



# Branched activities of Fortify Health

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## **1) Fortifying wheat flour sold on the open market**

### **Branch summary**

Working directly with millers to fortify wheat flour (atta) that will be sold on the open market.

### **Branch aim**

1. To reduce anaemia prevalence and neural tube defect incidence through direct implementation
2. To demonstrate consumer acceptability of fortification through open market fortification, producing case studies and data to encourage government and industry to consider expanding fortification efforts

### **Stages involved in branch implementation**

Phase I	Establish partnership with miller over several meetings
Phase II	Sign memorandum of understanding with miller partner
Phase III	Pre-installation procedures: procure equipment and premix, ensure mill setup is correct for installation
Phase IV	Installation phase: install microdoser, train miller on running fortification program, support with complying with fortification guidelines (e.g. dosages, labelling)
Phase V	Testing phase: Miller gains practice in operating machine, conducts lab tests, receives customer feedback
Phase VI	Launch of fortification: Miller launches fortification, and FH works with miller to scale up fortification to all lines of atta production; FH supports miller in raising awareness around health benefits of fortified product
Phase VII	Internal and external M&E
Phase IX	Ongoing support to millers

### **Scale**

**Consumers by the end of next year:** 1,000,000 - 2,000,000

**Replicability:** High - this strategy can be applied across dozens of mills in each state we work in, and the institutional knowledge is highly transferable

### **Branch category**

Direct implementation / Proof of concept



### Department and partner(s) involved

- Open-market flour millers
- Technical consultant
- Fortify Health
- Nagpur Division Government

### Potential partnership structure

Fortify Health is funding the premix and equipment provided to millers for cost-neutral fortification. Fortify Health will provide training, limited marketing support to raise awareness of the health benefits of fortification, technical guidance, monitoring, and quality assurance / quality control. The miller will fortify their flour, share sales data across products, and adhere to Fortify Health's operations and monitoring practices.

See the [miller partner contract](#) for the finer details of the partnership structure.

The Nagpur Division Government is working with us by convening local millers and relevant departments to facilitate Fortify Health's partnerships with mills in their jurisdiction, which they would like to see fortifying their wheat flour.

### Cost-effectiveness and budget

This is the core of Fortify Health's work. We roughly estimate in our year two operations, our overall cost per beneficiary excluding carved-out government partnerships may be in the range of \$0.32 per person. These costs may be decreased at larger scale by focusing on larger mills, securing volume discounts for premix, and streamlining our core team's operations.

This estimate is sensitive to uncertain levels of consumption of wheat flour, which will be refined in the coming year. As a simple heuristic, we estimate in Maharashtra, each 1MT of daily production (6 days/week) is sufficient to reach 5,000 people (i.e. average consumption of 171g per person per day), which is higher than state consumption data (127g per person per day), but we expect that wheat consumers eat more wheat than the average as some regions of the state eat more rice and less wheat.

Effectiveness of iron fortification has been [modeled previously by GiveWell](#) with respect to our intervention.

### What evidence we're trying to generate / what we're trying to learn

We are trying to generate evidence of the acceptability of fortified atta in the open market (by consumers, millers and retailers). By working with smaller scale open market mills, we are also substantially building our credibility as an organisation to eventually have a good level of technical capacity to partner with large-scale mills and in government-run programs.

### How we will use the evidence generated/ knowledge gained

We will use evidence of acceptability of fortified atta to pitch fortification to larger scale mills. We will also use our track record of partnerships with other mills as a platform to demonstrate our expertise in fortification implementation programs.

### Branch status

- Completed:
  - Partnerships built with four mills, who have agreed to fortify their atta
  - Installation of equipment in one mill
  - Development of core team expertise, organisational processes, and strategic partnerships to support implementation
- Current status:
  - Installation in three remaining mills
  - Initiation of ongoing monitoring, quality assurance, and quality control

### Next steps and action points

- Outreach to additional mills once funding secured
- Development of fortification hub in Nagpur, where the Divisional Commissioner and Food and Drug Administration are convening seven millers in their jurisdiction to encourage partnership with Fortify Health

### Timeline of branch

See mill operations document for vague timeline of partner establishment to point of fortification.

### Uncertainties

Our main uncertainty is over the number of mills we will onboard over the next funding year, and how much of the flour they will fortify. We have tried to outline this uncertainty in our [miller scale up plan](#).

