

Smarter Futures  
Cost and Economic Benefit Training Workshop on Food Fortification  
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# Government and Mill Costs of Fortification

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# Costs of Fortification

- Milling Industry costs
- Government costs

# Milling Industry: Components and Costs

- Start Up Costs
- Premix Procurement
- Mill Operation

# Start up Costs

- Feeders for all mills in the programme
  - Number of mills
  - Number of Production Lines
- Installation and Training
- Feeder Costs
  - Manual system
  - Computer controlled systems

# Premix Procurement

- Premix Requirements
  - Annual flour Production MT
  - Premix Addition Rate g/MT
  - Premix needs kg
- Premix Costs
  - Cost to point of entry
  - Domestic Storage & Distribution
  - Taxes & Duties % Value of premix
  - Processing & Certification Costs based on number of Shipments

# Mill Operations

- Process Labour: 2 employees per mill @10% annual salary
- Maintenance (new feeders & spare parts): 5% of feeder cost
- QA Spot Tests Reagents and Labour : \$0.25 per test  
Feeder Adjustment: 2/day at 200 days/mill
- Incremental Packaging Costs 50kg bags: %0.25 per bag
- Management, Overhead: 5% of premix costs

# Government Costs

- Import duty and VAT exemptions
- Food Control – National and Imports Supply
  - Inspection costs
  - Laboratory Analysis costs
- Market Surveillance
  - Market surveys

# Inspection:

## Product Testing versus Process Control

- Product Testing is a one off assessment of fortified food sample.
  - Subject to sampling and laboratory analysis errors
- Process Control Inspection assesses the degree to which the system is under control
- Using both tools is more effective food inspection than finished product inspection

# Food Inspection: Premix Control Record Calculation

- A. Starting Inventory kg
- B. Amount purchased kg
- C. Ending Inventory kg
- D. Amount used (A+B-C) kg
- E. Fortified Flour produced MT
- F. Actual Addition Rate ( $D/E \times 1000$ ) g/MT
- G. Target Rate\* g/MT
- H. Percent of Target ( $F/G \times 100$ ) %
- \* Based on supplier specifications

# Food Inspection: Laboratory Costs

- Iron Analysis - \$20 per sample
- Folic Acid Analysis - \$50 per sample
- Vitamin A (if added in flour) - \$30 per sample

# Market Surveillance

- Market Surveillance – Lump sum bi-annual \$50,000
- Ongoing surveys i.e. HIECS, DHS, Nutrition surveys additional component to survey \$500,000

# Mill Fortification cost

Mill Fortification Cost				
	Unit	Number	Cost/Unit	Total
<b>Feeders and Start-Up</b>				
Feeders for expansion into private sector	# Mills/Production Lines	9	\$15,000	\$ 135,000
Installation and Training	Mills/Companies	3	\$10,000	\$ 30,000
Lab and other Capital Improvement	Mills/Companies	3	\$10,000	\$ 30,000
				\$ 195,000
<b>Mill Operation</b>				
<b>Average Wage Mill Worker</b>			\$ 2,233	150% Average Wage
Process Labor	4 Employees Per Mill @ 10% \$2500/yr annual salary	36.0	\$223	\$ 8,040
Maintenance (new feeders & spare parts)	5% feeder value	135,000	5%	\$ 6,750
Quality Assurance: Spot Tests Reagents	12 Spot Test/dy at 200 operating days/mill:	21600	\$0.25	\$ 5,400
Incremental Packaging Cost	50 kg bags	3,756	\$0.25	\$ 939
Subtotal Operating Costs				\$ 21,129
Management, Overhead, Administration	% Premix Costs	\$ 755,464	5%	\$ 37,773
				\$ 58,903

# Government Cost

<b>Start-Up Cost Estimates</b>		
Training Food Control Agency	\$50,000	
Training Program Monitors	\$50,000	
Advocacy/Social Marketing	\$250,000	
Capital Improvement	\$50,000	
Total Start-Up	\$400,000	
<b>Recurring Costs</b>	Unit	
<b>Food Control Mill Inspection</b>		
Inspections/Yr	4	
Projected Inspection /Yr	12	Line 9 X number of mills
Estimated Total Cost/Inspection	\$250	Time, Travel, Expendables, Record Keeping, Management
Subtotal Inspection Costs	\$3,000	
Lab Costs/Inspection	\$350	Assume Each Inspection Goes to Lab
subtotal Lab Costs	\$4,200	
Other		
<b>Total Food Control Direct Expense</b>	\$7,200	
<b>Market /Monitoring/Sweeps</b>		
Lump Sum Bi Annual	\$50,000	
<b>Add Components to Ongoing Surveys</b>		
DHS, HCIES, Nutrition ect per 5 Years	\$100,000	