trade Agreement, ensuring broader continental alignment on fortification under the African Union's 2025-2036 food and nutrition security strategy.

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Appendix 1: Select LSFF and political events by ECOWAS country since 2000

Year	Benin	Burkina Faso	Cape Verde	Cote d'Ivoire	Gambia	Ghana	Guinea	Guinea-Bissau	Liberia	Mali	Niger	Nigeria	Senegal	Sierra Leone	Togo
2000 - 2005		• Steering committee for micro-nutrient fortification programs and projects created in 2002		• **Civil conflict from 2002-2004** • Creation of Fortification Alliance in 2003, led by the Ministry of Health and supported by GAIN & HKI • $3 million grant by GAIN and HKI in 2005 to fund premix, provide technical assistance to processors, increase consumer awareness		• National Food Fortification Alliance established in 2002			• **Civil war ended in 2003**	• Technical Committee on Fort-ification established in 2003	• Technical Committee on Food Fortification established in 2003	• Iodine Deficiency Disorder/Universal Salt Iodization Taskforce established in 2001, with support of UNICEF • Mandated fortification of wheat flour, vegetable oil, sugar, and maize flour in 2002	• Salt iodization mandated in 2000 • National Committee for Control of Malnutrition (CLM) established under Prime Minister in 2001	• **Civil war ended in 2002**	
2006 - 2010		• Started in 2007 fortification of vegetable oil with the largest vegetable oil industry, SN-Citec with support from HKI and Taiwan, with financing equivalent to $300,000 • Awareness raising workshop in 2010 on oil fortification held between HKI and the *Ligue des consommat*		• PIPAF program to fortify wheat flour with electrolytic iron and folic acid and palm oil with vitamin A, supported by GAIN and HKI; • Mandatory standards for wheat flour and oil implemented in 2007 • Hosted in 2008 first workshop on micronutrient fortification of cereal flours in Francophone Africa	• Mandatory standards for wheat flour and oil implemented in 2010	• President's Special Initiative on Salt to organize the salt business in 2007 • GAIN Premix Facility established in 2009 • Salt bank cooperative established with GAIN support in 2010 • Mandatory standards for wheat flour and oil implemented in 2009	• **Coup in 2008**			• Launch vitamin A fortified oil in 2006 • Mandatory standards adopted in 2010 for wheat flour and oil • End of funding for NFA in 2010, leading to non-operation	• Creation of national committee on food fortification in 2008 • Mandatory standards adopted in 2010 for wheat flour and oil	• National Fortification Alliance established in 2007	• Fortification alliance was established within CLM in 2006 and referred to as COSFAM • National Fortification Strategy (2006-2011) launched • Standards agency (ASN) adopted in 2008 mandatory standards for edible oils and wheat flour, which came into	• Establishment of NFFA in 2010	• National Committee for Food Fortification established (CNFA) in 2009

