

# INROADS IN INDIA

ANNUAL REPORT



Food  
Fortification  
Initiative



2018

The **Food Fortification Initiative** (FFI) champions effective grain fortification so people have the nutrition they need to be smarter, stronger, and healthier.

We help country leaders promote, plan, implement, and monitor fortification of industrially milled wheat flour, maize flour, and rice. We are the only global group that focuses exclusively on these commonly consumed grains. Established in 2002, we are a public, private, and civic partnership that maximizes strengths and avoids duplication of efforts.

## 2018 GLOBAL HIGHLIGHTS

- We facilitated wheat flour fortification in Haryana, India, which will improve nutrition for **12 million people when it is fully implemented**.
- Since 2014, we have worked with Solomon Islands' leaders to fortify wheat flour and rice. Wheat flour fortification began in 2015, and rice fortification standards were passed in 2018. Solomon Islands is one of only seven countries with mandatory **rice fortification**.
- We provided **technical assistance** for grain fortification in Colombia, Georgia, Indonesia, Kyrgyz Republic, Malawi, Malaysia, Mongolia, Peru, Philippines, Sri Lanka, Uganda, Ukraine, and Viet Nam.
- We organized a regional fortification **monitoring workshop** in South Africa with delegates from 12 countries (Botswana, eSwatini, Lesotho, Madagascar, Malawi, Mauritius, Namibia, Seychelles, South Africa, Tanzania, Zambia, and Zimbabwe) to better understand their successes and challenges around national fortification efforts. We will assist these countries with grain fortification over the next four years.
- We shared global **fortification developments, knowledge, and experiences** during a Nutrition International (NI) planning and training meeting. The participants represented NI staff in Bangladesh, Ethiopia, India, Indonesia, Kenya, Pakistan, Philippines, Senegal, Tanzania, and Pakistan.



### On the Cover

*In 2018 our staff visited households in Haryana, India, to inquire about consumer reaction to the availability of fortified atta (stone-ground, whole-wheat flour) in the Public Distribution System. FFI photo.*

## WHY FORTIFY?

Nutrition can be a matter of life and death.

Anemia is often caused by nutritional deficiencies, and pregnant women with severe anemia are **twice as likely to die** during or shortly after pregnancy than non-anemic women<sup>1</sup>. About 75% of children with brain and spine birth defects – mostly caused by insufficient folic acid intake - **die before their fifth birthday**<sup>2</sup>.

Nutritional deficiencies also impact survivors. Iron deficiency in childhood stunts cognitive development which hinders academic performance and future earnings potential<sup>3</sup>. Older adults are at risk for malnutrition due to physical changes, medications, hospitalizations, and social factors.

Spina bifida – a mostly preventable spinal birth defect – has varying degrees of severity but often leads to life-long disability and enormous costs for healthcare systems.

Consequently, fortifying grains to improve nutrition has tremendous implications for individuals, entire populations, and a country's economy.

In one year, 90,000 deaths among males and females of all ages were due to iron deficiency anemia<sup>5</sup>.

## THE EXTENT OF THE PROBLEM

An estimated **2 billion people** globally suffer from vitamin and mineral deficiencies<sup>4</sup>. Anemia affects an estimated<sup>5</sup>:

- 496.3 million non-pregnant women
- 272.3 million children
- 32.4 million pregnant women

Research published in 2018, using our data, credited fortification with **preventing 50,270** brain and spine birth defects in one year for an **average of 137 healthier babies a day**<sup>6</sup>. Yet this is likely only 18% of the brain and spine birth defects that could be prevented globally through grain fortification<sup>6</sup>.



## Watershed Moment in Haryana, India



*Ceremony highlighting the first distribution of fortified atta in Haryana, India. Photo by the Food and Supplies Department, Government of Haryana.*

March 2018 marked a watershed moment in India as the Haryana state government began distributing fortified atta in two blocks of one district, reaching approximately 177,000 people with iron, folic acid, and vitamin B12. Haryana's government plans to scale up to eventually reach 12.6 million people across the entire state.

This success means fortifying wheat flour through appropriate market channels could be replicated in several states. **We have identified [17 states in India](#) with an opportunity to fortify industrially milled wheat flour and/or rice to reach 400 million people who are highly vulnerable to vitamin and mineral deficiencies.**

Atta in India is stone-ground, whole-wheat flour used to make chapati and roti. Adding folic acid to flour used for these commonly consumed foods will greatly reduce the number of children born with brain and spine birth defects, also called neural tube defects or NTDs. Fortifying atta is also expected to reduce the rates of anemia from iron, folic acid, and vitamin B12 deficiencies.

In India, 41<sup>7</sup> to 45<sup>8</sup> of every 10,000 live births are affected by an NTD; in Haryana that translates to at least 2,400 babies a year with one of these birth defects. Adequate folic acid intake could drop the NTD prevalence to 6 per 10,000 births<sup>9</sup>.

A 2015-16 survey found that 50% of pregnant women ages 15 to 49 years in Haryana and 69% of children ages 6-59 months in Haryana are anemic<sup>10</sup>.

