Feasibility Study to Introduce Low Cost Fortified Energy Foods In India Through Private Sector Participation

Volume 1 : Final Report

Transmittal Letter

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Seshadripuram, Bengaluru - 560020

Date: November 15, 2018

Subject: Comprehensive Final Report for Feasibility Study to Introduce Low Cost EDF in the Market with Private Sector Participation

Dear Madam,

This refers to the Request for Proposal dated Aug 04, 2017 issued by you, our proposal for services dated Sep 05, 2017, the Work Order issued to us dated Oct 16, 2017 ('the Contract').

We appreciate the opportunity to assist Karnataka State Rural Livelihood Promotion Society ("you") by providing Feasibility Study to Introduce Low Cost EDF in the Market with Private Sector Participation ('Services').

This report is our final report and signifies completion of our Services as described in the Contract. This report has been updated basis the feedback provided by you on the draft report. The performance of our Services and the report issued to you pursuant to the Services are based on and subject to the terms of the Contract.

This report is solely for your benefit and information and is not to be referred to in communications with or distributed for any purpose to any third party without our prior written consent. We have been engaged by you for the Services and to the fullest extent permitted by law, we will not accept responsibility or liability to any other party in respect of our Services or the report.

It has been our privilege to work with you, and we look forward to continuing our relationship with you.

For KPMG Advisory Serviced Private Limited

Signature.....

Name: Amit Dutta

Title: Director

Date: Nov 15, 2018

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Disclaimer and Notice to Reader

1 This report has been prepared exclusively for Karnataka State Rural Livelihood Promotion Society ("Client") based on the terms of the Request for Proposal dated Aug 04, 2017 issued by you, our proposal for services dated Sep 05, 2017, the Work Order issued to us dated Oct 16, 2017 ('Contract').

2 The performance of KPMG's services and the report issued to the Client are based on and subject to the terms of the Contract.

3 This report is confidential and for the use of management only. It is not to be distributed beyond the management nor is to be copied, circulated, referred to or quoted in correspondence, or discussed with any other party, in whole or in part, without our prior written consent.

4 This report sets forth our views based on the completeness and accuracy of the facts stated to KPMG and any assumptions that were included. If any of the facts and assumptions is not complete or accurate, it is imperative that we be informed accordingly, as the inaccuracy or incompleteness thereof could have a material effect on our conclusions.

5 While performing the work, we assumed the genuineness of all signatures and the authenticity of all original documents. We have not independently verified the correctness or authenticity of the same.

6 We have not performed an audit and do not express an opinion or any other form of assurance. Further, comments in our report are not intended, nor should they be interpreted to be legal advice or opinion.

7 While information obtained from the public domain or external sources has not been verified for authenticity, accuracy or completeness, we have obtained information, as far as possible, from sources generally considered to be reliable. We assume no responsibility for such information.

8 Our views are not binding on any person, entity, authority or Court, and hence, no assurance is given that a position contrary to the opinions expressed herein will not be asserted by any person, entity, authority and/or sustained by an appellate authority or a Court of law.

9 Our report may make reference to 'KPMG Analysis'; this indicates only that we have (where specified) undertaken certain analytical activities on the underlying data to arrive at the information presented; we do not accept responsibility for the veracity of the underlying data.

10 In accordance with its policy, KPMG advises that neither it nor any of its partner, director or employee undertakes any responsibility arising in any way whatsoever, to any person other than Client in respect of the matters dealt with in this report, including any errors or omissions therein, arising through negligence or otherwise, howsoever caused.

11 In connection with our report or any part thereof, KPMG does not owe duty of care (whether in contract or in tort or under statute or otherwise) to any person or party to whom the report is circulated to and KPMG shall not be liable to any party who uses or relies on this report. KPMG thus disclaims all responsibility or liability for any costs, damages, losses, liabilities, expenses incurred by such third party arising out of or in connection with the report or any part thereof.

12 By reading our report, the reader of the report shall be deemed to have accepted the terms mentioned hereinabove.

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Acronyms and Abbreviations

Abbreviations	Description
ANC	Ante Natal Check-up
ANM	Auxiliary Nurse Midwife
APL	Above Poverty Line
ASHA	Accredited Social Health Activist
AWW	Aanganwadi Worker
BMI	Body Mass Index
BPL	Below Poverty Line
C&F	Carrying & Forwarding
CAGR	Compound Annual Growth Rate
CAPART	Council for Advancement of People's Action and Rural Technology
CARE	Cooperative for Assistance and Relief Everywhere
CHC	Community Health Centre
CINI	Child in Need Institute
DAC	District Administrative Center
EDF	Energy Dense Food
FGD	Focus Groups Discussions
FHW	Female Health Worker
FMCG	Fast Moving Consumer Goods
GI	Gastro Intestinal
HFD	Health Food Drink
HYV	High-Yielding Variety
ICDS	Integrated Child Development Services
INR	Indian Rupee
JSDF	Japan Social Development Fund
KNM	Karnataka Nutrition Mission
KSRLPS	Karnataka State Rural Livelihoods Promotion Society
MAM	Moderate Acute Malnutrition
MCP	Mother-Child Protection
MNT	Medical Nutrition Therapy
MTC	Medical Treatment Centre
MUAC	Mid-Upper Arm Circumference
NCT	National Capital Territory
NFHS	National Family Health Survey
NIPI	National Iron Plus Initiative
NRC	Nutrition Rehabilitation Centre
P&M	Plant & Machinery
PHC	Primary Health Centre
POSHAN	Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India
NGO	Non-Governmental Organization
R&M	Repairs & Maintenance
RBSK	Rashtriya Bal Swasthya Karyakram
RDA	Recommended Daily Allowance
RTM	Route To Market
RUTFs	Ready to eat Therapeutic Foods
SAM	Severe Acute Malnutrition
SKU	Stock Keeping Unit
SS	Super Stockist
UNICEF	United Nations Children's Fund
WCD	Women and Child Development

Summary of Key Findings: Feasibility Study to Introduce Low Cost Fortified Energy Foods In India Through Private Sector Participation:

ToR Agenda	Key Findings
1. Conduct a need and demand assessment for low cost energy food for infants, women, adolescents, the elderly and sick among BPL families, urban and rural.	• **~30% gap** in **current dietary intake of nutrients** in comparison to the **Recommended Dietary Allowance (RDA).** • Gap in current nutrient intake is higher in rural as compared to urban areas. • **Gap in caloric intake** is **higher** for **males and females** in both urban and rural areas • Income levels influence expenditure on food items. With **increase in income, the average expenditure of household income on food decreases.** • **Low cost Fortified Energy Foods** is **not available** through the **private distribution channel in the retail market**. • **Potential target consumer group** for **low cost Fortified Energy Food** are preferably households with **income range of INR 1000-10,000 per month.**
2. Studying the present availability of low cost Fortified Energy Foods for infants, women, adolescents, the elderly and sick among BPL families, and their accessibility for both urban and rural families	• **No low cost Fortified Energy Foods available in the market presently.**
3. Examine the correlation between high incidence of low weight, stunting and wasting among children, low body mass index and stunting amongst adolescents, and lack of low cost Fortified Energy	• There is **direct correlation** between high incidence of low weight, stunting and wasting among children, low body mass index and stunting amongst adolescents due to: o **Inadequate dietary intake** (minimum gap of 30% between current nutrient

Food in the market.	intake and Recommended Dietary Allowances). o **Lack of availability of low cost Fortified Energy Food** to supplement present dietary pattern in the market
4. Estimating the size of the market for low cost Fortified Energy Foods	• **Estimated market opportunity** in India for low cost Fortified Energy Foods to meet the requirement of **792.81 million poor and lower middle class consumers is ~ 29.1 million tonnes**. o **Rural market** is **~ 23.0 million tonnes** catering to the needs of **628.67 million** poor and lower middle class consumers o Urban market is **~ 6.1 million tonnes** catering to the needs of **164.14 million** poor and lower middle class consumers
5. Identify and list the most popular or preferred variants of low cost Fortified Energy Foods.	• **Most preferred variants** of low cost Fortified Energy Food is **protein powder and health food drinks**.
6. Examining the reasons why in spite of a large potential market, which would make it a viable business proposition, there is still no major initiative from the private food industry sector to enter the market for low cost Fortified Energy Foods	• **Large corporates** manufacture and sell **expensive Fortified Energy Food products** focusing on **high income groups as their target consumers**. They are not interested to introduce low cost energy dense food catering to poor and lower middle class consumers. • **Regional small & medium enterprises** are **interested to manufacture and distribute low cost Fortified Energy Dense Food.**
7. Proposing sound business models & Recommending most effective and appropriate rural distribution and marketing strategies for the new low	• **Business models** proposed for the **low cost Fortified Energy Food** are: i. **Own Manufacturing through own premises** - Commercial launch of the product using FMCG channels is the

cost Fortified Energy Foods	**Most Viable Model** with an **IRR of 24.1%** ii. **Own Manufacturing from leased premises** - Commercial launch of the product using FMCG channels is the second **Most Viable Model** with an **IRR of ~23.9%** iii. **Contract Manufacturing** - Commercial launch of the product using FMCG channels is **not a Viable Model**.
8. Assessing the investment feasibility for manufacturing, distributing and marketing the low cost Fortified Energy Food	• **Minimum Viable Production Capacity: 60,000 MT per annum.** • **Capital expenditure investment of ~63.0 crores in land, building and plant & machinery is required for 60,000 MT production capacity.**

Executive Summary

KPMG was engaged by Karnataka State Rural Livelihood Society (KSRLS) to study the feasibility of introducing low-cost Fortified Energy Foods through private sector participation.

A mixed-method approach was applied to capture qualitative and quantitative data from stakeholder groups on the demand side covering Households, Doctors, Nutritionists and Front Line Workers (ASHA and AWW) as well as on the supply side covering Manufacturers, Distributors and Points of Sale such as Kirana Stores, Village Haats and Pharmacies to assess the feasibility.

a) Need and Demand Assessment:

The parameters analysed to assess the feasibility include understanding need and demand of Fortified Energy Food by estimating the current level of awareness regarding fortified energy foods and its benefits from consumption including current consumption levels.

The need and demand was further qualified by mapping the awareness and consumption levels of Fortified Energy Foods against purchasing power of consumers and their willingness to buy.

- **Stakeholders covered from demand side through interviews / FGDs included:**
  - Households: 520 respondents (interviews) and 194 respondents (FGDs),
  - Doctors at PHCs and CHCs: 24 respondents (interviews),
  - Nutritionists and Frontline workers like ASHA and ANM: 53 respondents (interviews).

Further, 520 respondents were covered through household interviews had the following composition:

- **Geographical split**: 33.6% (175) of these 520 respondents were from urban and semi-urban areas and 66.4% (345) were from rural areas.

- **Income range**: Income of the households covered is between INR 1500 – INR 60,000 per month. For the purpose of the analysis, respondents are grouped into three income bands: INR 1000 – 10,000 per month; INR 10,000 – 30,000 per month and INR 30,000 – 60,000 per month. The distribution of respondents across these bands is provided below:

  - Out of 195 household respondents covered in urban areas:
    - 58.3% were in income band of INR 1000 – 10,000 per month,

- 36.0% were in income band of INR 10,000 to 30,000 per month and
- 5% were in income band of INR 30,000 – 60,000 per month.

- Out of 345 household respondents covered in rural areas:
  - 81.7% were in income band of INR 1000 –10,000 per month,
  - 15.9% were in income band of INR 10,000 to 30,000 per month and
  - 2.3% were in income band of INR 30,000 – 60,000 per month.

Inputs collated from stakeholders covered from demand side were used to estimate the potential market size for low cost Fortified Energy Food.

- **Stakeholders covered from supply side included:**

  - Retailers: 60 respondents through interviews,
  - Distributors: 20 respondents through interviews
  - Manufactures: 8 respondents through interviews

Inputs collated from stakeholders covered from supply side were used to draw the route to market strategy, financial viability, investment returns and the Interest of private sector to explore the market opportunity in low cost Fortified Energy Food.

