

# AFSI Overview

PACA Secretariat, AU Commission

June 2021



Partnership  
for Aflatoxin  
Control in Africa

Partenariat pour  
la lutte contre  
l'aflatoxine en Afrique

Parceria para o  
Controle da  
Aflatoxina em África

الشراكة من أجل مكافحة  
الافلاتوكسين في أفريقيا

# Background: Africa is disproportionately impacted by unsafe food

- According to WHO (2015), **91 million** people in Africa fall ill each year and it represents one-third of the 400,000 global death toll for foodborne diseases although Africa accounts for only 16% of the world population
- Unsafe food costs low and middle income countries **US\$110 billion** annually, from productivity loss and medical expenses alone (World Bank, 2018) – mostly in SSA, SA, SEA
- Food safety is an important precondition for access to global food markets and increasingly, for high-value domestic markets
- Therefore, focus on production and productivity alone can not guarantee healthy diets/food security and nutrition, nor net trade

# Food safety is crucial to attainment of AU Malabo Declaration Commitments

- In 2014, AU leaders signed Malabo Declaration on Accelerated Agriculture Growth and Transformation for Shared prosperity and Improved Livelihoods in Africa
- Among the seven Malabo Commitments (targets to be achieved by 2025), food safety is crucial to achieve the following:
  - Ending hunger: Malabo Decl. 3d
  - Tripling intra-Africa trade: Malabo Decl. 5a &b
  - Halving poverty: Malabo Decl. 4
- ‘Malabo Declaration’ also committed AU member states to Mutual Accountability, which requires to conduct a **Biennial Review** of Agriculture and related sectors: tracking, monitoring and reporting on progress
- However, food safety not adequately captured when the Biennial Review was launched.

# “Biennial Review” and food safety

- The inaugural biennial review report was presented to the January 2018 Summit with 43 indicators
- Food safety is part of the Malabo Declaration Implementation Plan but was not tracked in the First Biennial Review
- The BR has seven indicators tracking nutrition outcomes, which is a move in the right direction.
- However, among 43 indicators in the BR, food safety is not adequately captured.
- Food safety identified as one of the gaps in the first BR, as unsafe foods will hold back Commitments 3, 4, and 5 on ending hunger, poverty reduction (raising incomes), and tripling intra-African trade in agricultural commodities

Food safety tracking and country level efforts to meet food safety benchmarks expected to have a domino effect on:

1. Prioritization of food safety in AU member states
2. Inclusion of food safety tracking in government systems
3. Improvements in data availability and quality
4. Improvements in food safety and reductions in food borne disease burden, trade rejections

Thus, Africa Food Safety Index was borne to contribute to realization of the AU Malabo Declaration Commitments!

# Steps in institutionalizing food safety (AFSI) through AU BR

- Stakeholder consultation
- Development of the index
- Establishment of Food Safety Experts Network (FSEN)
- Capacity building training to national experts and technical backstopping using FSEN members
- Development of a bi-directional digital platform for data submission/reporting – alignment to the AU eBiennial
- Data collection and submission
- Validation studies to improve AFSI



# Consultations (mostly expert) on inclusion of food safety indicator in the 2<sup>nd</sup> Malabo BR



Experts at 4<sup>th</sup> CAADP Partnership Platform recommended to include food safety in 2<sup>nd</sup> BR, Libreville

PRC of AU appreciated the efforts to initiate food safety tracking in the 2<sup>nd</sup> BR, AUC

BR Technical Working Group Lead Experts approved inclusion of AFSI in BR, AUC

PACA PPM reviewed draft AFSI, Dakar

A side event at the 1<sup>st</sup> FAO/WHO/AU Int. Food Safety Conf. applauded AFSI, AUC

