

# GLOBAL FORTIFICATION DATA EXCHANGE (GFDx) INDICATOR DEFINITIONS AND DATA INCLUSION CRITERIA

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This document describes the full suite of indicators that are currently in the GFDx. For each indicator, a definition, data inclusion criteria, any proxy indicators, and any data caveats are described in detail.

## A. COUNTRY LIST

The GFDx includes 196 states in its database, criteria being: full members of the United Nations<sup>1</sup> (UN, n=193), permanent UN observer states<sup>2</sup> (n=2, Vatican City and State of Palestine), and states recognized by at least 50% of other UN full member states (n=1, Republic of Kosovo). Territories are not included in the GFDx given complications with disaggregating data from their administrative parent countries. Country names and their spelling are taken from the UN member states listings.

States are classified into geographic regions based on the United Nations<sup>3</sup> and income groups based on the World Bank<sup>4</sup>.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields which are food-specific, *\_m* is added at the end of the field name for maize flour, *\_o* for oil, *\_r* for rice, *\_s* for salt and *\_w* for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
country	country_code	Static	Number	Country Codes
country	country_name	Static	Text	Country names
country	country_territory	Static	1 - COUNTRY 2 - TERRITORY	This will be our designation of whether a location is classified as a COUNTRY or as a TERRITORY
country	un_region	Static	1 - Africa 2 - Americas 3 - Asia 4 - Europe 5 - Oceania	United Nations region
maize flour oil rice salt wheat flour	wb_income_status	Annual	1 - Low income 2 - Lower middle income 3 - Upper middle income 4 - High income	World Bank income status
maize flour oil rice salt wheat flour	wb_income_status_source	Annual	Text	Source of the World Bank income status
maize flour oil rice salt wheat flour	population	Annual	Number	The population of the country as per the United Nations

<sup>1</sup> United Nations. Member States. [Accessed 26 February 2018]. See: <http://www.un.org/en/member-states/>.

<sup>2</sup> United Nations. Non-member States. [Accessed 27 August 2018]. See: <http://www.un.org/en/sections/member-states/non-member-states/index.html>.

<sup>3</sup> UN Statistics Division. [Accessed 25 June 2018]. See: <https://unstats.un.org/unsd/methodology/m49/>. (See Geographic Regions in left panel)

<sup>4</sup> The World Bank. World Bank Country and Lending Groups. [Accessed 26 February 2018]. See: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>.

Instrument Name	Field Name	Update Frequency	Data Values	Details
maize flour oil rice salt wheat flour	population_source	Annual	Text	Source of the population data per the United Nations

## B. FOOD VEHICLES

The GFDx will include five food and condiment vehicles for fortification: maize flour, oil, rice, salt, and wheat flour. While we recognize that other foods are often fortified, such as sugar, dairy products, and other condiments (e.g. fish and soy sauces and bouillon cubes), complementary foods for children over 6 months of age, and others, the GFDx will not include these for the Version 2 launch. Discussions are ongoing to include some or all of these foods within a later version.

## C. GFDx INDICATOR LISTING

The indicators included within the GFDx are listed below to provide an overview. While every attempt will be made to identify and search for the relevant documentation, we recognize that there may be occasionally erroneous information presented. Countries are always encouraged to reach out the GFDx to provide an update to their data and information.

The GFDx will strive to verify and include all original or primary source information, such as actual legal documents or primary survey data, rather than other published documentation that indicates existence of these primary sources. For all sources, the author, title, country and publication date of the source will be indicated, in English and the original language, unless written in non-Roman script.

Note that all indicators below are given a reference number that corresponds to the numbering within this document. The reference numbers starting with “P” are denoted as proxy indicators, or indirect measures of the direct indicator. These are used in recognition that the direct measures (indicators without “P”) may not always be available. In all cases, the GFDx will strive to include the direct indicators where possible.

Ref #	Indicator Name	GFDx Version	Category
1	<a href="#">Mandatory Fortification</a>	1	<a href="#">Legislation and Standards</a>
2	<a href="#">Mandatory Fortification Year</a>	1	
3	<a href="#">Effective Year for Mandatory Fortification</a>	1	
4	<a href="#">Fortification Standard</a>	1	
5	<a href="#">Standard Year</a>	1	
6	<a href="#">Nutrient Levels</a>	1	
7	<a href="#">Nutrient Compounds</a>	1	
8	<a href="#">Legislation Scope</a>	2	
9	<a href="#">Voluntary Fortification</a>	1	<a href="#">Industry Organization</a>
10	<a href="#">Daily Food Intake</a>	1	
P10-1	<a href="#">Proxy: Daily Food Availability</a>	1	
11	<a href="#">Total Food Available</a>	1	
12	<a href="#">Amount and Proportion of Industrially Processed Food</a>	2	<a href="#">Regulatory Monitoring Protocols</a>
P12-1	<a href="#">Proxy: Estimated Amount and Proportion of Industrially Processed Food</a>	2	
13	<a href="#">External Monitoring Protocol</a>	2	<a href="#">Fortification Quality</a>
14	<a href="#">Import Monitoring Protocol</a>	2	
15	<a href="#">Amount and Proportion of Food that is Fortified (Compliance by Product Volumes)</a>	2	
P15-1	<a href="#">Proxy: Amount and Proportion of Food that is Fortified (Compliance by Market Share)</a>	2	
P15-2	<a href="#">Proxy: Amount and Proportion of Food that is Fortified (Quality)</a>	2	
P15-3	<a href="#">Proxy: Estimated Amount/Proportion of Food that is Fortified (Estimated Quality)</a>	2	
P15-4	<a href="#">Proxy: Amount and Proportion of Food that is Fortified (Compliance by Facilities/Samples Monitored)</a>	2	
16	<a href="#">Population Coverage of Food Vehicle</a>	2	<a href="#">Population Coverage</a>

Ref #	Indicator Name	GFDx Version	Category
P16-1	<a href="#">Proxy: Estimated Population Coverage of Food Vehicle</a>	2	
17	<a href="#">Population Coverage of Industrially Processed Food Vehicle</a>	2	
P17-1	<a href="#">Proxy: Estimated Population Coverage of Industrially Processed Food Vehicle</a>	2	
18	<a href="#">Population Coverage of Fortified Food Vehicle (Any Level)</a>	2	
P18-1	<a href="#">Proxy: Estimated Population Coverage of Fortified Food Vehicle (Any Level)</a>	2	
19	<a href="#">Population Coverage of Fortified Food Vehicle (Meeting Standards)</a>	2	
P19-1	<a href="#">Proxy: Estimated Population Coverage of Fortified Food Vehicle (Meeting Standards)</a>	2	
20	<a href="#">Population Coverage of Fortified Food Vehicle (Any Level) Across Populations with that Food</a>	2	
21	<a href="#">Population Coverage of Fortified Food Vehicle (Meeting Standards) Across Populations with that Food</a>	2	

## D. INDICATORS RELATED TO LEGISLATION AND STANDARDS

### 1. MANDATORY FORTIFICATION

**Definition:** *The country has legal documentation that has the effect of currently mandating fortification of the food vehicle in question with one or more vitamins or minerals i.e. the documentation indicates that fortification of all or some of the food is compulsory or required.*

**Data Values:**

- YES: Country has such documentation and GFDx has a copy of it.
- NO: A local expert has confirmed that the country does not have such documentation.
- UNKNOWN: A document has not been identified, or does not meet our inclusion criteria.

**Inclusion Criteria:** A published document (ideally the current legislative document) must be available.

**Source:** If YES, the current legislation mandating fortification in the country (or a published document that indicates mandatory legislation). If NO, the individual who confirmed no will be cited as personal communication. If UNKNOWN, no source will be listed and the rest of the fields for this indicator, plus indicators 2 and 3 should be blank.

**Comments:** Any discrepancies or nuance present in the legislation, including any older legislation that may have existed prior to the current one or any time lapses in legislation coverage.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Legislation-maize flour	mandatory_fortification	Static	1 - YES 2 - NO 3 - UNKNOWN	This is a required field; it cannot be left blank. If unknown, the rest of the fields for this indicator should be blank.
Legislation-oil	mf_original_source	Static	Text	Source in the document's original language - CURRENT legislation
Legislation-rice	mf_original_source_english	Static	Text	Source repeated in English
Legislation-salt	mf_comment	Static	Text	Comments on this indicator, including older legislation or time lapses.
Legislation-wheat flour	mf_file_1	Static	Attached file	CURRENT legislation
	mf_file_2	Static	Attached file	ORIGINAL legislation or another related file

### 2. MANDATORY FORTIFICATION YEAR

**Definition:** *The year in which fortification of the food vehicle was first mandated in the country.*

**Data Values:**

- Year (YYYY): Published year of the original or first legislative document or mandate.
- Blank: Date information is not available.

**Inclusion Criteria:** A published document (ideally the original first legislative document) must be available.

**Source:** The first or original legislation mandating fortification in the country (or a published document that indicates mandatory legislation).

**Comments:** Any discrepancies or nuance present in the fortification year, including any more recent legislation that may have superseded the first or original legislation or any time lapses in legislation coverage.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Legislation-maize flour Legislation-oil Legislation-rice Legislation-salt Legislation-wheat flour	fortification_year	Static	Number - YYYY	Blank values indicate unknown and the rest of the fields for this indicator should also be blank. ORIGINAL/FIRST legislation.
	fy_original_source	Static	Text	Source in the document's original language - ORIGINAL/FIRST legislation
	fy_original_source_english	Static	Text	Source repeated in English.
	fy_comment	Static	Text	Comments on this indicator, including more recent legislation or time lapses.

### 3. EFFECTIVE YEAR FOR MANDATORY FORTIFICATION

**Definition:** *The year in which fortification of the food vehicle first came into force or into effect in the country.*

**Data Values:**

- Year (YYYY): Published effective year of the original or first legislative document or mandate. If no year is given within the legislative document, it is assumed to come into effect immediately and reflects the year of Indicator 2 (Mandatory Fortification Year).
- Blank Value: Date information is not available.

**Inclusion Criteria:** A published document (ideally the original first legislative document) must be available.

**Source:** The first or original legislation mandating fortification in the country (or a published document that indicates mandatory legislation).