## *A bit of the backstory*

Several years ago, multi-sector partners in Haryana explored the possibility of adding essential vitamins and minerals to staple foods such as wheat flour, rice, vegetable oil and dairy products. In 2015, the Government of Haryana collaborated with World Health Organization (WHO) and the National Center on Birth Defects and Developmental Disabilities of the US Centers for Disease Control and Prevention (CDC) to launch a demonstration pilot project for wheat flour fortification.

Historically, the state government sold wheat kernels to Public Distribution System (PDS) recipients. The consumers then took the grains to neighborhood chakki<sup>a</sup> mills where they paid for grinding. Fortification in small enterprises is not a cost-effective or sustainable solution.

We concluded that the single biggest opportunity in Haryana was for the PDS to work with commercial chakki mills to supply fortified atta instead of wheat kernels. **When this is done state-wide, the 12.6 million PDS beneficiaries in Haryana (half the state's population) will benefit.** We presented [these findings](#) to state government leaders in January 2017.

In providing fortified atta, the government agreed to charge beneficiaries a higher price for the milled flour than they charged for the wheat grain. The new price is about the same as what PDS consumers paid to buy wheat and pay separately for it to be milled. The government's decision on price is a critical success factor as it will lead to sustainable scale-up without incurring additional costs for the government or the consumer.

A key indicator of the program's success is "uptake" or percent of products allotted to PDS beneficiaries that are actually purchased. In November 2018, the Food and Civil Supply Department in Haryana reported that **consumers purchased 96% of the fortified atta**. This is compared to an 80% uptake when wheat kernels were distributed. The atta uptake indicates high acceptance by beneficiaries.

As atta fortification and distribution through the PDS continue in Haryana, we will maintain our role as a liaison with mills for the fortification process and will provide technical support for quality inspections and monitoring.

Our unique contribution was to map the supply chain for wheat by market channel such as public distribution and retail stores. We interviewed biscuit and bread manufacturing leaders, roller flour millers, commercial chakki mill operators, government officials, wheat brokerage leaders, and wheat procurement agency representatives. With this information, we determined where fortification was feasible and the potential number of people who might benefit in each market channel.

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<sup>a</sup> A chakki mill uses intense grinding pressure and heat to simulate ancient stone milling of wheat. In contrast, roller mills grind wheat between steel cylinders using a sheering action. A chakki mill can be a large commercial operation or a small village enterprise.

Before fortification began, the CDC collaborated with two groups in Chandigarh, India, to collect data on the population's nutritional needs. The groups were the Postgraduate Institute of Medical Education and Research, a medical and research institution which collected household and biomarker information, and the Survival for Women and Children (SWACH) Foundation which conducted birth defect surveillance. These baseline data can be used in the future to measure the impact of the fortification program.

## Local Champion

Dr. Rakesh Gupta served as Additional Principal Secretary to the Chief Minister in Haryana's state government from 2014 to 2018. The flour fortification progress there is largely due to his unwavering support. He convinced the Chief Minister to invest in food fortification to address vitamin and mineral deficiencies in Haryana and ensured seamless coordination of the concerned departments.

"From the beginning I believed in the potential for wheat flour fortification here for three main reasons: Haryana is primarily a wheat-eating state, the highest political commitment of the honorable Chief Minister, and the high prevalence of anemia and neural tube defects in Haryana," Dr. Gupta said.

"As a public health professional, it is humbling to know that this intervention will let children live up to their potential because they are not anemic, women will be more productive because they are not exhausted from iron deficiency, and over the years, perhaps babies will be born without devastating birth defects.

"We would not have seen the potential to fortify PDS wheat flour without FFI's supply chain analysis," he added. "That work plus the analysis that fortified atta would not be a price increase for beneficiaries was all I needed to know to support fortification here."



istockphoto

## Solomon Islands to Fortify Rice

A 2015 Demographic and Health Survey in Solomon Islands showed that 54% of pregnant women were anemic, indicating a severe public health problem according to WHO classification<sup>5</sup>. About 20 neural tube defects occur each year<sup>2</sup> in the Solomon Islands.

To address these health concerns, in November 2018, Solomon Islands leaders approved a standard to require rice to be fortified with iron, zinc, folic acid, thiamin, and niacin. Wheat flour is already fortified, but rice consumption is significantly higher than that of wheat flour products. Requiring fortification of both rice and wheat flour will significantly increase vitamin and mineral intake of the country's nearly 600,000 residents.

With encouragement from the WHO regional office and support from Australia's Department of Foreign Affairs and Trade, we provided technical assistance to country leaders.

The new rice fortification standard will be implemented in 2019. We will continue to assist the Ministry of Health and Medical Services and other Ministries to implement monitoring and enforcement activities, deliver requirements to fortify to rice importers and other affected businesses, and ensure that health professionals and consumers understand the importance of fortification.