Brief summarization of observations, findings and recommendations are furnished below:

- **Dietary pattern**: The dietary pattern were analyzed to establish the nutritional gap in comparison to the recommended daily allowance (RDA)[1].

  Current dietary pattern observed from interactions with the respondents constituted a meal of vegetable/pulse and chappati/rice for lunch and dinner primarily, supplemented with tea and biscuits in most cases. It was observed that the income levels clearly influenced spend on food.

[1] As per Revised RDA for Indians 2010, report of the Expert Group of ICMR

Households in the income range INR 1000 -10000 spend on an average 60% of their income on purchase of food items as compared to an average expenditure of 29% and 18% (of household income) on purchase of food items by households in the income range INR 10,000-30,000 and INR 30,000 – INR 60,000 respectively.

Details of dietary pattern are furnished in Table 1.

Table 1: Income vs Expenditure on Food Items

Monthly Household Income (INR)	Dietary Intake per person		Average expenditure on Food Items (INR)		Average expenditure as percentage of average income (%)	
	Urban	Rural	Urban	Rural	Urban	Rural
1000 – 10,000	Energy= 1434.98 kcal/day Proteins= 50.75 g/day Calcium = 359.16 mg/day Iron= 13.07 mg/day	Energy= 1331.88 kcal/day Proteins= 46.91 g/day Calcium = 324.12 mg/day Iron= 11.78 mg/day	4066.66	3390.24	60.2%	59.7%
10,000 – 30,000	Energy= 1473.38 kcal/day Proteins= 52.12 g/day Calcium = 368.16 mg/day Iron= 13.43 mg/day	Energy= 1336.57 kcal/day Proteins= 47.06 g/day Calcium = 326.86 mg/day Iron= 11.81 mg/day	5665.07	5044.64	32.4%	26.3%
30,000-60,000	Energy= 1481.86 kcal/day Proteins= 52.39 g/day Calcium = 371.93 mg/day Iron= 13.49 mg/day	Energy= 1358.50 kcal/day Proteins= 47.73 g/day Calcium = 336.60 mg/day Iron= 11.98 mg/day	-	6500	-	18.9%

Furthermore, dietary intake of nutrients was observed to be inadequate indicating a minimum gap of 30% in dietary intake in comparison to the RDA.

A large proportion of the respondent group subsists on diets consisting mostly of plant foods (Meat is consumed for dinner by around 32% of respondents in urban areas and 30% of respondents in rural areas once a week) with low nutrient bio-availability[2], making access to Fortified Energy Foods essential to meet the RDA requirements in the diet.

Table 2 provides the gap in dietary intake.

Table 2: Gap in dietary intake in comparison to recommended daily allowance (RDA).

Measure	Unit	Gap in Intake (Difference between RDA and dietary intake)					
		Male			Female		
		Heavy	Moderate	Sedentary	Heavy	Moderate	Sedentary
Urban							
Energy	Kcal/Day	2206.67	1012.83	852.16	1368.65	712.26	364.10
Proteins	g/day	13.73	0.64	9.69	1.24	1.39	0.61
Calcium	mg/day	229.38	202.35	222.94	200.65	210.13	240.69
Iron	mg/day	4.47	1.62	3.68	7.34	7.30	7.92
Rural							
Energy	Kcal/Day	2375.82	1344.73	717.50	1578.74	713.19	639.00
Proteins	g/day	21.16	10.48	3.26	11.35	1.32	11.06
Calcium	mg/day	345.41	246.64	179.93	266.22	266.25	275.98
Iron	mg/day	6.96	5.98	2.20	9.02	8.26	9.70

- **Consumption of Fortified Energy Foods:** 37.5% (195) of the respondents (out of 520) consume Fortified Energy Foods. ~68% of these respondents buy Fortified Energy Food and the remaining are dependent on government-led initiatives.

  Out of 195 respondents, consuming Fortified Energy Foods, 28% of the respondents consumed some form of protein powder followed by Horlicks (21%) for children and Cerelac (19.5%) for infants in 3 to 6 years of age group. This was followed by Bournvita (19%) for children and Lactogen (6%) for infants in 0 to 6 months age group.

  Current consumption levels of Fortified Energy Food is low (37.5% of respondents consume Fortified Energy Foods) and the reasons attributed for low level of consumption are:

  - Cost of the products currently available in the market. 70% of consumers (195) of Fortified Energy Food felt that they do not have purchasing power to buy the products to consume

[2] Dietary Guidelines For Indians (2011), National Institute for Nutrition, Indian Council of Medical Research

regularly and 71% of the non-consumers (223), cited pricing of such products as the reason for non-consumption.

Consultations with stakeholders including Medical Officers, Doctors, ASHAs and ANMs at PHC level corroborated the above insights. This stakeholder group stated that:

- Unhealthy dietary intake and the gap in meeting nutritional needs of adolescent girls, expecting mothers and new mothers was the primary reason for malnourishment among children.

- Lack of awareness about Fortified Energy Food in the market place and the benefits derived from consumption of the same was cited to be key reason for non-consumption.

- Dependency on traditional food practices due to expensive Fortified Energy Foods in the market place was the other main reason for non-consumption.

- Affordability and accessibility of Fortified Energy Food will improve the health and nutrient intake of the people, especially children and women.

The research indicated that there is no low cost Fortified Energy Food available in the market, thereby, necessitating a need for introducing low cost Fortified Energy Foods in the market to overcome the issues of affordability and accessibility and meeting the RDA needs.

- **Target Group for Low Cost Fortified Energy Dense Food:** Target group for such an intervention can be narrowed down to households with monthly income in the range of INR 1000-10000, as monthly expenditure on food for these households is ~60% of their monthly income limiting their purchasing power.

  Also, nutrient intake of these households is lower than the households with monthly income in the range INR 10000 – 30000 or INR 30000 – 60000, for same level of expenditure, making availability of low cost Fortified Energy Food even more important for them.

  The latent need for low cost Fortified Energy Foods was clearly observed amongst the above segmented target group to address the issues on RDA provided awareness is created and accessibility through appropriate distribution channel is established.

b) Studying the present availability of low cost Fortified Energy Foods for infants, women, adolescents, the elderly and sick among BPL families, and their accessibility for both urban and rural families.

Product portfolio of fortified energy foods currently available have been classified furnished in Table 3 below:

Table 3: Types of Fortified Energy Foods and their characteristics

Product Category	Pricing	Channel	Inference
• **Health food drinks (HFDs):** Malt or protein based powder products consumed with milk. E.g. Bournvita & Horlicks	• INR 200 – 500 for 500gms • Positioned as premium for the affluent class	• Sold through retail channels such as kirana stores, pharmacies as well as supermarkets	• Can't be classified as a low cost Fortified Energy Food due to the high price points for the target group
• **Local products manufactured by regional players:** Food products based on regional diets and preferences. E.g. Chudda in Orissa, Chatua in UP & Orissa	• INR 70 – 80 for 500gms • Price positioning equivalent to low cost Fortified Energy Food, but these products are not fortified	• Distributed through traditional retail channels • Limited reach of products in select geographies	• Products lack overall nutritional value and benefits provided by low cost Fortified Energy Food
• **RUTFs (Ready to eat therapeutic foods):** Prescription based products meant for people suffering from acute Malnourishment	• Manufacturer's selling price - INR 21 – 22 for 200gm	• Sourced by Development Financial Institutions and state governments	• Lack retail distribution, and hence not classified as a low cost Fortified Energy Food
• **Locally prepared fortified foods:** Local preparations such as fortified poha, upma or laddoos	• Products are distributed for free by local public bodies like NGOs, state governments, or Aanganwadis	• Sourced by state governments from private manufacturers and distributed	• Lack retail distribution, and hence not be classified as a low cost

		through local public bodies • Also, home preparation for consumption	Fortified Energy Food

The inferences furnished in the above table across the currently available product portfolio doesn't fit the criteria of low cost Fortified Energy Food and hence there is no availability in the retail channels and markets leading to practically no access of such food products to the target population.

c) **Estimating the size of the market for low cost Fortified Energy Foods in India**.

- **Target Group**: Monthly income up to INR 10,000, which is classified as poor and lower middle class
- **Market opportunity:**
  - **Size of target group**: 883 million people, out of which ~678 million people reside in rural areas and ~205 million people in urban areas
  - **Willingness to consume**: 90% for pan India (92.8% for rural areas and 79.9% for urban areas)
  - **Servings per day**: 60 gms for Infants and 105gms for the rest of the population
  - **Size of the market (Annual):** ~29.1 million tonnes, of which the rural market is ~23.0 million tonnes (79% of the market), while the urban market is ~6.1 million tonnes.

d) Identifying and listing the most preferred or in-demand variants from the people for low cost Fortified Energy Foods.

As the current fortified energy food available in the market cant be classified as low cost the preferred or in-demand variants couldn't be established. However, the preferred and in-demand variants for Fortified Energy Food across target groups was captured for 195 respondents (out of 520 household respondents) who consume Fortified Energy Food are furnished hereunder:

- **Lactogen and Cerelac for infants and toddlers (0 to 3 years),**
- **Bournvita, Complan, Horlicks and Boost for children and adolescents (3 to 8 years and 8 to 15 years respectively),**
- **Mother's Horlicks and protein powder for mothers, other adults and elderly people (15 to 49 years and above).**

The retailers and distributors of fortified energy food indicate that malt or protein based health food drinks including Horlicks, Bournvita, Complan, etc., are the most commonly available products across the distribution network which corroborated the inputs received from household surveys.

From both household surveys and the interactions with distribution network, it was observed that low cost Fortified Energy Food are currently not available in the marketplace.

Since products are currently not available in the market, this could be one of the reasons for lack of awareness about low cost Fortified Energy Food amongst the target group

e) Examining the reasons why in spite of a large potential market, which would make it a viable business proposition, there is still no major initiative from the private food industry sector to enter the market for low cost Fortified Energy Foods.

The market for low cost Fortified Energy Food specifically targeted at poor and lower middle class consumers market is estimated at ~29.1 million tonnes. Despite such a large potential market, the private sector has largely stayed away from tapping this opportunity.

Of the fortified energy foods currently available in the market, the industry structure encompassing manufacturers and their distribution channel is clearly segmented by product categories.

- Health Food Drinks are manufactured and distributed by large corporates, such as GSK Consumer Healthcare, Cadbury, Nestle, Abbott, etc. The target consumer group for such companies are high income groups that can afford to consume these products on a regular basis. These corporates do not target the consumer segments (poor and lower middle class) of low cost Fortified Energy Food
- Small and Medium enterprises (such as Techno Foods, Nutrivita, Imperial Malts, etc.) which manufacture RUTFs and local fortified foods are dependent on government or other channels for distribution. These enterprises do not have the ability to distribute in the retail channels and financial capacity to create market. Industry interactions suggest an investment of INR 50 – 60 Cr for land, plant and machinery, and civil structures for a manufacturing capacity of 60,000 MT. The local products manufactured by regional players are primarily focused on sales and margins rather than on nutritional content of the products they manufacture

- The regional FMCG players and MSMEs in the food sector have a strong regional presence with an existing infrastructure enabling them to serve scattered markets. However, these players do not have much awareness about fortified energy foods, and the vast market opportunity that exists, which has prevented them from launching a product in the market
- Though it was observed that some SMEs and large corporates indicated lack of purchasing power amongst the target group (poor and lower middle class), primary research indicates that they consume food products such as savory snacks & chips, sauces & condiments, as well as Health Food Drinks (on doctor's prescriptions). This indicates that there is purchasing power, amongst the target group provided awareness, availability and benefits of consuming low cost Fortified Energy Foods are communicated

Although there is a large potential opportunity for low cost Fortified Energy Foods, large manufacturers have not taken any initiatives as their target group is different. Small and medium enterprises are dependent on government or other channels for distribution, and do not have the ability to distribute and the financial capacity to create a market. The most relevant industry segment to address the opportunity are regional FMCG players and MSMEs, and hence should be made more aware about the existing vast opportunity and methods to effectively serve the market with a product.

f) Proposing sound business models and recommending most effective and appropriate rural distribution and marketing strategies for the new low cost Fortified Energy Foods.