April 2018

May 2018

Aug 2018

Sep 2018

Oct 2018

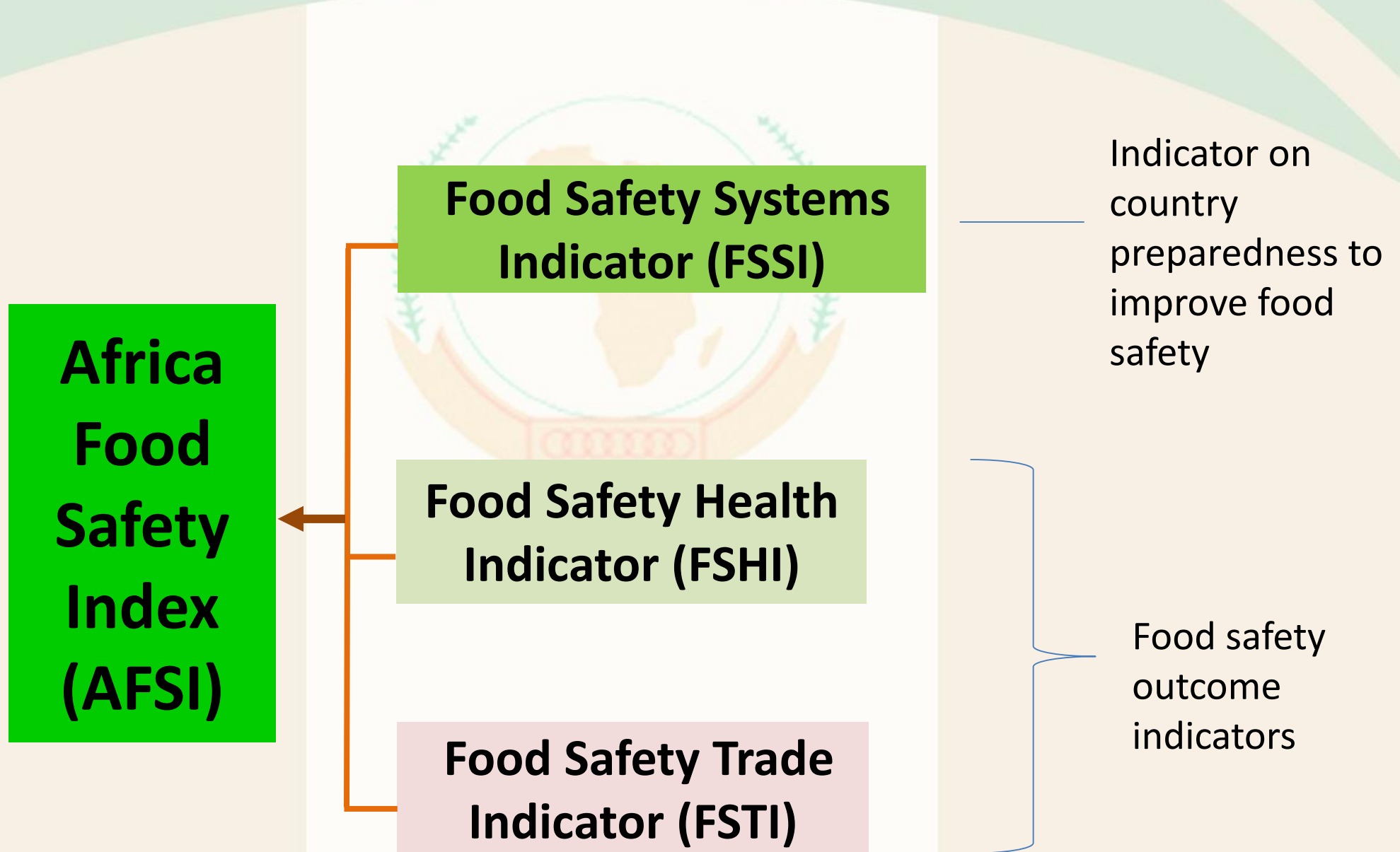
Feb 2019

BR Experts Task Force identified food safety as one of the critical gaps, Cotonou

Writeshop to draft the Africa Food Safety Index, AUC

Peer-to-Peer Meeting of AU MS endorsed inclusion of AFSI, Nairobi

# Structure of AFSI: What is measured?



AFSI is composed of three indicators looking at two dimensions in an attempt to capture the complexity of food safety; taking into account the state of data availability and country level capacity but also need to drive improvements towards optimal systems