*Solomon Islands National Food Fortification Committee members meeting in October 2018, from left, Dr Divinal Ogaoga, Patricia Soqoilo, Nichol Nonga, Salome Diatalau, Skyneck Opepiko, Fiona Mulhearn, and Junior Tonga. Photo by Dennis Bittisnich.*

### Our role has been multi-faceted, including:

Guiding the Ministry of Health and Medical Services to establish a National Food Fortification Committee and ensure its operation.

Analyzing grain consumption patterns to determine appropriate fortification levels and expected nutrient contribution to Solomon Islanders' diets.

Training wheat flour millers in quality assurance and quality control.

Documenting a rapid, qualitative test to monitor rice for fortification. This has since been used in other countries.

Advising on fortification communications with the influential stakeholders.

## Sri Lanka Considers Standards for Wheat Flour and Rice Fortification



Sri Lanka photo by Tudy Jam @Flickr  
Creative Commons

A Sri Lanka food advisory committee began in July 2018 to set national standards for the types and amounts of nutrients to include in wheat flour and rice fortification. This important step came after a [workshop](#) that we co-organized with the World Food Programme (WFP) in 2017 when participants agreed to move forward with mandatory wheat flour fortification and explore rice fortification in social safety net programs.

With only two industrial wheat mills, mandatory wheat flour fortification in Sri Lanka is extremely feasible. Though rice consumption is high, Sri Lanka has thousands of small rice mills, making rice fortification far less viable. **We continue to advise the Sri Lanka committee as it develops a fortification strategy to benefit the country's 20 million people.**

In Sri Lanka, 36% of preschool children and 25% of pregnant women have anemia<sup>5</sup>, and an estimated 996 pregnancies are affected by an NTD each year<sup>2</sup>.

## Indonesia Takes Key Step in Improving Wheat Flour Fortification Program

In 2002, Indonesia mandated wheat flour fortification. Unfortunately, the mandate allowed electrolytic iron which the human body cannot easily absorb. This form of iron is not recommended in countries like Indonesia where wheat flour availability is less than 150 grams per person per day<sup>11</sup>. Adding enough electrolytic iron to have a health impact would likely cause undesirable color changes in foods made with fortified wheat flour.

Since 2009 when the WHO released wheat flour recommendations<sup>11</sup>, **we have advised Indonesia's leaders to update the fortification standard to a more easily absorbed form of iron.** In 2018, the National Standards Body released new draft standards for public comment; the draft proposes allowing only WHO-recommended iron compounds. The public comment period has ended, and we hope the improved standards will become effective soon.



## Innovative Approach to Monitoring Products on the Market

In 2018, our staff led an innovative “pull” exercise in Malawi and Uganda to engage consumer organizations and disability groups. The goal was to create consumer demand for quality, fortified foods.

Legislation to require millers to fortify is a “push” or top-down approach to fortification. In some places, this push does not lead to nationwide fortification. The pull project, funded by the Global Alliance for Improved Nutrition (GAIN), taught stakeholders the value of fortification, and asked them to gather market samples of fortified wheat flour, maize flour, and edible oil. The main stakeholders were consumer associations and groups of parents of children with disabilities, such as spina bifida and hydrocephalus.

We taught simple qualitative tests for the samples they collected. We sent samples that passed these tests to a laboratory for quantitative testing. We then shared results with national fortification guidance bodies and with the fortified food processors.

In both countries, a number of samples which were labeled as fortified were not actually fortified according to the qualitative tests. Quantitative testing showed that other samples that were fortified contained vitamin and mineral levels below the country’s minimum levels for compliance.

Pending funding, our next steps are to refine this process in Malawi and Uganda, culminating in an appropriate media strategy to disseminate results. Next we will consider this exercise in other countries to build the capacity of consumers, parents, and civil society organizations to assess market samples for fortification.

The pull strategy will complement the government’s external monitoring and the industry’s internal monitoring to create a robust process for ensuring that the population receives the intended vitamins and minerals from fortified food.

The pull strategy demonstrated that governments do not have to be the only ones watching the industry for compliance; engaging consumers in fortification monitoring at the market level may serve as a unique means of gathering this information and increasing compliance.



*A team arranges its samples after returning from the market.*



*Participants look for the fortification logo on a package. Photos by Wilson Enzama.*

## 12 Countries in Southern Africa to Map Regional Fortification

In October 2018, a workshop for the countries in the Southern African Development Community (SADC) brought to light the critical next steps to accelerate fortification in each SADC country. Meeting outcomes included:

- Detailed plans for each country with required next steps for fortification
- Plan for regional support through the development of regional fortification standards
- Recommended regional monitoring framework
- Partner agreement on which agencies are best placed to provide support to which countries to ensure areas of need are effectively targeted and technical support is not duplicated.



*Participants in a Southern African Development Community workshop take a break from identifying the next steps needed to move fortification forward in their countries. Photo by Helena Pachón.*

The workshop identified numerous approaches and tools available to build a robust monitoring and surveillance framework for fortification programs. In the coming months, we will work with the SADC Secretariat and other partners to formalize the framework and move forward on agreed upon key areas of support to each SADC country over the next four years.

