



Report

Regional Consultative and Capacity Building Workshop on Strengthening Food Fortification Programs: Monitoring and Surveillance Systems



Johannesburg, South Africa
8-10 October 2018

In collaboration with:



Abbreviations

ESCA-HC	East, Central, and Southern Africa – Health Community
FAO	Food and Agriculture Organization
FFI	Food Fortification Initiative
GAIN	Global Alliance for Improved Nutrition
GF-TAG	Global Fortification – Technical Advisory Group
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Points
ISO	International Standards Organization
MIS	Management Information System
NFA	National Fortification Alliance
NTDs	Neural Tube Defects
PHC	Project Healthy Children
QA/QC	Quality Assurance and Quality Control
SADC	Southern African Development Community
SBH	Spina Bifida and Hydrocephalus
TAG	Technical Advisory Group
TOR	Terms of Reference
UNICEF	United Nations Children’s Fund
WHO	World Health Organization

Contents

4	Summary of SADC Member State Fortification Programming Needs
7	Introduction
8	Objectives of Workshop
8	Expected Outcomes
9	Workshop Format
9	Effectiveness Assessment
10	Participants and Presentations
11	Workshop Summary
11	Day 1: 8 October
21	Day 2: 9 October
28	Day 3: 10 October
30	Annex A: Summary Table of SADC Member State Fortification Needs
37	Annex B: Pre-Workshop Assessment Preliminary Report
39	Annex C: Agenda
41	Annex D: Country-specific Presentation Summaries



Southern African Grain Laboratory.
Photo courtesy of the Food Fortification Initiative (FFI)

Summary of SADC Member State Fortification Programming Needs

Many countries in the SADC region are implementing mandatory maize and / or wheat flour fortification or are considering the adoption of this intervention at a national level. Specifically, there are five countries in the SADC region with mandatory maize and / or wheat flour fortification programs (Malawi, Mozambique, South Africa, Tanzania, and Zimbabwe), six with voluntary maize and / or wheat flour fortification programs (Botswana, Democratic Republic of the Congo, Lesotho, Namibia, Eswatini, and Zambia), and five countries that are interested in starting a national cereal grain fortification program but have not done so to date (Angola, Comoros, Madagascar, Mauritius, and Seychelles).

The overall objective of the workshop was to provide guidance to Member States on regulatory monitoring and surveillance good practices and provide an opportunity to learn of each Member State's specific successes and challenges. The workshop focused specifically on cereal grain fortification.

Main Summary Points from Presentations and Reporting out Discussion

The following observations were made during the country and group presentations and subsequent discussions regarding general Member State needs and next steps:

Mandatory Countries

Generally speaking, mandatory countries need support in the following areas:

- Inspector training on new fortification-specific regulatory monitoring practices;
- Recommendations for enhanced premix procurement mechanisms to bring down the cost for industry (e.g. pooled or joint premix orders);
- Adequate testing laboratories (national and / or regional);
- Guidance on *which* qualitative tests to use as best practice in place of frequent quantitative testing (these should be published as recommended tests);
- Effective industry incentives (i.e. tax breaks, etc.);
- Exploring alternative intervention options for reaching those that do not consume industrially produced grain products including viable solutions for small-scale fortification; and
- Generating data on coverage, reach, and impact of fortified foods.

There is an overall need for mandatory countries to generate monitoring data to understand whether or not industry and importers are compliant with national standards. This is due to either a lack of trained inspectors, a lack of capacity to test fortified foods (both qualitatively and quantitatively), and / or a lack of a strong regulatory monitoring framework that outlines how to conduct monitoring and to what institutions the monitoring results should go.

South Africa may need more support around ushering through revised standards and ensuring industries are compliant with the standards. This will not only impact South Africa but the many neighboring countries importing products from South Africa (e.g. Lesotho, Eswatini, Botswana, and Namibia).

Voluntary Countries

Generally speaking, voluntary countries are willing to legislate mandatory fortification with support in the following areas:

- High-level ministerial advocacy for a mandatory program;
- Consumer-level advocacy to increase demand for fortified foods;
- Technical support for standards development and adoption;
- Industry engagement, buy-in, and QA/QC trainings;
- Regulatory monitoring inspector trainings;
- Integration of fortification into food safety parameters and existing surveillance systems; and
- Generating data on coverage of current and potential food vehicles for fortification.

Voluntary countries could potentially benefit the most from SADC Secretariat support that encourages a regional fortification agenda and mandatory legislation and provides guidance on next steps after legislation is drafted.

Not Started Countries

Generally speaking, not started countries need support in the following areas:

- First and foremost, understanding country-specific needs and collecting data on coverage, consumption, and appropriate potential food vehicles for fortification;
- High-level ministerial advocacy for a mandatory program;
- Standards creation;
- Development of a robust monitoring framework for fortification, which includes ensuring that fortification is integrated into a food safety monitoring framework; and
- Industry support and buy-in.

Further efforts are needed from partner agencies and the SADC Secretariat on:

- Effective industry incentives that could motivate industry to produce adequately fortified foods regardless of legislation and enforcement status;
- Best practice for *qualitative* tests of fortified food;
- Support for a regional reference laboratory;
- Exploring alternative intervention options for reaching those that do not consume industrially produced grain products including viable solutions for small-scale fortification;
- Guidance on which regulatory monitoring tools to use and when based on the status of programs;

- The collection of coverage, reach, and consumption data for potential fortification vehicles (lacking in most countries).

Food safety monitoring frameworks exist in most countries, which can be leveraged for inclusion of fortification monitoring. Health or nutrition surveillance programs are ongoing in most countries, which present an opportunity for including fortification indicators.

General Remarks from Participants:

- A request was made that WHO be present at any future regional fortification workshops.
- Further exploration and recommendations are needed for new fortification vehicles that do not currently have WHO recommendations (e.g. oil).

The tables in **Annex A** provide a **high-level summary of each Member State's challenges, priority next steps, and technical assistance required** as outlined by the Member State participants. This information was obtained from Member State presentations made on Day 2. Full presentations can be found [here](#).

Introduction

The Southern African Development Community's (SADC) Regional Food and Nutrition Security Strategy (2015 – 2025) recognizes that micronutrient deficiencies contribute substantially to the global burden of disease and that food fortification has been proven to be a cost-effective means of reducing the prevalence of such micronutrient deficiencies, specifically, iron-deficiency anemia and neural tube birth defects, and improving overall health.

As a result, many countries in the SADC region are implementing mandatory maize and / or wheat flour fortification or are considering the adoption of this intervention at a national level. Specifically, there are five countries in the SADC region with mandatory maize and / or wheat flour fortification programs (Malawi, Mozambique, South Africa, Tanzania, and Zimbabwe), six with voluntary maize and / or wheat flour fortification programs (Botswana, Democratic Republic of the Congo, Lesotho, Namibia, Eswatini, and Zambia), and five countries that are interested in starting a national cereal grain fortification program but have not done so to date (Angola, Comoros, Madagascar, Mauritius, and Seychelles).

A key component of successful food fortification programs is the internal and external monitoring by which the private and public sectors collaborate to produce quality fortified food. However, available information to date on global regulatory monitoring systems for fortified cereal grains indicates weaknesses in such systems for most countries. As a global fortification community, there is acknowledgement that legislation and standards alone are not enough to ensure positive nutritional change and that the success of these fortification programs hinges on the establishment of strong regulatory monitoring systems. Similarly, tracking the coverage and impact of programs through surveillance systems is vital to ensuring the program is achieving its intended objectives.

During the 2017 SADC Ministers of Health meeting, the need for regional recommendations and a regional framework for monitoring fortification programs was noted as a priority area by Member States. As a result, the SADC Secretariat was directed to engage partners to operationalize this priority activity in addition to developing regional minimum fortification standards for SADC Member States, again, as guidance for their own national programs.

It is against this backdrop that the SADC Secretariat and the Government of South Africa's Department of Health in partnership with Smarter Futures convened a stakeholder consultation and capacity building workshop on the monitoring and surveillance of food fortification programs. Smarter Futures is a Partnership Network for Africa, which consists of the Food Fortification Initiative (FFI), the International Federation for Spina Bifida and Hydrocephalus (IFSBH), AkzoNobel, Helen Keller International (HKI), Muhlenchemie, the World Food Programme (WFP), and the Global Alliance for Improved Nutrition (GAIN) with co-financing from the Dutch Government. Since 2009, Smarter Futures has offered fortification trainings and consultations for millers, food control regulatory personnel, and public health laboratory staff throughout Africa.

Objectives of the Workshop

The overall objective of the workshop was to provide guidance to Member States on regulatory monitoring and surveillance good practices and provide an opportunity to learn of each Member State's specific successes and challenges. Specifically, the objectives of the workshop were to:

- Capacitate Member States to implement new streamlined approaches to conducting regulatory monitoring for food fortification programs and how to operationalize those approaches at a country level;
- Share good practice related to food fortification regulatory monitoring;
- Review the current state of fortification in all SADC countries (including current fortification standards in comparison to WHO recommendations for maize and wheat flour fortification) and develop a road map for the scale up of mandatory fortification across the region and country-specific roadmaps that prioritize critical next steps that can lead to sustained improvements in nutritional and health status;
- Provide the Member States with an opportunity to consult and share lessons on the application of the previously learned quality assurance and quality control (QA/QC) approaches within the SADC context;
- Introduce SADC secretariat efforts to develop regional food fortification minimum standards; and
- Introduce the concept of a regional fortification alliance and regional technical working group and priority next steps.

Expected Outcomes

The following outputs from the workshop are expected:

- Government (regulatory authorities) and private sectors capacitated on developing and implementing a feasible and effective monitoring framework using new practices and tools;
- Good practice national regulatory monitoring systems documented from selected countries;
- The establishment of a regional road map in addition to country-specific road maps that identify key areas of need and next steps for each Member State;
- Increased understanding of national stakeholder requirements and roles and responsibilities;
- Increased dialogue between wheat and maize flour millers and government regulatory authorities on key challenges and expectations;
- Member States exposed to the Secretariat's efforts to ensure food fortification is implemented as one means of addressing micronutrient deficiencies in the region.

- Introduction of a new Regional Fortification Alliance that will support the Secretariat to roll out the roadmap established for the regional monitoring framework for food fortification.

Workshop Format

The workshop followed the WHO/FAO schematic for regulatory monitoring as published in the WHO and FAO *Guidelines on Food Fortification with Micronutrients, 2006*. The workshop was split into two sections each day including a) presentations from experts in the field in the mornings on regulatory monitoring, surveillance, and quality assurance and quality control and b) extensive group work, discussion, and / or field visits in the afternoons. Although the workshop was specific to regulatory monitoring and surveillance, the group work aimed to allow Member States that had not yet started fortification programs or that had voluntary programs to discuss other implementation challenges they may be facing.

Group work consisted of two forms:

- 1) Member States working with other Member States based on the status of their fortification program (i.e. all Member States with a mandatory program worked together to discuss challenges and lessons learned; all Member States with a voluntary program worked together on how best they can move to mandatory fortification status; and all Member States with programs not yet started worked together on ways of initiating fortification program), and
- 2) Member States working only with their own country colleagues to develop recommendations and priority next steps for the effective implementation of a mandatory fortification program in their specific countries.

The third day of the workshop consisted of field visits to a wheat flour mill or a national testing laboratory. For the most part, government participants were assigned to visit the wheat flour mill (Premier Milling) to observe fortification production and internal testing while private sector participants were assigned to the national laboratory (the Southern African Grain Laboratory) to get hands on exposure to food testing processes and procedures.