**Priority of branch (scale of 1--10): 8**

## **2) Fortifying flour in ashram schools, working with Tribal Development Department**

### **Branch summary**

Supplying fortified atta to ashram schools (Tribal) administered by the Tribal Development Department, Maharashtra.

### **Branch aim**

To create strong evidence of government buy-in providing fortified atta to ashram schools.

To build a pilot that can be scaled to provide fortified atta to ashram schools across the state.

To provide fortified atta to an especially vulnerable group that regularly consumes atta from a single source.

### **Stages involved in branch implementation**

Phase I	Conduct scoping and field visits
Phase II	Develop a proposal
Phase III	Submit proposal to Tribal Development Department
Phase IV	Conduct in depth diagnostic activities for logistics of a pilot
Phase V	Plan with local millers and contractors to facilitate production and transport logistics, and set up such processes
Phase VI	Implement fortification of atta and delivery to schools
Phase VII	Conduct possible studies of intervention with the department permission
Phase VIII	Conduct awareness campaign on anaemia and fortified foods
Phase IX	Evaluate program and discuss scale-up with Tribal Development Department

### **Scale**

***Consumers by the end of next year: 20,000 (Nagpur region) [ + 22,000 with expansion to Amravati region]***

***Maximum within state:***

***Replicability:*** Medium - Scale up across state may be feasible, and the case for fortification is translatable to other programs where food is distributed, but these schools may be highly dispersed across large geographies limiting the scale working with limited mills.

### **Branch category**

Direct implementation / government relations / study

### **Department and partner(s) involved**

- Tribal Development Department, Nagpur region, Maharashtra
- Contractor responsible for food distribution to ashram schools
- Mills grinding flour to be distributed

### **Cost-effectiveness and budget**

Most costs of this arm are included in the open market mill work. Mills involved in providing fortified flour to the Ashram Schools would be rolled into the open market miller arm so that they are fortifying the other flour that they produce as well.

Additional costs have been included in the budget to accommodate additional monitoring, team travel, event costs, legal contract review, etc.

Compared with open market work, this arm could be less costly as we are likely to work with smaller mills that are geographically near to the schools, but it could be more effective as the beneficiaries are consistently eating a fortified product rather than a mix of fortified products (from our partner mills) and unfortified products (from other sources), leading to a consistently appropriate dose. The additional value justifying this partnership lies in the credibility from working with government and the operation for evidence generation.

### **What evidence we're trying to generate / what we're trying to learn**

This arm aims to demonstrate a strong NGO and government partnership in the fortification space, with a view of being able to expand to larger regions and reach more people. Through learnings from this program, we hope to learn lessons that can make the program ready for scale and highly replicable. We also aim to generate evidence of the health impact of the program on pupils attending ashram schools.

### **How we will use the evidence generated/ knowledge gained**

As the program would run under government supervision, there is compelling scope for RCT in this arm. There are 76 government-run schools 114 schools supported by NGOs in the Nagpur region. There may be opportunities for randomization of schools to immediate fortification and delayed fortification study arms, or study arms with varying intensity of monitoring systems.

We are currently considering whether we believe this is the best time to plan, fund, and implement an RCT or whether further refinement of our processes would allow for a later RCT to better assess the impact of optimally delivered wheat flour fortification within the ashram schools. We may refine the process in one district's ashram schools and then study the refined model in another.



Even without a formal study, the model and the processes will enable us to understand the scope of fortification within government systems. We will not be able to measure any impact corresponding to the change in anaemia status, however, this will help us in building a case for fortification in line with the existing government strategies and policies.

### Branch status

- Completed:
  - Initial consultations with the department
  - Meeting with Additional Tribal Commissioner (ATC), Nagpur region
  - Meeting with Additional Tribal Commissioner (ATC), Amravati region
  - Generated basic data of region and schools.
  - Initial buy-in from government partners to further develop the model for this pilot
- Current status:
  - Working closely with government to establish more specific details of program

### Next steps and action points

- Scoping and field visits to schools and suppliers
- Collaborating with Department on program implementation plan
- Revision of the [full proposal](#)

### Timeline of branch

Scoping and collaboration with relevant authorities is already underway and will continue. If successful at formalizing partnership, fortification may begin within 6 months.

There could be interruptions to work with government partners due to the upcoming general election in India

### Uncertainties

We are still unsure of the transportation logistics between ashram schools, such as distance between each school and ease of transporting atta to the school on a weekly/monthly/bi-monthly basis, but we intend for transportation costs to fall under government responsibilities.