**Comments:** Any discrepancies or nuance present in the effective year, or explanation of how the effective year was derived.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Legislation-maize flour Legislation-oil Legislation-rice Legislation-salt Legislation-wheat flour	effective_year	Static	Number - YYYY	ORIGINAL/FIRST legislation. ASSUMPTION: If no effective year is provided, it is assumed to come into effect immediately (i.e. same as the year in indicator 2)
	ey_original_source	Static	Text	Source in the document's original language - ORIGINAL/FIRST legislation
	ey_original_source_english	Static	Text	Source repeated in English.
	ey_comment	Static	Text	Explanation of how effective year was derived or assumed.

### 4. FORTIFICATION STANDARD

**Definition:** *The country has legal documentation indicating standardized fortification levels of the food vehicle in question with one or more nutrients.*

**Data Values:**

- YES: Country has such documentation and GFDx has a copy of it.
- NO: A local expert has confirmed that the country does not have such documentation.
- UNKNOWN: A document has not been identified, or does not meet our inclusion criteria.

**Inclusion Criteria:** A published document (ideally the current standard) must be available that indicates the nutrient levels within a standard.

**Source:** If YES, the current standard the country has for fortification (or a published document that indicates nutrient levels within a standard). If NO, the individual who has confirmed no will be cited as personal communication. If UNKNOWN, no source will be listed and the rest of the fields for the indicator and indicator 5 should be blank.

**Comments:** Any discrepancies or nuance present in the standard, including any older standards that may have existed prior to the current one or any time lapses in existence of a standard.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Legislation-maize flour Legislation-oil Legislation-rice Legislation-salt Legislation-wheat flour	fortification_standard	Static	1 - YES 2 - NO 3 - UNKNOWN	This is a required field; it cannot be left blank. If unknown, the rest of the fields for this indicator should be blank.
	fs_original_source	Static	Text	Source in the document's original language - CURRENT standard
	fs_original_source_english	Static	Text	Source repeated in English
	fs_comment	Static	Text	Comments on this indicator, including older standard or time lapses.
	fs_file_1	Static	Attached file	Current fortification standard or personal communication
	fs_file_2	Static	Attached file	Older fortification standard(s) merged into one PDF file and/or personal communication

**5. STANDARD YEAR**

**Definition:** *The year in which the current standard or parent document (e.g. food regulations) was issued, whichever is more recent.*

**Data Values:**

- Year (YYYY): Published year of the current standard.
- Blank: Date information is not available.

**Inclusion Criteria:** A published document (ideally the current standard document) must be available.

**Source:** The current standard the country has for fortification (or a published document that indicates nutrient levels within a standard).

**Comments:** Any discrepancies or nuance present in the standard, including any older standards that may have existed prior to the current one.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Legislation -maize flour	standard_year	Static	Number - YYYY	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
Legislation -oil	sy_original_source	Static	Text	Source in the document's original language - CURRENT standard
Legislation -rice	sy_original_source_english	Static	Text	Source repeated in English.
Legislation -salt Legislation -wheat flour	sy_comment	Static	Text	Comments on this indicator, including any prior standards.

## 6. NUTRIENT LEVELS

**Definition:** *The level of each nutrient expressed in milligrams per kilogram (mg/kg) that is listed in the current standard at the point of production / import for the food vehicle in question.*

**Data Values:** Number, expressed in mg/kg<sup>5</sup>. The number represents the amount of the nutrient to be added to the food, not the amount of the compound; if the standard indicates the level of the compound, the amount of nutrient to add will be calculated. Only one number will be used in this field - if standards provide only one number, this number will be used in the GFDx; if standards provide a range, the calculated mid-point of that range will be used in the GFDx. For standards which allow more than one compound for a given nutrient and a different nutrient level per compound, only one nutrient level and one compound will be recorded in the fields below; the other compounds and their nutrient levels will be noted in the comment field.

*Examples:*

- If the standard states “60 mg/kg of iron as ferrous sulfate”, the nutrient level is 60 mg/kg.
- If the standard states “60 mg/kg of ferrous sulfate”, the nutrient level must be calculated - ferrous sulfate is made up of ~1/3 iron, therefore the amount of iron will be 60/3 or 20 mg/kg.
- If the standard states “20 ±5 mg/kg”, the nutrient level is 20 mg/kg.
- If the standard states “15 mg/kg ±10%”, the nutrient level is 15 mg/kg.
- If the standard states “5-10 mg/kg”, the nutrient level is 7.5 mg/kg.

**Inclusion Criteria:** A published document (ideally the current standard) must be available. Nutrients are included in the GFDx if they are added for a nutrition purpose, rather than as a preservative or stabilizer.

**Source:** The current standard the country has for fortification (or a published document that indicates nutrient levels within a standard).

**Comments:** Indicate the nutrient level exactly as written in the standard, including with different units. Note whether the level applies to one type of the food vehicle or one compound, including any differences for other types of that food vehicle or other compounds. Note whether a nutrient is voluntary vs. mandatory.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

<sup>5</sup> Note that mg/kg is equivalent to parts per million (ppm) as might also be indicated on standards. Nutrient levels in International Units (IU), which are common for vitamins A, D, and E, will be converted to mg/kg.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Micronutrients -maize flour Micronutrients -oil Micronutrients -rice Micronutrients -salt Micronutrients -wheat flour	level_b6	Static	Number - mg/kg	For each level, note ONE number. See examples above for how to derive this number based on how standards are written.
	comment_level_b6	Static	Text	For each nutrient, note the exact text from standard and any exclusions
	level_b12	Static	Number - mg/kg	
	comment_level_b12	Static	Text	
	level_calcium	Static	Number - mg/kg	
	comment_level_calcium	Static	Text	
	level_fluoride	Static	Number - mg/kg	
	comment_level_fluoride	Static	Text	
	level_folic_acid	Static	Number - mg/kg	
	comment_level_folic_acid	Static	Text	
	level_iodine	Static	Number - mg/kg	
	comment_level_iodine	Static	Text	
	level_iron	Static	Number - mg/kg	
	comment_level_iron	Static	Text	
	level_niacin	Static	Number - mg/kg	
	comment_level_niacin	Static	Text	
	level_riboflavin	Static	Number - mg/kg	
	comment_level_riboflavin	Static	Text	
	level_selenium	Static	Number - mg/kg	
	comment_level_selenium	Static	Text	
	level_thiamin	Static	Number - mg/kg	
	comment_level_thiamin	Static	Text	
	level_vitamin_a	Static	Number - mg/kg	
	comment_level_vitamin_a	Static	Text	
	level_vitamin_d	Static	Number - mg/kg	
	comment_level_vitamin_d	Static	Text	
	level_vitamin_e	Static	Number - mg/kg	
	comment_level_vitamin_e	Static	Text	
	level_zinc	Static	Number - mg/kg	
	comment_level_zinc	Static	Text	
level_compound_original_source	Static	Text		
level_compound_original_source_english	Static	Text		

## 7. NUTRIENT COMPOUNDS

**Definition:** *The allowable compounds which can be used to fortify each nutrient that are listed in the current standard at the point of production / import for the food vehicle in question.*

**Data Values:**

- Text: listing of all allowable compounds specific to the nutrient.
- “Unspecified”: If the name of the allowed compounds is not specified within the standard.

For the nutrients pyridoxine (B6), niacin (B3), and riboflavin (B2), it is assumed that the compound has the same name as the nutrient where not otherwise specified.

For some grains, there may be more than one compound per nutrient, more than one nutrient level per compound, and these can vary by flour type (e.g. high- and low-extraction flour). In these cases, we will select one flour type if there are multiple and note this flour type in the comment field for Indicators 6 (Nutrient Levels) and 7 (Nutrient Compounds). We will select or calculate one compound and nutrient level combination present for that flour type and note all the other variations present in the comments.

**Inclusion Criteria:** A published document (ideally the current standard) must be available.

**Source:** The current standard the country has for fortification (or a published document that indicates nutrient levels within a standard).

**Comments:** Specify the compound which relates to the nutrient levels and any other relevant details.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.



Instrument Name	Field Name	Update Frequency	Data Values	Details
Micronutrients -maize flour Micronutrients -oil Micronutrients -rice Micronutrients -salt Micronutrients -wheat flour	compound_b6	Static	Text	For each nutrient, list all allowable compounds - type capitalizing the first letter of each word and separated by commas.
	comment_compound_b6	Static	Text	Note the exact text from the standard that indicates the allowed compound(s). For each nutrient, specify if there are certain compounds that relate to certain nutrient levels or other relevant details.
	compound_b12	Static	Text	
	comment_compound_b12	Static	Text	
	compound_calcium	Static	Text	
	comment_compound_calcium	Static	Text	
	compound_fluoride	Static	Text	
	comment_compound_fluoride	Static	Text	
	compound_folic_acid	Static	Text	
	comment_compound_folic_acid	Static	Text	
	compound_iodine	Static	Text	
	comment_compound_iodine	Static	Text	
	compound_iron	Static	Text	
	comment_compound_iron	Static	Text	
	compound_niacin	Static	Text	
	comment_compound_niacin	Static	Text	
	compound_riboflavin	Static	Text	
	comment_compound_riboflavin	Static	Text	
	compound_selenium	Static	Text	
	comment_compound_selenium	Static	Text	
	compound_thiamin	Static	Text	
	comment_compound_thiamin	Static	Text	
	compound_vitamin_a	Static	Text	
	comment_compound_vitamin_a	Static	Text	
	compound_vitamin_d	Static	Text	
	comment_compound_vitamin_d	Static	Text	
	compound_vitamin_e	Static	Text	
	comment_compound_vitamin_e	Static	Text	
	compound_zinc	Static	Text	
	comment_compound_zinc	Static	Text	

## 8. LEGISLATION SCOPE

**Provides:** Identification of the types of a food vehicle covered by mandatory fortification legislation; for example, mandatory fortification may not apply to whole wheat flour or mandatory fortification applies to all salt for human consumption including salt for food processing. This information can be used to identify the specific food sources providing additional nutrients through fortification.