Prior to coming to the workshop, Member States were asked to complete a pre-workshop data collection form to be used to inform workshop discussions and allow partner agencies to gain an in-depth understanding of data gaps and where future support may be needed. Each pre-workshop data collection form was tailored to each specific country and translated to Portuguese and French as needed for Member States. An example of the pre-workshop data collection form can be found in [here](#).

Workshop Assessment and Evaluation

Smarter Futures developed a pre- and post-knowledge assessment to measure training effectiveness and knowledge retention of key topic areas covered throughout the three days. Six months after the training a follow-up questionnaire will be sent to the

participants in order to gauge how they have used the knowledge obtained in the workshop.

A post-workshop evaluation was also provided to participants to rate the workshop on areas such as administration, location, facilities, facilitators, content, presentations, and overall expectations. Results from the pre-knowledge assessment can be found in **Annex A**. An amendment to this report will be made when the post-knowledge assessment and post-workshop evaluation results are complete.

Participants

Each of 16 SADC Member States was invited to nominate three participants for the workshop representing the following organizations involved in the flour fortification program:

- Public Sector: two participants per country (one from Food Control Department and one from Nutrition Department or Ministry of Health)
- Private Sector: one participant from a milling industry

Workshop Breakdown	
Facilitators	5
Participants (government / industry)	36
Partners and premix companies	19
Total	60

The workshop included participant from the following 13 Member States: Botswana (2), Eswatini (3), Lesotho (3), Democratic Republic of the Congo (1), Madagascar (3), Malawi (3), Mauritius (1), Namibia (2), Seychelles (2), South Africa (8), Tanzania (2), Zambia (3), and Zimbabwe (3).

The Member States of Angola, Comoros, and Mozambique were absent from the workshop.

Partners and premix companies included FFI (4), GAIN (2), UNICEF (3), FAO (1), ECSA (2), Muhlenchemie (2), DSM (1), Millhouse (2), Hexagon (1) and independent consultants (1).

Agenda and Presentations

The workshop agenda can be found in **Annex B**. All workshop presentations (including facilitator presentations and country reporting out presentations) in addition to documents and resources provided to participants at the workshop can be found in the Drop Box link provided [here](#). This same file will be referred to several times throughout this report to remind the reader where to find further information.

Workshop Summary

Day 1: Registration, Official Opening, Plenary Sessions, and Group Work

Registration of participants was done as they arrived. At this time, participants received the workshop package, which included the program, SADC's 2015 – 2025 Food and Nutrition Security Strategy, the 2017 endorsed Regulatory Monitoring of National Food Fortification Programs: A Policy Guidance Document; and the Draft Terms of Reference for SADC's Regional Food Fortification Alliance. Notepads and pens were also provided. A copy of these documents can be found [here](#).

Official Opening and Welcoming Remarks

On behalf of **Duduzile Simelane**, from the SADC Secretariat, **Pontsho Sepoloane**, also from the SADC Secretariat started with welcome and introductory comments on the part the organizing committee and the supporting organizations. She outlined the key partners that make up Smarter Futures and acknowledged the need to have all partners in addition to the private sector engaged in this workshop. She addressed the need and desire to learn from the ECSA-HC (East, Central, and Southern, African Health Community) region and was pleased we had ECSA representatives in the room who could guide the SADC region through the process of developing regional monitoring and surveillance recommendations, structures, and guidelines. Finally, she raised a key issue for SADC Member States regarding the lack of laboratory capacity to test at the country level and the need to explore establishing robust regional laboratories. Finally, she noted that only five of the SADC countries actually had mandatory fortification legislation in place for maize or wheat flour and there was a desire, through this workshop, to assist the others to identify the key barriers preventing all 16 of the SADC Member States from having fortification legislation in place.

Sophia Nicodemus, representing Namibia, officially opened the workshop on behalf of Namibia, SADC's incoming Chair. She acknowledged all partners and the importance of ensuring in-country programming to reduce micronutrient malnutrition and improve nutrition. She noted the success of salt iodization (i.e. fortification of salt with iodine) in Namibia and further explained that fortification of wheat and maize flour is currently only done on a voluntary basis by millers in her country. There is an urgent need to sensitize industry, she explained, on the importance of fortification and focus very specifically on quality production. She noted that enacting a law alone will not be sufficient; there is a need for special attention to be placed on quality measures as well.

WilsonENZAMA, of FFI and the workshop moderator for the three days, allowed participants to introduce themselves before walking them through the workshop objectives, agenda, and goals for the three days.

Helena Pachón of FFI explained the purpose of the pre-workshop knowledge assessment, which was intended to measure training effectiveness and knowledge retention of key topic areas covered throughout the three days. Participants were then asked to complete the assessment which included questions related to the topics/areas that were to be covered.

Session 1: Overview of Regional Priorities

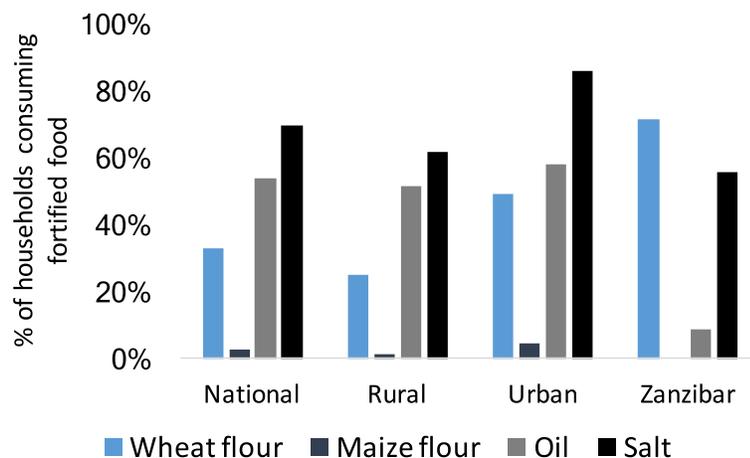
Overview of the state of food fortification in the SADC region – Pontsho Sepoloane, SADC

The SADC region has outlined four priorities for food fortification from 2018-2021:

1. Draft minimum regional fortification standards
2. Establish a regional fortification monitoring framework
3. Establish and strengthen existing reference laboratories for testing micronutrients
4. Engage stakeholders to provide coordinated technical support to accelerate the implementation of fortification programs

The legislative status of SADC Member States was presented: five with mandatory legislation for cereal grain fortification, five with voluntary fortification of cereal grains, and six with cereal grain fortification programs that have not yet been started. Zambia made a correction to this presentation indicating that they, in fact, had a voluntary cereal grain fortification program in place as opposed to the classification of a not started program. Therefore, for the remainder of the workshop Zambia was classified as having a voluntary program bringing the total of voluntary to six and the total of not started to five.

Despite mandatory fortification, however, fortified products are often not adequately fortified or accessible. The presenter provided the following data as an example, which was obtained from a GAIN assessment of Tanzania in 2016.



The speaker went on to present the current status of each Member State as it pertained to: number of mills, percent of food produced by industrial mills, and percent of fortified food produced by industrial mills. The information presented was obtained from FFI's database (http://ffinetwork.org/country_profiles/index.php). Member States provided corrections where they were needed. The speaker commented on the fact that coordinated efforts to address similar challenge are missing across the SADC region and the fact that rural areas are often not reached, which is something that should be addressed as a region

whether it be through small-scale fortification efforts such as the Sanku project, bio-fortification, home fortification, or other interventions altogether.

Next steps included the need to identify priorities both at the Secretariat and Member State levels in terms of how to increase coverage of fortified cereal grains and what best practice tools should be used specifically related to monitoring and surveillance. A joint roadmap should then be outlined that includes how these priorities will be achieved and the required coordinated technical support. Member States will have the opportunity to outline such a regional roadmap in this workshop.

Remarks:

A participant asked how much is too much when it comes to micronutrients stating that there is often limited discussion around this topic of “too much” or any adverse effects of fortification and no coordinated guidance on the matter.

A participant made the comment that countries are often continually introducing micronutrient interventions without assessing impact in order to really see what the current needs are and what programs should be continued vs. halted. This is an area that is needed if we are to truly understand program impact and areas of need.

In response to these comments, it was explained that the World Health Organization convened a meeting in 2017 to discuss this issue of risk of excessive micronutrient delivered through multiple public health interventions. The full report can be found [here](#). In summary, through multiple interventions, there is a potential for regularly delivering micronutrients that exceed nutrient requirements. Efforts should be made in the planning stages of new interventions, and in monitoring on-going interventions, to determine if this is the case, and to make adjustments to the intervention(s) as necessary.

Why Fortify: Impact and Implications – Helena Pachón, FFI

A global update on the status of fortified maize flour, wheat flour, cooking oil, rice, and salt was presented along with the nutrients included in these programs:

- 85 countries mandate wheat flour fortification
- 16 countries mandate maize flour fortification
- 29 countries mandate oil fortification
- 108 countries mandate salt fortification
- 6 countries mandate rice fortification

The health impacts of wheat flour fortification, specifically, were outlined in several countries spanning several public health outcomes. This included a 30% reduction in neural tube defects (NTDs) in South Africa in 2008, five years after wheat and maize flour fortification was mandated in 2003. In summary, based on strong evidence from pre-post country level data, meta analyses, and systematic reviews, flour fortification with folic acid reduces the risk of NTDs. Additionally, there are other health benefits from flour fortification. Specifically, flour fortification with folic acid reduces folate deficiency and folate-deficiency anemia; flour fortification with iron reduces iron

deficiency in women and it reduces anemia if WHO fortification recommendations are followed; flour fortification with zinc reduces zinc deficiency; and flour fortification with vitamin B12 reduces vitamin B12 deficiency.

Monitoring and Surveillance: What it Really Means – Ronald Afidra, FFI

The definition of surveillance as it relates to fortification programming was provided, which should include both program process and outcome indicators. How nutrition surveillance differs from internal, external, import, commercial, and consumption monitoring for fortification was outlined. There are several different types and sources of national level nutrition data that can be used to obtain fortification surveillance information. The results from a surveillance system, which collect information on coverage, can be used to determine if an impact evaluation should be conducted.

Remarks:

A participant asked for ways that countries could be supported to help determine consumption figures as this was a data point asked in the pre-meeting worksheet and a data point that this country did not have.

The gold standard for determining nutrient intakes is to conduct multiple 24-hour dietary recalls on a group of individuals. However, most countries do not have nationally representative dietary data and [efforts are underway](#) to compile what dietary information is available. In the absence of dietary data, proxy measures can be used. For example, [food balance sheet information from FAO](#) which reports the amount of different food available for human consumption expressed in grams per capita per day. Household income and expenditure surveys (such as the [World Bank's Living Survey Measurement Survey](#)) which ask about how much households spend to purchase different foods; this information is then [converted into apparent intakes](#) for different members of the household. Industry associations have proprietary information on the amount of different foods that are sold in a country; they may share de-identified information which can be used to identify potential foods for fortification.