**Priority of branch (scale of 1-10): 6**

### 3) Supplying fortified wheat flour through Maharashtra's Public Distribution System

#### Branch summary

The Public Distribution System (PDS) provides wheat grains to approximately 1/3 of the population of Maharashtra (i.e. roughly 25,000,000 people, according to national household survey data). Three states -- West Bengal, Kerala, and Haryana -- provide fortified wheat flour rather than grains that are otherwise locally ground into unfortified flour. Such a transformation could have exceptionally high scale impact on anaemia and neural tube defects, but it is not without substantial barriers. These barriers include the status quo of grain provision, concerns around consumer preference for grains over flour, limited shelf life of flour in these distribution channels, and uncertainty around the acceptability of fortified flour in this demographic. However, the three states that are currently providing fortified flour through the PDS provide a replicable model. It is a long-term goal of Fortify Health to increase the chances that Maharashtra joins these three states in fortifying the flour distributed through PDS.

#### Branch aim

To prove the acceptability of fortified atta in the Public Distribution system (PDS), so that it can *eventually* be rolled out state-wide in partnership with Food and Civil Supplies

#### Stages involved in branch implementation:

- |            |  |
|------------|--|
| Phase I    | Identify strongest possible partners for a collaborative effort to pilot PDS provision of fortified wheat flour  |
| Phase II   | Seek to better understand reasons why previous pilot in Maharashtra failed, and assess whether barriers are surmountable   |
| Phase III  | Develop support for scoping and a pilot for PDS provision of fortified wheat flour with the Chief Minister's Office, as well as the Food and Civil Supplies Department |
| Phase IV   | Select two districts to run a pilot and potentially an RCT   |
| Phase V    | Collaborate with government and select millers in each of those districts to prepare to produce fortified atta   |
| Phase VI   | Establish the supply chain mechanism to regularly deliver high quality fortified atta from the mills to PDS fair price shops   |
| Phase VII  | Establish monitoring and logistics protocols   |
| Phase VIII | Build capacity of the miller to produce fortified atta, including provision of necessary equipment and premix with GiveWell's funding                                  |





Phase IX Measure and analyze indicators of structure, process, and outcome, including fortification quality, consumer acceptance, and improvements in biometrics (e.g. haemoglobin blood levels). Study elements may be funded locally, though private donations, in-kind contributions from laboratories and hospitals, or through CSR budgets

### Scale

**Maximum within state:** 25,000,000

**Replicability:** High district-to-district (state could scale up). Worthy challenges replicating in other states but similarly high expected value in wheat-eating states.

### Branch category

Evidence generation / direct implementation / government relations

### Department and partner(s) involved

State Government of Maharashtra, Food and Civil Supplies, District collector, FSSAI, private district level millers, NGO partners (potentially UNICEF, FFI)

### Cost-effectiveness and budget

At this stage, we have not specifically modeled the cost of a pilot. Preliminary engagement falls under the budgeted activities of our partnerships officers.

### Evidence we're trying to generate / what we're trying to learn:

1. Impact of wheat flour fortification on people's primary healthcare outcomes - iron, folic acid, vitamin B12 deficiencies, haemoglobin, serum ferritin, blood folate, anthropometrics
2. Preferences for consuming fortified atta/ packaged atta/ healthy products
3. Factors that contribute to a person's decision making about consuming fortified food
4. People's willingness to pay for consuming fortified food items
5. Existing consumption patterns
6. Impact of messaging/awareness campaigns on people's decision making abilities and on their health outcomes

### How we will use the evidence generated/ knowledge gained

A successful pilot could motivate scale up of effective wheat flour fortification across the state's PDS, the singularly largest scale way to distribute fortified wheat flour and centrally prevent anaemia and neural tube defects.



### What we have completed in branch and current status of branch

- Completed:
  - Conducted meetings with two teams at Maharashtra's Chief Minister's Office
- Current status:
  - Digging deeper into failures of past pilot
  - Waiting to develop a stronger track record through open market work and other government partnerships

### Next steps and action points

- Introduction of Fortify Health to the Food and Civil Supplies Department by accompanying FFI to present the results of their supply chain analysis
- Demonstration of a stronger track record, then approach to the Food and Civil Supplies Department with partner organisations
- Development of a full written proposal for a pilot with partner organisations and accompanying budget

### Timeline of branch

Proposed/tentative period for the implementation: uncertain

There could be delays incurred by the upcoming general election in India

**Priority of branch (scale of 1--10): 3**

### Uncertainties

We need the buy-in of the FCS for this project to go ahead, especially following a failed pilot run by another NGO. We have still yet to conduct a meeting with the FCS on this given the importance of establishing a track record first. We recognize substantial barriers to developing political will for this project.