**Definition:** *The specific types of the food vehicle in question that are expressly required by legislation.*

**Data Values:**

- **TYPES:** Either “All” or “Subset”. Subset would be used in the case where only certain food types (e.g. Premier Grade and 1<sup>st</sup> Grade flours only; or only flours produced in large-scale facilities) are included in legislation. If none are expressly stipulated, then it is assumed all types are included.
- **ORIGINS:** Text list of the origins of the food vehicle (“Domestically Produced”, “Imports”, “Exports”). If none are expressly stipulated in the legislation, then it is assumed domestic and imported foods are included and exported foods are excluded.
- **USES:** Text list of the uses of the food vehicle (“Household”, “Processed Food”, “Animal Feed”, “Donated Food”). If none are expressly stipulated in the legislation, then it is assumed that household and processed foods are included and foods destined for animal feed are excluded. If the legislation states “human consumption” food vehicle, the above sentence applies, but if the legislation says “edible” food vehicle, then animal feed is included.

**Inclusion Criteria:** A published document (ideally the current legislation or standard which provides the legislation scope) must be available.

**Source:** The current legislation or standard the country has for fortification in which scope is indicated (or a published document that indicates the legislation scope).

**Comments:** Indicate the scope of the legislation, exactly as written. For the “Subset” Type category, specify exactly which subsets are included and excluded. Indicate if scope is different in the legislation vs the standard.

**Frequency:** As legislation is released by countries and GFDx data stewards receives document.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Legislation-maize flour Legislation-oil Legislation-rice Legislation-salt Legislation-wheat flour	legislation_scope_types	Static	1-All 2-Subset	If not specified, apply assumption. Choose one option only.
	ls_types_comment	Static	Text	Exact text from document. If not specified, state assumption that was applied.
	ls_types_comment_english	Static	Text	Exact text from document translated into English when applicable. If not specified, state assumption that was applied.
	legislation_scope_origins	Static	1 - Domestically Produced 2 - Imports 3 - Exports	If not specified, apply assumption. Multiple options possible.
	ls_origins_comment	Static	Text	Exact text from document. If not specified, state assumption that was applied.
	ls_origins_comment_english	Static	Text	Exact text from document translated into English when applicable. If not specified, state assumption that was applied.
	legislation_scope_uses	Static	1 - Household 2 - Processed Food 3 - Animal Feed 4 - Donated Food	If not specified, apply assumption. Multiple options possible.
	ls_uses_comment	Static	Text	Exact text from document. If not specified, state assumption that was applied.
	ls_uses_comment_english	Static	Text	Exact text from document translated into English when applicable. If not specified, state assumption that was applied.
	ls_source	Static	Text	Source in the document's original language.
	ls_source_english	Static	Text	Source repeated in English.

## 9. VOLUNTARY FORTIFICATION

**Definition:** *The country has official documentation and/or a food standard that provides guidance or conditions for fortification, but does not have the effect of mandating or requiring fortification. If a country has mandatory fortification for that food vehicle, it will be categorized by GFDx as not having voluntary fortification, even if some types of the food vehicle or some nutrients may be fortified on a voluntary basis.*

### Data Values:

- YES: Country has such documentation and GFDx has a copy of it.
- NO: A local expert has confirmed that the country does not have such documentation.
- UNKNOWN: A document has not been identified, or does not meet our inclusion criteria.

Use the table below to determine the value for Voluntary Fortification based on the values for mandatory fortification (indicator 1) and fortification standard (indicator 4). Note that a country cannot be both mandatory and voluntary.

Mandatory Fortification (Indicator 1)	Fortification Standard (Indicator 4)	Voluntary Fortification (Indicator 9)
YES	YES	NO
YES	NO	NO
YES	UNKNOWN	NO

NO	YES	YES
NO	NO	UNKNOWN, unless NO - if a local expert has indicated NO YES - if there is a policy document that states fortification is allowed
NO	UNKNOWN	UNKNOWN, unless NO - if a local expert has indicated NO YES - if there is a policy document that states fortification is allowed
UNKNOWN	YES	YES
UNKNOWN	NO	UNKNOWN, unless NO - if a local expert has indicated NO YES - if there is a policy document that states fortification is allowed
UNKNOWN	UNKNOWN	UNKNOWN, unless NO - if a local expert has indicated NO YES - if there is a policy document that states fortification is allowed

**Inclusion Criteria:** Data must be available for both Indicators 1 (Mandatory Fortification) and 4 (Fortification Standard) or there must be a published document (ideally specific legislation or legal documentation stating voluntary fortification) available.

**Source:** The current standard the country has for fortification (or a published document that indicates nutrient levels within a standard) or the current legal documentation allowing fortification.

**Comments:** Any discrepancies or nuance present, such as if fortification is voluntary only for some types of the food vehicle or nutrients.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Legislation-maize flour Legislation-oil Legislation-rice Legislation-salt Legislation-wheat flour	voluntary_fortification	Static	1 - YES 2 - NO 3 - UNKNOWN	Determine based on Indicators 1 and 4 using the above table. If NO or UNKNOWN the rest of the fields for this indicator should be blank, except in the case of citing a local expert who has provided a NO determination.
	vf_year	Static	Number - YYYY	Year of original standard (current standard if original is unavailable) or legal documentation stipulating voluntary fortification.
	vf_original_source	Static	Text	Source in the document's original language - CURRENT standard
	vf__original_source_english	Static	Text	Source repeated in English
	vf_comment	Static	Text	Comments on this indicator, including if voluntary for only some types of food vehicle or nutrients.
	vf_file_1	Static	Attached file	Current document or personal communication that stipulated fortification is voluntary
	vf_file_2	Static	Attached file	Original document or personal communication that stipulates fortification is voluntary

## E. INDICATORS RELATED TO INDUSTRY ORGANIZATION

### 10. DAILY FOOD INTAKE

**Definition:** *The average amount of the food vehicle in question that is eaten per grams, per capita, per day.*

**Data Values:** Number, expressed in grams/capita/day (g/c/d).

**Inclusion Criteria:** A published consumption or dietary recall survey or other published and quality-assured data collection method must be available.

**Source:** The source will be the report of the survey or quality-assured data collection method.

**Comments:** The comments section will note any discrepancies or nuance present, especially within the methodology.

#### PROXY 10-1: DAILY FOOD AVAILABILITY

**Use:** If daily food intake is not available.

**Definition:** *The average amount of the food vehicle in question that is available for consumption per grams, per capita, per day.*

**Data Calculation:**

$$\frac{\text{Annual Food Balance (Domestic Production + Imports - Exports - Losses - Animal Feeds)}(MT)}{\text{Total National Population} * 365 \text{ days}} * \frac{1000000g}{MT}$$

**Data Values:** Number, expressed in grams/capita/day (g/c/d).

**Inclusion Criteria:** Published data from food balance sheets or other published and quality-assured data collection method must be available.

**Source:** The source will be the report of the food balance sheet or quality-assured data collection method.

**Comments:** The comments section will note any discrepancies or nuance present.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	food_intake	Annual	Number - g/c/d	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	food_intake_data	Annual	1 - INTAKE 2 - AVAILABILITY	Indicate name of indicator (10 or 10-1) used in this figure.
	food_intake_year	Annual	Number - YYYY	Year of documented data source
	fi_original_source	Annual	Text	Source in the document's original language.
	fi_original_source_english	Annual	Text	Source repeated in English.
	fi_comment	Annual	Text	Comments on this indicator, especially nuances in methodology

#### 11. TOTAL FOOD AVAILABLE

**Definition:** *The total annual food supply available in metric tons of the food vehicle in question for human consumption.*

**Data Calculation:**

$$\text{Annual Food Balance (Domestic Production + Imports - Exports - Losses - Animal Feeds)}(MT)$$

**Data Values:** Number, expressed in metric tons (MT)

**Inclusion Criteria:** Published data from food balance sheets or other published and quality-assured data collection method must be available.

**Source:** The source will be the report of the food balance sheet or quality-assured data collection method.

**Comments:** The comments section will note any discrepancies or nuance present.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	food_available	Annual	Number - MT	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	food_available_year	Annual	Number - YYYY	Year of documented data source
	fa_original_source	Annual	Text	Source in the document's original language.
	fa_original_source_english	Annual	Text	Source repeated in English.
	fa_comment	Annual	Text	Comments on this indicator, especially description of methodology

## 12. AMOUNT AND PROPORTION OF INDUSTRIALLY PROCESSED FOOD

**Provides:** *Quantity of food that could be fortified through industrial food processing (if there is no mandatory fortification in a country) and/or expected to be fortified under existing legislation (if there is mandatory fortification in place).*

**Definition:** *The total amount (in MT) of industrially processed food AND the percentage of the total food available (Indicator 11) that is processed by an industrial processor AND is required to be fortified according to relevant legislation (if mandatory legislation exists).*

**Industrially Processed:** *A food is considered industrially processed (and thus feasible to fortify) if:*

- 1) *It is imported<sup>6</sup>; or*
- 2) *It is domestically produced by manufacturers or producers with average rated production capacity<sup>7</sup> as follows:*
  - *Wheat and Maize Flours - 20 MT/day grain processing rated capacity<sup>8</sup>.*
  - *Rice - 5 MT hour paddy processing rated capacity<sup>9</sup>.*
  - *Oil - 5 MT/day rated capacity<sup>10</sup>.*
  - *Salt - 5,000 MT/year raw salt rated capacity<sup>11</sup>.*

**Required to be Fortified by Law:** *A food is required to be fortified by law if the food type is within the scope of the legislation (Indicator 8). Note that this only applies to countries with mandatory legislation for the food. Without mandatory legislation, only the amount industrially processed is applied and it is assumed that all types of food are allowed by regulations to be voluntarily fortified.*

### Data Calculation:

$$\frac{\text{Amount of Domestically Industrially Processed Food (MT/Year)} + \text{Amount of Food Imported (MT/Year)}}{\text{Total Food Available (MT/Year)}(\text{Indicator 12})} * 100$$

### Data Values:

<sup>6</sup> All imported food is assumed to be industrially processed, as facilities that are able to participate in the export market generally have industrial capabilities. Personal communication: Scott Montgomery, Food Fortification Initiative

<sup>7</sup> Rated production capacity is the maximum production capacity that a food processing facility is able to reach if operating at full capacity. For example, a wheat flour mill may be rated to mill 500 metric tons of wheat grain daily, but their actual processing may only be 300 metric tons of wheat grain.