Year	Benin	Burkina Faso	Cape Verde	Cote d'Ivoire	Gambia	Ghana	Guinea	Guinea-Bissau	Liberia	Mali	Niger	Nigeria	Senegal	Sierra Leone	Togo
		eurs du Burkina (LCB)		• End of funding for NFA in 2010, leading to non-operation • **Civil conflict from 2010-2011**									force in 2009		
2011 - 2015	• Mandatory standards for wheat flour and oil imple-mented in 2012 • Commissi on Béninoise de Fort-ification des Aliments establishe d in 2012 in the Ministry of Health	• Fortification alliance established, modified from 2002 committee • Mandatory standards for wheat flour and oil implemente d in 2012	• Mandatory standards for wheat flour and oil implemente d in 2014			• Micronutrient task team established to review policies on micronutrient interventions and them to address anemia	• Govt signed decree in 2012 requiring all imported and locally produced wheat flour and cooking oil to be fortified • Creation of the National Fortificatio n Alliance in 2012 • **Civil conflict breaks out in 2013**	• **Coup in 2012** • National Alliance for LSFF establish ed in 2012 • Mandator y standard s for wheat flour and oil impleme nted in 2014	• Establishment of NFA in 2012 • Mandatory standards adopted in 2013 for wheat flour, oil, salt, and sugar	• **Coup in 2011**	• Mandatory fortification of wheat with iron and folic acid and fortification of vegetable oil with vitamin A; • Workshop on sensitizing oil and wheat importers about the fortification standards, supported by HKI; • Iodized salt standard adopted	• LSFF survey in 2012 revealed poor fortification compliance; UNICEF and GAIN donate i-check devices and support training for regulators • Revision of standards in 2015 for wheat flour to include folic acid and zinc	• Workshop on LSFF hosted by the West African association of Science and Food Technology (Waafot) and the *Institut des Technologie s Aliemntaires* du Senegal (ITA) • Launch of bouillon fortified with iron in 2013	• Mandat ory standar ds adopte d in 2011 for wheat flour and oil	• Presidenti al decree in 2012 making it mandatory to enrich refined oil with vitamin A and wheat flour with iron and folic acid
2016 - 2020		• Project Meriem (2018-2021) to support fortified infant flour, supported by AFD and GRET		•Workshop on mandatory fortification of rice organized in 2018 by the Technical Secretariat permanent of the National Nutrition • On May 30, 2018, the Council of Ministers released a decree making it obligatory to fortify flour	• National Alliance for Food Fortificatio n establishe d in 2018 by the National Nutrition Council	• Est-ablishment of *Obaasima* fortification standard in 2016 for fortified foods targeting reproductive age women, supported through GIZ via the Affordable Nutritious Foods for Women project				• Project Meriem (2018-2021) to support fortified infant flour, supported by AFD and GRET	• Project supporting food fortificatio n in Niger (PAFAN, 2017-2021) launched; National Nutrition Security Policy (2017-2025) launched • Project Meriem (2018-	• Strengthening African Processors of Fortified Foods Project (2017-2021) launched, supported by BMGF, Dangote, Technoserve, and Partners for Food Solutions • GAIN conducts survey in 2018 on viability of tomato paste for fortification			• CNFA became dormant in 2018

Year	Benin	Burkina Faso	Cape Verde	Cote d'Ivoire	Gambia	Ghana	Guinea	Guinea-Bissau	Liberia	Mali	Niger	Nigeria	Senegal	Sierra Leone	Togo
				with iron and folic acid, oil with vitamin A, and salt with iodine; • National Alliance on Food Fortification (ANEA) created in 2018							2021) to support fortified infant flour, supported by AFD and GRET				
2021 - 2025		• With support from CRS, Burkina's Alliance Nationale pour la Fortification (ANF) held a training event in 2023 on LSFF for journalists and communicators • CRS provided the government with 15 monitoring devices • **Coup in 2022**	• Work-shop in 2024 supported by CRS, GIZ, BMGF to consider creating national fortification alliance	• Consultation on LSFF with the govt of C d'Ivoire, the WFP, Regional Center of Excellence against Hunger and Malnutrition, WAHO, and the AU	• National Directorate of Health, held meeting supported by in 2024 about food fortification and possible National Alliance for Food Fortification	• CRS donate $90,000 work of iCheck devices, reagent kits to the FDA • Merger in 2022 of the Food Fortification and Salt Iodization platforms	• **Coup in 2021**		• CRS workshop with NFA of Liberia to review strategic priorities for the NFA's 2024-2025 workplan	• **Coup in 2021**	• **Coup in 2023**	• Launch of Micronutrient Fortification Index in 2021, supported by Technoserve and BMGF			• Work-shop in 2023 to help reinvigorate the *Togolese Comite national pour la fortification des aliments* (CNFA) with support of CRS, BMGF and USAID

Sources: Compiled by author based on various secondary sources cited in text

Notes: Boldfacing refers to political events.

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