### Links to relevant docs to branch:

N/A

#### **4) Supporting the Food and Supplies Department of West Bengal in assuring quality of already fortified atta distributed in the Public Distribution System**

##### **Branch summary**

As mentioned above, the state of West Bengal is already providing fortified wheat flour through its PDS, except in the capital city of Kolkata. If there are opportunities to improve the quality (assuring adequate dosage is reaching people through these distribution networks), they could be very high impact. The existing monitoring system is very strong in many respects, but no quantitative testing is performed on the tendered fortified flour. Although the flour must pass tests indicating the presence of iron, if the dosing is limited, the health impact may be less than optimal. Fortify Health proposes to perform a diagnostic by quantitatively testing samples of fortified flour to assess whether there is room for improvement in dosing / monitoring. If so, Fortify Health would be well positioned to support millers that are underperforming with regards to fortification quality. Fortify Health may also produce data supporting the recommendation that the state's monitoring system include quantitative testing. In both of these respects, depending on the quality of fortification in the status quo, there may be a highly tractable lever on large-scale impact.

We will also pursue open market partnerships with millers tendered by the Government of West Bengal to provide fortified atta to the PDS, which we see as highly tractable given the pre-existing fortification efforts, equipment, and positive experience. These mills have been included in the open market strategy.

##### **Branch aim**

To improve the quality of fortified atta in West Bengal, thus improving health impact from its consumption.

##### **Stages involved in branch implementation:**

Phase I	Conduct scoping visits to West Bengal / Kolkata
Phase II	Consult with Food and Supplies to understand current monitoring systems in place and identify various plans to improve them
Phase III	Test fortified atta currently being distributed in West Bengal PDS
Phase IV	Identify main issues if any with quality of fortified atta
Phase V	Provide technical guidance to Food and Supplies Department and training for millers in West Bengal to work on improvement of quality of fortified atta for PDS



Phase VI	Continue to monitor and test atta distributed in PDS, and provide new trainings when needed
Phase VII	Concurrently begin to support millers already fortifying PDS atta to fortify any open-market atta they produce

## Scale

**Consumers by the end of next year:** N/A - early phase diagnostic will determine how much a gap exists and how feasible closing it will be.

**Maximum within state:** ~27 million people currently receive some PDS wheat in rural areas in West Bengal according to national household surveys, indicating receipt of fortified atta. 70 million people may theoretically have access to this flour, but this seems likely to be an overestimate of true consumers.

**Replicability:** Nil, but already high scale; initial support to underperforming millers identified in gap analysis diagnostic may be on a limited basis and then be replicated in additional mills within the state

## Branch category

Regulatory monitoring

## Department and partner(s) involved

- Food and Supplies Department, West Bengal
- Millers providing atta to the PDS
- Fortify Health
- FFI

## Cost-effectiveness and budget

Given the scale, the opportunity for marginal improvements across this system is compelling. This is sufficient to merit the diagnostic, which we estimate would require an additional \$23,783 to implement. If for instance, of ~80 mills tendered to produce fortified atta, 16 representative mills were not adequately fortifying and we improved fortification quality in these mills by 25%, we may improve fortification across the state by 5% (let's define improved fortification quality to mean make improvements equivalent to going from no fortification to adequate fortification). This marginal improvement would correspond to roughly 1.35 million people receiving fortified flour.

## Evidence we're trying to generate and how we will use the evidence generated

We hope to gain insight into the monitoring system of a state government, understand and identify areas for improvement like strengthening government efforts in quantitative testing of iron levels in ensuring adequate dosage, premix quality etc., and use learnings to replicate this model in other regions where possible.

### What we have completed in branch and current status of branch

- Completed:
  - Met with various officials in Food and Supply Department
  - Visited mills producing fortified flour for the PDS to crosscheck information on monitoring frequency received from the government and to understand their process / capacity
- Current status:
  - Developing formal proposal for diagnostic
  - Quantitatively testing supposedly fortified atta from one mill to assess feasibility of proposed diagnostic (e.g. laboratory logistics, etc.)