Session 2: Capacity Building and Consultative Session with SADC Member States

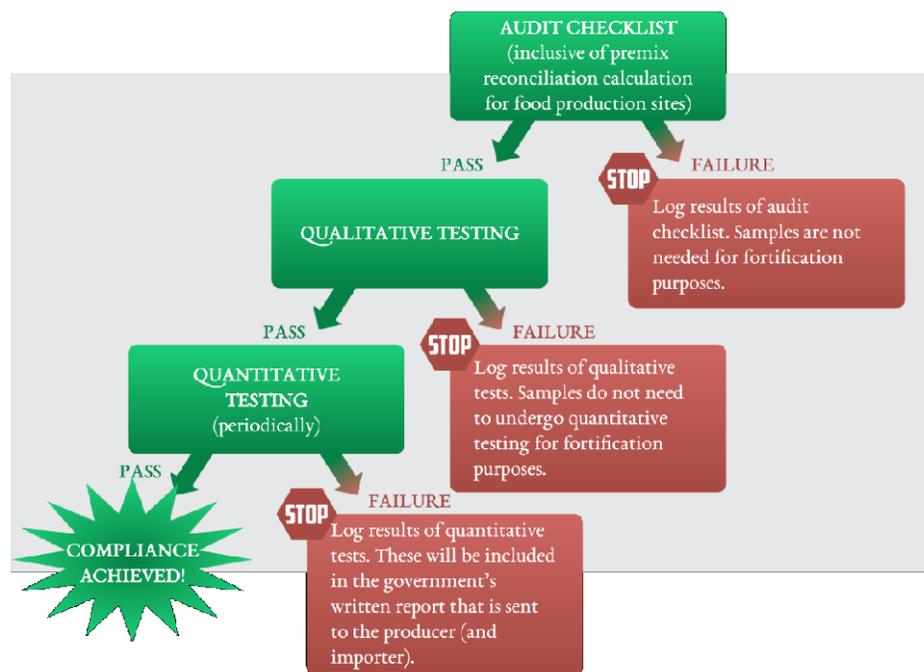
Recommended Methods for Determining Fortification Compliance – Laura Rowe, FFI

The focus of this presentation was on the new recommended methods for determining fortification compliance that were published in 2017 by the Global Fortification Technical Advisory Group (GF-TAG) in the [Regulatory Monitoring of Food Fortification Programs: A Policy Guidance Document](#). The take home messages of this presentation were that audits can be used to assess the *process* of fortification in place of frequent quantitative testing; determining compliance can happen effectively with limited resources; and eight recommendations for determining compliance and means of operationalizing those recommendations have been outlined and endorsed as good practices.

First, the presenter outlined the three conditions required for a flour fortification to be successful: 1) Fortification of commonly consumed flour is mandatory; 2) Country standards align with global recommendations and / or evidence of country-specific needs; and 3) Monitoring and surveillance are used to identify and correct problems before impact evaluations are done.

The eight recommendations from the Policy Guidance Document were outlined in detail including evidence of the need for practical and realistic approaches to determining compliance. Examples of good practices following these recommendations were also included in this presentation. Although the agenda had the topic ‘Good Practices in the Monitoring of Fortification Programs’ as a separate presentation, due to time constraints the presenter agreed to combine the two topics.

A four-step process for determining compliance was outlined:



The eight recommendations include:

1. Use a **‘Systems-Based Approach’**, emphasizing the process of fortification over regular quantitative testing.
2. When auditing, apply a **checklist that integrates food fortification and food safety** monitoring activities.
3. Use the **premix reconciliation calculation** as part of the audit to determine if the process is sufficiently adding nutrients to foods.
4. Within the country’s fortification standards, express each micronutrient specification as a **target value encompassed by actionable limits**.

5. Test **qualitatively** as a means of verifying the presence of test-specific nutrients and **quantitatively only periodically** and as a means to validate the findings of the audit.
6. Implement a **user-friendly digital management information system** to make the process of data collection, collation, analysis, interpretation, and dissemination more efficient and effective.
7. Establish **incentives that appeal to the food industry** in addition to **penalties that are relative and enforceable** to drive consistent compliance.
8. Involve **non-traditional stakeholders** in monitoring at the commercial and household levels to extend resources and expand public engagement in the initiative.

Plenary Discussion – Rebone Ntsie, South Africa’s Department of Health

Remarks:

Qualitative tests have not been officially approved by any international body so may cause a problem in-country when attempting to rely more frequently on qualitative tests over quantitative tests. What rapid qualitative tests are approved? ECSCA’s updated 2018 guidelines on laboratory testing methods will outline approved qualitative and quantitative tests and should be used as a reference guide for country-specific use, although which tests to use should be discussed and agreed upon by each country. The need to couple food quality with fortification was re-emphasized.

A miller commented on the fact that it is, indeed, very difficult to ensure the adequacy of quantitative testing and agreed that qualitative testing is the best and most accurate way forward.

There is a need for guidelines on the quality of premix. South Africa may have a model for this that other countries can follow. There is a need to ensure that only pre-approved, quality premix suppliers are the ones supplying the premix in a country. There is a need to document the nutrient compounds allowed in a national standard so that they can be verified against a premix suppliers Certificate of Analysis.

Inadequate capacity in laboratories to monitor cereal fortification has been a challenge. Limited capacity and understanding of inspectors of what is required during compliance monitoring has also been a challenge.

Spina Bifida and Hydrocephalus (SBH) Impact and the Role of SBH Organizations – Zubeida Toefy and Roseanne Bihl, Association for Spina Bifida and Hydrocephalus, South Africa

The Association for SBH promotes and protects the interests of all person with spina bifida and hydrocephalus, promotes and supports measures to prevent disabling conditions and their effects, and ensures accessible and equitable community-based services and facilities for people living with such disabilities. This Association plays a large role in the education of mothers and families as to the importance of consuming adequate folate through supplementation or fortification. The impact of fortification on NTDs was explained. It was also emphasized that the etiology of NTDs is multifactorial

including genetic and environmental conditions. Even in countries where folic acid fortification is mandatory, these birth defects still occur. This could be due to inadequate monitoring of fortification or supplementation programs, insufficient consumption, higher folic acid requirements, or other genetic or environmental conditions.

Remarks:

There is a lack of national NTD surveillance data and a need for countries to be better at tracking these numbers.

Group Work

The afternoon of the first day was dedicated to group work. This consisted of countries organized into groups based on the status of their fortification program (e.g. mandatory, voluntary, and not started for cereal grains). Countries were asked to answer a set of questions (see below) related to challenges faced in the introduction or implementation of their fortification programs. For countries in the mandatory group, this was asked to be specifically around monitoring and surveillance challenges. Three to four partner agencies were assigned to be part of the different group discussions to provide the partner agency perspective to the discussion. Each group was assigned a facilitator to moderate the discussion and to ensure all questions were answered.

A summary of this first working group session can be found below.

Group Work: Part I

Mandatory Group (Malawi, South Africa, Tanzania, Zimbabwe, GAIN, Millhouse, and UNICEF)

What are the most common challenges faced among Member States in your group (if mandatory, please be sure to include challenges related to monitoring and surveillance)?

- South Africa
 - Flow and feeder accuracy and a decision as to what is the right feeder to use.
- Zimbabwe
 - Buy-in from all stakeholders.
 - A viable solution for small-scale maize millers.
 - Accessing foreign currency to buy premix.
- Malawi
 - Smuggled products that do not comply with standards.
 - The supply and distribution of premix.

What innovative solutions or good practices are in place among the Member States in your group related to the identified challenges?

- South Africa
 - Gravimetric feeder was found to be best by the miller. Physical checks are done to check the feed rate, two hourly tests are conducted, and process control charts have been made to set min, max, and required target rate based

- on the standard. They have found the use of premix purchased vs. flour produced to be an effective process ‘check’ for millers.
 - South Africa’s Department of Health has the audit process written into their fortification guidelines.
 - Millers along with the Department of Health in South Africa have lobbied the incentive division of the Department of Trade and Industry with the hope of getting effective incentives put in place.
- Zimbabwe and Millhouse
 - Need for incentives that prevent the producer from having to pass the cost onto the consumer. Millhouse has come up with a set of potential capex solutions based on a fixed cost of premix for five years and equipment free of charge for producers. Millhouse also works to fix other producer variables that may cause an increase in cost.
 - Need to ensure that food safety and fortification are assessed together.
 - Millhouse has a tracker, similar to *FortifyMIS*, that uploads results to a software system allowing producers and government to view rates of compliance. It is intended for producers and government staff. This is currently being used for sugar producers and their governments in 3-4 ECSCA and SADC countries.
 - Need to have a committee that includes all stakeholders where issues can be addressed and discussed on a regular basis.
- Malawi
 - The smuggled products can be solved by a) sensitizing importers and building the capacity of customs inspectors to test qualitatively at the border and / or b) identifying / acknowledging the smuggled products and going to their mills to access compliance.
 - Malawi offers waivers to industry to get up to speed in the beginning. This allows them a grace period before non-compliance measures are implemented.
 - The supply and distribution of premix can be solved by collective ordering.
 - Malawi claims they are getting consistent compliance through their heavy engagement with millers, sponsored QA/QC trainings, and extensive feedback sessions with trainees.

What lessons can be learned from the experience with mandatory fortification of *other* food vehicles (e.g. salt) in the country?

- How the price of premix is brought down by bringing producers together into a consortium or association so the premix order can be done in bulk. These solutions should be shared more widely with Member States to further incentivize producers.

What are ways Member States can support one another in these challenges?

- Need to educate consumers was a general consensus. How this is done effectively in other Member States should be shared.
- Need for a viable small-scale miller solution was a consensus. What has worked effectively in other countries? What can the region do to support a recommendation on this?

What challenge areas could the SADC region and / or partner agencies provide support in overcoming?

- Need for a viable small-scale miller solution was a consensus. What can the region do to support a recommendation on this?

Voluntary Group (Botswana, Democratic Republic of Congo, Eswatini, Lesotho, Namibia, Zambia, DSM, ECSA, Hexagon, Spina Bifida and Hydrocephalus Organization of South Africa, WFP)

What are the most common challenges faced among Member States in your group?

- Industry is not compelled to fortify since it's voluntary. Lack of legislation to enforce fortification.
- A lot of products are imported especially into the small countries and a lot of these imported products are not locally and industrially produced.
- Issues of misconception/myths around fortification.
- Lack of country-specific standards in these countries (e.g. Botswana, Lesotho, Namibia, and Eswatini).
- Lack of laboratory capacity for testing and verifying compliance domestically and among imported products.
- Difficulty in controlling ports of entry. Need for regional standards.
- Influx of cheaper products from neighbouring countries. Need better access to testing kits.
- Botswana has capable laboratories for testing but they are not currently utilized and sometimes payment is required.

What innovative solutions or good practices are in place among the Member States in your group related to the identified challenges?

- Presence of Fortification Alliances in some of the countries.
- Demand creation and use of the fortification logo for easy identification of fortified foods.
- Development of legal regulations (e.g. Zambia, Botswana, and Lesotho).
- Sensitization of producers exporting to our countries (such as Lesotho has done) and in-country border testing.
- The DRC has Special Services for Nutrition, which is responsible for controlling food products.
- Need to strengthen capacity to enforce before mandatory legislation is put in place.
- Political commitment which could come from the regional level; heads of states need to sign a commitment (e.g. the King of Eswatini is the Nutrition Champion for the country).

What lessons can be learned from the experience with mandatory fortification of *other* food vehicles (e.g. salt) in the country?

- Availability of testing commodities especially for salt testing which could be combined with the other testing requirements.
- Linking the program with impact could assist.

- In the case of salt, it has been demand driven (especially for Botswana). This approach can be applied to the other food vehicles.

What are ways Member States can support one another in these challenges?

- Collaboration among the SADC countries especially in the areas of laboratories and human capacity.
- There is a need to map capacity gaps in each country. This mapping should then be shared with each Member State.
- Establishment of Reference Regional Laboratories.
- Development of minimum standards for the region.

What challenge areas could the SADC region and / or partner agencies provide support in overcoming?

- Mapping of available resources.
- Capacity building.
- SADC must advocate for reference laboratories.
- Development of regional standards.

Not Started Group (Madagascar, Mauritius, Seychelles, FAO, Muhlenchemie, SADC)

What are the most common challenges faced among Member States in your group?