To arrive at the appropriate business model and recommend an effective distribution channel and marketing strategy for introducing low cost Fortified Energy Food, the existing industry structure including sourcing, manufacturing, sales, distribution, marketing, and possible business models was captured through primary interactions with industry players, market visits, and secondary research.

The summary of observations is as follows:

- **Sourcing of raw materials**: Raw material sourcing is either internally controlled by the FMCG players or outsourced to third party aggregators. While the former allows more control over procurement cost and quality of raw materials, the latter allows for increased focus on conversion of materials into finished product.
- **Manufacturing**: FMCG players primarily employ one of two approaches – Own manufacturing or Contract Manufacturing. While own

manufacturing allows for greater quality control and helps optimize conversion cost, outsourcing the manufacturing process to third party contractor allows the FMCG player to focus on market and selling of their key products.

- **Sales & Distribution**: Existing FMCG players use an amalgam of direct and indirect distribution. Direct Distribution is primarily focused on urban areas where the FMCG players has direct visibility up to the POS level. Indirect distribution is used for expanding rural markets through sub-distributors. For the aforementioned conventional distribution channel, existing FMCG players employ Area Sales Managers who are accountable for various geographies/territories. Emerging channels like modern retail and ecommerce are serviced directly by FMCG brads through key account managers.
- **Advertising & Promotion**: Advertising & Promotion is usually undertaken by the FMCG players, using a combination of ATL tools such as television, radio and print media, as well as BTL tools such as pamphlets and merchandising. In some cases, FMCG players are also partnering with third parties to assist them in BTL activities.

Based on the findings from the above market indicators the following potential business models were narrowed upon and further evaluated on the best fit analysis considering route to market strategy and investment feasibility:

- **Own Manufacturing through own premises - Commercial launch of the product using FMCG channels**
- **Own Manufacturing from leased premises - Commercial launch of the product using FMCG channels**
- **Contract Manufacturing - Commercial launch of the product using FMCG channels**

The recommended route to market strategy has been proposed keeping the following key considerations:

- **Infrastructural limitations**
- **Supply chain bottlenecks**
- **Leveraging existing distribution networks**
- **Serving irregular demand from agrarian/rural centers**
- **Addressing consumer buying behavior based on traditional factors such**

as preference for homemade alternatives

- **Advertising & promotion strategies for traditional marketing channels**

Key elements of the recommended route to market strategy include:

- **Sourcing of raw material:** The proposed strategy is to do own sourcing of raw material. The raw materials should be sourced locally during harvest season, stocked in storage facilities. The business should implement hedging strategies that should help minimize the cost of purchase during off-season and in addition help in optimizing the sourcing related working capital. Raw materials for such a low cost Fortified Energy Food product are largely commoditized, and could be procured through the following modes:
  - Direct procurement from farmers
  - Procurement from centralized mandis
  - Procurement through third party aggregators
- **Manufacturing:** The widespread nature of the demand in the rural markets requires a decentralized manufacturing set-up. This help in reducing the time and cost required to serve the disparate markets and helps in achieving a low cost per unit and eventually lower prices for the end consumers. Comparative financial assessment of own manufacturing / processing by the private player vs. contract manufacturing by third party, indicates that own manufacturing facility offers higher returns to the manufacturers. It also helps the private player maintain an oversight of the quality aspects of both the product and the manufacturing process
- **Sales and Distribution:** The distribution set-up is required to address demand in scattered markets, especially rural areas, and requires a multi-party distribution set-up. The proposed model for Sales and Distribution is to have two separate channels - a direct coverage model for markets with population >1,50,000, where distributors would be serviced by the company, the distributors would service retailers within the allocated geography and a controlled distribution model for smaller markets, where sub-distributors would source goods from larger distributors / stockists, and serve the retailers in smaller scattered markets. It is also proposed, that during the initial phase of product launch, channel members be offered higher margins to incentivize them to stock the product. The margins can be reduced to industry levels once product gains acceptance.
- **Marketing:** The proposed marketing strategy is to have a targeted advertising and promotion approach, using a mix of appropriate ATL and BTL strategies. ATL options such as television, radio and print media should have a targeted approach with effective use of regional languages

across local channels and newspapers. BTL tools such as channel schemes and trade promotions like distribution of pamphlets at primary schools and primary health centers, and in-shop merchandising at point of sales to create more visibility and also help create greater awareness about the product. Role of brand ambassadors is important to help increase the reach of the product as well as its recall value in the minds of target consumers.

- **Capital Investments:** Investments to start the business would include plant and machinery, land, etc. The potential options for capital investments include (i) the private sector doing all the investment, (ii) the private sector investing in plant and machinery and leasing the land and (iii) asset light model in which manufacturing is outsourced to contract manufacturers.

g) Assessing the investment feasibility for manufacturing, distributing and marketing the low cost Fortified Energy Foods.

In order to assess the investment feasibility of the proposed business models, business plans for each model was developed based on relevant assumptions. A summary of IRRs for the models is given in Table 4 below:

**All models evaluated at pricing of INR 57/kg for the distributor and with provision of grant available from MOFPI for first two models relating to own manufacturing*

Table 4: Summary of IRRs of proposed business models

Strategy	Project IRR*
Own Manufacturing through own premises - Commercial launch of the product using FMCG channels	**24.1%**
Own Manufacturing from leased premises - Commercial launch of the product using FMCG channels	**23.9%**
Contract Manufacturing - Commercial launch of the product using FMCG channels	**Not viable**[3]

[3] As IRR is negative

Feasibility Study to Introduce Low Cost Fortified Energy Foods In India Through Private Sector Participation

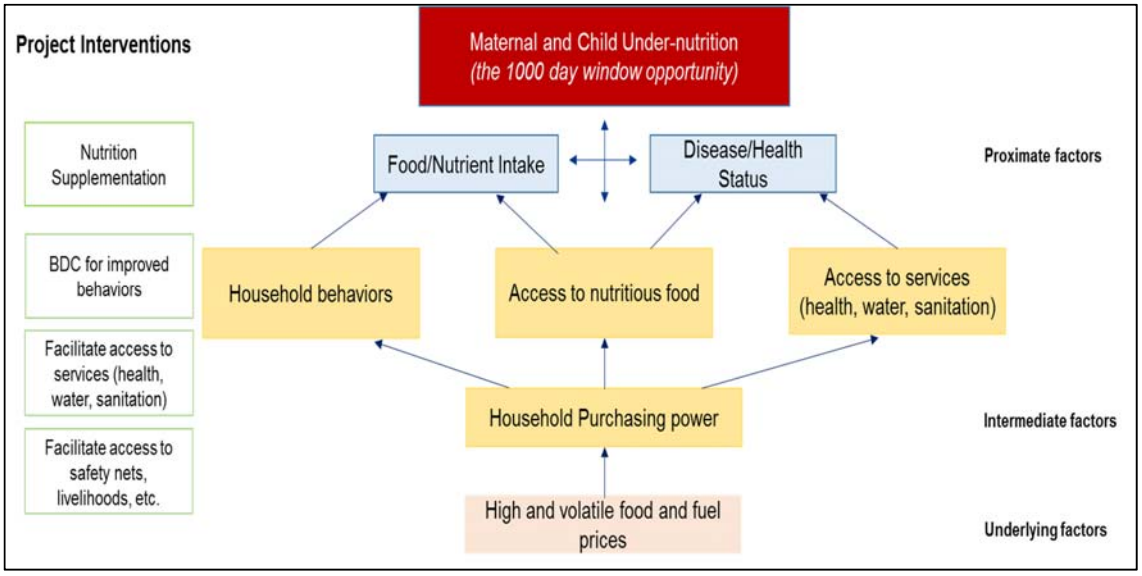
Final Report - Analysis and Findings

1 Project Background

The Karnataka State Rural Livelihoods Promotion Society (KSRLPS), under the aegis of the Karnataka Nutrition Mission, with support from the World Bank and the Japan Social Development Fund (JSDF), has been implementing a Multi-Sectoral Nutrition Pilot Project in two backward taluks of Karnataka, namely Devadurga in Raichur District and Chincholi in Gulbarga District. This pilot was designed based on previous pilots implemented in Gubbi, Shikaripura and Bellary Rural Taluks of Tumkur, Shimoga and Bellary Districts respectively, by the Karnataka Nutrition Mission.

The pilot aims at improving nutrition outcomes in children between 0-3 years of age, adopting an inter-generational cycle approach which focuses on adolescent girls, pregnant and lactating women and children up to 3 years of age.

Figure 1: Project Interventions targeted at different levels of nutrition causal chain



Source: Adopted from World Bank (2011) 'South-Asia Regional Assistance Strategy for nutrition

The pilot on the one hand focuses on the proximate determinants of nutrition by providing daily nutrition Fortified Energy Foods to under-nourished children, adolescent girls and pregnant and lactating women and on the other hand, places an equally strong focus on intermediate determinants of nutrition by implementing an intensive behaviour change communication strategy to improve household behaviours and access to services.

In addition to the pilot above, **one of the innovative projects proposed within the JSDF/World Bank assisted Karnataka Multi-Sectoral Nutrition Pilot Project is to conduct a "Feasibility Study of introducing low cost Fortified Energy Foods in the Market through the Private Sector.**

1.1 Context of the Project

One of the major causes of undernutrition and calorie, protein and micronutrient deficiency among large sections of our population (especially the poorest 30-40%) is a vacuum in the market for low cost, fortified energy foods for Below Poverty Line (BPL) families.

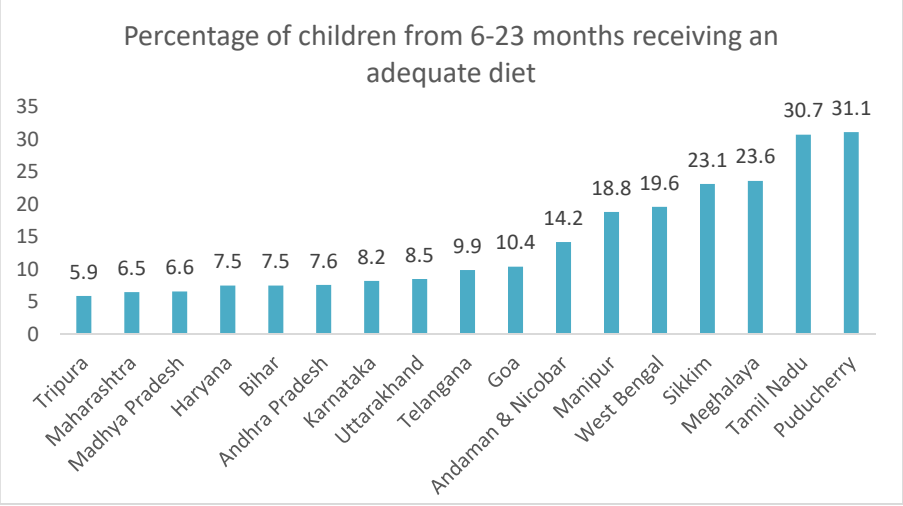
The daily diets of the poorest families are meagre, and can at best qualify as subsistence diets. For lack of money and knowledge, these families are unable to provide adequate nutrition for healthy growth of their children and adolescents during rapid growth periods, for women during pregnancy and lactation, for all age groups of both genders during or after illness, and complementary food for infants after 6 months of age.

At the macro level, even though India's per capita income has more than quadrupled in the last decade, all National Nutrition Monitoring Bureau (NNMB) Reports, continuously show a large dietary deficit in terms of proteins, calories and micronutrients among more than 50% of the population of both sexes and all age groups, despite the ICDS and MDM having been in operation for the last four decades and two decades respectively.

As per the UNICEF Report 2011, nearly 50% of adolescent girls aged 15-19 in India are underweight, with a body mass index of less than 18.5.

What is most concerning is that early data emerging from the NFHS- 4 Factsheets (2015-16) covering 17 States, indicates that the percentage of children from 6-23 months receiving an adequate diet ranges from a meagre 5.9% to 31.1%. This is a serious issue and points to the source of under-nutrition in the life cycle of our population.