# Overview of AFSI parameters and elements under the 3 indicators

## Food safety systems indicator (FSSI)

Parameter	Sub-parameter	(Description)	Elements
Fssi1 (n=48)	Lw1	Food safety policy	
	Lw2	RB FS standards	
	Lw3	Regulatory institution	
Fssi2 (n=48)	MS1	RB FS monitoring plan	
	MS2	Database of FBD	
	MS3	FBD Response system	
	MS4	Participation in FS notification systems	
Fssi3 (n=46)	Lab1	Assessment lab capacity	
	Lab2	Lab capacity <b>(3 elements)</b>	L2-Elt1
			L2-Elt2
			L2-Elt3
	Lab3	Existence of labs <b>(5 elem)</b>	L3-Elt1
			L3-Elt2
			L3-Elt3
			L3-Elt4
			L3-Elt5
Fssi4 (n=46)	Prog1	CapDev programs <b>(3 elem)</b>	P1-Elt1
			P1-Elt2
			P1-Elt3
	Prog2	CapDev HACCP	
	Prog3	Sensitization programs <b>(4 elem)</b>	P3-Elt1
			P3-Elt2
			P3-Elt3
	Prog4	Incentives for private sector	P3-Elt4

## Health indicator (FSH)

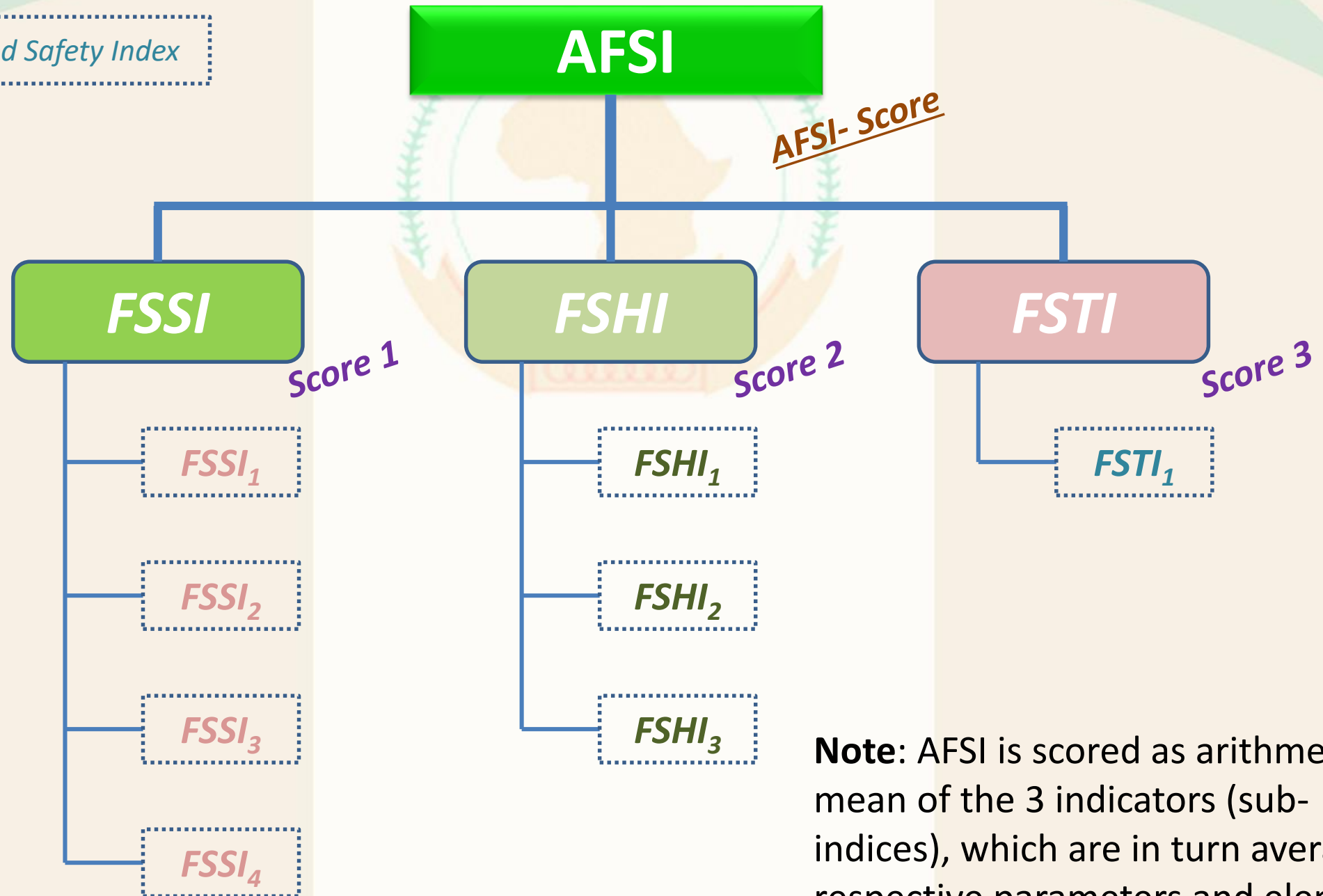
FSHI1 (n=26)	FBDD	FBD related diarrhea cases/100,000/yr	TP NCDD
FSHI2 (n=12)	FBDM	FBD related child<5 mortality/100000/yr	TPC NCDM
FSHI3 (n=13)	FBHCC	FBD related liver cancer cases/100000/year	TP NHCC