<sup>8</sup> World Health Organization. Recommendations on wheat and maize flour fortification: Meeting report: interim consensus statement. 2009. See: [http://www.who.int/nutrition/publications/micronutrients/wheat\\_maize\\_fortification/en/](http://www.who.int/nutrition/publications/micronutrients/wheat_maize_fortification/en/).

<sup>9</sup> Alavi S. et al (Eds.). April 2008. A2Z. Rice fortification in developing countries: A critical review of the technical and economical feasibility.

<sup>10</sup> Batch or continuous processing in quantities as low as 1MT/day could have the technological capability and knowledge to fortify. This value is a general rule of thumb and can be adapted for country-specific use as the industrial context warrants. Personal communication: Quentin Johnson, Food Fortification Initiative; Philip Randall, PCubed Consulting; David Morgan, Global Alliance for Improved Nutrition.

<sup>11</sup> Khan N A, Yusufali R, Bagriansky J, Situma r and Gorstein J. A Review of Country Experiences in Small-Scale Salt Iodization. Submitted to Public Health Nutrition; and Bagriansky J. Engaging small-scale producers in salt iodization: lessons from a 10-country analysis. Working Draft. UNICEF Headquarters, December 2016.

- Number, expressed as an amount in metric tons (the numerator of the above data calculation).
- Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** Published and quality assured data must be available.

**Source:** The source will generally be data compiled by government, an industry association, or a third party on production and imports based on producer or importer registration, trade reports, or an industry landscape. The methodology used to determine this indicator should be clearly established within the source document.

**Comments:** Note the exact methodology used to determine this indicator and any discrepancies or nuance present.

**Frequency:** According to the regularity with which agencies release regulatory monitoring reports (may be annual or less frequent)

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### PROXY 12-1: ESTIMATED AMOUNT AND PROPORTION OF INDUSTRIALLY PROCESSED FOOD

**Use:** If accurate published industry landscape data are not available, but an educated guess can be made based on context, knowledge held by a local technical expert, or other quality assured information.

**Definition:** *The estimated total amount (in MT) and estimated percentage of the total food available (Indicator 11) that is processed by an industrial processor AND is required to be fortified according to relevant legislation (if mandatory legislation exists).*

**Data Calculation:**

$$\frac{\text{Estimate of Domestically Industrially Processed Food (MT/Year)} + \text{Estimate of Food Imported (MT/Year)}}{\text{Total Food Available (MT/Year)}(\text{Indicator 12})} * 100$$

**Data Values:**

- Number, expressed as an amount in metric tons (the numerator of the above data calculation).
- Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A documented educated guess, either from published information or in-depth knowledge of the country context must be available and listed as the source of these data.

**Source:** The source will generally be the person/organization that made the estimate.

**Comments:** Note the exact methodology used to determine this indicator and any discrepancies or nuance present.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	industrially_processed_mt	Annual	Number - MT	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	industrially_processed_pc	Annual	Number - %	
	ip_data	Annual	1 - Industry production 2 - Educated guess	Indicate full name of indicator or proxy indicator (12 or 12-1)
	ip_year	Annual	Number - YYYY	Year of documented data source
	ip_source	Annual	Text	Source in the document's original language.
	ip_source_english	Annual	Text	Source repeated in English.
	ip_comment	Annual	Text	Comments on this indicator, especially description of methodology
	ip_file_1	Annual	Attached file	Document or local expert communication
	ip_file_2	Annual	Attached file	Document or local expert communication



## F. INDICATORS RELATED TO REGULATORY MONITORING PROTOCOLS

### 13. EXTERNAL MONITORING PROTOCOL

**Provides:** Evidence that the country has protocols for enforcing fortification at domestic food production facilities.

**Definition:** *The country has an official government document (e.g. manual, rules, operating procedures, regulations, framework, guidelines etc.) that identifies roles, responsibilities, and activities for authorized government department(s) to monitor a domestic food production facility for food safety and food quality, with specific reference to fortification.*

**Data Values:**

- YES: Country has such documentation and GFDx has a copy of it.
- NO: A local expert has confirmed that the country does not have such documentation.
- NOT APPLICABLE: Country does not domestically produce the food and/or does not have mandatory legislation for the food vehicle.
- UNKNOWN: A document has not been identified, or does not meet our inclusion criteria.

**Inclusion Criteria:** A published document (ideally the current external monitoring protocol) must be available, which states at a minimum WHAT will be done during a government-led inspection and/or audit (e.g. a checklist of activities), not just a statement that monitoring will happen. Ideally, the document will also include details of who is responsible for monitoring and the timing or frequency of monitoring.

- Note that when a regional document exists for monitoring and a country in that region also has a document for monitoring, the country-specific document will take precedence over the regional document. The exception would be if in reading the regional document, it explicitly states that it takes precedence over a country-specific document that is older.
- Note that in some cases, there may be countries that have monitoring procedures for ANY food, not specifically for FORTIFIED foods. Such documents may also be included and should be noted in the comments section.

**Source:** If YES, the source is the official government document identifying activities for monitoring of domestic food production facilities for food safety and food quality. If NO, the source is the local expert personal communication. If UNKNOWN, the source is blank.

**Comments:** The comments section will note any discrepancies or nuance present, including when there is both a regional and country-specific protocol, when there are additional documents referred to, or when there might be multiple versions or a draft under development. Comments should also contain the specific page numbers in the protocol document where the relevant monitoring activities can be found.

**Frequency:** As documentation is shared by countries and GFDx data stewards receives document. This indicator will only be collected for countries with mandatory fortification of a food, as this is an indication of a legal mandate to monitor.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, *\_m* is added for maize flour, *\_o* for oil, *\_r* for rice, *\_s* for salt and *\_w* for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Monitoring-maize flour Monitoring-oil Monitoring-rice Monitoring-salt Monitoring-wheat flour	ext_mon_protocol	Static	1 - YES 2 - NO 3 - NOT APPLICABLE 4 - UNKNOWN	Answer Not applicable if there is no domestic production. If Not Applicable is selected, the rest of these fields should be left blank.
	emp_source	Static	Text	Source in the document's original language.
	emp_source_english	Static	Text	Source repeated in English.
	emp_comment	Static	Text	Comments on this indicator
	emp_file_1	Static	Attached file	Document with external monitoring protocol (1)
	emp_file_2	Static	Attached file	Document with external monitoring protocol (2)



## 14. IMPORT MONITORING PROTOCOL

**Provides:** Evidence that the country has protocols for enforcing fortification at importation sites.

**Definition:** *The country has an official government document (e.g. manual, rules, operating procedures, regulations, framework, guidelines, etc.) that identifies roles, responsibilities, and activities for authorized government department(s) to monitor a food imports for food safety and food quality, with specific reference to fortification.*

**Data Values:**

- YES: Country has such documentation and GFDx has a copy of it.
- NO: A local expert has confirmed that the country does not have such documentation.
- NOT APPLICABLE: Country does not import the food and/or does not have mandatory legislation for the food vehicle.
- UNKNOWN: A document has not been identified, or does not meet our inclusion criteria.

**Inclusion Criteria:** A published document (ideally the current import monitoring protocol) must be available, which states at a minimum WHAT will be done during a government-led inspection and/or audit (e.g. a checklist of activities), not just a statement that monitoring will happen. Ideally, the document will also include details of who is responsible for monitoring and the timing or frequency of monitoring.

- Note that when a regional document exists for monitoring and a country in that region also has a document for monitoring, the country-specific document will take precedence over the regional document. The exception would be if in reading the regional document, it explicitly states that it takes precedence over a country-specific document that is older.
- Note that in some cases, there may be countries that have monitoring procedures for ANY food, not specifically for FORTIFIED foods. Such documents may also be included and should be noted in the comments section.

**Source:** If YES, the source is the official government document identifying activities for monitoring of domestic food production facilities for food safety and food quality. If NO, the source is the local expert personal communication. If UNKNOWN, the source is blank.

**Comments:** The comments section will note any discrepancies or nuance present, including when there is both a regional and country-specific protocol, when there are additional documents referred to, or when there might be multiple versions or a draft under development. Comments should also contain the specific page numbers in the protocol document where the relevant monitoring activities can be found.

**Frequency:** As documentation is shared by countries and GFDx data stewards receives document. This indicator will only be collected for countries with mandatory fortification of a food, as this is an indication of a legal mandate to monitor.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, *\_m* is added for maize flour, *\_o* for oil, *\_r* for rice, *\_s* for salt and *\_w* for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Monitoring-maize flour Monitoring-oil Monitoring-rice Monitoring-salt Monitoring-wheat flour	imp_mon_protocol	Static	1-YES 2-NO 3-NOT APPLICABLE 4-UNKNOWN	Answer Not applicable if there are no imports of the food. If Not Applicable is selected, the rest of these fields should be left blank.
	imp_source	Static	Text	Source in the document's original language.
	imp_source_english	Static	Text	Source repeated in English.
	imp_comment	Static	Text	Comments on this indicator
	imp_file_1	Static	Attached file	Document with external monitoring protocol (1)
	imp_file_2	Static	Attached file	Document with external monitoring protocol (2)

## G. INDICATORS RELATED TO FORTIFICATION QUALITY

A country can have many different ways to calculate or estimate the fortification quality or compliance against standards. These are defined below:

**Compliance:** Adherence to an order, regulation, or law. In the case of food fortification, foods that are fortified and included within any order, regulation, or law on food fortification (mandatory or voluntary) must adhere to the micronutrient specifications detailed in the nationally adopted standards and/or other food quality, safety, packaging, and labeling requirements. To be deemed “compliant,” food producers or importers must “pass” a pre-determined and objectively defined set of requirements during a site audit/inspection by the government entity responsible for food control. E.g. these requirements can include a certain score or range of scores based on an audit checklist, a premix reconciliation calculation, qualitative tests, and quantitative tests, or a combination of these<sup>12</sup>. As such, data accepted into the GFDx will be considered as compliance only if assessed by an authorized government authority<sup>13</sup>, is assessed at production or import level<sup>14</sup>, and can be used for enforcement of fortification and other food quality requirements.

**Quality:** The degree to which a product meets stated requirements. Unlike compliance, which must be measured at the point of production or import by authorized government entities, data on quality may be generated by public, private (non-government) or civil society stakeholders. Additionally, it may be collected from places of production, import or markets and may rely on qualitative or quantitative tests, or educated expert estimates. Quality data cannot be used for enforcement of national standards.