Chart 1: Percentage of Children from 6-12 receiving adequate diet



Source: NFHS- 4 Factsheets (2015-16)

Reports from the field in the Chincholli and Devadurga Projects clearly indicate that all cases of severely malnourished children are from households where both parents are engaged in construction or agricultural labor. The infants are left under the care of elder siblings or grandparents, and apart from some roti, rice and dal, which an infant certainly cannot eat, there is no other food in the house. Further, there is virtually nothing available in the market for this age group, except wafers and biscuits.

There is a move at the Ministry of Women and Child Development, Government of India, to introduce the system of cash transfers for purchase of energy dense foods for adolescents and pregnant and nursing women, in lieu of supplementary food under the ICDS. However, in such a situation, where there is no appropriate product in the market, the entire objective of the cash transfer will be lost.

In these circumstances, it is timely and appropriate to engage with the private sector players in the food processing and the pharmaceutical sector. These players are already providing several varieties of protein and energy dense foods for children and adults targeted at the more affluent classes. However, for BPL populations of all age groups and both genders, presently a need gap exists in the market for low-cost energy foods. Unfortunately, this need gap has been filled up by junk foods and tobacco based products that are marketed aggressively. Evidence from rural areas also reveals that the poor are forced to purchase expensive energy foods in the absence of affordable low cost products in the market, sometimes spending their entire week's wages for purchasing these products. This situation usually arises when they are faced with a serious health emergency or when acute malnutrition becomes life threatening.

1.2 Objective and Scope of Current Engagement

The objective of the current engagement is to conduct a detailed study of the need and undertake an assessment of demand, the market entry strategy, and the investment feasibility, to address the vacuum in the market for low cost, fortified energy foods for BPL families. The assessment needs to be confirmed by empirical evidence emerging from the field, especially with respect to chronically undernourished and wasted children under 3 years.

The scope of work also includes:

— Recommending a road map for motivating the private sector and facilitating it through innovative partnerships for setting up of viable units for production of low cost Fortified Energy Foods which can meet the requirements of adolescents, women during pregnancy and lactation, people during or after illness and for infants after 6 months of age.
— Assessing the number of expected consumers, to draw conclusions on the need and demand assessment, capture the buying behaviour, the

affordability and the appropriate distribution and marketing strategies to make it a viable and feasible business proposition.

— Recommending effective and appropriate rural distribution & marketing strategies for the new products, after studying private sector successes in penetrating rural markets with products such as toiletries and cosmetics, and ready to eat items, such as wafers and chips

— Recommending how the provisions of Schedule VII of the Companies Act 2013 can be leveraged to include within the scope of Corporate Social Responsibility areas such as 'eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation and making available safe drinking water'.

The tasks to be carried out as per the RFP include:

Table 5: Tasks as per RFP

S. No.	Tasks, as presented in the RFP
1	▪ Conduct a need and demand assessment for low cost energy food for infants, women, adolescents, the elderly and sick among BPL families, urban and rural.
2	▪ Study the present availability of low cost energy food for infants, women, adolescents, the elderly and sick among BPL families, and accessibility of urban and rural BPL households to the same.
3	▪ Examine the correlation between high incidence of low weight, stunting and wasting among children, low body mass index and stunting amongst adolescents, and lack of low cost Fortified Energy Food in the market.
4	▪ Estimate the size of the market for low cost Fortified Energy Foods.
5	▪ Identify and list the most popular or preferred variants of low cost Fortified Energy Foods.
6	▪ Explain why in spite of a large potential market, which would make it a viable business proposition, there is still no major initiative from the private food industry sector to enter the market for low cost Fortified Energy Foods.
7	▪ Propose sound business models in this regard.
8	▪ Recommend most effective and appropriate rural distribution and marketing strategies for the new products comprising the low cost Fortified Energy Foods.
9	▪ Assess the feasibility of investment for manufacturing, distribution and marketing of the low cost Fortified Energy Foods.

This report elaborates on our observations, findings and recommendations across these areas.

2 Approach & Methodology

The approach & methodology adopted for addressing the scope of the project include primary and secondary research and analysis. This chapter details the specifics of sample coverage, planning and data collection approaches.

2.1 Study Design

A mixed-methods approach was used and qualitative and quantitative data was collected from stakeholder groups on both the demand side (Households, Doctors, Nutritionists and Front Line Workers (ASHA and AWW) as well as the supply side (Manufacturers, Distributors, and Points of Sale such as Kirana Stores, Village Haats and Pharmacies) to assess **the Need & Demand for low cost Fortified Energy Foods** for infants, women, adolescents, the elderly and sick among BPL families – both urban and rural. The data to be captured from each stakeholder group is mapped in Table 6 below:

Table 6: Study design

S. No.	Stakeholders	Key Indicators
1	**Households**	• Availability and access of Fortified Energy Foods • Current consumption details of Fortified Energy Foods • Demand for Fortified Energy Foods from poor & low income households • Consumer opinion on such products • Current full daily dietary intake for different members of their family • Information about their daily activity pattern/ occupation • Information about their daily chores • Insight into their current income / expenses pattern • Details of any diagnosed / persistent ailments • Understanding their expectation from the new proposed products
2	**Kiranas/ Pharmacies/ Village Haats**	• Whether Fortified Energy Food is currently sold from these outlets • Different forms of Fortified Energy Food available and the brands • Consumption patterns and key decision criteria for consumers • Current channel of supply • Margin they make on sale of Fortified Energy Food • If Fortified Energy Food is currently not available, then have the retail outlet ever stocked Fortified Energy Food in the past and if they have stocked, reasons for discontinuation • Consumption details – consumer profile including age, gender and demand concentration

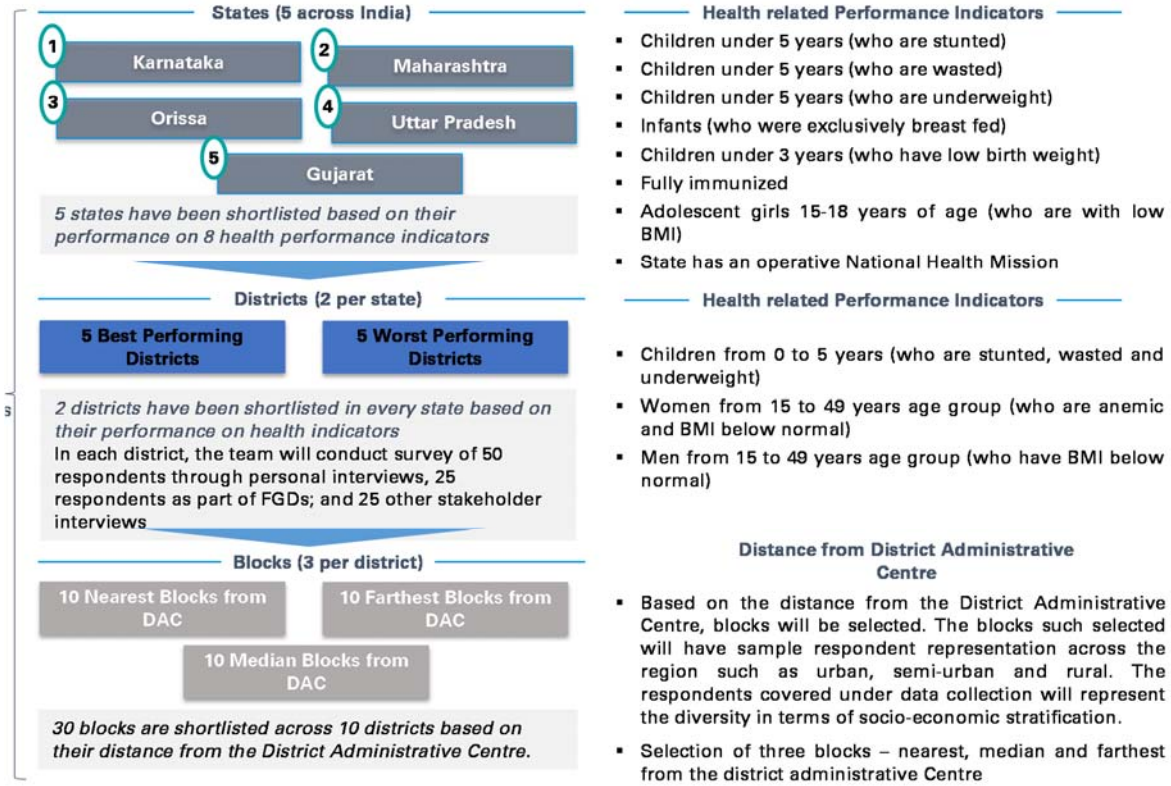
3	**Distributors**	• Demand of Fortified Energy Food • Current sales split of Fortified Energy Food across rural and urban markets • Various distribution techniques / initiatives used by manufacturers to drive sales for Fortified Energy Food • Typical margins which are offered by manufacturer for Fortified Energy Food • Typical fulfillment model for Fortified Energy Food – In terms of suppliers involved and delivery time
4	**Manufacturers**	• Understanding and knowledge of Fortified Energy Food in Indian market • Economics of a typical unit for Fortified Energy Food and investment required • Product composition and energy content • Contractual vs Own manufacturing • Challenges for in-house manufacturing • Industry and market structure for Fortified Energy Food with emphasis on rural markets • Options for Route to market for urban and rural areas
5	**Medical Personnel ***	• Validate nutritional deficiencies based on daily dietary intake data collected and analyzed from poor and lower middle class consumers • Identify fortified energy food including low cost Fortified Energy Food options and addressing Gap in Intake (Difference between RDA and dietary intake) • Views on how Fortified Energy Food can be positioned for poor and lower middle class consumers • Assessment of information & knowledge on nutrition
6	**PHC/CHC/ASHAs/AWWs/NGOs/SHGs**	• Incidence of malnutrition amongst poor and lower middle class consumers • Views on Fortified Energy Food and prescription for malnutrition • Views on role of home remedies prescribed in case of malnutrition • Views on role of government in addressing problem of malnutrition
7.	**Private sector industry representatives**	• View on business viability of low cost Fortified Energy Food • Current challenges related to low cost Fortified Energy Food • View on how challenges can be addressed to ensure reach and acceptability • Views on increasing private sector participation in low cost Fortified Energy Food

*** Medical personnel such as doctors/ physicians and nurses were interviewed**

2.1.1 Sampling Plan

There was a three tiered selection procedure to identify the sample size and survey respondents.

Figure 2: Sampling Plan



The detailed methodology adopted for each of the three levels is presented in Volume 2: Appendices of the report.

2.1.2 Data Collection Approach and Sample Size

A stakeholder is defined as a party that has an interest in an initiative/project and can affect or be affected directly or indirectly by the initiative/project. The stakeholders, from the demand side, covered as part of this specific study are households in rural and urban locations, doctors at PHCs / CHCs, Aanganwadis workers, ASHA and Nutritionists at government and private hospitals.