### Next steps and action points

- Awaiting meeting with key officer from Food and Supplies Department
- Present formal proposal for diagnostic
- Follow up with millers in West Bengal who fortify atta for PDS who have already expressed interest in working with us under open market strategy

### Timeline of branch

The diagnostic phase could be completed in the next 6 months if we pursue this.

**Priority of branch (scale of 1--10): 5**

### Uncertainties

We are uncertain about the quality of atta fortification in the status quo, i.e. the size of the gap we could potentially close. We are also uncertain about government willingness to support our diagnostic phase given that it could produce data indicating inadequate monitoring/implementation in the status quo.

### Links to relevant docs to branch:

[West Bengal Engagement planning document](#)

[Background on West Bengal's Fortification program](#)

## Strategic partnerships: existing or anticipated relationships that can support Fortify Health's activities and growth over the next year

- **Central Food Technological Research Institute (CFTRI)**
  - They may support FH with:
    - Mill identification / sensitization
    - Equipment consultations and vendor selection (eventually we aim to move this in-house)
    - Installation and training
    - Hiring support for mill operations field staff
    - Quantitative laboratory testing - spectrophotometry
  - We are currently in the process of refining details on an MOU, and we plan to introduce this support to select millers over the next year
- **Food Fortification Initiative (FFI)**
  - Our partnership with FFI will support us with:
    - Approach to government institutions for fortification policy change and monitoring strategy
    - Mill identification / Data from supply chain analysis
    - Collaboration on potential PDS pilot
    - Guidance on regulatory monitoring strategies
  - We presently maintain a strong relationship with FFI
- **Venkat, Technical Consultant**
  - Venkat supports and will continue to support us with:
    - Early consultations with millers to win support
    - Technical assessment of mills for readiness for fortification
    - Installation of equipment
    - Miller training
    - Appointing mill operations staff
  - Venkat presently helps as a technical consultant for any of our team's knowledge and process gaps as we grow
- **Food Safety and Standards Authority of India (FSSAI)**
  - In the next year we aim to build our relationship with the Indian government's FSSAI and their Food Fortification Resource Centre (FFRC). We will approach them once we have mills operating to seek further visible support.
  - Through FSSAI, we aim to join in the Poshtik multilateral national fortification roundtable
- **UNICEF**
  - A strong relationship with UNICEF would help us with:
    - Strategy consultation
    - Branding

- Bureaucratic and government introductions, as well as in-person meeting support. This would involve joining FH and FFI in appointments with government officials
  - We presently have a promising relationship with Dr. Aparna Deshpande and seek to further investigate opportunities for collaborative work in the next year
- **TCI/TISS**
  - The aim of a possible partnership with TCI/TISS is to:
    - Consult with them to develop understanding of their model of fortifying wheat flour
    - Develop a complementary partnership to ensure that any government department willing to fortify the atta milled in local chakkis also get fortified in addition to the commercial chakki fortification that Fortify Health is doing.
  - This partnership is not yet established, but we are in the process of identifying possible synergies



## **Expanding the team**

### **Technical Lead**

The technical lead will be part of the core team. They will lead on consultations regarding mill setup for fortification, equipment procurement and calibration, miller relationships, and regulatory monitoring, quarterly checks with millers. They will join Fortify Health with a strong food technology or engineering educational and professional background.

### **Industry field staff (2)**

The industry field team will support the technical lead in providing mills with in field support in identification and initial reaching out to millers, helping millers understand how they can integrate fortification into their atta production, support millers during installation, calibration and launch, provide them with hands on support during initial few months of launch, be the point person for day-to-day troubleshooting, and ensure continuous supply of premix to millers.

### **M&E field staff (2 - 4)**

The M&E field staff are most likely to be based in Nagpur and/or Pune, where most of our ground operations will take place. They will be responsible for quality control of the atta fortification process, including site inspections, collecting sales and production data from mills, microfeeder calibration checks, collecting samples to conduct lab tests to check for iron levels, communicate findings to the industry field staff to help them strengthen operations with mills. They will also be responsible for conducting any internal monitoring, mapping and surveying millers, retailers and customers, where necessary.

### **Operations Assistant**

The Operations Assistant will support with the day-to-day running of Fortify Health's operations, such as liaising with Development Consortium, seeking quotes where necessary, ensuring salaries are paid, and overseeing most administrative tasks.