For the purposes of the GFDx, compliance and quality data will be defined as follows:

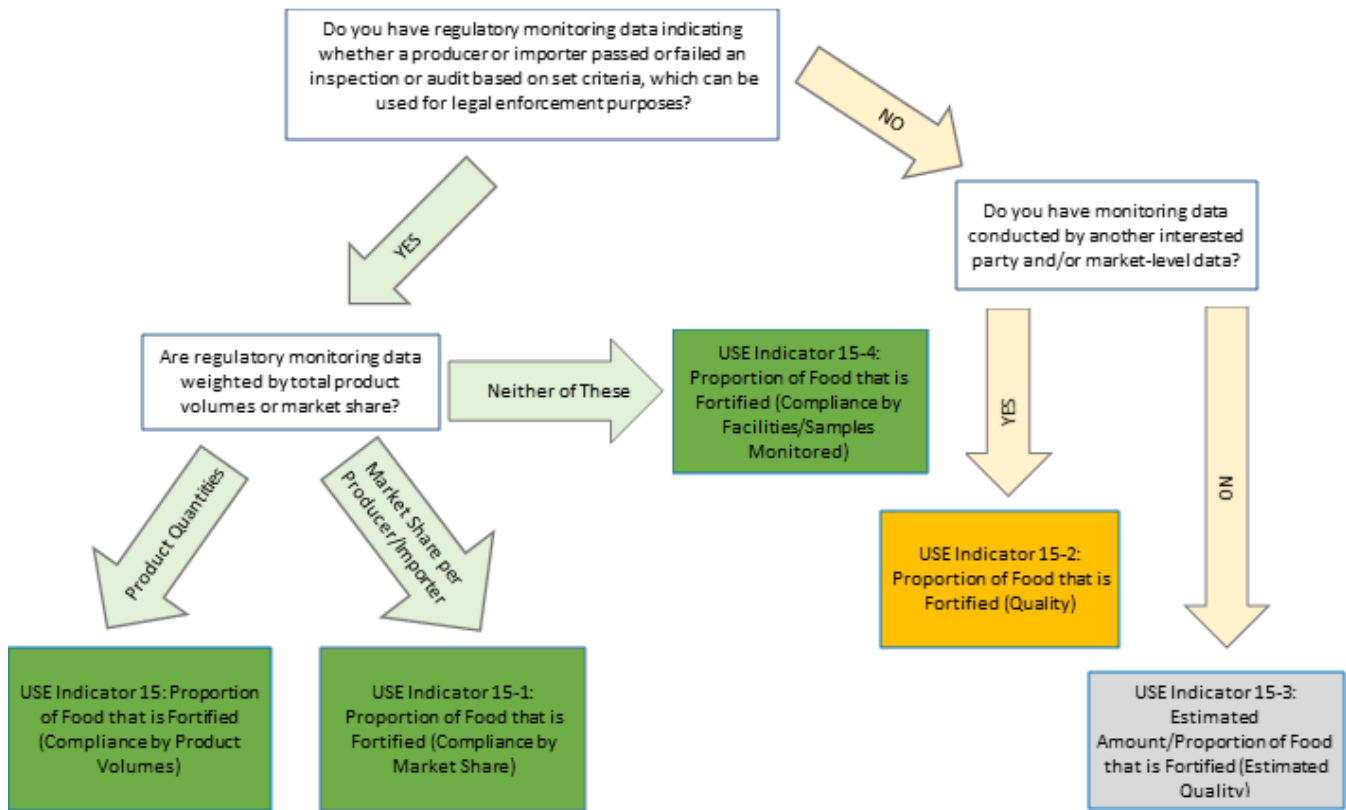
Type of data	Compliance	Quality	Quality - expert opinion
Data source	Authorized government entity, e.g. food control	Any interested party	Any interested party with an understanding of the fortification program
Point in distribution where monitoring may occur	Production Import	Production Import Market	N/A (even if the expert opinion is based on monitoring information, it must be verified through providing the data to GFDx)
Relevant methods	Audits Quantitative Qualitative	Audits Quantitative Qualitative	Other: educated guesses/estimates, calculations with assumptions
Data uses	To verify adherence to a standard, regulation or law, i.e. for enforcement	To assess degree to which product meets stated requirements, i.e. to identify problems, for enforcement advocacy	To provide a general sense of the fortification program’s status; to flag lack of official data
Data presentation	Reports Unpublished or not publicly available regulatory monitoring data (e.g. PPT, emailed tables)	Reports Unpublished or not publicly available 3 <sup>rd</sup> party data, supported by some visual presentation of the monitoring data (e.g. PPT, emailed tables)	Correspondence, with no supporting presentation of data from monitoring efforts

The following decision tree summarizes the various options for compliance and quality data and when specific proxies are to be used:

<sup>12</sup> For further recommendations on compliance determination at food production sites, import sites, and at a national level, see also “Regulatory Monitoring of National Food Fortification Programs: A policy guidance document” at <http://www.fortificationdata.org/resources>.

<sup>13</sup> In the rare cases where an external, non-government agency has been authorized to collect regulatory monitoring data at production or import, data will only be accepted as compliance if the report is co-authored by a government agency.

<sup>14</sup> While regulatory monitoring can occur at market level (commercial monitoring) and may be enforceable if standards/regulations specify required nutrient levels at market, the GFDx will not categorize these data with compliance data collected from production and/or imports since it reflects conditions in food distribution (transportation time, temperature, storage time) that food producers/importers may not have control over.



## 15. AMOUNT AND PROPORTION OF FOOD THAT IS FORTIFIED (COMPLIANCE BY PRODUCT VOLUMES)

**Provides:** Estimates of the proportion of food in the country that meets minimum fortification standards.

**Definition:** *The total amount (in metric tons) and percentage of industrially processed food that is required by legislation to be fortified (Indicator 12) that is fortified at levels that meet relevant standards.*

**Data Calculation:**<sup>15</sup>

$$\frac{\sum \text{Compliant Domestic Production Quantity (MT/Year)} + \sum \text{Compliant Import Quantity (MT/Year)}}{\text{Total Quantity of Industrially Processed Food (MT/Year)} (\text{Indicator 12 Numerator})} * 100$$

**Data Assumption:** This calculation assumes that all producers and imports (as required by law to fortify in Indicator 8) with capacity to be considered “industrial” (as per the definitions in Indicator 12) are those producers and imports who were inspected. Since this calculation is not based on compliant quantities, but on compliant producers/imports, it assumes that all quantities produced/imported by a compliant producer or importer are compliant. This calculation also assumes that total production quantities of compliant producers and imports are known.

**Data Values:**

- Number, expressed as an amount in metric tons (the numerator of the above data calculation).
- Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document or quality assured information must be available which ideally includes the methodology of how compliance was defined or determined within the country. Inspections, audits, and product samples taken to derive this indicator must have been from production or import level (rather than market or household level). Exact methodology and sampling definitions should be indicated in the comments field.

**Source:** The source is official government report(s) indicating compliance of producers/importers with national standards based on compliant volumes of products.

**Comments:** The comments section will note any nuance or discrepancies beyond the methodology and sampling definitions.

<sup>15</sup> Note that either the domestic production figure or the import figure could be omitted if the country does not domestically produce or import the food vehicle in question.

**Frequency:** According to the regularity with which agencies release regulatory monitoring reports (may be annual or less frequent).

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#### PROXY 15-1: AMOUNT AND PROPORTION OF FOOD THAT IS FORTIFIED (COMPLIANCE BY MARKET SHARE)

**Use:** If production/import quantity of compliant producers and importers is not known but estimates of industrial market share are available.

**Definition:** *The total amount (in metric tons) and percentage of industrially processed food that is required under legislation to be fortified (Indicator 12) that is fortified at levels that meet relevant standards.*

**Industrial Market Share:** *A producer's or importer's market share is the proportion of food they produce or import and sell for domestic consumption compared to the total amount of industrially processed or imported food (indicator 12 Numerator). It assumes a 100% market share is achieved by combining all producers who are considered "industrial" or are required by law to fortify<sup>16</sup>.*

**Data Calculation:**

$$\sum \% \text{ Industrial market share of compliant food producers and imports}$$

**Data Assumption:** This calculation assumes that all producers and imports (as required by law to fortify in Indicator 8), and with the capacity to be considered "industrial" (as per the definitions in Indicator 12) are those producers and imports who were inspected. Since this calculation is not based on compliant quantities, but on compliant producers/imports, it assumes that all quantities produced/imported by a compliant producer or importer are compliant. This calculation also assumes that market share of compliant producers and importers are known.

**Data Values:**

- Number, expressed as an amount in metric tons (calculated by multiplying the percentage by the Total Amount of Industrially Processed Food - numerator of Indicator 12).
- Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document or quality assured information must be available which ideally includes the methodology of how compliance was defined or determined within the country. Inspections, audits, and product samples taken to derive this indicator must have been from production or import level (rather than market or household level). Exact methodology and sampling definitions should be indicated in the comment field.

**Source:** The source is official government report(s) indicating compliance of producers/importers with national standards, based on market share.

**Comments:** The comments section will note any nuance or discrepancies beyond the methodology and sampling definitions.

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#### PROXY 15-2: AMOUNT AND PROPORTION OF FOOD THAT IS FORTIFIED (QUALITY)

**Use:** If regulatory monitoring data is not available from points of production or import by an authorized government, but audits, quantitative, or qualitative tests have been performed on food products 1.)by another interested party at any level or 2.)by any authority at market level.

**Definition:** *The total amount (in metric tons) and percentage industrially processed food that is required by legislation to be fortified (Indicator 12) that is confirmed to be fortified at any level or to a specified level.*

**Data Calculation (if based on samples):**

$$\frac{\# \text{ Quantitative Samples Passed}}{\text{Total \# Samples Tested}} * 100$$

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<sup>16</sup> Indicator 15 (and all proxies that include an element of industrial market share) can be converted to total market share (assuming 100% of market share is achieved by combining ALL producers of a food, regardless of whether they are considered "industrial" or are required by law to fortify) by multiplying the proportion of food that is fortified (Indicator 15, any proxy) with the proportion of food that is industrially processed (Indicator 12, any proxy).