SADC Member States frequently trade grain products, and having a uniform monitoring system among countries will enable consistent application and enforcement of quality measures.

## Smarter Futures Continues for Fortification in Africa

The SADC workshop was part of [Smarter Futures](#) which began nine years ago as a public, private, and civic partnership. It provides fortification technical support and training for flour millers, government food control staff, and other stakeholders in Africa.

### Five focus areas of the Smarter Futures work plan:

Regional and country-specific quality assurance/quality control and advocacy training
In-country capacity building
Global resources for effective implementation
Operational learning
Expanded rice fortification strategies

Under each focus area, the work plan includes specific activities, lead staff, outputs, outcomes, and timelines for activities.

In 2018, the Ministry of Foreign Affairs of the Netherlands awarded Smarter Futures 1.4 million Euros to continue the partnership through 2021. Additional financial contributors to Smarter Futures in 2018 were Mühlenchemie and Nouryon (formerly AkzoNobel).

The core Smarter Futures partners are FFI, GAIN, and the International Federation for Spina Bifida and Hydrocephalus (IF). A steering team includes the core partners plus Bühler, Mühlenchemie, Nouryon, NI, and WFP.

## Review Finds Fortification Documents Often Lack Key Elements

A review of fortification legislation, standards and monitoring documents from 68 countries found key elements generally missing from the material. To help countries revise their documentation or establish new programs, the review authors created a [44-point checklist](#) with [sample text](#) for food fortification legislation, standards, and monitoring policies. The review and checklist are available in the June 2018 issue of [Global Health: Science and Practice](#).

The project embodied the multi-sector partnerships at the core of our work. The lead author was Kristin Marks, a doctoral student at Emory University in Atlanta, Georgia, USA. Kristin worked for FFI while earning her master's degree in public health at Emory. Helena Pachón, our senior nutrition scientist, was a co-author, along with colleagues from GAIN, Granotec, Project Healthy Children, NI, and the CDC.

A summary of the work and the checklist is available in [Spanish](#) and [French](#). The checklist is also available in [Russian](#).



## Global Grain Fortification Progress

We measure global progress in grain fortification through an annual survey. In 2018, we estimate that the percent of industrially milled wheat flour and rice that is fortified increased modestly. The volume of industrially milled maize flour that is fortified increased, though the proportion that is fortified decreased. See pages 13 – 15 for details on each grain.

### How We Calculate Global Estimates

We begin with data from the Food and Agriculture Organization (FAO) of the United Nations about how much grain is available in the food supply for each country.

#### Flour and rice available

To calculate the amount of **wheat flour** available, we multiply the metric tons of wheat available in each country by the country's average flour extraction rate. We use 75% as the default extraction rate unless we have country-specific data.

For **maize flour**, we use regional extraction rates of 67.5% for Africa and 72.5% for South/Central America and the Caribbean. We use an extraction rate of 70% elsewhere for maize.

No extraction rate adjustment is needed for **rice** as FAO data represents the "milled rice equivalent."

#### Industrially milled

We then adjust the numbers to reflect industrial production. We assume that 100% of wheat flour is industrially milled, with the exception of countries with a large number of small mills, such as Afghanistan, India, Nepal, and Pakistan.

In contrast, we assume that 0% of maize flour and rice are industrially milled unless we have country-specific data to indicate otherwise. The exception is that in countries in FFI's [Europe region](#), we assume that 100% of the maize flour and rice is industrially milled.

#### Percent fortified

We ask national partners in governments, milling associations, non-governmental organizations, and United Nations agencies to estimate how much of each grain is fortified in their country.

We then compile the country figures into the global estimates on the next pages.