- Monitoring and surveillance.
- Salt fortification in Madagascar with iodine and fluoride → the law and regulation are already in place but the challenge is with the small industries not adhering to them.
- Lack of capacity in terms of nutrients and machinery required.
- The monitoring of small-scale producers remains a persistent challenge.

What innovative solutions or good practices are in place among the Member States in your group related to the identified challenges?

- Tax free nutrients.
- Using the Pull approach to address the challenges.

What lessons can be learned from the experience with mandatory fortification of *other* food vehicles (e.g. salt) in the country?

- No comments

What are ways Member States can support one another in these challenges?

- No comments

What challenge areas could the SADC region and / or partner agencies provide support in overcoming?

- No comments

Group Work: Part II

Using the discussion points from the first part of the group work, the second part of the group work consisted of countries sitting with colleagues from their own Member States to outline the current status of grain fortification; identify key challenges, good practices, and priority next steps; how next steps will be operationalized; and ways in which the region or outside organizations might be able to support. Each country was asked to answer these questions in a PowerPoint template provided to them by the workshop organizers. These presentations were then presented by each country on Day 2. Facilitators were assigned to 3-4 countries to moderate the discussion and to ensure all questions were answered.

Partner agencies were asked to sit together as a group during this time to answer a set of questions related to how they might be able to support and better align themselves as partner agencies in this support.

A summary of next steps identified by Member States is outlined on Day 2 during the reporting out session.

Day 2: Monitoring and Surveillance Tools, Group Work, and Regional Initiatives

Recap of Day 1

A representative from Zambia provided a recap of the topics and discussions points that were covered in Day 1. This presentation is included in the presentation folder.

Session 3: Monitoring and Surveillance Tools and Group Work

Introduction to *FortifyMIS* – Laura Rowe, FFI

FortifyMIS, which is an online management information system (MIS) designed by Project Healthy Children (PHC) and GAIN, was introduced as a tool for use by food producers and regulatory monitoring inspectors as a means of systematically capturing program compliance information. It has been designed to address the most pressing and persistent regulatory monitoring challenges. Countries need to have a monitoring framework outlined before the MIS should be used.

The following information was discussed: data gaps that *FortifyMIS* fills; key users and how their viewing and access rights differ; the criteria that indicates whether a country is ready to adopt the MIS; an overview of how the MIS is set up to be country-specific; what data it collects, and for what purpose; and how the MIS can be used by decision-makers to improve program outcomes.

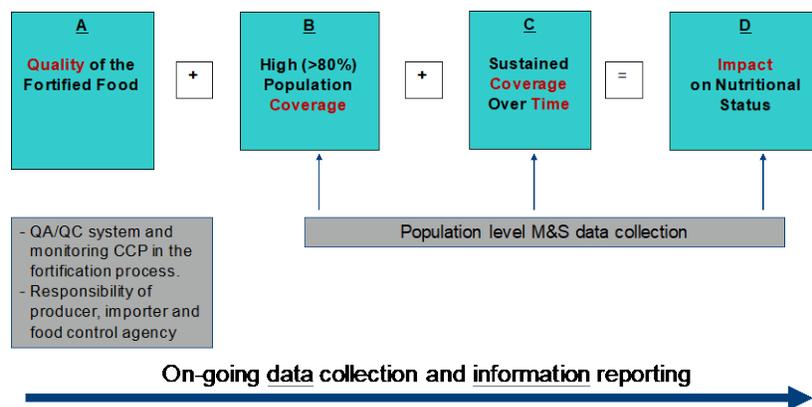
Points				Priorities			
Name	Completed	Points Scored	Pass/Fail	Need	Got	Score	
All Food Safety and Quality	3 / 3	3 / 3	Pass	Cohort: All			
All Hygiene	2 / 2	2 / 2	Pass	High Priority	90%	100%	3/3 Pass
				Medium Priority	70%	100%	3/3 Pass
				Low Priority	50%	100%	1/1 Pass

Production Lines				
	Target	Actual Addition Rate	%	Score
Production Line 1	NaN g/T	NaN g/T	NaN %	Fail

End Inspection Proceed To Samples

Introduction to FORTIMAS – Ronald Afidra, FFI

[FORTIMAS](#) proposes a population-level data collection *approach* to help answer the question, “is the micronutrient status of those who regularly consume sufficient quality fortified flour improving?”. The minimum conditions necessary for a flour fortification to meet before the FORTIMAS approach is rolled out were outlined including pre-fortification nutrient deficiency data, mandatory legislation, the establishment and enforcement of QA/QC systems, and an assessment of coverage that indications greater than or equal to 80% sustained over approximately one year.



Plenary – Pontsho Sepoloane, SADC

Remarks:

Regulatory inspectors lack the capacity to undertake monitoring and this often means they do not have the capacity to adopt *FortifyMIS*. Concerns over availability of hand-held devices was raised. In many situations, this has been addressed by using hand-held devices already in use by inspectors for other programs, in other cases personal devices are used or program funders provide the devices.

Several countries identified sustained quality production of fortified foods as a larger challenge for them over ensuring sustained impact. This was due to the fact that most

countries in attendance were still grappling with developing their own standards and legislation for mandatory fortification.

A comment was made that both *FortifyMIS* and FORTIMAS should be introduced and adopted on a country-specific basis since some countries are using their own monitoring and surveillance approaches.

In assessing the impact of food fortification, several factors may contribute to the reduction of micronutrient deficiencies and birth defects. How do we attribute impact to fortification? We can only infer that a fortification program contributed to a reduction in deficiency rates in a situation where several programs are being implemented. This inference is based on pre- and post-nutritional indicators and once a program has reached 80% quality coverage.

There was a concern that food fortification has been going on for a long time and that it is ironic that countries are still struggling with starting fortification in their country. This was to encourage countries under the category of '*not started*' to take action, so as to report progress in the next meeting. It was also a call for partners and SADC to push harder the respective member states to take action.

Group Report Out and Summary – Facilitated by Helena Pachón and Ronald Afidra, FFI

The reporting out session consisted of ten minute presentations from each Member State based on the PowerPoint template they completed in the second part of the group work on Day 1. A summary of the Member State next steps is outlined in **Annex C**. Please see the completed PowerPoint presentations [here](#) for further information. The below *Remarks* section only includes comments made during and after specific presentations, hence not all countries are included.

Plenary Discussion of Country Presentations

Remarks:

Zimbabwe

- Zimbabwe, like several other countries (e.g. Tanzania, Malawi, and Zambia) raised the challenges of small-scale maize flour fortification due to numerous small scale millers. This is of particular concern because industrial processed maize does not reach the rural communities. If we do not use maize flour to reach the community, what other possible food vehicle should we consider to reach the rural areas with micronutrients?
- There was a general comment related to the need for programs to conduct impact evaluations before introducing other nutrition interventions so as to understand the gap addressed by the fortification program and to identify if there are further needs.

- They are considering reviewing their fortification standard to include minimum and maximum values. Right now, they only include minimum values.
- Zimbabwe has struggled with push back from the Grain Millers Association despite fortification being mandatory. To date, they estimate that 50% of the millers in the association are fortifying.

Tanzania:

- Tanzania reported using Sanku for small scale mills in addition to the scooping method. A question was raised regarding the number of small-scale millers in Tanzania and if they have the capacity to manage both the Sanku and scooping methods. They prefer to use the Sanku technology since it uses solar energy, which proves more sustainable in rural areas where there is no electricity and gets around the trust issue faced among millers with the scooping method.

Malawi:

- Malawi faced issues with their flour premix, which was producing a yellow color and peculiar smell. This issue was addressed with support from the premix producers and Phillip Makhumula and seemed to be due to wrong levels provided in the premix.

South Africa:

- There is need for new verified fortification data in the country. The young children, whose intake of fortified products is low, have been provided with a new highly fortified maize meal to cover their need.
- South Africa's current / unrevised standards are not in line with WHO recommendations. It was suggested that the amended regulations will be and will include cake flour. This is important not only for South Africa but for the several neighbouring countries that South Africa exports to (e.g. Lesotho, Mozambique, Eswatini, Botswana, Malawi). Many of these neighbouring countries are not testing their imported flour from South Africa.
- South Africa wants to move to an audit based system for ensuring compliance but is not sure how this will work from a legal perspective. Anything legally binding needs quantitative test results.

Botswana

- The government is not making fortification a priority, although it is unclear why. They suggest a regional push from SADC is needed. They are fortifying voluntarily to compete with the fortified products coming in from South Africa. They indicate there is a need for a regulatory framework that supports compliance determination since they are not currently testing any products.
- Botswana raised the issue of high sorghum consumption, which is largely milled at the small-scale level.

Zambia

- Zambia clarified that they have a voluntary program for wheat and maize flour. Should any industry voluntarily choose to fortify, it is mandated to follow the standards.
- Monitoring and surveillance systems in Zambia are being coordinated by the Ministry of Health.
- The one thing preventing them from moving from voluntary to mandatory is the lack of laboratory capacity to test products. Government won't make fortification mandatory until there is lab capacity.

Mauritius

- Mauritius has just released a national nutrition survey, which indicates high levels of anaemia. They are, therefore, seeking technical support to initiate and guide in the mandatory fortification at their one mill.

Premix Producers Panel Discussion

Premix producers in the workshop were invited to introduce themselves and their companies and answer questions from the participants. Suppliers included Millhouse (although Millhouse did not partake in the panel discussion), DSM, Hexagon, and Muhlenchemie.

Remarks:

Participants asked about suppliers' regional presence. DSM has a presence in South Africa and tries to produce as much locally or in the regional as possible. They just opened up a plant in Rwanda. Hexagon is exploring the possibility of having a presence in South Africa. Muhlenchemie has regional staff and distributors but no local permanent presence. All provide support to countries in the creation of standards and other industry trainings including marketing tools. Muhlenchemie noted that if a supplier was asked to supply a premix that does not comply with a country's national standards, they would not.

Session 4: Regional Fortification Alliance and Minimum Standards Initiative

Overview of Regional Food Fortification Alliance Concept and Update on Regional Minimum Standards Process – Pontsho Sepoloane, SADC

SADC has proposed the creation of regional minimum standards in order to facilitate the harmonization of fortification standards in the region; to strengthen advocacy efforts especially in Member States that are voluntarily fortifying or that have not yet started; and to reduce trade barriers across Member States in the region. The creation of these minimum standards is proposed to be completed in two phases by external consultants. The details of each phase are outlined below.

Phases	Key Activities	Timelines	Stakeholders
Phase 1 Desktop review, Country visits and consultations	Legislative mapping: - Mandatory legislation - Voluntary standards - Private sector: Number of mills and capacity, - food vehicles, - Consumptions especially in those not started, - regulatory monitoring approaches - Data on Micronutrient Deficiencies	November 2018 - January 2019	Government: MOH- Nutrition & Food control Buruea of standards Private Sector Development partners UN
	Consensus building workshop	February 2019	

Phases	Key Activities	Timelines	Stakeholders
Phase 2	Development of Minimum Standard for Food fortification • In country review • Identify country focal points (Standard developing and regulatory bodies)	Drafting of standards March – May 2019	Government: MOH- Nutrition & Food control Private Sector Development partners UN
	Consultative workshop (present the draft standards)	June 2019	
	Validation Workshop	July/August 2019	
	Submission to the Ministers for approval	November 2019	

Phases	Key Activities	Timelines	Stakeholders
Country dissemination meetings	Botswana DRC Eswatini Zambia Lesotho	December 2019 – January 2020	SADC Secretariat, Technical partners (ECSA-HC, GAIN)
	Angola Comoros Madagascar Mauritius Seychelles	February 2020	
	South Africa Malawi Mozambique Tanzania Zimbabwe	March 2020	

Draft TORs for SADC’s proposed Regional Fortification Alliance were also reviewed and Member States were given the opportunity to comment on the document by submitting changes to SADC by the end of the week. The draft TORs can be found [here](#).