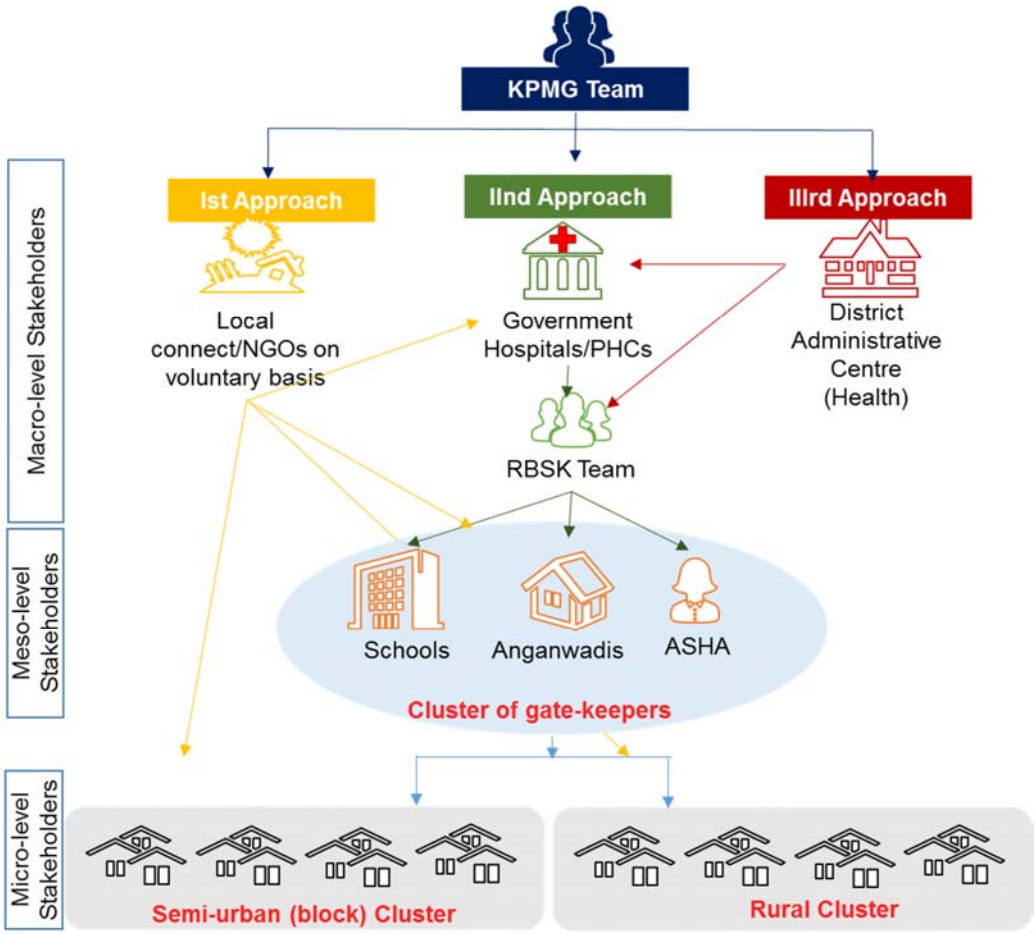
A household is defined as a person or group of persons that usually lives and eats together. A household is not the same as a family since a family only includes people who are related; rather, a household includes all people who live together, whether they are related or not.[4]

The household targeted as part of the feasibility study's primary data collection were from both urban and rural locations. Under urban locations, the type of households that were targeted as part of the interviews were those of the unorganized labor, sales people and hotel / restaurant workers. From rural locations, the household targeted were those of daily wage workers, small marginal farmers, landless labor and tribal people. The focus of household survey was to capture the need and demand of low cost Fortified Energy Food for infants, women, adolescents, elderly, and sick belonging to the BPL families in both urban and rural areas.

Primary data was collected from the stakeholders across the value chain for Fortified Energy Foods. In-depth interviews and Focus Groups Discussions (FGDs) were used to capture opinions, insights and perspectives from demand-side stakeholders - men and women at household level, doctors at PHCs / CHCs, Aanganwadi Workers, ASHA and Nutritionists at Government Hospitals and Private Physicians.

[4] These specific definitions are adopted from the Demographic and Health Survey's Interviewer's Manual

Figure 3: Approach for Demand-Side Data Collection (Govt & Private)



The KPMG team adopted a different approach for addressing each stakeholder across the value chain for Fortified Energy Foods. These included both demand side stakeholders - men and women at household level, doctors at PHCs / CHCs, Aanganwadi Workers, ASHA and Nutritionists at Government Hospitals and Private Physicians, as well as supply-side stakeholders- retailers / kirana stores / village haats / pharmacies, distributors, and manufacturers. Having a separate approach for each of the above mentioned stakeholders helped develop an understanding about the industry and category value chain and the role played by each stakeholder in the value chain, along with the value added by them at each stage. In addition, it was important to understand what the purchase / decision making criteria was at each level of the value chain. The information thus gathered helped in identifying the key problem areas to address while formulating the go to market strategies.

In order to collect inputs from the private supply side stakeholders – retailers / kirana stores / village haats / pharmacies, distributors, and manufacturers, the KPMG team made use of primary consultation tools such as in-depth interviews,

questionnaires, with individual stakeholders, focus group discussions (FGDs) for getting a more collective view, and discussing relevant case studies.

A summary of the number of respondents covered as part of primary consultations is detailed in Table 7 below:

Table 7: Respondents covered through Primary Survey

Stakeholders	Number of respondents covered			Total
	Nearest Block	*Median Block*	*Farthest Block*	
Households	**230**	**246**	**239**	**715**
Through in-depth interviews	163	183	175	521
Through FGDs	67	63	64	194
Retailers / Kirana Store Owners	20	20	20	60
Distributors	2 in every district, 4 in each state			20
Manufacturers	8 manufacturers pan India			8
PHCs/CHCs/Aanganwadis/ASHA Activists	**17**	**16**	**20**	**53**
Nutritionists/Medical Officers/Physicians	**8**	**9**	**7**	**24**

a) Households (questionaires)

KPMG adopted following approach for household survey and FGDs across various states and roles of various stakeholders:

Approach I: KPMG together with support from local connect or NGOs/ Voluntary Organizations functional in the districts identified. This approach was adopted in Orissa, Gujarat and Uttar Pradesh.

Approach II: KPMG together with PHCs/CHCs at district level were connected to Rashtriya Bal Swasthya Karyakram (RBSK) team. This approach was adopted in the state of Karnataka. The RBSK team aims at early identification and early intervention for children from birth to 18 years to cover 4 'D's viz. Defects at birth, Deficiencies, Diseases, Development delays including disability. The role of RBSK team was to connect with key informants at village level (that is through Aanganwadis and ASHA workers) and block levels (that is schools, nearby market areas and habitations).

Approach III: KPMG together with District Administrationconnected with PHCs/CHCs who then connected them to key informants at village level (that is through Aanganwadis and ASHA workers) and block levels (that is schools, nearby market areas and habitations). This approach was adopted in the state of Maharashtra.

The approach should detail reach to households

b) Retailers / Kirana Stores / Village Haats / Pharmacies: Ground level surveys in identified areas to understand the existing market infrastructure

The approach followed by KPMG to conduct the market survey across retail outlets in identified blocks for each district included:

- Understand the geographical outlay and setup of the block visited, in order to understand where the markets were located
- Approach the retail outlets or the pharmacies located in the markets to conduct interviews, and gather information about the social profile in the area
- Undertake focused group discussions (FGDs) with a group of retailers to understand the collective opinion of the stakeholders

c) Distributors services interior villages or more urbanized villages and towns

The approach followed by KPMG to conduct the market survey for distributors included:

- The KPMG team first understood the existing market set up in the region. This involved understanding how the products reach the retailers in these blocks especially in villages and tribal areas where means of transportation are limited
- Use the network of retailers to identify distributors that are supplying the products to the region
- Approach the distributors to conduct interviews to get a holistic idea about the distribution set up in the region pertaining to fortified and health food drink products being sold in the local retail markets
- Get an understanding from the distributors around the feasibility of introducing low cost Fortified Energy Foods in the market, and the strategy that should be adopted for marketing and distributing such a product
- Understand the infrastructural set up used by the local bodies such as Aanganwadi workers and PHCs, and undertake a comparative assessment with the retail set up

d) Manufacturers

The approach followed by the KPMG team to conduct the market survey for manufacturers is mentioned below:

- Use insights gathered from primary & secondary research and interactions with retailers and distributors to identify manufacturers of

products similar to low cost Fortified Energy Foods being currently sold in the markets
- Approach these manufacturers to conduct in-depth interviews to gather their views around the industry
- Secondary research

e) PHCs / CHCs / Aanganwadis / ASHA Activists (tribal areaas)

KPMG's existing network of teams and known businesses and NGOs in the study location were leveraged to identify the gatekeepers in the community. This approach was specifically used to reach out to respondents in tribal villages and rural hinterlands.

Data collection team consulted block level government hospital's administrative and technical staff (especially those taking care of food and nutritional demands of block level people). The administrative staff then introduced us to PHC and CHC heads, Rashtriya Bal Swasthya Karyakram (RSBK) teams and extended support to our field research team in facilitating household level data collection across the block.

On a parallel track, the data collection team contacted state level administrative units to seek support for reaching out to their regional/local counterparts especially in the tribal districts.

f) Nutritionists / Medical Officers / Physicians

KPMG's existing network across local/regional connect helped with reaching out to the Health Department at the district level. District level Health Departments connected our data collection team with block level hospitals to reach out to Nutritionists/Medical Officers/Physicians.

3 Assessment of Need and Demand

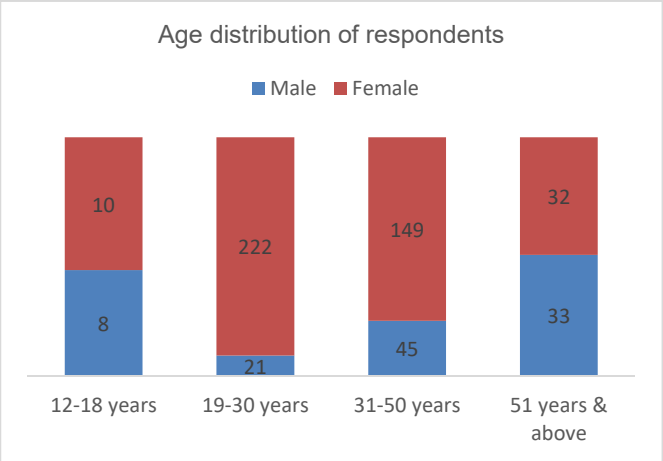
Objective - Conducting a need and demand assessment for low cost Fortified Energy Foods for infants, women, adolescents, the elderly and sick among BPL families – both urban and rural.

KPMG conducted a pan-India need and demand study encompassing-five-states which are the 5 and where are the details available and covering a total of 714 household respondents. 520 household respondents were covered through in-depth interviews and 194 household respondents through Focus Group Discussions (FGDs). The interviews and FGDs covered respondents from both urban and rural areas across the five states. Additionally, 24 doctors at PHCs and CHCs were interviewed and 53 frontline workers (ASHAs, ANM and AWWs) and nutritionists were interviewed. This section provides the observations and findings from the demand side which includes inputs from households, PHC doctors / AWW / ASHA and Nutritionists. This para has to match with sample details in the para

520 household interviews included 175 respondents from urban areas and 345 respondents from rural areas. The findings from the study cover:

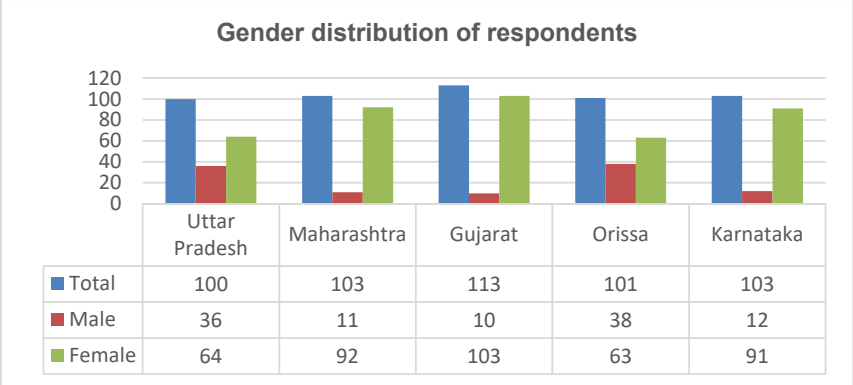
- Age-groups of respondents: Infants (1-3 years), children (4-12 years), adolescents (12-18 years), adults (19-50 years) and elderly (51+ years). The age distribution of the respondents is provided in Figure 3 and is summarized below:
    - 3.46% of household respondents were adolescents between 14-18 years.
    - 46.73% of household respondents were between 19-30 years. (It is to be noted that all respondents in this group were selected if they were new or expectant mothers. The male members in this age group responded on behalf of the new or expectant mothers in this age group).
    - 37.31% of household respondents were between 31 to 50 years.
    - 12.50% of household respondents belonged to the elderly age-category (51 years and above).
    - Inputs for children and adolescents, below 14 years of age, was provided by the family members

Figure 4: Age distribution of Respondents



- Gender Distribution of respondents: Out of the total 520 respondents of household interviews, 21% were males and 79% were females. The gender distribution of the respondents is provided in Figure 5.