## Wheat flour

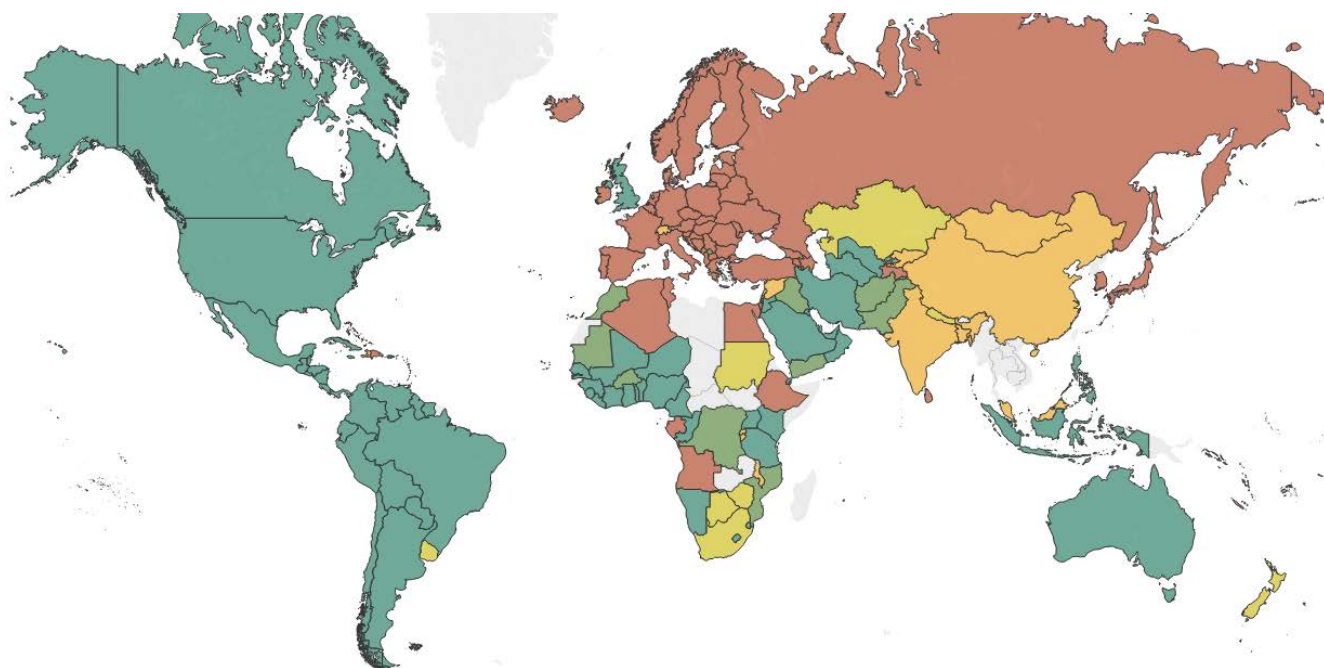
Afghanistan and Pakistan led global progress in wheat flour fortification in 2018. The proportion of Afghanistan's industrially milled wheat flour that is fortified increased from 2% in 2017 to 73% in 2018. In Pakistan, the proportion of industrially milled wheat flour that is fortified increased from 3% in 2017 to 51% in 2018.

The proportion of industrially processed wheat flour in China increased in 2018, accounting for most of the increase in industrially milled wheat flour. However, only 1% of industrially milled wheat flour in China is fortified.

Wheat flour	2017	2018
Metric tons available for human consumption globally <sup>a</sup>	355,826,674	355,826,884
Metric tons industrially milled <sup>b</sup>	280,515,649	282,042,423
Metric tons industrially milled and fortified <sup>b</sup>	87,816,894	90,722,784
% of industrially milled wheat flour that is fortified <sup>b</sup>	31.3	32.2

<sup>a</sup> FAO data from 2013 for both 2017 and 2018 as 2013 is the most recent year with data from most countries.

<sup>b</sup> FFI calculations. See page 12.



### Proportion of industrially milled wheat flour that is fortified

100-75%	Countries with no color have: <ul style="list-style-type: none"> <li>• Less than 75 grams per capita per day wheat available for human consumption <i>or</i></li> <li>• Less than 30% of industrial milling capacity for wheat flour <i>or</i></li> <li>• No data</li> </ul>
74-50%	
49-25%	
24-1%	
0-<1%	

## Maize flour

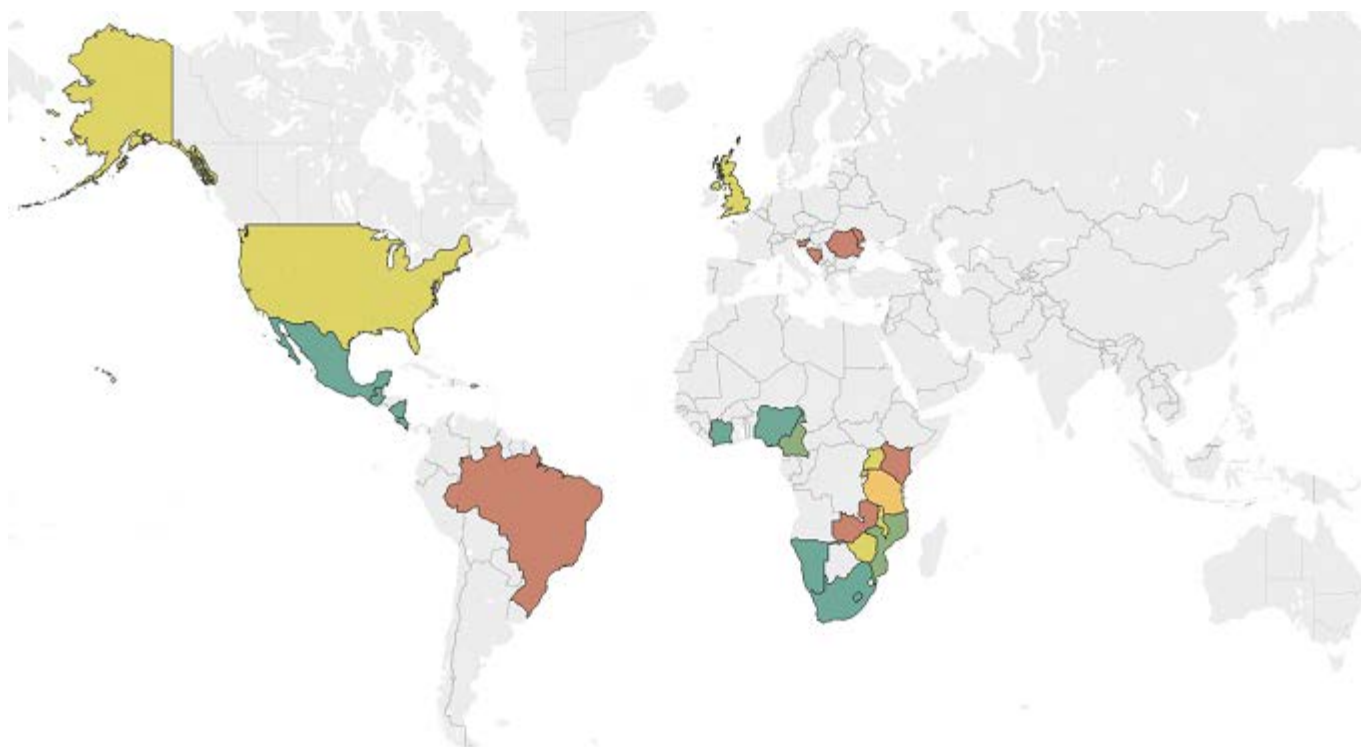
Uganda reported that 29% of its industrially milled maize flour was fortified in 2018, up from 0% in 2017. Also in 2017, we reported that no maize flour in the United States was fortified; we corrected that to 29% in 2018.