## Trade indicator (FSTI)

FST	TRt (n=11)	Total number of FS related rejections in a year (2018)	
	URRt (n=8**)	<b>Unit rejection rate</b> - Rejections/total value of export /year (per 1M USD)/year (2018)	
	TRRt (n=9)	Rate of rejection – Rejections/total shipments/year (2018)	

# Scoring of the AFSI: like any index AFSI is a score

Africa Food Safety Index

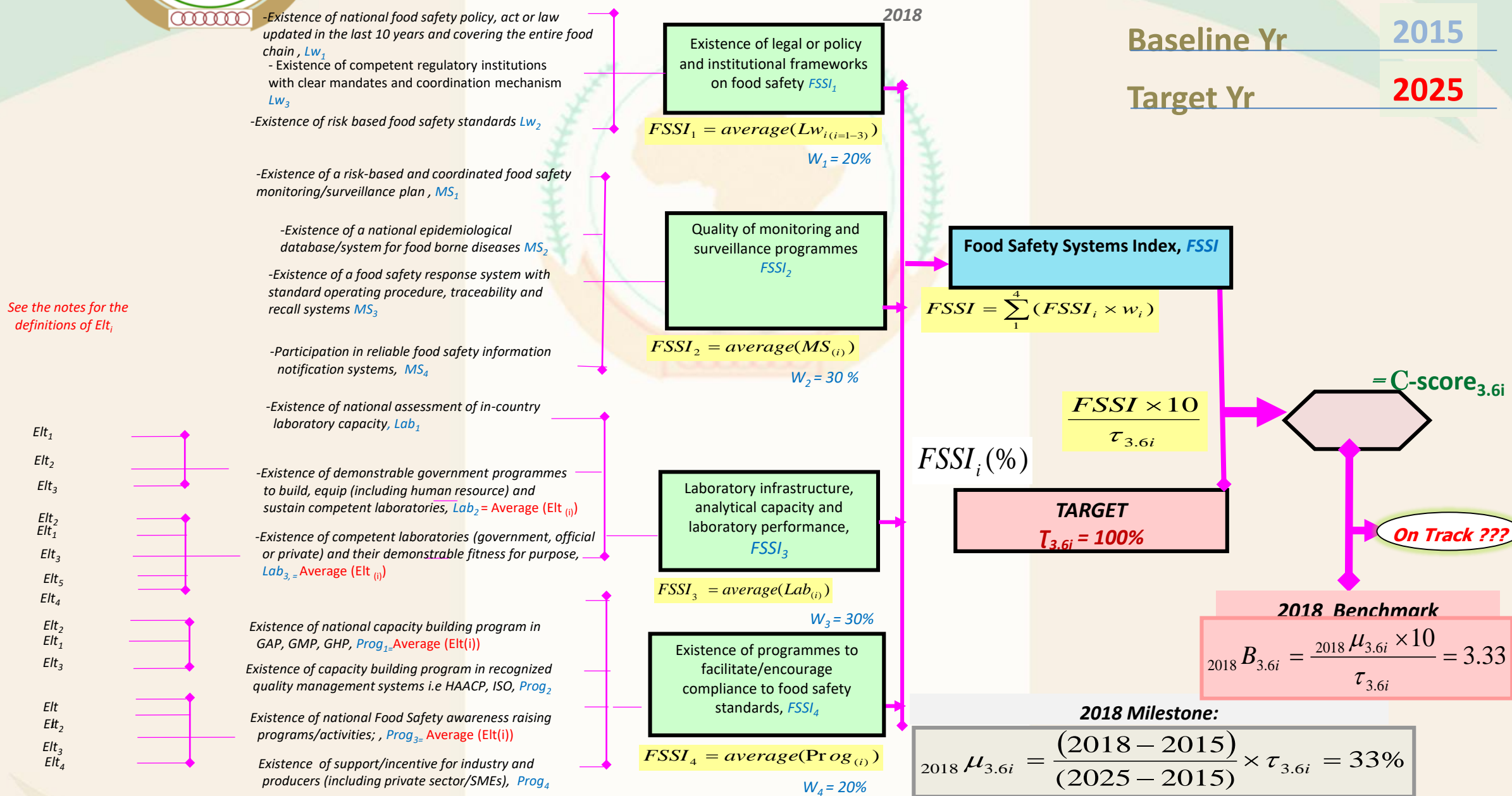


**Note:** AFSI is scored as arithmetic mean of the 3 indicators (sub-indices), which are in turn average of respective parameters and elements