Figure 5: Gender distribution of respondents

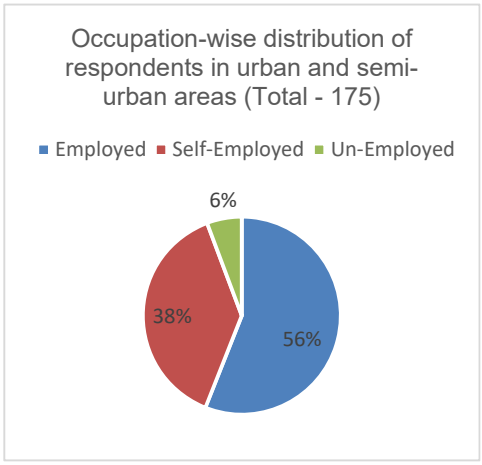


	Uttar Pradesh	Maharashtra	Gujarat	Orissa	Karnataka
Total	100	103	113	101	103
Male	36	11	10	38	12
Female	64	92	103	63	91

- Occupation of respondents : Distribution of respondents across farming, animal husbandry, daily wage workers, salaried workers and business across Urban and Rural areas is provided below:

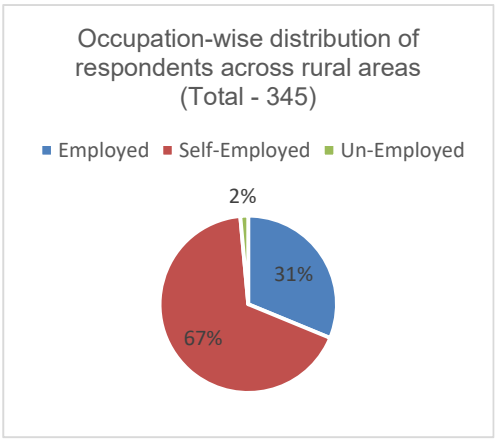
- **Urban areas:** From a sample size of 520 respondents, 33.6% (175) respondents were from urban or semi-urban locations. Of these, 56% respondents were employed in professions such as construction worker, driver, office worker, gardener and tailor, 38% respondents were self-employed and were either drivers, tailors, painters or hawkers and 6% respondents were un-employed. The break-up is provided in Figure 6.

Figure 6: Occupation-wise distribution of Respondents in Urban and Semi-Urban areas



- **Rural areas:** From a sample size of 520 respondents, 66.3% (345) respondents were from rural areas. Of these, about 31% respondents were employed as laborers, government employees and factory workers. About 67% respondents were self-employed and were engaged in agriculture and allied activities such as farm labor, goat rearing, and dairy or were involved in small business activities like managing ration shop, driver, electrician, bidi making, etc. About 2% respondents were un-employed. The break-up is provided in Figure 7.

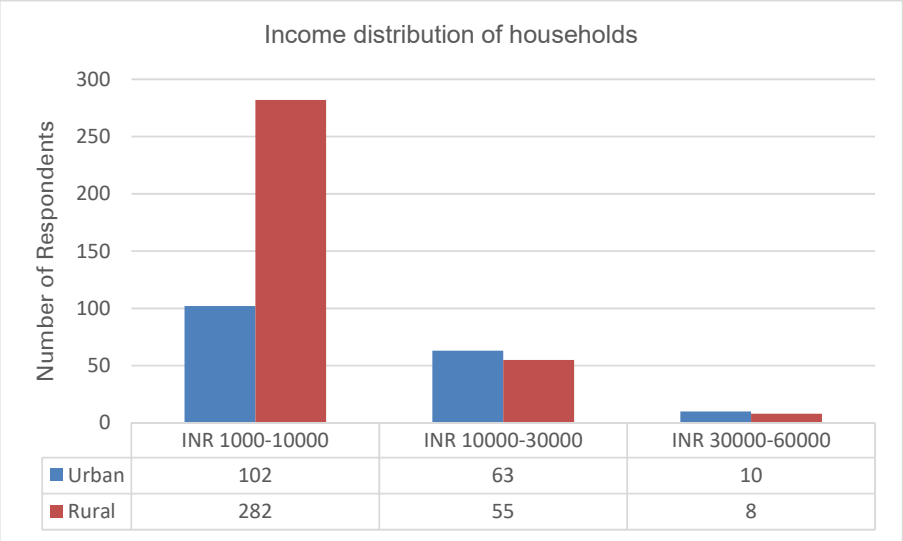
Figure 7: Occupation-wise distribution of respondents in Rural areas:



- Income distribution of the households: Range between INR 1,500 – INR 60,000 per month. For the purpose of the analysis, respondents are grouped into three income bands- INR 1,000 –10,000 per month, INR 10,000 – INR 30,000 per month and INR 30,000 – 60,000 per month. Distribution of respondents across these bands is provided in Figure 8 and is summarized below:
  - Urban: Out of 195 household respondents, 58.3% were in income band INR 1,000 –10,000 per month, 36.0% were in income band INR 10,000 to 30,000 per month and 5% were in income band INR 30,000 – 60,000 per month.
  - Rural: Out of 345 household respondents, 81.7% were in income band INR 1,000 –10,000 per month, 15.9% were in income band INR 10,000

to 30,000 per month and 2.3% were in income band INR 30,000 – 60,000 per month.

Figure 8: Income distribution of households



Key observations around need and demand for low cost Fortified Energy Foods is provided below:

- **Dietary intake analysis to establish need for introducing low cost Fortified Energy Foods**

  The analysis of dietary intake has been carried out on the following parameters.
  - Dietary pattern across urban and rural areas for each meal (Table 8)
  - Nutrition intake in terms of Energy, Protein, Calcium & Iron was estimated across urban and rural areas:
    - Basis of number of meals across income segments (Table 9)
    - Average nutrition intake across income segments (Table 10)
    - Basis of number of meals across expenditure on food (Table 11)
    - Co-relation between average monthly household income and expenditure on food (Table 12)

KPMG analysis indicates the following dietary pattern for the respondents detailed in Table 8.
  - Vegetable and/or pulse and chappati and/or rice for lunch and dinner along with tea and biscuits.
  - The range of nutrition intake is as below for lunch and dinner across Urban and Rural areas:
    - Energy : 520 – 620 kcal/day
    - Protein : 19 – 22 g/day

- Calcium : 105 – 140 mg/day
- Iron : 4.6 – 6.0 mg/day

- Fruits and milk is part of the diet for ~10% of the respondents.
- Meat is consumed by ~30% of respondents once a week.

Table 8: Dietary Intake

#	List of food items consumed per person (Urban Areas)	Nutrient intake per person (Urban areas)	List of food items consumed per person (Rural Areas)	Nutrient intake per person (Rural areas)
Breakfast Energy- 247.27 kcal/day Proteins- 7.95 g/day Calcium- 82.13 mg/day Iron- 2.11 mg/day	▪ 40% of the respondents (170) have only tea and biscuit/chappati for breakfast ▪ Rest of the respondents largely consume parantha or upma or poha for breakfast	Energy- 271.73 kcal/day Proteins- 9.22 g/day Calcium- 92.44 mg/day Iron- 1.98 mg/day	▪ 36% of the respondents (320) have only tea and biscuit/chappati/ murmura for breakfast ▪ Rest of the respondents largely consume parantha or upma or poha for breakfast	Energy- 222.81 kcal/day Proteins- 6.68 g/day Calcium- 71.83 mg/day Iron- 2.23 mg/day
Mid-day Snack Energy- 55.06 kcal/day Proteins- 1.68 g/day Calcium- 27.44 mg/day Iron- 0.39 mg/day	▪ 97% of the respondents do not have mid-day snack	Energy- 33.65 kcal/day Proteins- 1.00 g/day Calcium- 18.68 mg/day Iron- 0.22 mg/day	▪ 77% of the respondents do not have mid-day snack ▪ Among 23% who have this meal, 76% have either a beverage such as, tea or lemonade or small snack such as jal bhat/mudi in Odisha or poha in Maharashtra and Gujarat for mid-day snack	Energy- 76.48 kcal/day Proteins- 2.35 g/day Calcium- 36.19 mg/day Iron- 0.56 mg/day
Lunch Energy- 577.50 kcal/day Proteins- 20.58 g/day Calcium- 122.10 mg/day Iron- 5.24 mg/day	▪ Nearly 100% of the respondents consume a meal for lunch which includes chappati/rice and vegetable/pulses	Energy- 615.98 kcal/day Proteins- 21.61 g/day Calcium- 134.61 mg/day Iron- 5.88 mg/day	▪ Nearly 100% of the respondents consume a meal for lunch and have chappati/rice, vegetable/pulse for lunch	Energy- 539.02 kcal/day Proteins- 19.54 g/day Calcium- 109.59 mg/day Iron- 4.60 mg/day

Evening Snack Energy- 55.06 kcal/day Proteins- 1.68 g/day Calcium- 27.44 mg/day Iron- 0.39 mg/day	▪ 73% of the respondents do not consume any evening snacks ▪ Majority (72.3%) of those who have this meal have snack such as, tea with biscuit or namkeen	Energy- 33.65 kcal/day Proteins- 1.00 g/day Calcium- 18.68 mg/day Iron- 0.22 mg/day	▪ 58% of the respondents do not have any evening snack ▪ 63.8% of those who have this meal have small snack like tea with biscuit	Energy- 76.48 kcal/day Proteins- 2.35 g/day Calcium- 36.19 mg/day Iron- 0.56 mg/day
Dinner Energy- 549.69 kcal/day Proteins- 20.13 g/day Calcium- 127.78 mg/day Iron- 5.06 mg/day	▪ Nearly 100% of the respondents have a meal for dinner which includes chappati/rice and vegetable/pulses ▪ 32.7% of the respondents reported consuming non-vegetarian food item such as chicken or fish or egg at least once a week	Energy- 579.20 kcal/day Proteins- 21.11 g/day Calcium- 136.57 mg/day Iron- 5.53 mg/day	▪ Nearly 100% of the respondents have a meal for dinner and have chappati/rice and vegetable/pulse ▪ 30% of the respondents reported consuming non-vegetarian food item such as chicken, fish, egg atleast once a week	Energy- 520.19 kcal/day Proteins- 19.15 g/day Calcium- 118.98 mg/day Iron- 4.59 mg/day

KPMG analysis indicates the following dietary intake on the basis of number of meals across income segments split by rural and urban areas furnished in Table 9 below.

- Across income categories, ~83 % of respondents indicated having 3 - 4 meals in a day
- The range of nutrition intake across Urban and Rural is as below for 3 - 4 meals in a day

  Urban area:
  - Energy : 1,450 – 1,500 kcal/day
  - Protein : 51 – 53 g/day
  - Calcium : 360 – 385 mg/day
  - Iron : 13.0 – 14.0 mg/day

  Rural area:
  - Energy : 1,280 – 1,360 kcal/day
  - Protein : 45 – 48 g/day
  - Calcium : 300 – 340 mg/day
  - Iron : 11.0 – 12.0 mg/day

- Based on the analysis, the nutrition intake in rural areas is relatively lower than the nutrition intake in urban areas