Remarks:

It was suggested by several participants that the proposed regional standards be guidance for countries to follow as opposed to standards that each should, regardless of need, follow blindly. Consideration should still be given to country-specific consumption and coverage data within each Member State and this information should be compared against the regional standards. If modifications are needed, then they should be made on a country-specific basis to ensure that each population receives fortified products that adhere to levels appropriate for their specific needs and nutrient gaps.

It was also suggested that these standards cover all five major fortification vehicles particularly if such an extensive data collection process will go into it. Participants noted the need to include COMESA, EAC, and other economic bodies in the creation process. There is a need for a set of recommendations on how to enforce compliance to accompany the regional standards.

New potential vehicles that have high coverage but are drought resistant should be considered.

Logistics and Objectives of Field Visit – Ronald Afidra, FFI and Phillip Makhumula, Independent Consultant

Ronald Afidra and Phillip Makhumula outlined the field visit planned for Day 3 to a South African wheat flour mill (Ronald) and a national testing laboratory (Phillip). Checklists for each site visit were provided to participants to guide their line of questions and observations during the visit. The checklists can be found [here](#).

Day 3: Plenary

Recap of Day 2

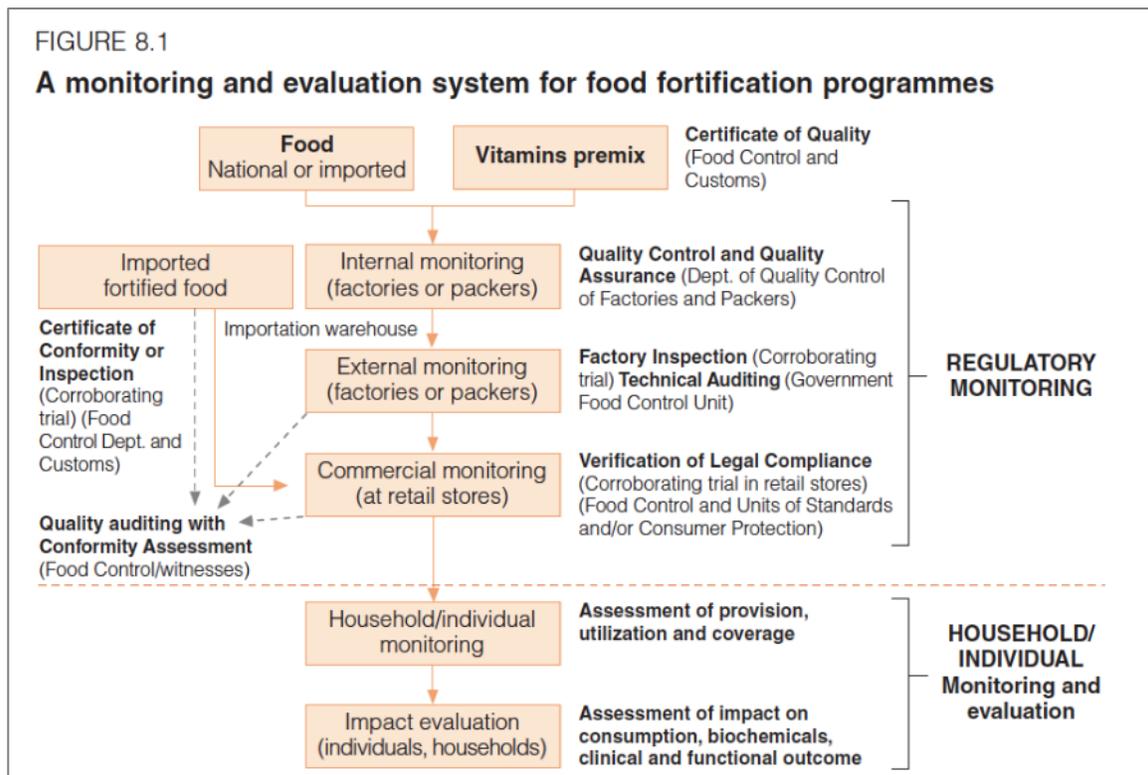
A representative from Zimbabwe provided a recap of the topics and discussions points that were covered in Day 2. This presentation is included in the presentation folder.

Review of QA/QC Best Practices – Ronald Afidra, FFI

The basic and best / enhanced practices for conducting QA/QC within a mill to ensure commercial practices result in the correct addition of nutrients that meet national requirements were outlined. These included Quality systems – GMPs, SOPs, ISO, HACCP; Premix procurement and handling; Feeders; Fortification Process & Quality Control; and Quality Assurance and Audits.

Development of a Regional Monitoring and Surveillance Framework – Pontsho Sepoloane, SADC

This workshop brought to light the numerous different approaches and tools already in place to build a robust monitoring and surveillance framework for fortification programmes. In an effort to take advantage of these approaches and tools, it was suggested that the regional monitoring and surveillance framework for the SADC region use the WHO/FAO schematic for regulatory monitoring as published in the WHO and FAO *Guidelines on Food Fortification with Micronutrients, 2006* as the foundation for the framework. This schematic can be seen as Figure 8.1 below.



Overlaid on this foundation should be recommendations for effective tools as they pertain to the different stages of the framework. For example, in order to address the top portion of the schematic of Regulatory Monitoring, best practice guidance can be found in the [Regulatory Monitoring of Food Fortification Programs: A Policy Guidance Document](#) and *ForitfyMIS* is available to countries as a tool that effectively compiles collected regulatory monitoring data in one place for quick action and program improvement. For the bottom portion of the schematic on Household and Individual Level Monitoring and Evaluation, the FORTIMAS approach is available to guide countries on how to collect coverage and impact data. This recommended regional framework will be further outlined by the SADC Secretariat in the coming months and shared with workshop participants and all SADC Member States.

Workshop Evaluation and Certificate Awarding – FFI

Participants were asked to complete post-workshop assessment questionnaire and post-workshop evaluation. These will be amended to this report when the analyses are complete.

Workshop Closing

The workshop was officially closed by the Namibia delegation as incoming Chair of SADC with closing remarks from SADC and FFI.

Annex A: Summary Table of SADC Member State Fortification Needs

Country (status ¹)	Challenges	Priority Next Steps	Technical Assistance Needed
Malawi (mandatory)	<ul style="list-style-type: none"> • Low coverage of fortified maize flour (large number of small-scale millers). • Competition from cheap unfortified foods coming in from informal cross-border trade. • Lack of premix prequalification system. • Lack of a consolidated means of bulk ordering premix to bring cost down for producers. • Effect of premix on color and smell (allegations from industry about consumers experiencing yellowish color and medicinal taste) on flour products (e.g. bread). • Lack of capacity for government district personnel to monitor fortification at domestic production and import levels. 	<ul style="list-style-type: none"> • Invest more in social marketing (education and sensitization campaign) to increase awareness among consumers on the benefits of fortified foods. • District personnel capacity building in fortification monitoring. • Partnership between government/development partners and industry to find ways of making fortification cost-effective to Malawians. • Increase number of food vehicles fortified. • Strengthen the monitoring of cross-border trade. • Conduct awareness sessions for importers and traders on mandatory fortification requirements. • Identify options for joint procurement of premix. • Further research should be done to inform the level of nutrients that must be added to flour. • Guide the industry on premix quality 	<ul style="list-style-type: none"> • Capacity building for inspectors and importers at import sites. • Industry QA/QC training. • District inspector training on regulatory monitoring practices. • Technical assistance for small-scale producers. • Setting up an Integrated Management Information System (MIS).

Country (status ¹)	Challenges	Priority Next Steps	Technical Assistance Needed
South Africa (mandatory)	<ul style="list-style-type: none"> • Current fortification levels in maize and wheat flour do not provide adequate levels for young children’s consumption. • Not all wheat flour is fortified. • Fortification levels, as they exist today, are not harmonized with WHO recommendations. The amended regulations need to be finalized. • HACCP is not mandatory. • Compliance monitoring system is not adequate. 	<p>and sources.</p> <ul style="list-style-type: none"> • Publication of new regulations for maize and wheat flour fortification. • Engagement with industry to request implementation of HACCP and linking HACCP with fortification QA/QC principles. • Finalization of QA/QC guidelines and tools. 	<ul style="list-style-type: none"> • Finalization of QA/QC guidelines and tools (e.g. audit checklist). • Sensitization and capacity-building of the government’s Environmental Health personnel on amended regulations and compliance monitoring and enforcement system.
Tanzania (mandatory)	<ul style="list-style-type: none"> • Lack of consumer awareness around the need to purchase fortified flour from the small-scale maize millers in areas where small-scale fortification is taking place. • Reaching rural areas with effective technology for small-scale fortification. • Absence of local premix suppliers. • Quantitative check of iron using the iCheck is time consuming (1- 	<ul style="list-style-type: none"> • Develop a Social and Behavioural Change Communication Strategy for fortification targeting consumers and millers. • Adopt “scooping” technology for rural millers in addition to the Sanku’s solar energy technology. • Establish a small miller’s association to address premix procurement. • Find effective means to obtain reagents for iron testing. 	<ul style="list-style-type: none"> • Development of a Social and Behavioural Change Communication Strategy for fortification. • Capacity building for the creation of a small miller’s association.

Country (status ¹)	Challenges	Priority Next Steps	Technical Assistance Needed
	3 hours) and the reagents are not available in Africa.		
Zimbabwe (mandatory)	<ul style="list-style-type: none"> • Lack of consensus between government and some millers on the need for mandatory legislation. • Failure to reach the rural population that largely produces and mills its own maize meal using small hammer mills and who are not covered by the legislation. • Lack of foreign currency to import premix. 	<ul style="list-style-type: none"> • Re-engagement with the millers that are not complying with the fortification mandate. • Consultation with the Ministry of Industry and Commerce on the feasibility of hammer mill fortification. • Engagement of the Ministry of Finance on the possibility of supporting the millers with foreign currency needed to buy premix. 	<ul style="list-style-type: none"> • Build country capacity on hammer miller fortification with lessons learned from Mozambique. • Support purchase of dosifiers for hammer millers and piloting of hammer miller fortification in selected areas. • Support to develop guidelines, standards, specifications and monitoring tools for hammer mill fortification. • Support to ensure the generation of fortification coverage, reach, and impact data.
Botswana (voluntary)	<ul style="list-style-type: none"> • Increased cost that fortification incurs for industry. • Porous borders. • Lack of equipped laboratories. • Government prioritization of fortification. 	<ul style="list-style-type: none"> • To make fortification mandatory, development partners should have a discussion with the relevant authority on the importance of developing a country standard for fortification of all basic cereals. • Reinforce border control officers at entry points. • Source funding, equipment, and materials for testing micronutrients in fortified food. • Put in place the necessary budgetary 	<ul style="list-style-type: none"> • Assistance from SADC to push legislation for mandatory fortification. Need for regional agreements demanded by Member States. • Base line information needed on food consumption patterns, reach, and nutritional status to identify need and appropriate vehicles for fortification. • Development of a regulatory framework that supports compliance monitoring of fortified food.