# Computations:

## I-score<sub>3.6i</sub> | Estimating progress on establishing operational and functional food safety systems

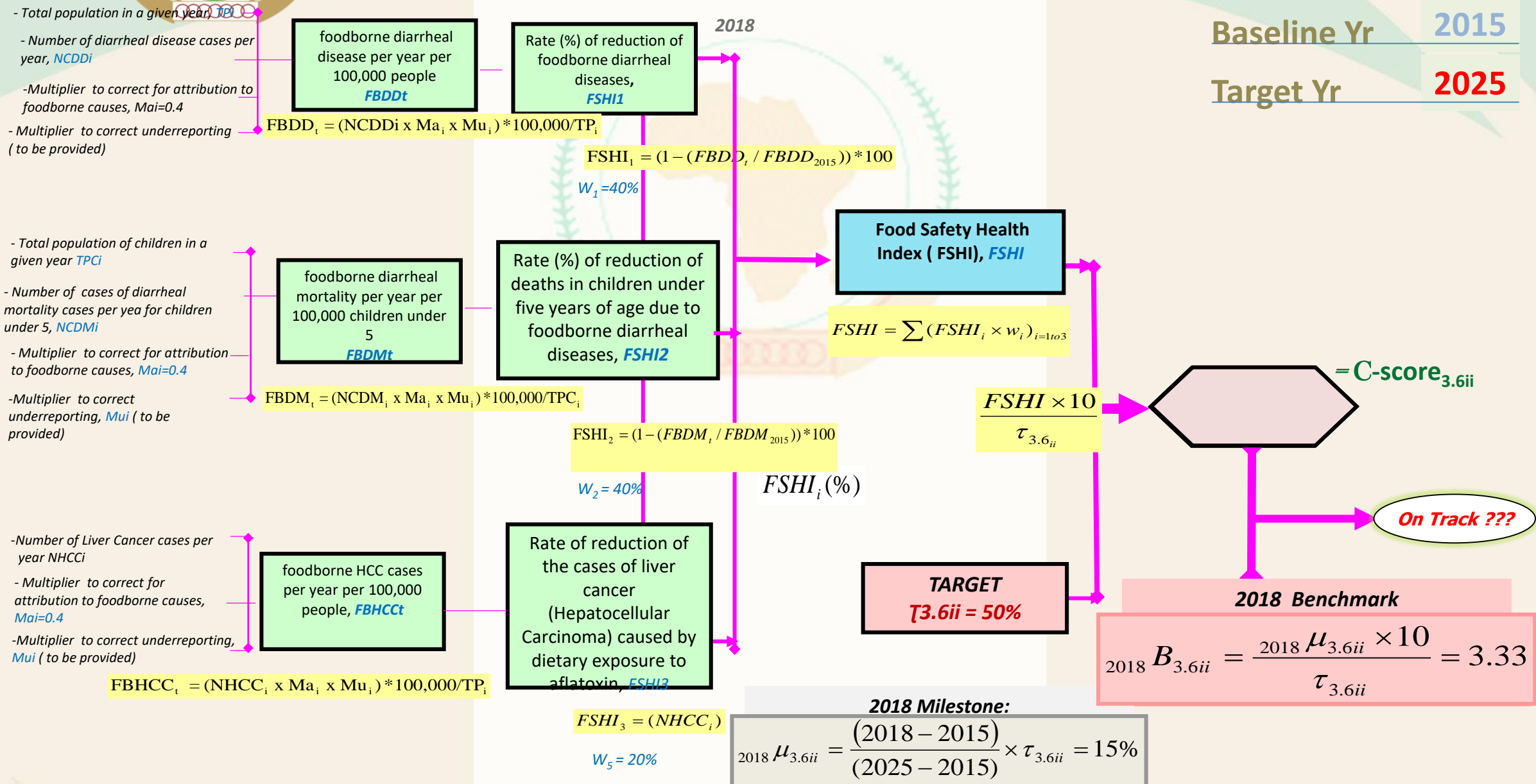


score 3.6ii | Estimated

on in a given year, TPI



I-score<sub>3.6ii</sub>





# Computations:

**I-score<sub>3.6ii</sub> | Estimating progress on reaching at least 50% for the Food Safety Trade Index (FSTI)**

Baseline Yr	2015
Target Yr	2025

Violation type 1 and number of rejection  $TRV1$

$$RRV1 = TRV1 * 100 / TNS$$

Violation type 2 and number of rejection  $TRV2$

$$RRV2 = TRV2 * 100 / TNS$$

Violation type 3 and number of rejection  $TRV3$

$$RRV3 = TRV3 * 100 / TNS$$

Other violations and number of rejections  $TRV4$

$$RRV4 = TRV4 * 100 / TNS$$

Total value of shipment of food commodities exported per year  $TVSt$

Number of rejected shipments based on food safety related trade violations in exported food commodities per year,  $TRt$

$$TRt = \sum (TRV(i))$$

Rate of reduction in unit rejection of food commodities due to food safety violation (non-compliance) disaggregated by type of violation,  $FSTp1$

Food Safety Trade Index,  $FSTI$

2018

$$URR = TR_t / TV_t * USD1,000,000$$

= C-score<sub>3.6ii</sub>

$$\frac{FSTI \times 10}{\tau_{3.6iii}}$$

On Track ???

TARGET

$$\tau_{3.6iii} = 50\%$$

2018 Milestone:

$${}_{2018} \mu_{3.6iii} = \frac{(2018 - 2015)}{(2025 - 2015)} \times \tau_{3.6iii} = 15\%$$

2018 Benchmark

$${}_{2018} B_{3.6iii} = \frac{{}_{2018} \mu_{3.6iii} \times 10}{\tau_{3.6iii}} = 3.33$$

# Regional considerations in the design of AFSI indicators

- Dietary staples prone to aflatoxin account for over 60% of calorie intakes in Africa
- Aflatoxin occurs in 80% of crop samples, often at levels unfit for human consumption
- Biomarker assays of human body fluids also show high exposure of African populations to aflatoxin
- Liver cancer is the number one cause of cancer mortality in Africa
- Up to 40% of liver cancer cases attributed to aflatoxin
- It was important to capture public health impacts of both microbial and chemical hazards especially aflatoxin
- The following slides show why liver cancer was one of the health indicators