Table 9: Income category vs consumption pattern

Household Income per month	Consumption Pattern per person			
	Two meals a day (Lunch and dinner)	Three meals a day (Breakfast, lunch and dinner)	Four meals a day (Breakfast, lunch, dinner and midday/evening snack)	Five meals a day (Breakfast, lunch, dinner, mid-day snack and evening snack)
Nutrient Intake	Energy= 1127.20 kcal/day Proteins= 40.71 g/day Calcium = 249.88 mg/day Iron= 10.30 mg/day	Energy= 1374.46 kcal/day Proteins= 48.66 g/day Calcium = 332.01 mg/day Iron= 12.41 mg/day	Energy= 1429.53 kcal/day Proteins= 50.34 g/day Calcium = 359.45 mg/day Iron= 12.80 mg/day	Energy= 1484.59 kcal/day Proteins= 52.01 g/day Calcium = 386.89 mg/day Iron= 13.19 mg/day
Urban areas (n =173)				
Nutrient Intake	Energy= 1195.18 kcal/day Proteins= 42.72 g/day Calcium = 271.18 mg/day Iron= 11.41 mg/day	Energy= 1466.90 kcal/day Proteins= 51.95 g/day Calcium = 363.63 mg/day Iron= 13.39 mg/day	Energy= 1500.55 kcal/day Proteins= 52.95 g/day Calcium = 382.31 mg/day Iron= 13.61 mg/day	Energy= 1534.20 kcal/day Proteins= 53.95 g/day Calcium = 401.00 mg/day Iron= 13.83 mg/day
1000-10000 (n=102)	3%	68%	25%	4%
10000-30000 (n=61)	2%	68%	24%	3%
30000-60000 (n=10)	-	60%	30%	10%
Rural areas (n = 324)				
Nutrient Intake	Energy= 1059.21 kcal/day Proteins= 38.70 g/day Calcium = 228.57 mg/day Iron= 9.19 mg/day	Energy= 1282.02 kcal/day Proteins= 45.38 g/day Calcium = 300.40 mg/day Iron= 11.42 mg/day	Energy= 1358.50 kcal/day Proteins= 47.73 g/day Calcium = 336.60 mg/day Iron= 11.98 mg/day	Energy= 1434.98 kcal/day Proteins= 50.08 g/day Calcium = 372.79 mg/day Iron= 12.54 mg/day
1000-10000 (n=264)	0%	46%	33%	15%
10000-30000 (n=52)	2%	38%	36%	18%
30000-60000 (n=8)	20%	20%	20%	20%

KPMG analysis indicates the following dietary intake on the basis of income segments split by rural and urban areas furnished in Table 10 below:

- The range of nutrition intake is as below across income segments Income Segment INR 1,000 to 10,000:
  - Energy : 1,331 – 1,470 kcal/day
  - Protein : 39 – 52 g/day

- Calcium : 267 - 368 mg/day
- Iron : 10.6 - 13.4 mg/day

Income Segment INR 30,000 to 60,000:

- Energy : 1,336 – 1,473 kcal/day
- Protein : 47 – 53 g/day
- Calcium : 326 – 368 mg/day
- Iron : 11.0 – 13.4 mg/day

o Level of dietary is similar across the income segments

Table 10: Income Vs Dietary Intake

Dietary Intake		Income Group (INR per month)		
		INR 1,000 to 10,000	INR 10,000 to 30,000	INR 30,000 to 60,000
Urban areas		n=102	n=61	n=10
Energy	Kcal/Day	1470.13	1472.93	1483.73
Proteins	g/day	52.01	52.11	52.45
Calcium	mg/day	367.14	367.93	372.97
Iron	mg/day	13.41	13.43	13.50
Rural Areas		n=264	n=52	n=8
Energy	Kcal/Day	1331.88	1336.57	1283.68
Proteins	g/day	39.91	47.06	45.47
Calcium	mg/day	267.00	326.86	309.59
Iron	mg/day	10.61	11.81	11.28

KPMG analysis indicates the following dietary intake on the basis of expenditure on food by rural and urban areas furnished in Table 11 below.

- The average monthly expenditure on food for 3 - 4 meals in a day is between INR 4,600 – 4,700 in urban areas and between INR 3,700 – 3,800 in rural areas indicating higher expenditure on food in urban as compared to rural
- For income range of INR 1,000 to INR 10,000 per month, monthly expenditure on food is ~60% of the household income while for income range of INR 10,000 to INR 30,000 per month, monthly expenditure on food is ~26 – 32% of the household income
- The range of nutrition intake is similar across income segments although the expenditure on food as a percentage of income is higher in income segment between INR 1,000 to INR 10,000 per month compared to INR 10,000 to INR 30,000 per month as provide in Table 12
  - Energy : 1,332 – 1,473 kcal/day
  - Protein : 47 – 52 g/day
  - Calcium : 324 – 368 mg/day
  - Iron : 11.0 – 13.4 mg/day

Table 11: Income, Expenditure on Food and Dietary Intake

Food Intake	Urban				Rural			
	Number of Respondent	Nutrient Intake per person	Average Income of household per month (INR)	Avg. expenditure per month of household (INR)	Number of Respondent	Nutrient Intake per person	Average Income of household per month (INR)	Avg. expenditure per month of household (INR)
Two meals a day (Energy= 1127.20 kcal/day Proteins= 40.71 g/day Calcium = 249.88 mg/day Iron= 10.30 mg/day)	2%	Energy= 1195.18 kcal/day Proteins= 42.72 g/day Calcium = 271.18 mg/day Iron= 11.41 mg/day	8,875	4,375	1%	Energy= 1059.21 kcal/day Proteins= 38.70 g/day Calcium = 228.57 mg/day Iron= 9.19 mg/day	4,000	Old person, eats food at Aanganwadi
Three meals a day (Energy= 1374.46 kcal/day Proteins= 48.66 g/day Calcium = 332.01 mg/day Iron= 12.41 mg/day)	68%	Energy= 1466.90 kcal/day Proteins= 51.95 g/day Calcium = 363.63 mg/day Iron= 13.39 mg/day	12,496	4,640	47%	Energy= 1282.02 kcal/day Proteins= 45.38 g/day Calcium = 300.40 mg/day Iron= 11.42 mg/day	7,530	3,727
Four meals a day (Energy= 1429.53 kcal/day Proteins= 50.34 g/day Calcium = 359.45 mg/day Iron= 12.80 mg/day)	25%	Energy= 1500.55 kcal/day Proteins= 52.95 g/day Calcium = 382.31 mg/day Iron= 13.61 mg/day	13,352	4,620	36%	Energy= 1358.50 kcal/day Proteins= 47.73 g/day Calcium = 336.60 mg/day Iron= 11.98 mg/day	8,789	3,724
Five meals a day (Energy= 1484.59 kcal/day Proteins= 52.01 g/day Calcium = 386.89 mg/day Iron= 13.19 mg/day)	4%	Energy= 1534.20 kcal/day Proteins= 53.95 g/day Calcium = 401.00 mg/day Iron= 13.83 mg/day	16,000	-	16%	Energy= 1434.98 kcal/day Proteins= 50.08 g/day Calcium = 372.79 mg/day Iron= 12.54 mg/day	11,278	-

Table 12: Income vs Expenditure on Food Items

Monthly Household Income (INR)	Dietary Intake per person		Average expenditure on Food Items (INR)		Average expenditure as percentage of average income (%)	
	Urban	Rural	Urban	Rural	Urban	Rural
1000 – 10000	Energy= 1434.98 kcal/day Proteins= 50.75 g/day Calcium = 359.16 mg/day Iron= 13.07 mg/day	Energy= 1331.88 kcal/day Proteins= 46.91 g/day Calcium = 324.12 mg/day Iron= 11.78 mg/day	4066.66	3390.24	60.2%	59.7%
10000 – 30000	Energy= 1473.38 kcal/day Proteins= 52.12 g/day Calcium = 368.16 mg/day Iron= 13.43 mg/day	Energy= 1336.57 kcal/day Proteins= 47.06 g/day Calcium = 326.86 mg/day Iron= 11.81 mg/day	5665.07	5044.64	32.4%	26.3%
30000-60000	Energy= 1481.86 kcal/day Proteins= 52.39 g/day Calcium = 371.93 mg/day Iron= 13.49 mg/day	Energy= 1358.50 kcal/day Proteins= 47.73 g/day Calcium = 336.60 mg/day Iron= 11.98 mg/day	-	6500	-	18.9%

- **Analysis of dietary intake of Fortified Energy Foods and to establish demand for introducing low cost Fortified Energy Foods**

  The primary research indicates that the low cost Fortified Energy Foods is not available through the private distribution channel in the retail market. Hence, the findings of dietary intake is limited to fortified energy foods currently available in the retail market and consumed by respondents.

  KPMG analysis indicates the following dietary intake of Fortified Energy Foods and details are furnished below in Table 13.

  - 195 respondents out of 520 consumed Fortified Energy Foods
    - 28% of the respondents consumed some form of protein powder followed by Horlicks (21%) for children and Cerelac (19.5%) for infants in 3 to 6 years of age group
    - This was followed by Bournvita (19%) for children and Lactogen (6%) for infants in 0 to 6 months age group.
  - Across states, the variants of fortified energy foods depend upon local dietary preference. Examples include Chatua Powder in Odisha, Harira ladoo and Til ladoo in Uttar Pradesh and Raggi Malt in Karnataka

  The list of Fortified Energy Foods currently consumed is provided in Table 13 below:

Table 13: List of Fortified Energy Food consumed by the respondents' family

Category	Geography	Type of Fortified Energy Foods				
		Gujarat	Karnataka	Maharashtra	Odisha	Uttar Pradesh
Infants and children	Urban	Cerelac	Cerelac, Bournvita	Cerelac, PediaSure	Ceralac, Farex, Nestle Nan, Lactogen	-
	Rural	Cerelac, Bournvita	Cerelac, Junior Horlicks, Ragi Mudi	Cerelac	Ceralac, Farex, Nestle Nan, Lactogen	Cerelac
Adolescents	Urban	Bournvita, Horlicks	Bournvita, Complan, Horlicks, Boost Ragi Malt	Protein X, Pro PL, Horlicks, Bournvita	Bournvita, Horlicks, Chatua Powder, Chyawanprash	Bournvita, Horlicks, Harira ladoo, Til ladoo

	Rural	Bournvita, Complan, Horlicks	Bournvita, Boost, Horlicks, Ragi Malt	Bournvita	Bournvita, Horlicks, Chatua Powder, Chyawanprash	Bournvita, Horlicks, Boiled Chane, Boiled Soyabean, Besan-makhana ladoo, Paag
Pregnant Women	Urban	Protein Powder, Pro Vita, Iron Pills	Protein Powder, Ragi Malt, Women Horlicks	Protein Powder	Mother Horlicks, Protein X, Protein Powder, Chatua Powder	Badam Milk, Harira ladoo, Til ladoo
	Rural	Protein Powder	Protein Powder, Raggi Malt, Raggi Hittu	Protein Powder	Mother Horlicks, Protein X, Protein Powder, Chatua Powder	Calcium and Iron tablets, Paag, Panjeri, Besan-makhana ladoo
Lactating Mothers	Urban	Protein Powder	Protein Powder, Lactogen, Women Horlicks, Raggi Malt	Protein Powder	Mother Horlicks, Protein Powder, Protein X, Chatua Powder	Badam Milk, Harira ladoo, Til ladoo, Ghee
	Rural	Multi-vitamin pills	Protein Powder, Ragi Malt, Ragi Hittu	Protein Powder	Mother Horlicks, Protein Powder, Protein X, Chatua Powder	Paag, Panjeri, Besan-makhana ladoo
Elderly	Urban	-	Ragi Malt	Chyawanprash	Chyawanprash , Chatua Powder	Chyawanprash, Badam Milk, Harira ladoo, Til ladoo
	Rural	Chyawanprash, Powervita,	Chyawanprash, Ragi Malt	Chyawanprash	Chyawanprash , Chatua Powder	Chyawanpra ash, Paag, Besan-

		Sabudana ladoo				makhana ladoo

- 37.5% (195) of the respondents (out of 520) consume Fortified Energy Foods. ~68% of these respondents buy Fortified Energy Food and the remaining are dependent on government-led initiatives.

- The reasons for lower consumption of fortified energy foods were observed to be:
  - Lack of awareness :
    - The awareness of Fortified Energy Food was low and was equated to snacks and food items consumed between meals.
    - Awareness of brands like Horlicks, Bournvita, Complan, Mother's Horlicks, Chyawanprash and protein powder was high but was not equated to fortified foods by respondents. Awareness about these brands was generated through advice of doctors and physicians (33.25%), information received from neighbors and family (25.89%), through mass media (23.10%) and nutritionist (17.77%)
  - Low affordability :
    - ~ 70% of 195 respondent who consume fortified energy foods, felt that they cannot afford the currently consumed Fortified Energy Foods such as Horlicks, Bournvita, Complan, Mother's Horlicks, Chyawanprash and protein powder on a regular basis.
    - ~71% of the 223 respondents, who do not consume Fortified Energy Food, indicated high price of such products as the reason for non-consumption.
    - The average spent on purchase of Fortified Energy Food for the family is ~INR 500 per month in urban areas and ~INR 405 per month in rural areas

- The consumption of fortified energy foods across income segments in urban and rural areas are as follows:
  - Income segment of INR 1,000 to INR 10,000
    - ~29% (81 out of 281) consume Fortified Energy Foods in rural areas and ~30% (out of 81) consume Fortified Energy Foods from national brands like Cerelac, Horlicks and Bournvita etc.
    - ~34% (34 out of 102) consume Fortified Energy Foods in urban areas and ~60% consume Fortified Energy Foods

from national brands like Nan, Cerelac, Horlicks and Bournvita etc.