Country (status ¹)	Challenges	Priority Next Steps	Technical Assistance Needed
		provisions at the government level for fortification monitoring.	
Democratic Republic of the Congo (voluntary)	<ul style="list-style-type: none"> • No consumer's association to guarantee quality. • Wheat flour supply is complicated by the competition of other African countries on the international market. • Persistence of armed conflicts with instability in some parts of the country. • The monopoly of wheat flour production by one company (MIDEMA) thus there is no competition for good quality products. 	<ul style="list-style-type: none"> • Adoption of mandatory standards. • Promotion of additional wheat flour producers throughout the country. • Identify other potential fortification vehicles such as rice or sugar. • Communication of the SADC resolution on standards. • Integrate surveillance of fortification into the multi-sectorial national monitoring network. • Promotion of monitoring structures. • Strengthen regional cooperation with neighbouring countries to review the wheat flour fortification standard. 	<ul style="list-style-type: none"> • Identification of qualified human resources. • Capacity building around data collection, monitoring, and industrial production. • Identification of equipment needs.
Eswatini (voluntary)	<ul style="list-style-type: none"> • No fortification legislation. • No lab equipment or supplies. • Porous ports of entry. • No monitoring framework (internal, external, or ports of entry). • No accredited laboratory. 	<ul style="list-style-type: none"> • For the development of legislation, advocacy for political commitment and public awareness sensitization. • Mobilization of resources to equip labs; look for rapid assessment test kits in the region. • Mobilize national resources to develop a monitoring framework. 	<ul style="list-style-type: none"> • Development of a monitoring framework for fortification that is integrated into an existing food safety monitoring framework. • Development of legislation. • Assessment of consumption of fortified foods in the country.
Lesotho	<ul style="list-style-type: none"> • No food fortification regulations 	<ul style="list-style-type: none"> • Enactment of fortification regulations. 	<ul style="list-style-type: none"> • Training of lab personnel.

Country (status ¹)	Challenges	Priority Next Steps	Technical Assistance Needed
(voluntary)	<p>in place, although they have been drafted.</p> <ul style="list-style-type: none"> • Need to establish a National Standards Body to publish standards. Currently, there is no National Standards Body in Lesotho, although one is under development. • The National Food Laboratory is not well equipped. 	<ul style="list-style-type: none"> • Establish the national standards body and publish the draft fortification standards. • Request development partners to purchase basic lab equipment to test fortified products for compliance. • Train lab and Environmental Health personnel on testing and results interpretation. 	<ul style="list-style-type: none"> • Training of Environmental Health personnel. • Development of fortification monitoring framework. • Capacity building for producers.
Namibia (voluntary)	<ul style="list-style-type: none"> • Political will to legislate mandatory fortification. • Cost of fortification for small-scale millers. • Lack of capacity to monitor and test. 	<ul style="list-style-type: none"> • Need to involve politicians. • Need to create consumer education efforts. • Need to build capacity of program managers in public and private institutions; training needs. 	<ul style="list-style-type: none"> • Training of food control inspectors. • Assistance drafting legislation. • Cost-benefit analysis to build political support and momentum. • Identification of alternative funding schemes for small-scale fortification.
Zambia (voluntary)	<ul style="list-style-type: none"> • No fortification legislation. • Inadequate laboratory capacity. 	<ul style="list-style-type: none"> • Strengthen lab capacity. • Establish a mandatory program. 	<ul style="list-style-type: none"> • Strengthen identified gaps in the lab assessment. • Build capacity in the Inspectorate (training in monitoring for inspectors). • Procurement of field test kits. • Assessments and impact evaluations post-fortification program.
Madagascar (not started)	<ul style="list-style-type: none"> • Lack of fortification standards. • Political instability causing a 	<ul style="list-style-type: none"> • Creation of a database on micronutrient deficiencies. 	<ul style="list-style-type: none"> • Updated data on deficiencies, coverage, consumption, etc. (a MICS survey will

Country (status ¹)	Challenges	Priority Next Steps	Technical Assistance Needed
	<p>change in the decision on fortification.</p> <ul style="list-style-type: none"> • No updated data (coverage, consumption, deficiencies). • Lack of equipment and reagents for producing and monitoring fortified foods. • Lack of competence among public and private sector staff. • Weak local industrial production. 	<ul style="list-style-type: none"> • Need to identify appropriate food vehicles through availability, accessibility, cost, and stability data. • Creation of standards and regulations. • Revitalization of NFA. • Strengthen industrial production; improve stakeholder dialogue. • Build capacity of public and private sector staff and secure needed equipment. 	<p>begin in 2019 with support from FAO and a FACT survey will begin with support from GAIN).</p> <ul style="list-style-type: none"> • Training for food control personnel; purchase of materials and equipment. • Support for local industries (industry mapping is underway with support from the EU). • Revitalization of the NFA.
Mauritius (not started)	<ul style="list-style-type: none"> • Lack of standards for wheat flour and rice. • Multiple rice importers. This would require assessing the feasibility of fortification by importers. • No experience with monitoring fortified foods. 	<ul style="list-style-type: none"> • Establish standards for wheat flour and rice. • Get millers and rice importers on board with fortification. • Government to provide support, incentives, equipment, and structures for millers and importers to start fortification. • Capacitate the Health Inspectorate Officers to conduct quality control. • Capacitate the Government Analyst Division to conduct quality assurance. 	<ul style="list-style-type: none"> • Establish standards for flour and rice fortification. • Get millers and rice importers on board with fortification. • Provide training and support to producers and importers to establish the structures and obtain the equipment needed to begin fortification. • Capacitate the Health Inspectorate Officers to conduct quality control. • Capacitate the Government Analyst Division to conduct quality assurance.
Seychelles (not started)	<ul style="list-style-type: none"> • Lack of standards and legislation. • Need to find out if foods that are being imported are fortified such 	<ul style="list-style-type: none"> • Develop standards. • Educate stakeholders. • Draft mandatory legislation. 	<ul style="list-style-type: none"> • Develop standards. • Develop legislation.

Country (status ¹)	Challenges	Priority Next Steps	Technical Assistance Needed
	<p>as rice and corn flour, which are the main staples.</p> <ul style="list-style-type: none"> • No experience in fortification monitoring. • Lack of capacity at the public health laboratory. • Lack of knowledge among the general population on fortification. • Lack of acceptance from stakeholders (this is largely related to concerns around cost increase). • Cost of production and high cost once the product reaches the market. 		

¹ Status as relates to wheat flour or maize flour fortification. Mandatory means that a country has legislation in place that mandates the fortification of domestically produced and imported wheat flour or maize flour. Voluntary means that a country produces some fortified wheat flour or maize flour but there is no mandatory legislation in place. Not started means that there are no fortification activities taking place in a country.

Annex B: Agenda

Regional Consultative and Capacity Building Workshop on Strengthening Food Fortification Programmes: Monitoring and Surveillance Systems 8-10 October 2018, Johannesburg, South Africa

Day 1: 08 October 2018		
OFFICIAL OPENING SESSION		
Time	Topic	Presenter / Facilitator
08:30 - 09:00	Arrival and registration of delegates	
09:00 – 09:10	Welcome	Dr. Mosimege, South Africa Namibia Representative
9:10-9:20	Introduction and Objectives of Workshop	Wilson Enzama, Food Fortification Initiative (FFI)
9:20-9:30	Opening Remarks	Duduzile Simelane, SADC
9:30-9:45	Pre-Workshop Evaluation	Helena Pachon, FFI
SESSION 1: OVERVIEW ON REGIONAL PRIORITIES		
09:45 – 10:00	Overview of the state of food fortification in the SADC Region	Pontsho Sepoloane, SADC
10:00 – 10:30	Why Fortify: Impact and Implications	Helena Pachon, FFI
10:30 – 11:00	Monitoring and Surveillance: What it Really Means?	Ronald Afidra, FFI
11:00-11:30	HEALTH BREAK / TEA & COFFEE	
SESSION 2: CAPACITY BUILDING AND CONSULTATIVE SESSIONS WITH SADC MEMBER STATES		
11:30- 12:15	Recommended Methods for Determining Fortification Compliance	Laura Rowe, FFI
12:15-12:45	Good Practices in the Monitoring of Fortification Programs	Laura Rowe, FFI
12:45 -13:00	Plenary	Rebone Ntsie, South Africa's Department of Health
13:00 – 14:00	LUNCH BREAK	
14:00-14:20	Spina Bifida and Hydrocephalus (SBH) Impact and the Role of SBH Organizations	Zubeida Toefy Founder Member, Association for Spina Bifida and Hydrocephalus South Africa
14:20- 15:30	Group Work: Countries organized into groups based on the status of their fortification program.	Facilitated by FFI
15:30 – 16:00	HEALTH BREAK / TEA & COFFEE	
16:00 – 17:30	Group Work continued	<i>Member States</i>
17:30	Group Photo	SADC
	Close of Day 1	

DAY 2: 09 OCTOBER 2018

08:45-09:00	Recap of Day 1	Zambia Representative
SESSION 3: MONITORING AND SURVEILLANCE TOOLS		
09:00-10:00	Introduction to <i>FortifyMIS</i> and Demonstration	Laura Rowe, FFI
10:00-10:30	Introduction to FORTIMAS	Ronald Afidra, FFI
10:30-11:00	HEALTH BREAK/TEA/COFFEE BREAK	
11:00-11:30	Plenary <i>FortifyMIS</i> and FORTIMAS Discussion	Facilitated by Pontsho Sepoloane, SADC
11:30-13:00	Group Report out and Summary: Country Road Map and Next Steps Towards Improved Fortification Programing (10 minutes per country)	Facilitated by Helena Pachon, FFI
13:00-14:00	LUNCH	
14:00-16:00	Group Report out and Summary: Country Road Map and Next Steps Towards Improved Fortification Programing (10 minutes per country)	Facilitated by Ronald Afidra, FFI
16:00-16:30	HEALTH BREAK/TEA/COFFEE BREAK	
SESSION 4: REGIONAL FOOD FORTIFICATION ALLIANCE AND MINIMUM STANDARDS		
16:30-17:00	Overview Regional Food Fortification Alliance Concept and Update on Regional Minimum Standards Process	Pontsho Sepoloane, SADC
17:00-17:30	Logistics and objectives of the Field visit	Ronald Afidra, FFI
Close of Day 2		

DAY 3: 10 OCTOBER 2018		
9:00-10:00	Review of QA/QC Best Practices	Ronald Afidra, FFI
10:00-13:00	Field Visit to the Mill and QA/QC Laboratory	Chamber of Milling / South Africa
13:00-14:00	LUNCH	
14:00-14:30	Feedback from the field visits	Countries
14:30-15:30	Plenary Key areas to take up as the next steps towards developing the regional food fortification monitoring and surveillance framework	Pontsho Sepoloane, SADC
15:30-16:00	Workshop Evaluation and Certificate Awarding	Facilitated by FFI
16:00-16:30	Workshop Closing	Namibia Head of Delegation
END OF WORKSHOP		

Annex C: Pre-Workshop Assessment Preliminary Report

Southern African Development Community Monitoring and Surveillance Workshop
Johannesburg, South Africa October 2018
Pre-Workshop Assessment Preliminary Report

Table 1: Number of respondents to the pre-workshop assessment by affiliation.

Affiliation	n	%
Country Delegates	41	85.4
Partner	4	8.3
Unknown	3	6.3
Total	48	100.0

Table 2: Percent of respondents who correctly answered the True/False questions in the pre-workshop assessment.