We assume that maize flour is not industrially milled unless we have other information. In 2018, we assumed that 100% of maize flour in the United States and Europe is industrially milled. That increased our estimate of the amount of maize flour that is industrially milled globally.

Maize flour	2017	2018
Metric tons available for human consumption globally <sup>a</sup>	90,329,317	90,329,315
Metric tons industrially milled <sup>b</sup>	26,196,928	32,770,736
Metric tons industrially milled and fortified <sup>b</sup>	16,927,781	17,823,007
% of industrially milled maize flour that is fortified <sup>b</sup>	64.6	54.4

<sup>a</sup> FAO data from 2013 for both 2017 and 2018 as 2013 is most recent year with data from most countries.

<sup>b</sup> FFI calculations. See page 12.



### Proportion of industrially milled maize flour that is fortified

100-75%	Countries with no color have: <ul style="list-style-type: none"> <li>• Less than 75 grams per capita per day maize available for human consumption <i>or</i></li> <li>• Less than 30% of industrial milling capacity for maize flour <i>or</i></li> <li>• No data</li> </ul>
74-50%	
49-25%	
24-1%	
0-<1%	

## Rice

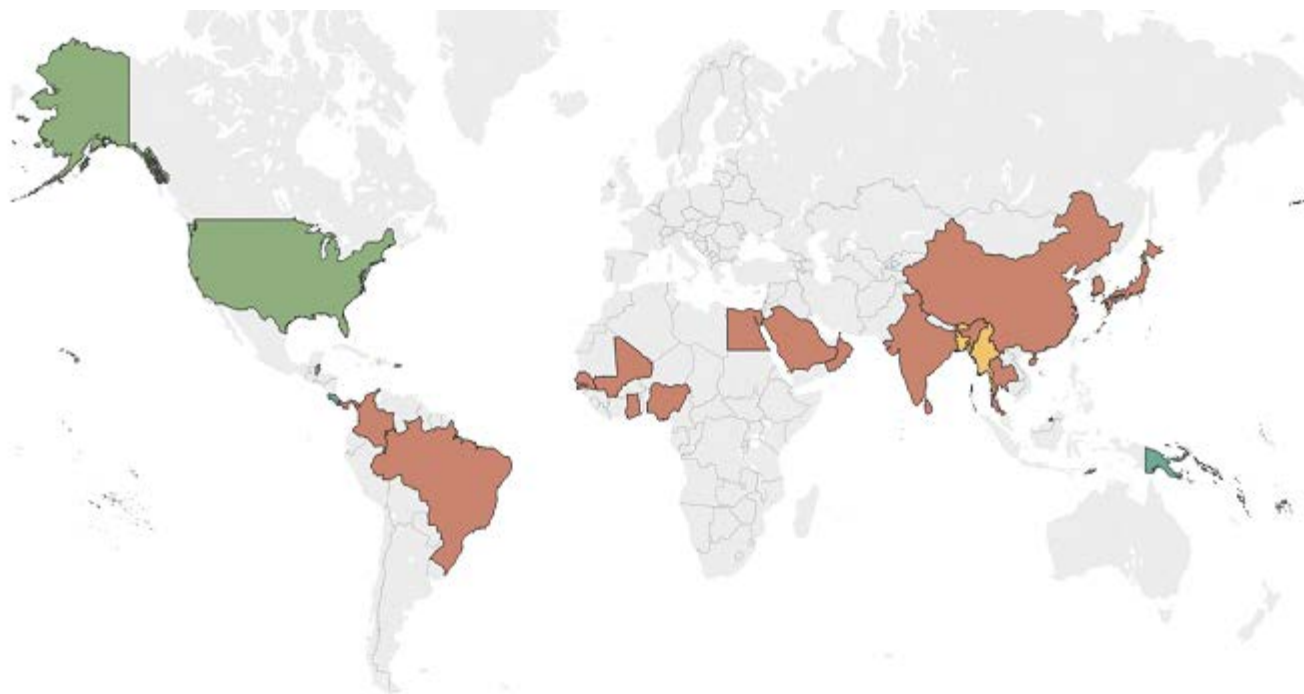
An increase in the amount of industrially milled rice that was fortified in 2018 comes largely from Papua New Guinea. We had no data from Papua New Guinea in 2017, but a [situational analysis](#) shows that 76% of the industrially milled rice there is fortified. Likewise, we had no data from [Bhutan](#) in 2017, but now we estimate that 10% of the industrially milled rice there is fortified for the government’s school feeding program.