**Data Values:**

- Number, expressed as an amount in metric tons (calculated by multiplying the percentage by the Total Amount of Industrially Processed Food - numerator of Indicator 12).
- Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document or quality assured information must be available which ideally includes the methodology of how quality was defined or determined within the country and how samples (if relevant) were collected.

- Note that the sampling and testing methodologies may differ greatly. Ideally, the methodologies below are those used to derive this figure, however, data stewards can also make case-by-case determinations based on the documented methodology, which also should be noted in the comment field:
  - o Weighting samples by brand or type market share or volumes;
  - o Pooling samples of a given brand and testing composite samples of each brand;
  - o Pooling samples of a given geographic region and testing composite samples where brands are unknown;
- An average of samples may also be valid if the sample size is large enough to be nationally representative and representative of brand availability.
- Note that unlike Indicators 15 and 15-1, even if data are collected by an authorized regulatory monitoring agency, if their data for indicator 15-2 are taken from market level, they will not be considered comparable against national standards for compliance determination, but are useful to gauge program performance and fortification quality.

**Source:** The source is either official government reports indicating quality of producers/importers/samples based on quantitative or qualitative product tests at market level, or industry/third-party report(s) indicating quality of producers/importers/samples based on audits, quantitative or qualitative product tests at any level.

**Comments:** The comments section will note any nuance or discrepancies beyond the methodology and sampling definitions.

---

**PROXY 15-3: ESTIMATED AMOUNT AND PROPORTION OF FOOD THAT IS FORTIFIED (ESTIMATED QUALITY)**

**Use:** If no regulatory monitoring data or product sample data are available, but an educated guess can be made based on context and local knowledge by a local technical expert, or other data with cited methods.

**Definition:** *The total amount (in metric tons) and percentage of industrially processed food that is required by legislation to be fortified (Indicator 12) and is fortified at any level (quality).*

**Data Values:**

- Number, expressed as an amount in metric tons (calculated by multiplying the percentage by the Total Amount of Industrially Processed Food - numerator of Indicator 12).
- Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A documented educated guess, either from published information or in-depth knowledge of the country context must be available and listed as the source of these data. The methodology, including how this estimate was made should be documented in the comment field.

**Source:** The source will generally be an estimate by a reputable, local expert or other source.

**Comments:** The comments section will note any nuance or discrepancies beyond the methodology and sampling definitions.

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**PROXY 15-4: AMOUNT AND PROPORTION OF FOOD THAT IS FORTIFIED (COMPLIANCE BY FACILITIES/SAMPLES MONITORED)**

**Use:** If regulatory monitoring data of neither production/import quantity nor industrial market share is available but producers and/or importers have been monitored by an authorized government authority and proportion of compliant facilities or samples is known.

**Definition:** *The percentage of industrially processed food that is required by legislation to be fortified (Indicator 12) that is fortified at levels that meet relevant standards (compliance).*

**Data Calculation:**

$$\frac{\# \text{ Quantitative Facilities or Samples Passed}}{\text{Total \# Facilities or Samples Tested}} * 100$$

**Data Assumption:** This calculation assumes that all producers and importers (as required by law to fortify in Indicator 8) with capacity to be considered “industrial” (as per the definitions in Indicator 12) are those producers and importers who were inspected. This calculation also assumes that 1.) the samples collected and tested during the inspections are representative of the volume of production of the facilities monitored, (although this is unlikely to be the case), and 2.) the samples were collected proportionally to the producer/importer’s market share and can thus be weighted equally in the calculation (also unlikely to be the case).

**Data Values:**

- Number, expressed in metric tons (calculated by multiplying the percentage by the Total Amount of Industrially Processed Food - numerator of Indicator 12).
- Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document or quality assured information must be available which ideally includes the methodology of how compliance was defined or determined within the country. Inspections, audits, and product samples taken to derive this indicator must have been from production or import level (rather than market level). Exact methodology and sampling definitions should be indicated in the comments field.

**Source:** The source is official government report(s) indicating compliance of producers/importers/samples with national standards, based on number of samples or facilities tested.

**Comments:** The comments section will note any nuance or discrepancies beyond the methodology and sampling definitions.

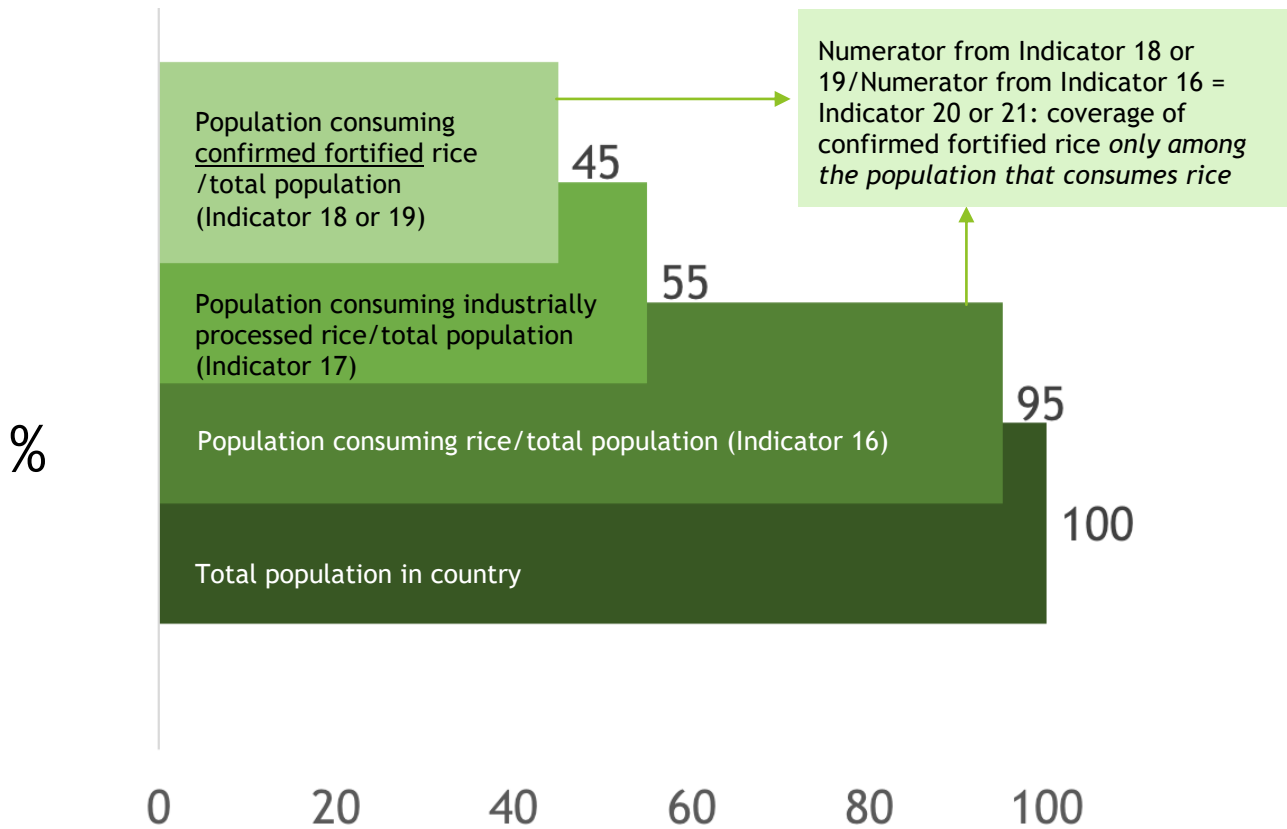
The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	compliance_mt	Annual	Number - MT	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	compliance_pc	Annual	Number - %	
	compliance_data	Annual	1 - Industry Compliance by Production Volumes 2 - Proxy of Industry Compliance by Market Share 3 - Proxy of Fortification Quality by Market/Household Samples 4 - Proxy of Estimated Fortification Quality 5 - Industry Compliance by Facilities/Samples Monitored	1 - Indicator 15 2 - Indicator 15-1 3 - Indicator 15-2 4 - Indicator 15-3 5 - Indicator 15-4  Indicate full name of indicator or proxy indicator. Select one option.
	compliance_year	Annual	Number - YYYY	Year of documented data source
	compliance_source	Annual	Text	Source in the document's original language.
	compliance_source_english	Annual	Text	Source repeated in English.
	compliance_comment	Annual	Text	Exact methodology and sampling definition from source report. Note if methodology is not stated.
	compliance_file_1	Annual	Attached file	Document with compliance figures (1)
compliance_file_2	Annual	Attached file	Document with compliance figures (2)	

## H. INDICATORS RELATED TO POPULATION COVERAGE

Indicators 16-21 and their proxies are intended to capture the differences between the total population consuming a food vehicle, the population consuming the food vehicle which has been industrially processed, and the population consuming the industrially-processed food vehicle that has been fortified. The following example for rice is an example of the relationship between the indicators.





## 16. POPULATION COVERAGE OF FOOD VEHICLE

**Provides:** The proportion of the population that likely eats the food vehicle in question. It provides the maximum coverage of a food vehicle assuming all of the food vehicle is industrially processed and required by legislation to be fortified.

**Definition:** *The proportion of the population (typically measured via household surveys) that report consuming the food vehicle, foods made with that food vehicle, preparing foods with the food vehicle at home, or have the food vehicle in the household on the day of the survey, regardless of whether the food vehicle is fortified or industrially processed.*

**Data Calculation:**

$$\frac{\# \text{Individuals or Households Reporting Using the Food}}{\text{Total \# Individuals or Households Surveyed}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document, ideally a nationally representative survey, information from routine data and health information systems, or other data with cited methods must be available. Data should be nationally representative.

**Source:** The source will be the survey report or other published data with cited methods (e.g. from routine information systems).

**Comments:** The comments section will note the exact methodology definition from the source report.

**Frequency:** According to the regularity with which surveys are conducted (unlikely annual, typically within multiple-year intervals, e.g. every five years)

### PROXY 16-1: ESTIMATED POPULATION COVERAGE OF FOOD VEHICLE

**Use:** If a national survey or other published and quality-assured data are unavailable on reported usage of a food vehicle.