No.	Question	Answer	Total No. of Respondents (N)	Correct %
1	Many SADC countries have obligatory fortification of salt	T	46	56.5
2	Food fortification requires significant community behavior change	F	48	31.3
3	Flour fortification with folic acid reduce the risk of neural tube defects	T	47	93.6
4	There is no difference in the prevalence of spina bifida among countries with and without mandatory policies for fortifying flour with folic acid	F	47	74.5
5	Ongoing, systematic collection of data regarding nutrition program process and outcome indicators is a component of public health nutrition surveillance	T	48	95.8
6	Non-representative household level data can be used to evaluate whether a country has changed its fortification coverage	F	46	58.7
7	Government is the only authority involved in ensuring food is fortified according to the country's standards	F	48	68.8
8	The only option for evaluating the impact of a food fortification program is to implement a stand-	F	48	64.6

	alone national fortification survey			
9	Assessments of fortification compliance can be conducted as part of household/individual monitoring and evaluation	F	48	10.4
10	Determining fortification compliance can be effectively implemented in countries with limited resources	T	47	61.7
11	A food production site can be classified as compliant when only a facility's audit and qualitative testing of food samples are conducted	T	48	60.4
12	Quantitative testing of food samples is always needed to determine compliance	F	48	31.3
13	Regulatory monitoring inspectors are the only individuals that can collect information on the quality of fortified products	F	48	52.1
14	Management information systems help improve compliance data collection and analysis	T	48	97.9
15	Production facility closure is an example of a type of non-compliance penalty for industry	T	47	63.8
16	Only trained inspectors should be used to collect and test food products for compliance	F	48	12.5
17	FortifyMIS is a system that can be used to simplify data collection and improve food fortification program outcomes	T	48	70.8
18	FortifyMIS is designed for use only by food producers and government regulatory inspectors in a country	F	48	37.5
19	Any country can use FortifyMIS regardless of the status of their fortification program	F	47	10.6
20	FortifyMIS is an online system that allows fortification compliance data from countries that use the software to be made available to multiple implementing partners and agencies	T	47	68.1
21	In the first year after implementation of a population-based nutrition program, the prevalence of anemia will significantly decrease	F	47	46.8
22	After a decade or more of sustained food fortification, the rate of decline of national anemia prevalence will plateau	T	46	63.0
23	High population coverage is achieved when 60% or more of the population is consuming the fortified food	F	47	12.8
24	The minimum quality system requirement for a flour mill is a set of documented Good Manufacturing Practices	T	48	72.9
25	Best/enhanced practices are those that meet the minimum requirement for consistent fortification at the mill	F	48	10.4

Annex D: Country-specific Presentation Summaries

Mandatory Countries

Malawi

- Includes maize and wheat, although maize is currently not a good vehicle because of low coverage (most is processed by small hammer mills). It has a strong potential for the future if there is a viable small-scale fortification option.
- Rice presents a good future opportunity.
- All wheat flour standards are in line with WHO standards; only some nutrients in the maize flour standards are in line with WHO.
- Coverage of wheat flour fortification: 30%; Coverage of maize flour fortification: 10%
- Challenges:
 - Low coverage of fortified maize (large number of small-scale millers)
 - Competition from cheap unfortified foods coming in from informal cross border trade
 - Lack of domestic premix distribution system and premix prequalification system
 - Effect of premix on color and smell (allegations from industry about consumers experiencing yellowish color and medicinal taste) on flour products / bread. The Food Safety Committee under the NFA is exploring this with Phillip Makhumula.
 - Lack of capacity for district personnel to monitor fortification
- Successes / Opportunities:
 - General willingness by the industry to comply with fortification
 - Constant engagement with the industry through monitoring, meetings, and feedback sessions
 - Use of the fortification logo
 - Monitoring is done by the Malawi Bureau of Standards (MBS) and the NFA
- Grain fortification is included in Malawi's national monitoring framework on food safety.
- Malawi hopes to build the following components into the national monitoring framework:
 - Integration of food safety, food quality, and fortification monitoring especially at points of entry
 - Premix reconciliation calculation
 - Incentives for fortifying accurately
- A health-related surveillance system exists and could be modified to include fortification coverage and / or impact.
- Priority next steps
 - There is need to invest more on social marketing (education and sensitization campaign) to increase awareness on the benefits of fortified foods.
 - District personnel capacity building
 - Partnership between Government/ development partners & the industry in finding ways of making fortification cost effective to Malawians
 - Increase number of food vehicles (e.g. rice)
 - Strengthening the monitoring of cross-border trade
 - Conduct awareness sessions for importers and traders on mandatory fortification requirements
 - Facilitating joint procurement of premix-Government

- Further research should be done to inform the level of nutrients that must be added to flour. Academia
- Guide the Industry on Premix Quality and Sources
- Areas where TA is needed and suggested agency to provide support
 - Capacity building for inspectors and importers at import sites: *GAIN*
 - Industry QA/QC training: *GAIN*
 - District inspector training on regulatory monitoring practices: *GAIN*
 - TA for small scale producers: *TBD*
 - Set up an Integrated Management Information System (MIS): *GAIN/FFI*

Zimbabwe

- Includes maize and wheat.
- Sorghum and millet present good future opportunities.
- Standards are in line and were developed with recent food consumption data and harmonized with WHO and ECSA recommendations.
- No information on fortification coverage.
- Challenges:
 - Lack of consensus between government and some millers on mandatory legislation
 - Failure to reach the rural population that largely produces and mills its own maize meal using small hammer mills and who are not covered by the legislation.
 - Lack of foreign currency to import premix.
- Successes / Opportunities:
 - A monitoring framework has been introduced with the training of provincial cadres.
 - Advocacy has been conducted with community leaders on fortification.
 - Industry has been extensively trained on fortification practices.
 - The government is in the process of addressing this foreign exchange shortage to enable the private sector more effectively purchase premix.
- Grain fortification is included in Zimbabwe's national monitoring framework on food safety.
- Zimbabwe hopes to build the following components into the national monitoring framework:
 - Minimum and maximum ranges for monitoring fortification levels.
- A health-related surveillance system exists and could be modified to include fortification coverage and / or impact.
- Priority next steps
 - Re-engagement with the millers that are not complying
 - Consultation with the Ministry of Industry and Commerce on the feasibility of hammer mill fortification
 - Engagement of the Ministry of Finance on the possibility of supporting the millers with foreign currency needed to buy premix.
- Areas where TA is needed and suggested agency to provide support
 - Build country capacity around hammer miller fortification with lessons learned from Mozambique; complete a learning to Mozambique: *TBD*
 - Support dossifiers for hammer millers and piloting of the hammer miller fortification in selected areas: *TBD*

- Support to develop guidelines, standards, specifications and monitoring tools for hammer mill fortification: *TBD*

Tanzania

- Includes maize and wheat.
- All standards are in line with WHO recommendations.
- Coverage of wheat flour fortification is 33.6%; coverage of maize flour fortification is 2.5%.
- Challenges:
 - Lack of consumer awareness at the maize flour level.
 - Reaching rural areas with effective technology for fortification.
 - Absence of local premix suppliers (most for small millers).
 - Quantitative check of iron is time consuming (1-3 hours) and the reagents are not available in Africa.
- Successes / Opportunities:
 - Seven fortificants included in the List of Essential Medicines (vitamin A, iron EDTA, zinc oxide, potassium iodate, vitamin B12, folic acid, alpha tocopherol for vitamin E and micronutrient powders).
 - Food fortification logo developed and in use.
 - Managed to start a Data Centralization System where industries are registered (~19 industries registered to date).
 - Sanku introduction of medium miller dosifier technology.
 - The introduction of bio-fortification for maize, sweet potatoes, and beans.
 - New reagents for testing quantitatively for iron have been identified and are under trial.
 - Tanzania has fortificants listed in the essential drug list so they are duty free.
- Grain fortification is included in Tanzania's national monitoring framework on food safety.
- Tanzania would like to review the fortification regulations to include small and medium size mills in the mandate for fortification.
- A health-related surveillance system exists but could not be modified as it exists now to include fortification coverage and / or impact.
- Priority next steps
 - Develop a Social and Behavioral Change Communication Strategy for fortification.
 - Adopt scooping technology for rural millers and Sanku's solar energy technology.
 - Establish a small miller's association to address premix procurement.
 - Fast track the new reagent for iron testing.
- Areas where TA is needed and suggested agency to provide support
 - Development of a Social and Behavioral Change Communication Strategy for fortification: *GAIN and FFI*
 - Capacity building for the creation of a miller's association: *GAIN*

South Africa

- Includes maize and wheat. Regulations are currently under review to include cake flour and a voluntary highly fortified maize meal.

- Only some standards are in line; levels are currently under review to align them.
- Coverage data not available. [Maude de Hoop provided documentation after the workshop that may include this information.]
- Challenges:
 - Current fortification levels and current program do not provide adequate levels for young children’s consumption.
 - Not all wheat flour is fortified.
 - Fortification levels, as they exist today, are not harmonized with WHO recommendations. The amended regulations need to be finalized.
 - HACCP is not mandatory.
 - Compliance monitoring system is not adequate.
- Successes / Opportunities:
 - Commitment from Government and industry as well as an enabling environment for engagement.
 - Mandatory legislation, which levels the playing field.
 - Fortification is integrated into the food safety regulatory framework (the Regulations are under the same Act).
 - Potential coverage of fortified vehicles is high because of the high percentage and wide coverage of industrially processed wheat flour and maize meal.
- Grain fortification is included in South Africa’s national monitoring framework on food safety. Norms and standards prescribe the frequency of inspections.
- South Africa hopes to build the following components into the national monitoring framework:
 - Make HACCP mandatory for the maize and wheat milling industry.
 - Link fortification QA/QC principles to the principles of food safety.
- South Africa has a District Information System (DHIS) and a General Household Survey (GHS). Indicators on the grain fortification program could be included such as number of mills that comply.
- Priority next steps
 - Publication of the regulations.
 - Engagement with industry to request implementation of HACCP and linking HACCP with fortification QA/QC principles.
 - Finalization of QA/QC guidelines and tools.
- Areas where TA is needed and suggested agency to provide support
 - Finalization of QA/QC guidelines and tools (e.g. audit checklist): *FFI*
 - Sensitization and capacity-building of EHPs on amended regulations and compliance monitoring and enforcement system: *FFI*

Voluntary Countries

Botswana

- Grains that present a good opportunity for inclusion: wheat flour, maize flour, sorghum. Three big mills exist for wheat flour.

- There are no standards for wheat flour. The industry has adopted South Africa's standards. However, fortification standards sorghum but there are no enforcement measures.
- Coverage of wheat flour fortification is 95%; coverage of maize flour fortification is 70%.
- Challenges:
 - Increased cost that fortification incurs for industry
 - Porous borders
 - Lack of equipped laboratories
 - Government prioritization of fortification
- Successes / Opportunities:
 - Quality products trusted by the market.
- Botswana has a national monitoring framework on food safety but it does not include fortification. In order to include it, the following changes are needed:
 - Adapt a country and regional standard
 - Adopt a regulatory framework for implementation and monitoring
 - Adopt a regulatory monitoring system
- Botswana has a health-related surveillance system that could include grain fortification indicators as currently designed.
- Barriers to adopting mandatory legislation:
 - Lack of political will to initiate fortification and develop and pass legislation on fortification.
 - Lack of pro-activeness towards health through policy efforts.
- Priority next steps
 - To make fortification mandatory: Development partners (from SADC) should have a discussion with the relevant authority on the importance of developing a country standard for fortification of all basic cereals.
 - Reinforce border control officers at entry points
 - Source funding, equipment, and testing materials for micronutrients
 - For government prioritization: Put in place the necessary budgetary provisions
- Areas where TA is needed and suggested agency to provide support
 - Assistance from SADC to push the mandate for fortification standards. Need for regional agreements demanded by states: *SADC/FFI*
 - Base line information needed: *SADC/FFI*
 - A regulatory framework that supports compliance monitoring: *SADC/FFI*

Democratic Republic of the Congo

- Wheat flour and maize flour present the best opportunities.
- No standards.
- Challenges:
 - No consumer's association to guarantee quality.
 - Wheat flour supply is complicated by the competition of other African countries on the international market.
 - Persistence of armed conflicts with instability in some parts of the country.
 - The monopoly of wheat flour production by one society (MIDEMA) thus there is no competition for good quality products.