In 2018, China reported a 10% increase in the proportion of rice that is industrially milled. Likewise, a few African countries, such as Mali and Nigeria, reported an increase in the proportion of rice that is industrially milled. Yet China and no country in Africa reported fortifying industrially milled rice in 2018.

Rice	2017	2018
Metric tons available for human consumption globally <sup>a</sup>	377,287,279	377,687,279
Metric tons industrially milled <sup>b</sup>	202,498,571	210,727,515
Metric tons industrially milled and fortified <sup>b</sup>	1,702,934	2,318,552
% of industrially milled rice that is fortified <sup>b</sup>	0.8	1.1

<sup>a</sup> FAO data with additional sources for Papua New Guinea and Bhutan. FAO data from 2013 were used for both the 2017 and 2018 estimates as that is the most recent year with data from most countries.

<sup>b</sup> FFI calculations. See page 12.

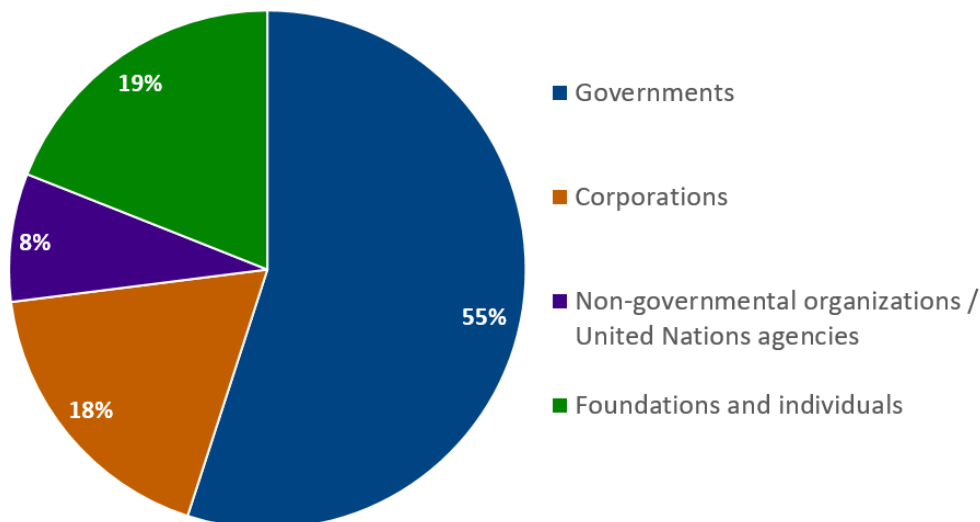


### Proportion of industrially milled rice that is fortified

100-75%	Countries with no color have: <ul style="list-style-type: none"> <li>• Less than 75 grams per capita per day rice available for human consumption <i>or</i></li> <li>• Less than 30% of industrial milling capacity for rice <i>or</i></li> <li>• No data</li> </ul>
74-50%	
49-25%	
24-1%	
0-<1%	

# GIFT PROFILE

2018 Contributions: US \$2.3 million



Contributions to FFI allow us to equip national leaders to promote, plan, implement, and monitor sustainable grain fortification programs. The nutrients added to grains via fortification reduce the population’s risk of serious consequences of vitamin and mineral deficiencies.

## 2018 SUPPORTERS

**We are grateful to individuals and donors who contributed to our work:**

- Australian Department of Foreign Affairs and Trade ‡
- Bill & Melinda Gates Foundation
- Bühler Group ‡
- Cargill, Inc. ‡
- Emory University \* ‡
- GiveWell ‡
- GAIN ‡
- Good Ventures ‡
- Interflour Group PTE, Ltd. ‡
- International Association of Operative Millers (IAOM) \* ‡
- IF \* ‡
- NI ‡
- Open Philanthropy Project ‡
- United Nations Children's Fund (UNICEF) ‡
- U.S. Agency for International Development (USAID) ‡
- U.S. Centers for Disease Control and Prevention (CDC)
  - National Center for Chronic Disease Prevention and Health Promotion ‡
  - National Center on Birth Defects and Developmental Disabilities ‡

\* In-kind donation  
‡ Multiple year donor

We also received additional in-kind donations from multiple in-country stakeholders.