**Definition:** *The proportion of the population that is estimated to consume an industrially processed food vehicle (or foods made with that food vehicle), regardless of whether it is actually fortified or industrially processed, based on Indicators 10 (Total Food Intake / Availability) and 11 (Total Food Available), rather than a household survey.*



**Data Calculation:**

**NUMERATOR:** An estimate of the population with access to the food vehicle.

$$\frac{\text{Total Food Available (MT/year)(Indicator 11) * 1000000g/MT}}{\text{Food Intake or Availability (g/c/d)(Indicator 10) * 365 days}}$$

**DENOMINATOR:** Total National Population

$$\text{Estimated Population Coverage of the Food Vehicle} = \frac{\text{NUMERATOR}}{\text{DENOMINATOR}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** Nationally representative data for indicators 10 and 11 must be available.

**Source:** The source will be same used for Indicator 11 (Total Food Available)

**Comments:** The comments section will note the exact methodology definition from the source report.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	coverage_fv	Annual	Number - %	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	coverage_fv_data	Annual	1 - Data from Survey 2 - Proxy from availability data and population estimates	Indicate full name of indicator or proxy indicator
	coverage_fv_year	Annual	Number - YYYY	Year of documented data source
	coverage_fv_source	Annual	Text	Source in the document's original language.
	coverage_fv_source_english	Annual	Text	Source repeated in English.
	coverage_fv_comment	Annual	Text	Exact methodology definition from source report.
	coverage_fv_file_1	Annual	Attached file	Document with coverage data (1)
	coverage_fv_file_2	Annual	Attached file	Document with coverage data (2)

## 17. POPULATION COVERAGE OF INDUSTRIALLY PROCESSED FOOD VEHICLE

**Provides:** The proportion of the population that uses a food vehicle (or foods made with that food vehicle) that is industrially processed - considered the maximum potential coverage of fortification for that food (a subset of Indicator 16).

**Definition:** *The proportion of the population (typically measured via household survey) that report consuming, preparing foods at home, or have in the household on the day of the survey an industrially processed food vehicle (or foods made with that food vehicle), regardless of whether it is fortified.* The definition of industrially processed for each food vehicle is in Indicator 12.

**Data Calculation:**

$$\frac{\text{\# Individuals/Households Reporting Using an Industrially Processed Food Vehicle}}{\text{Total \# Individuals/Households Surveyed}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document, ideally a nationally representative survey, information from routine data and health information systems, or other data with cited methods must be available. Data should be nationally representative.

**Source:** The source will be the survey report or other published and quality assured report.

**Comments:** The comments section will note the exact methodology definition from the source report.

**Frequency:** According to the regularity with which surveys are conducted (unlikely annual, typically within multiple-year intervals, e.g. every five years)

#### PROXY 17-1: ESTIMATED POPULATION COVERAGE OF INDUSTRIALLY PROCESSED FOOD VEHICLE

**Use:** If a national survey or other published and quality-assured data are unavailable on reported usage of an industrially processed food vehicle.

**Definition:** *The proportion of the population that is estimated to consume an industrially processed food vehicle, regardless of whether it is fortified, based on Indicators 10 (Total Food Intake / Availability), 11 (Total Food Available), and 12 (Proportion of Industrially Processed Food), rather than a household survey.*

**Data Calculation:**

**NUMERATOR:** An estimate of the population with access to industrially processed foods.

$$\frac{\text{Proportion of Industrially Processed Food (\%)(Indicator 12)} * \text{Total Food Available (MT)(Indicator 11)} * 1000000\text{g/MT}}{\text{Food Intake or Availability (g/c/d)(Indicator 10)} * 365 \text{ days}}$$

**DENOMINATOR:** Total National Population

$$\text{Estimated Population Coverage of Industrially Processed Food Vehicle} = \frac{\text{NUMERATOR}}{\text{DENOMINATOR}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** Nationally representative data for indicators 10, 11, and 12 must be available.

**Source:** The source will be same used for Indicator 12 (Proportion of Industrially Processed Food)

**Comments:** The comments section will note the exact methodology definition from the source report.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	coverage_ipfv	Annual	Number - %	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	coverage_ipfv_data	Annual	1 - Data from Survey 2 - Proxy from availability data and population estimates	Indicate full name of indicator or proxy indicator
	coverage_ipfv_year	Annual	Number - YYYY	Year of documented data source
	coverage_ipfv_source	Annual	Text	Source in the document's original language.
	coverage_ipfv_source_english	Annual	Text	Source repeated in English.
	coverage_ipfv_comment	Annual	Text	Exact methodology definition from source report.
	coverage_ipfv_file_1	Annual	Attached file	Document with coverage data (1)
	coverage_ipfv_file_2	Annual	Attached file	Document with coverage data (2)

#### 18. POPULATION COVERAGE OF FORTIFIED FOOD VEHICLE (ANY LEVEL)

**Provides:** The proportion of the population that reports consuming, or has in the home the fortified food vehicle (or foods made with that food vehicle) fortified at any level (quality) - the population that is currently benefiting from fortification.

**Definition:** *The proportion of the population (typically measured via household survey) that report consuming, preparing foods at home, or have in the household on the day of the survey a food vehicle (or foods made with that food vehicle) that is confirmed to be fortified at any level (quality).*

**Quality:** *The degree to which a product meets stated requirements. Unlike compliance, which must be measured at the point of production or import via regulatory monitoring data, quality relies on tests of products at market or household levels.*

**Fortified at any level:** *The presence of a nutrient has been assessed qualitatively and the food has been found to contain that nutrient; however, actual levels have not been quantitatively assessed to compare against standards.*

**Data Calculation:**

$$\frac{\# \text{ Individuals/Households Reporting Using a Food Vehicle Confirmed to be Fortified at Any Level}}{\text{Total \# Individuals/Households Surveyed}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document, ideally a nationally representative survey, information from routine data and health information systems, or other data with cited methods must be available. Data should be nationally representative. Fortification confirmation (quality) should be completed on household samples. It can also be estimated using Indicator 15 (or any of its proxies using qualitative measures) for the particular brand in the household, if the brand is known (e.g. identification of compliance or quality of that brand via regulatory monitoring, market monitoring, or quantitative tests done on samples taken from households.)

**Source:** The source will be the survey report or other published and quality assured report (e.g. from routine information systems).

**Comments:** The comments section will note the exact methodology definition from the source report.

**Frequency:** According to the regularity with which surveys are conducted (unlikely annual, typically within multiple-year intervals, e.g. every five years)

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### PROXY 18-1: ESTIMATED POPULATION COVERAGE OF FORTIFIED FOOD VEHICLE (ANY LEVEL)

**Use:** If a national survey or other published and quality-assured data are unavailable on reported usage of a fortified and industrially processed food vehicle.

**Definition:** *The proportion of the population that is estimated to consume a fortified and industrially processed food vehicle, based on Indicators 10 (Total Food Intake / Availability), 11 (Total Food Available), 12 (Proportion of Industrially Processed Food), and 15 (Proportion of Fortified Food), rather than a household survey.*

**Data Calculation:**

**NUMERATOR:** An estimate of the population consuming a fortified food vehicle.

$$\frac{\text{Proportion of Fortified Food (\%)(Ind. 15) * Proportion of Industrially Processed Food (\%)(Ind. 12) * Total Food Available (MT)(Ind. 11) * 1000000g/MT}}{\text{Food Intake or Availability (g/c/d)(Ind. 10) * 365 days}}$$

**DENOMINATOR:** Total national population

$$\text{Estimated Population Coverage of Fortified Food Vehicle} = \frac{\text{NUMERATOR}}{\text{DENOMINATOR}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** Nationally representative data for indicators 10, 11, 12, and 15 must be available. Note that any value for Indicator 15 (15, 15-1, 15-2, or 15-3) can be used for this calculation.

**Source:** The source will be same used for Indicator 15 (Proportion of Fortified Food)

**Comments:** The comments section will note the exact methodology definition from the source report.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	coverage_ffv	Annual	Number - %	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	coverage_ffv_data	Annual	1 - Data from survey 2 - Proxy from availability data and population estimates	Indicate full name of indicator or proxy indicator
	coverage_ffv_year	Annual	Number - YYYY	Year of documented data source
	coverage_ffv_source	Annual	Text	Source in the document's original language.
	coverage_ffv_source_english	Annual	Text	Source repeated in English.
	coverage_ffv_comment	Annual	Text	Exact methodology definition from source report.
	coverage_ffv_file_1	Annual	Attached file	Document with coverage data (1)
	coverage_ffv_file_2	Annual	Attached file	Document with coverage data (2)

## 19. POPULATION COVERAGE OF FORTIFIED FOOD VEHICLE (MEETING STANDARDS)

**Provides:** The proportion of the population that reports consuming, or has in the home the fortified food vehicle (or foods made with that food vehicle) confirmed to be fortified at levels meeting relevant standards - the population that is currently benefiting from fortification.

**Definition:** *The proportion of the population (typically measured via household survey) that report consuming, preparing foods at home, or have in the household on the day of the survey a food vehicle (or foods made with that food vehicle) that is confirmed to be fortified at levels meeting relevant standards<sup>17</sup>.*

**Data Calculation:**

$$\frac{\# \text{ Individuals/Households Reporting Using a Food Vehicle Confirmed to be Fortified}}{\text{Total \# Individuals/Households Surveyed}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** A published document, ideally a nationally representative survey, information from routine data and health information systems, or other data with cited methods must be available. Data should be nationally representative. Fortification confirmation should be completed on household samples. It can also be estimated using Indicator 15 (or any of its proxies using quantitative measures) for the particular brand in the household, if the brand is known (e.g. identification of compliance or quality of that brand via regulatory monitoring, market monitoring, or quantitative tests done on samples taken from households.)

**Source:** The source will be the survey report or other published and quality assured report (e.g. from routine information systems).

**Comments:** The comments section will note the exact methodology definition from the source report.

**Frequency:** According to the regularity with which surveys are conducted (unlikely annual, typically within multiple-year intervals, e.g. every five years)

### PROXY 19-1: ESTIMATED POPULATION COVERAGE OF FORTIFIED FOOD VEHICLE (MEETING STANDARDS)

**Use:** If a national survey or other published and quality-assured data are unavailable on reported usage of a fortified and industrially processed food vehicle.