- Successes / Opportunities:
 - Wheat flour is milled in DRC and three quarters of the demand is covered by local production.
- DRS has a national monitoring framework on food safety (GHS) but grain fortification is not included. In order to include it, the following changes are needed:
 - Operational links between the surveillance system, food security, and laboratories
 - Legislation and quality control
- DRC has a health-related surveillance system that could include grain fortification indicators as currently designed. This was actually a recommendation from the WHO.
- Barriers to adopting mandatory legislation:
 - Commitment of decision-makers.
- Priority next steps
 - Adoption of mandatory standards
 - Promotion of addition wheat flour producers throughout the country
 - To identify other potential vehicles and such as rice or sugar
 - Communication of the resolution of SADC on standards
 - Integrate surveillance of fortification into the multi-sectorial national monitoring network
 - Promotion of monitoring structures
 - Strengthen regional cooperation with neighboring countries to review the wheat flour fortification standard
 - Regular publication of information
- Areas where TA is needed and suggested agency to provide support
 - Identification of qualified human resources: *Government*
 - Capacity building around data collection, monitoring, and industrial production: *SADC*
 - Identification of equipment needs: *Government/SADC*
 - Control of international standards: *SADC*

Lesotho

- Moving towards mandatory for wheat and maize flour. Sorghum presents a good opportunity.
- Two mills exist in the country
- Currently, millers are using WFP standards and South African standards. There are no national standards for fortification, however, there are draft standards and draft regulations in place.
- No data on coverage.
- Challenges:
 - No food fortification regulations in place.
 - Need to establish a National Standards Body to publish standards. Currently, there is no National Standards Body in Lesotho, although one is under development. Standards for food safety and other quality parameters are being developed and enforced by a department in the Ministry of Trade and Industry.
 - The National Food Laboratory is not well equipped.
- Successes / Opportunities:

- Salt is mandatory
- Drafted fortification standards
- Millers are voluntarily fortifying wheat and maize flour using South African and WFP standards.
- Lesotho does not have a national monitoring framework on food safety. Once established, they would like to build into it a regulatory monitoring system on internal, external, commercial, consumption, and impact monitoring.
- Lesotho has a health-related surveillance system that could not include grain fortification indicators as currently designed. However, there is a plan to include sentinel sites.
- The country uses VAM to monitor consumption of fortified foods.
- Barriers to adopting mandatory legislation:
 - Need to finalize the draft regulations, which need the inclusion of penalties, and present to the parliamentarians.
- Priority next steps
 - Enactment of fortification regulations.
 - Establish the national standards body and publish the draft fortification standards.
 - Request development partners to purchase basic lab equipment to test fortified products for compliance.
 - Train lab and environmental health personnel on testing and results interpretation.
- Areas where TA is needed and suggested agency to provide support
 - Training of lab personnel: *SADC*
 - Training of environmental health personnel: *SADC*
 - Development of fortification monitoring framework: *ECOSA/GAIN*
 - Capacity building for producers: *GAIN*

Namibia

- Grains included in the program: wheat flour, maize flour, mahangu flour (pearl millet)
- Currently, millers are using South African standards.
- Coverage of wheat flour fortification: 85%; coverage of maize flour fortification: 90%
- Mahangu flour is consumed by 70% of the population.
- Challenges:
 - Political will to legislation fortification
 - Cost of fortification for small-scale millers
 - Lack of capacity to monitor and test
- Successes / Opportunities:
 - 85-90% of the big millers voluntarily fortify
- Namibia has a national monitoring framework in place for food safety but it does not include grain fortification.
- Namibia has a health-related surveillance system that could include grain fortification indicators as currently designed.
- Barriers to adopting mandatory legislation:
 - Need to draft legislation.
- Priority next steps
 - Need to involve politicians

- Need to create consumer education efforts
- Need to build capacity of program managers in public and private institutions; training needs
- Areas where TA is needed and suggested agency to provide support
 - Training of food control inspectors: *FFI/premix suppliers*
 - Assistance drafting legislation: *FFI/SADC*
 - Cost-benefit analysis to build political support and momentum: *FFI*
 - Identification of alternative funding schemes for small-scale fortification: *premix suppliers*

Eswatini

- Grains included in the program: wheat flour and maize flour
- Eswatini has a wheat flour fortification standard but no maize flour standard. Some nutrients are in line with the WHO wheat flour fortification standard.
- Challenges:
 - No fortification legislation
 - No lab equipment or supplies
 - Porous ports of entry
 - No monitoring framework (internal, external, and ports of entry)
 - No accredited laboratory
- Successes / Opportunities:
 - A wheat flour fortification standard exists.
 - There is a reference lab in South Africa, although it is very expensive.
 - Trained environmental health officers at points of entry
 - Industry is doing QA/QC during production, however, there is still need for compliance monitoring at all levels.
- Eswatini does not has a national monitoring framework in place for food safety.
- Eswatini has a health-related surveillance system that could include grain fortification indicators such as consumption monitoring at the community level.
- Barriers to adopting mandatory legislation:
 - Lack of political support and commitment
 - More than half of consumed products are imported
 - No accredited lab for compliance monitoring
- Priority next steps
 - For the development of legislation: advocacy for political commitment and public awareness sensitization
 - Mobilization of resources to equip labs; look for rapid assessment test kits in the region
 - Mobilize national resources to develop a monitoring framework
- Areas where TA is needed and suggested agency to provide support
 - Development of a monitoring framework for fortification
 - Development of legislation
 - Assessment of consumption of fortified foods in the country

Zambia

- Grains included in the program: wheat flour and maize flour
- Based on consumption, rice would be another good opportunity vehicle.
- Zambia has wheat and maize flour standards that were completed in 2001. None of them are in line with WHO and none of them specify the nutrient compounds required. The standards need updating.
- Fortification coverage of the grains is unknown.
- Challenges:
 - No fortification legislation
 - Inadequate laboratory capacity
- Successes / Opportunities:
 - Voluntary standards available
 - Measures underway to have mandatory legislation
 - Assessment completed of country lab capacity to identify gaps
- Zambia does have national monitoring framework in place for food safety (Food and Drug Inspection Manual) and a manual for monitoring fortified foods. Fortification is included with the food safety framework.
- Zambia has a health-related surveillance system that could not currently include grain fortification indicators.
- Barriers to adopting mandatory legislation:
 - Lack of lab capacity to analyse micronutrients in grains
- Priority next steps
 - Strengthen lab capacity
 - Establish a mandatory program
- Areas where TA is needed and suggested agency to provide support
 - Strengthen identified gaps in the lab assessment
 - Build capacity in the Inspectorate (training in monitoring for inspectors)
 - Procurement of field test kits
 - Assessments and impact evaluations post-fortification program

Not Started Countries

Madagascar

- Rice presents the best opportunity for inclusion in a fortification program.
- Challenges:
 - Lack of standards and legislation (legislation is in place for salt with iodine and fluoride)
 - Weak industry base
 - Lack of monitoring capacity
 - No national database on consumption or nutrient intake. They need an available database to identify appropriate food vehicles and a mapping of all industry. The EU is currently providing funding for some of this.
- Successes / Opportunities:

- Existence of NFA since 2008 (but it needs renewal and strengthening)
- Existence of initiative for voluntary fortification program
- Existence of National Committee on Codex Alimentarius to implement national standards
- Legislation in place for salt with iodine and fluoride.
- Madagascar has national monitoring framework in place for food safety; it does not include grain fortification.
- Madagascar has a health-related surveillance system that could not currently include grain fortification indicators.
- Barriers to adopting mandatory legislation:
 - Lack of fortification standards
 - Political instability causing a change in the decision on fortification
 - No updated data (coverage, consumption, deficiencies)
 - Lack of equipment and reagents for producing and monitoring fortified foods
 - Lack of competence among staff
 - Weak local industrial production
- Priority next steps
 - Creation of a database on micronutrient deficiencies
 - Need to identify appropriate food vehicles through availability, accessibility, cost, and stability data
 - Creation of standards and regulations
 - Revitalization of NFA
 - Strengthen industrial production; improved stakeholder dialogue
 - Build capacity of staff and secure needed equipment
- Areas where TA is needed and suggested agency to provide support
 - Updated data on deficiencies, coverage, consumption, etc. (a MICS survey will begin in 2019 with support from FAO and a FACT survey will begin with support from GAIN)
 - Training for food control personnel; purchase of materials and equipment
 - Support for local industries (industry mapping is underway with support from the EU)
 - Revitalization of the NFA

Seychelles

- Rice and maize flour present the best opportunity for inclusion in a fortification program due to high levels of consumption.
- Challenges:
 - Lack of standards and legislation
 - Need to find out if foods that are being imported are fortified such as rice and corn flour, which are the main staples
 - No experience in fortification monitoring
 - Lack of capacity at the public health laboratory
 - Lack of consensus among stakeholders around fortification due to concerns around potential cost increases

- Seychelles has national monitoring framework in place for food safety; it does not include grain fortification. They would like it to include fortification monitoring through random food sampling of imported products.
- Seychelles has a health-related surveillance system that could not currently include grain fortification indicators.
- Barriers to adopting mandatory legislation:
 - Lack of knowledge among the general population on fortification
 - Lack of acceptance from stakeholders (this is largely related to concerns around cost increase)
 - Cost of production and high cost once the product reaches the market
- Priority next steps
 - Develop standards
 - Educate stakeholders
 - Draft mandatory legislation
- Areas where TA is needed and suggested agency to provide support
 - Develop standards: *FFI*
 - Develop legislation: *FFI*

Mauritius

- Wheat flour (241grams/capita/day) presents the best opportunity for inclusion in a fortification program followed by rice (126g/c/d). Maize is not a primary staple (8g/c/d).
- Challenges:
 - Lack of standards for wheat flour and rice
 - Multiple rice importers. This would require assessing the feasibility of fortification by importers.
 - No experience with monitoring fortified foods.
- Successes / Opportunities:
 - Mauritius has only one wheat flour mill where all imported wheat grain is milled.
 - Mauritius imports 98% of its rice needs and the State Trading Corporation overseas all the imports of grains into the country.
 - The Mauritius Standards Bureau, if capacitated, can help in developing standards for fortification.
 - The Government Analyst Division, if capacitated, can help with QA/QC measures.
 - The Health Inspectorate Division, if capacitated, can incorporate fortification monitoring into its foods safety monitoring framework.
 - Government interest due to deficiency status
- Mauritius has national monitoring framework in place for food safety; it does not include grain fortification.
- Mauritius has a Birth Defects Registry (MBDR) carried out by the Mauritius Institute of Health with support from WHO and the Ministry of Health and Quality of Life. This was started in 2017 and registers all births with defects in the country.
- They believe the school health program can incorporate screening for anaemia in adolescent girls.
- Barriers to adopting mandatory legislation:
 - Lack of industry perspective (since no industry reps attended from Mauritius)

- Priority next steps
 - Establish standards for wheat flour and rice
 - Get millers and rice importers on board with fortification
 - Government to provide support, incentives, equipment, and structures for millers and importers to start fortification
 - Capacitate the Health Inspectorate Officers to conduct quality control
 - Capacitate the Government Analyst Division to conduct quality assurance
- Areas where TA is needed and suggested agency to provide support
 - Establish standards for flour and rice fortification: *FFI, SADC*
 - Get millers and rice importers on board with fortification: *Gov't*
 - Provide training and support to producers and importers to establish the structures and obtain the equipment needed to begin fortification: *A neighboring country that already has a fortification program established*
 - Capacitate the Health Inspectorate Officers to conduct quality control: *FFI*
 - Capacitate the Government Analyst Division to conduct quality assurance: *FFI*