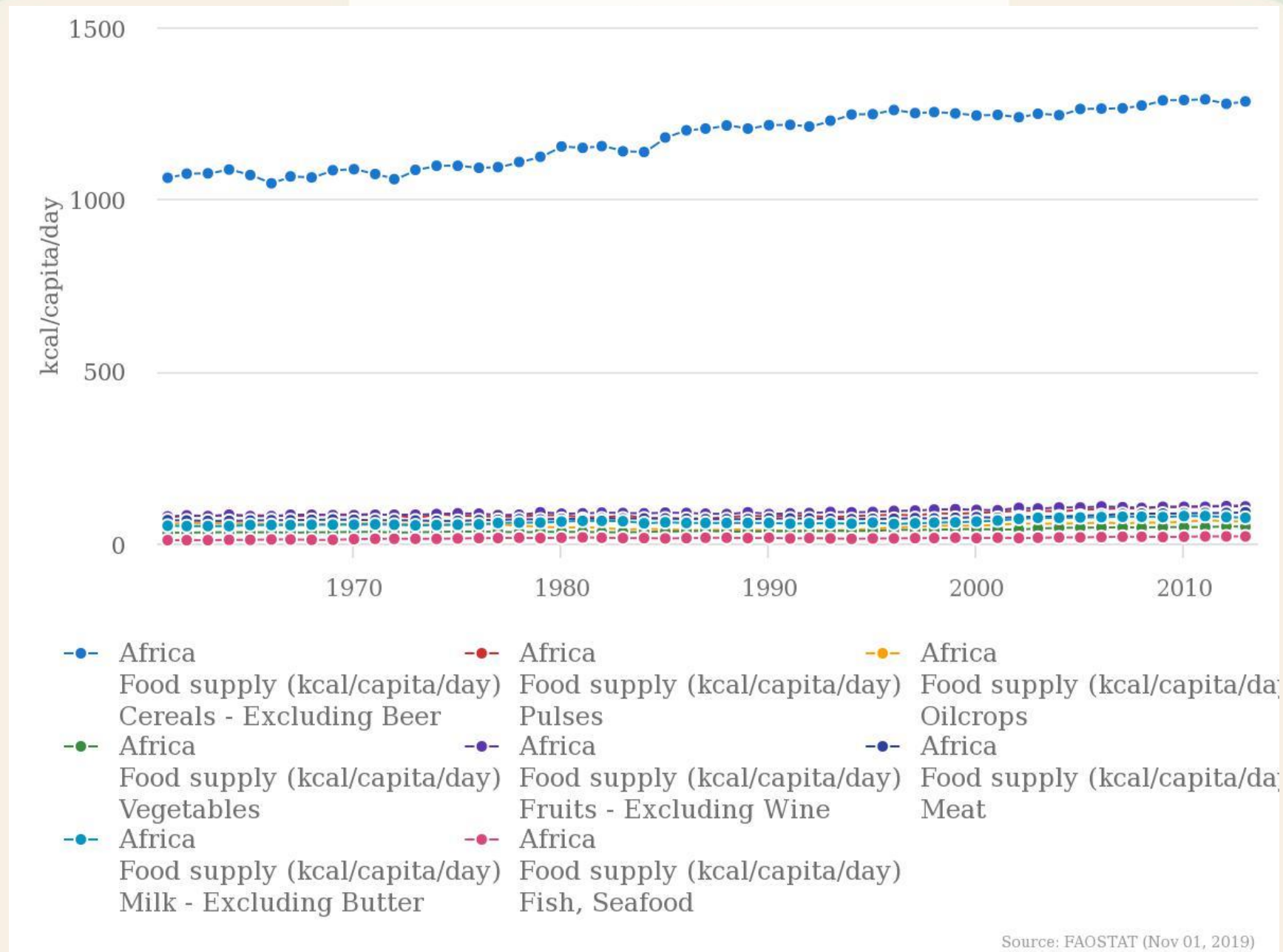


# Occurrence of aflatoxin in priority crops sampled in 2015-2018 from six African countries (PACA AfricaAIMS data)

Crop	Number of samples analyzed	Samples (%) with aflatoxin	Samples (%) exceeding 20 ppb*
Maize	2,296	77%	25%
Groundnut	2,565	80%	29%
Sorghum	640	89%	62%
Total for the three crops	5,501	80%	33%

**\* Less stringent maximum limit applied by a number of countries**

Aflatoxin is a priority food safety issue for Africa:  
harmful + widespread + hits staple foods/ grains