<sup>17</sup> Note that most standards DO NOT state levels of nutrients at household or market levels; samples taken at these levels SHOULD NOT be compared to standards that only note levels of nutrients at production or import levels. Universal salt iodization guidelines have recommended a global standard of  $\geq 15$  mg/kg iodine added to salt, which can be considered a "global standard" with which iodized salt samples tested quantitatively can be compared.

**Definition:** The proportion of the population that is estimated to consume a fortified and industrially processed food vehicle, based on Indicators 10 (Total Food Intake / Availability), 11 (Total Food Available), 12 (Proportion of Industrially Processed Food), and 15 (Proportion of Fortified Food), rather than a household survey.

**Data Calculation:**

**NUMERATOR:** An estimate of the population consuming a fortified food vehicle.

$$\frac{\text{Proportion of Fortified Food (\%)(Ind. 15)} * \text{Proportion of Industrially Processed Food (\%)(Ind. 12)} * \text{Total Food Available (MT)(Ind. 11)} * 1000000\text{g/MT}}{\text{Food Intake or Availability (g/c/d)(Ind. 10)} * 365 \text{ days}}$$

**DENOMINATOR:** Total national population

$$\text{Estimated Population Coverage of Fortified Food Vehicle} = \frac{\text{NUMERATOR}}{\text{DENOMINATOR}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** Nationally representative data for indicators 10, 11, 12, and 15 must be available. Note that only the figures from Indicator 15 which were derived from compliance figures (15 and 15-1) can be used to make this calculation.

**Source:** The source will be same used for Indicator 15 (Proportion of Fortified Food)

**Comments:** The comments section will note the exact methodology definition from the source report.

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	coverage_ffv_quant	Annual	Number - %	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	coverage_ffv_quant_year	Annual	Number - YYYY	Year of documented data source
	coverage_ffv_quant_data	Annual	1 - Data from Survey 2 - Proxy from availability data and population estimates	Indicate full name of indicator or proxy indicator
	coverage_ffv_quant_source	Annual	Text	Source in the document's original language.
	cov_ffv_quant_source_english	Annual	Text	Source repeated in English.
	coverage_ffv_quant_comment	Annual	Text	Exact methodology definition from source report.
	cov_ffv_quant_file_1	Annual	Attached file	Document with coverage data (1)
	cov_ffv_quant_file_2	Annual	Attached file	Document with coverage data (2)

**20. POPULATION COVERAGE OF FORTIFIED FOOD VEHICLE (ANY LEVEL) ACROSS POPULATIONS WITH THAT FOOD**

**Provides:** The proportion of the population that reports consuming or has in the home the fortified food vehicle (or foods made with that food vehicle) which is confirmed to be fortified at any level (quality). Note that the denominator for this indicator is not the total population, but only those who use or consume that food - the population currently benefiting from fortification, within the population of food users.

**Definition:** *Among populations that use the food vehicle, the proportion of the population (typically measured via household survey) that report consuming, preparing foods at home, or have in the household on the day of the survey a food vehicle that is confirmed to be fortified at any level (quality).*

**Data Calculation:**

$$\frac{\# \text{ Individuals/Households Reporting Using a Food Vehicle Confirmed to be Fortified at Any Level}}{\text{Total \# Individuals/Households Surveyed that had the Food in Question}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

**Inclusion Criteria:** To be included in the GFDx, a published document (ideally a nationally representative survey) or other data with cited methods must be available and listed as the source of these data. Data should be nationally representative. Fortification confirmation should be completed on household samples. It can also be estimated using Indicator 15 (or any of its proxies using qualitative measures) for the particular brand in the household, if the brand is known (e.g. identification of compliance or quality of that brand via regulatory monitoring, market monitoring, or quantitative tests done on samples taken from households.)

**Source:** The source will be the survey report or other published and quality assured report (e.g. from routine information systems).

**Comments:** The comments section will note the exact methodology definition from the source report.

**Frequency:** According to the regularity with which surveys are conducted (unlikely annual, typically within multiple-year intervals, e.g. every five years)

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	coverage_ffv_hh	Annual	Number - %	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	coverage_ffv_hh_year	Annual	Number - YYYY	Year of documented data source
	coverage_ffv_hh_source	Annual	Text	Source in the document's original language.
	cov_ffv_hh_source_english	Annual	Text	Source repeated in English.
	coverage_ffv_hh_comment	Annual	Text	Exact methodology definition from source report.
	coverage_ffv_hh_file_1	Annual	Attached file	Document with coverage data (1)
	coverage_ffv_hh_file_2	Annual	Attached file	Document with coverage data (2)

## 21. POPULATION COVERAGE OF FORTIFIED FOOD VEHICLE (MEETING STANDARDS) ACROSS POPULATIONS WITH THAT FOOD

**Provides:** The proportion of the population that reports consuming or has in the home the fortified food vehicle (or foods made with that food vehicle) which is confirmed to be fortified to meet standards. Note that the denominator for this indicator is not the total population, but only those who use or consume that food - the population currently benefiting from fortification, within the population of food users.

**Definition:** *Among populations that use the food vehicle, the proportion of the population (typically measured via household survey) that report consuming, preparing foods at home, or have in the household on the day of the survey a food vehicle that is confirmed to be fortified at levels meeting relevant standards<sup>18</sup>.*

**Data Calculation:**

$$\frac{\# \text{ Individuals/Households Reporting Using a Food Vehicle Confirmed to be Fortified meeting standards}}{\text{Total \# Individuals/Households Surveyed that had the Food in Question}} * 100$$

**Data Values:** Number, expressed in percentage, ranging from 0 to 100%.

<sup>18</sup> Note that most standards DO NOT state levels of nutrients at household or market levels; samples taken at these levels SHOULD NOT be compared to standards that only note levels of nutrients at production or import levels. Universal salt iodization guidelines have recommended a global standard of  $\geq 15$  mg/kg iodine added to salt, which can be considered a “global standard” with which iodized salt samples tested quantitatively can be compared.



**Inclusion Criteria:** To be included in the GFDx, a published document (ideally a nationally representative survey) or other data with cited methods must be available and listed as the source of these data. Data should be nationally representative. Fortification confirmation should be completed on household samples. It can also be estimated using Indicator 15 (or any of its proxies using quantitative measures) for the particular brand in the household, if the brand is known (e.g. identification of compliance or quality of that brand via regulatory monitoring, market monitoring, or quantitative tests done on samples taken from households.)

**Source:** The source will be the survey report or other published and quality assured report (e.g. from routine information systems).

**Comments:** The comments section will note the exact methodology definition from the source report.

**Frequency:** According to the regularity with which surveys are conducted (unlikely annual, typically within multiple-year intervals, e.g. every five years)

The table below indicates the relevant fields which will be collected in the GFDx database. For all of these fields, \_m is added for maize flour, \_o for oil, \_r for rice, \_s for salt and \_w for wheat flour.

Instrument Name	Field Name	Update Frequency	Data Values	Details
Maize flour Oil Rice Salt Wheat flour	coverage_ffv_hh_quant	Annual	Number - %	Blank values indicate unknown and the rest of the fields for this indicator should also be blank.
	coverage_ffv_hh_quant_year	Annual	Number - YYYY	Year of documented data source
	coverage_ffv_hh_quant_source	Annual	Text	Source in the document's original language.
	cov_ffv_hh_quant_source_english	Annual	Text	Source repeated in English.
	coverage_ffv_hh_quant_comment	Annual	Text	Exact methodology definition from source report.
	coverage_ffv_hh_quant_file_1	Annual	Attached file	Document with coverage data (1)
	coverage_ffv_hh_quant_file_2	Annual	Attached file	Document with coverage data (2)

## APPENDIX: CITATION INSTRUCTIONS

To cite the GFDx generally use the following: Global Fortification Data Exchange. [Accessed dd/mm/yyyy.] <http://www.fortificationdata.org>.

To cite a specific map or visualization within the GFDx, use the following: “Name of Visualization.” Global Fortification Data Exchange. [Accessed dd/mm/yyyy.] <http://www.fortificationdata.org>.

To cite original sources of data included within the GFDx, use the following: Author. Title. Country. Publication date. [Weblink].

- There is a period at the end of each part of the reference, except for the weblink.
- **AUTHOR:** Institutional author, or for personal communication, use the name of the individual plus their title and institutional affiliation. If there is no institutional author, write “No author”. If there are multiple authors, separate them by a comma.
- **TITLE:** The title should be the full title of the document. For legal documents, also include the document number, if available. If there are multiple parts to the title, separate them by a comma. For personal communication, no title will be needed.
- **COUNTRY:** The country should be that where the document was written or published. This includes for regional documents where the country with data in question is different from the country of publication. If the country of publication is not clearly specified, write “No country”.
- **PUBLICATION DATE:** If there is no publication date, write “No date”. The publication date should be written as dd/Month/yyyy (e.g. 27/March/2017). If the date does not have the day, include the month and year (e.g. March/2017). If the date does not have the day or month, just include the year (e.g. 2017). For personal communication, use the date the individual communicated to the GFDx.
- **WEBLINK:** If no website is available, do not add the brackets at the end of the reference.

To cite personal communication sources of data included within the GFDx, use the following: Name, organization. Personal communication. Country. Year.

- **NAME:** First name fully spelled out last name fully spelled out. If there are multiple people who communicated with the GFDx, separate them by a comma (,).
- **ORGANIZATION:** Only include the head title of the organization. For example, if someone works in the Nutrition Department at the Ministry of Health only include the Ministry of Health in the organization name.
- **YEAR:** Write the 4-digit year, such as 2017.
- There is a period at the end of each part of the reference.

To cite scientific publication sources of data included within the GFDx, use the following: Author(s). Title. Journal name. Publication date. [Weblink in brackets]

- **AUTHOR:** Follow this format - Last name fully spelled out, first initials. If there are multiple authors, separate them by a comma (,).
- **TITLE:** If there are multiple parts to the title, separate them by a comma (,).
- **PUBLICATION DATE:** If the date does not have the day, include the month and year, such as March/2017. If the date does not have the day or month, write the 4-digit year, such as 2017.
- **WEBLINK:** If the scientific publication has a weblink, the website is put inside brackets. If no website is available, do not add the brackets at the end of the reference.
- There is a period at the end of each part of the reference.