## HOW TO CONTRIBUTE

Your gift will make a difference by reducing the debilitating effects of anemia and preventing thousands of serious birth defects a year.

[Donate](#) online with a credit or debit card. You will be directed to a website for the National Foundation for the Centers for Disease Control and Prevention, Inc., (CDC Foundation), a US-based 501(c)(3) public charity which serves as FFI's grant administrator. Its federal tax identification number is 58-2106707. It has a four-star rating on [Charity Navigator](#).

For more information about giving through the CDC Foundation, please write to Rob Abraham, Senior Advancement Officer, [rabraham@cdcfoundation.org](mailto:rabraham@cdcfoundation.org).



Use this address to send donations via a check, [using this form](#), to:

GiveWell  
182 Howard Street #208  
San Francisco, CA 94105 USA

# GiveWell

FFI is recommended by GiveWell, a non-profit evaluator that conducts in-depth analyses to identify outstanding giving opportunities for donors. FFI recommends donating through GiveWell due to its low overhead fees. GiveWell is a tax-exempt, US-based, 501(c)(3) public charity. Its federal tax identification number is 20-8625442.

For sustainability, we remain committed to helping country leaders through the time-consuming work of learning to promote, plan, implement, and monitor their own grain fortification programs. Ultimately, the result is fewer maternal deaths, healthier babies, smarter children, and more robust national economies as a result of increased vitamin and mineral intake among the population.

### FFI Vision

Smarter, stronger, healthier people worldwide by improving vitamin and mineral nutrition

### Mission

Champion effective fortification of industrially milled flour and rice globally through multi-sector partnerships

### Progress

Measured against a five-year strategic plan and annual work plans

### Staff

14 people worldwide

### Global Secretariat

In Atlanta, Georgia, USA at the Rollins School of Public Health at Emory University with support from the U.S. Centers for Disease Control and Prevention (CDC)

# Executive Management Team

An Executive Management Team (EMT) representing global leaders in the public, private, and civic sectors provides our strategic direction. In addition to the nine members listed below, leaders from the CDC and WHO are EMT observers.

## **Water Von Reding**

Head, Milling Solutions Flour Service  
**Bühler AG**

## **Douglas Dunlay**

Vice President, Worldwide Grain Operations  
Manager  
**Cargill, Inc.**

## **Reynaldo Martorell**

Woodruff Professor of International Nutrition;  
Senior Advisor, Global Health Institute  
**Emory University**

## **Penjani Mkambula**

Lead, Food Fortification  
**GAIN**

## **Melinda Farris**

Executive Vice President  
**IAOM**

## **Lieven Bauwens**

Secretary General  
**IF**

## **Judith Monroe**

President and CEO  
**CDC Foundation**

## **Manpreet Chadha**

Senior Technical Adviser, Fortification  
**NI**

## **Roland Kupka**

Senior Adviser, Micronutrients, Nutrition Section  
**UNICEF**



*EMT members and observers toured a flour mill in Viet Nam in April 2018. The open container is a feeder with vitamin and minerals to be added to flour. Photo by Bob Lubitz.*

## Staff

Our 14 staff members have a broad range of expertise, including grain milling, public health programming, nutrition science, and communications. In addition to the staff listed below, we hire numerous students from Emory University's Rollins School of Public Health to assist with our work.

### **Scott J. Montgomery**

Director

### **Laura Rowe**

Deputy Director

### **Ronald Afidra**

Africa Network Coordinator

### **Parveen Bhalla**

Coordinator, Haryana Demonstration Project

### **Lana Childs**

Global Fortification Data Exchange Data Analyst

### **Karen Codling**

Executive Officer, Asia

### **Sharon Dorsey**

Program Coordinator

### **Wilson Enzama**

Training and Technical Support Advisor, Africa

### **Quentin Johnson**

Training and Technical Support Coordinator

### **Helena Pachón**

Senior Nutrition Scientist

### **Venkat Subramanian**

Consultant for India

### **Becky Tsang**

Technical Officer, Asia

### **Anna Verster**

Senior Advisor

### **Sarah Zimmerman**

Communications Coordinator



*Ronald Afidra, FFI Africa Network Coordinator, addresses a millers conference in Ghana in 2018. Mühlenchemie photo.*

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## About this Report

This report was produced by our communications team including Sarah Zimmerman, Hallie Averbach, and Aracely Navarro; data were collected by María Teresa Domínguez, Michelle Duong, Simone Francis, Ra'ed Shawkat Hailat, and Huimin (Mia) Zhong under the supervision of Lana Childs.

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[http://ffinetwork.org/about/stay\\_informed/newsletters/2018AnnualReport.html](http://ffinetwork.org/about/stay_informed/newsletters/2018AnnualReport.html)

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