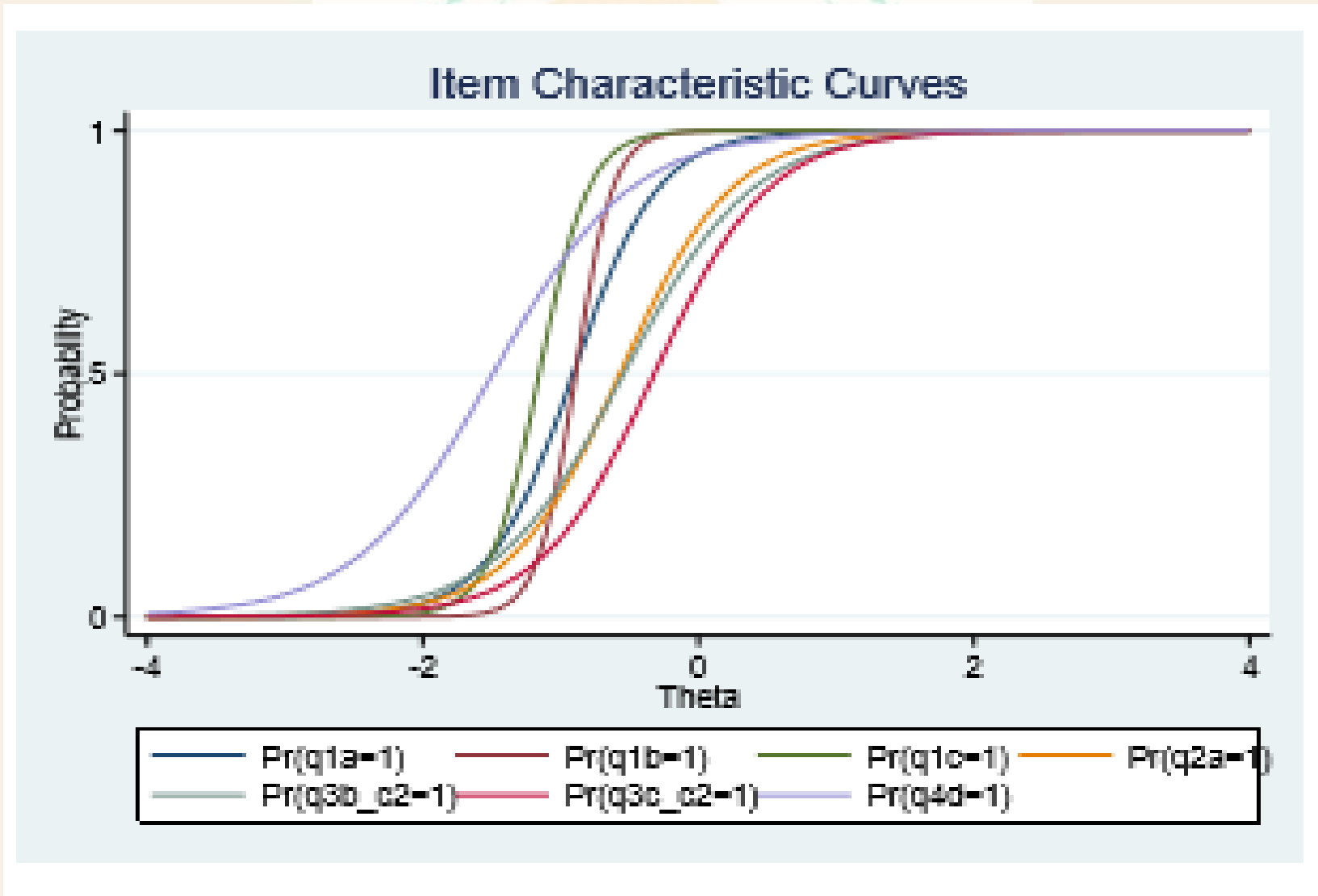
# Extent of data submission in 2019: 49 of the 55 AU MS submitted data on at least 1 of the three AFSI indicators

Indicator	Parameter	Number of countries
<b>Food Safety Systems Indicator</b>	Legal, policy and institutional frameworks	48
	Monitoring and surveillance programs	48
	Lab infrastructure, analytical capacity and lab performance	46
	Programs to facilitate compliance to standards	46
<b>Food safety health indicator</b>	Rate of reduction in food borne diarrheal diseases	26
	Rate of reduction in diarrheal mortality in children under 5	12
	Rate of reduction in liver cancer cases caused by dietary exposure to aflatoxin	13
<b>Food safety trade indicator</b>	Rate of reduction in unit rejection of food commodities due to food safety violation (non-compliance) disaggregated by type of violation	8-11

# AFSI validation studies: **relevance, usability** and **validity** of AFSI

- Three-pronged approach of validation:
  1. Online questionnaire
  2. Focus group interview (data collectors and submitters) and stakeholder meetings in a sample of 9 countries
  3. Analysis of the actual 2019 data (qualitative and Item Response Theory analysis)
- In general, need to improve ability of parameters to discriminate among countries with below average to average systems
- Overall, there is a need for capacity boost in food safety data collection and submission at country level for better data availability
- Some improvements made in AFSI for the 2021 data collection and capacity building trained continued; more systemic capacity improvements will have

Item Response Theory (IRT) analysis showed that some of the parameters were able to discriminate among countries with below average to average systems (unpublished, credit: ILRI)



# We thank our partners in AFSI:



BILL & MELINDA  
GATES *foundation*



ILRI

INTERNATIONAL  
LIVESTOCK RESEARCH  
INSTITUTE