- Income segment of INR 10,000 to INR 30,000
  - ~55% (30 out of 56) consume Fortified Energy Foods in rural areas and ~29% (out of 30) consume Fortified Energy Foods from national brands like Cerelac, Nan, Horlicks and Bournvita etc.
  - 55% (34 out of 63) consume Fortified Energy Foods in urban areas and ~49% (out of 34) consume Fortified Energy Food from national brands like Cerelac, Horlicks and Bournvita etc.

o Across income segments 22% consume Fortified Energy Foods from leading brands in urban areas as compared to 10% rural areas.

Urban areas

- INR 1,000 to INR 10,000: 20% (out of 102)
- INR 1,000 to INR 10,000:26% (out of 63)

Rural areas

- INR 1,000 to INR 10,000: 9% (out of 281)
- INR 1,000 to INR 10,000: 16% (out of 56)

Table 14 below provides the details of awareness levels and consumption pattern for Fortified Energy Food:

Table 14: Awareness level and consumption pattern of Fortified Energy Food

Monthly household income	Urban Areas	Rural Areas
INR 1,000-INR 10,000 n=102 for urban areas. n=281 for rural areas	• ~68% know about brands like Horlicks, Lactogen, Cerelac, Protein X and Mother's Horlicks. • ~34% consume Fortified Energy Food • Out of 34% respondents using Fortified Energy Foods, the Fortified Energy Foods are currently provided to following target groups: Infants- (43%), Adolescents (11%), Pregnant Women (40%), Lactating Mothers (0), Elders (6%). • Out of 34% respondents using Fortified Energy Foods, 60% respondents consume products like Cerelac, NAN, Bournvita, Junior Horlicks, PediaSure, Farex, Horlicks, Complan, Protein Powder, Pro Vita, Protein X, Pro PL,	• ~75% are aware about brands like Horlicks, Lactogen, Cerelac, Protein X and Mother's Horlicks. • ~29% consume Fortified Energy Food • Out of 29% respondents using Fortified Energy Foods, the Fortified Energy Foods are currently provided to following target groups: Infants (37%), Adolescents (25%), Pregnant Women (25%), Lactating Mothers (12%), Elders (1%). • Out of 29% respondents using Fortified Energy Foods, 30% respondents consume Fortified Energy Products like Cerelac, NAN, Bournvita, Junior Horlicks, Farex, Horlicks, Complan, Protein Powder, Pro Vita, Iron Pills, Multi-vitamin pills,

	Boost Powervita, Chyawanprash, Women Horlicks, Lactogen, Iron Pills, Multi-vitamin pills, Calcium tablets. • Out of 29% respondents using Fortified Energy Foods, 40% consume regional products like Raggi Malt, Raggi Hittu, Chatua, Chudda.	Calcium tablets, Protein X, Pro PL, Boost, Powervita, Chyawanprash, Women Horlicks, Lactogen. • Out of 29% respondents using Fortified Energy Foods, 70% consume regional products like Raggi Malt, Raggi Hittu, Chatua, Chudda.
INR 10,001 – INR 30,000 n=63 for urban areas. n=56 for rural areas	• ~83% know about brands like Horlicks, Lactogen, PediaSure, Protinex and Mother's Horlicks. • ~55% consume Fortified Energy Foods • Out of 55% respondents using Fortified Energy Foods, the Fortified Energy Foods is currently provided to following target groups: Infants- (51%), Adolescents (11%), Pregnant Women (35%), Lactating Mothers (0), Elders (<3%). • Out of 55% respondents using Fortified Energy Foods, 49% respondents consume products like Cerelac, NAN, Bournvita, Junior Horlicks, PediaSure, Farex, Horlicks, Complan, Protein Powder, Pro Vita, Protein X, Pro PL, Boost Powervita, Chyawanprash, Women Horlicks, Lactogen, Iron Pills, Multi-vitamin pills, Calcium tablets. • Out of 55% respondents using Fortified Energy Foods, 51% consume regional products like Raggi Malt, Raggi Hittu, Chatua, Chudda.	• ~79% are aware about brands like Horlicks, Lactogen, PediaSure, Protinex and Mother's Horlicks. • ~55% consume Fortified Energy Foods • Out of 55% respondents using Fortified Energy Foods, the Fortified Energy Foods is currently provided to following target groups: • Infants (32%), Adolescents (13%), Pregnant Women (29%), Lactating Mothers (19%), Elders (6%). • Out of 55% respondents using Fortified Energy Foods, 29% respondents consume Fortified Energy Products like Cerelac, NAN, Bournvita, Junior Horlicks, Farex, Horlicks, Complan, Protein Powder, Pro Vita, Iron Pills, Multi-vitamin pills, Calcium tablets, Protein X, Pro PL, Boost, Powervita, Chyawanprash, Women Horlicks, Lactogen. • Out of 55% respondents using Fortified Energy Foods, 71% consume regional products like Raggi Malt, Raggi Hittu, Chatua, Chudda.
INR 30,000 INR 60,000 n=10 for urban areas. n=8 for rural areas	• ~80% know about brands like Horlicks, Lactogen, PediaSure, Protinex and Mother's Horlicks. • ~70% consume about Fortified Energy Foods. • Out of 70% respondents using Fortified Energy Foods, the Fortified Energy Foods is currently provided to following target groups: Infants- (42%), Adolescents (0%), Pregnant Women (29%), Lactating Mothers (0%), Elders (29%). • Out of 70% respondents using Fortified Energy Foods, 29% respondents consume products like Cerelac, NAN,	• ~100% respondents are aware about brands like Horlicks, Lactogen, PediaSure, Protinex and Mother's Horlicks. • ~63% respondents consume Fortified Energy Foods. • Out of 63% respondents using Fortified Energy Foods, the Fortified Energy Foods is currently provided to following target groups: Infants (40%), Pregnant Women (60%). • Out of 63% using Fortified Energy Foods, 80% respondents consume Fortified Energy Products like Cerelac, NAN, Bournvita, Junior Horlicks, Farex, Horlicks, Complan, Protein Powder, Pro

	Bournvita, Junior Horlicks, PediaSure, Farex, Horlicks, Complan, Protein Powder, Pro Vita, Protein X, Pro PL, Boost Powervita, Chyawanprash, Women Horlicks, Lactogen, Iron Pills, Multi-vitamin pills, Calcium tablets. • Out of 63% respondents using Fortified Energy Foods, 51% consume regional products like Raggi Malt, Raggi Hittu, Chatua, Chudda.	Vita, Iron Pills, Multi-vitamin pills, Calcium tablets, Protein X, Pro PL, Boost, Powervita, Chyawanprash, Women Horlicks, Lactogen. • Out of 63% respondents using Fortified Energy Foods, 20% consume regional products like Raggi Malt, Raggi Hittu, Chatua, Chudda.

The household surveys also assessed the consumers' perception of the available Fortified Energy Food across the following parameters:

- Affordability
- Accessibility and
- Willingness to buy

The key findings related to affordability of the available Fortified Energy Food are as given in Table 15

- ~46% perceive products to be expensive and they can-not buy or expensive and not affordable
- ~43% perceive products to be expensive or expensive and affordable
- Perception around affordability across income segment is provided below:
  - INR 1,000 to INR 10,000: ~51%
  - INR 10,000 to INR 30,000: ~47%
  - INR 30,000 to INR 60,000: ~12%

Table 15: Respondent's experience on affordability of currently used Fortified Energy Foods

Monthly household income	1 (Expensive and cannot buy)	2 (Expensive and not affordable)	3 (Expensive)	4 (Expensive and affordable)	5 (Not expensive)
INR 1,000-INR 10,000 [113 respondents]	27%	24%	35%	7%	7%
INR 10,001 – INR 30,000 [66 respondents]	30%	17%	18%	24%	11%

INR 30,000 INR 60,000 [16 respondents]	6%	6%	31%	25%	31%

The key findings related to accessibility of the available Fortified Energy Food are as given in Table 16

- ~71% responded that products are easily available
- Perception around affordability across income segment is provided below
  - INR 1,000 to INR 10,000: ~70%
  - INR 10,000 to INR 30,000: ~71%
  - INR 30,000 to INR 60,000: ~88%

Table 16: Respondent's experience on accessibility of current Fortified Energy Foods

Monthly household income	1 (Not Available)	2 (Not available in local area)	3 (Available only at specific shops)	4 (Available in local market)	5 (Easily Available)
INR 1,000- INR 10,000 [113 respondents]	4%	5%	21%	45%	25%
INR 10,001 – INR 30,000 [66 respondents]	3%	5%	21%	30%	41%
INR 30,000 INR 60,000 [16 respondents]	0%	00%	13%	19%	69%

The key findings related to willingness to buy new Fortified Energy Food are as given in Table 17

- Health benefits: ~46% on the basis of health benefits derived from them
- Prescription of doctors: ~27%
- Priced lower: ~17%
- Perception around willingness to buy across income segment is provided below

  Income segment INR 1,000 to INR 10,000
  - Health benefits: ~43%
  - Prescription of doctors: ~28%

- Priced lower: ~16%

Income segment INR 10,000 to INR 30,000

- Health benefits: ~48%
- Prescription of doctors: ~26%
- Priced lower: ~18%

Income segment INR 10,000 to INR 30,000

- Health benefits: ~50%
- Prescription of doctors: ~19%
- Priced lower: ~19%

o Across income segments there is no variation in reasons for buying Fortified Energy Foods

Table 17: Respondent's response on willingness to buy the new Fortified Energy Food

Monthly household income	1 (Not interested to buy the product)	2 (May not buy the product)	3 (Willing to buy the product if cheaper)	4 (Willing to buy on prescription only)	5 (Willing to buy for health benefits)
INR 1,000- INR 10,000 [113 respondents]	4%	8%	16%	28%	43%
INR 10,001 – INR 30,000 [66 respondents]	3%	5%	18%	26%	48%
INR 30,000 INR 60,000 [16 respondents]	6%	6%	19%	19%	50%

Consultations with stakeholders including Medical Officers, Doctors, ASHAs and ANMs at PHC level corroborated the above insights. This stakeholder group stated that:

o Unhealthy dietary intake and the gap in meeting nutritional needs of adolescent girls, expecting mothers and new mothers was the primary reason for malnourishment among children.\

o Lack of awareness about Fortified Energy Food in the market place and the benefits derived from consumption of the same was cited to be key reason for non-consumption.

- Dependency on traditional food practices due to expensive Fortified Energy Foods in the market place was the other main reason for non-consumption.

- Affordability and accessibility of Fortified Energy Food will improve the health and nutrient intake of the people, especially children and women.

To conclude, target group for such an intervention can be narrowed down to households with monthly income in the range of INR 1000-10000, as monthly expenditure on food for these households is ~60% of their monthly income limiting their purchasing power.

Also, nutrient intake of these households is lower than the households with monthly income in the range INR 10000 – 30000 or INR 30000 – 60000, for same level of expenditure, making availability of low cost Fortified Energy Food even more important for them.

The latent need for low cost Fortified Energy Foods was clearly observed amongst the above segmented target group to address the issues on dietary intake provided awareness is created and accessibility through appropriate distribution channel is established.

4 Assessment for Availability and Accessibility

Objective - Studying the present availability of low cost Fortified Energy Foods for infants, women, adolescents, the elderly and sick among BPL families, and their accessibility for both urban and rural families

Assessment of the supply side includes observations based on discussions with Manufacturers, Distributors and Retailers. These discussions provide insights related to the value chain of Fortified Energy Foods and related factors such as availability and accessibility of products, channel margins, customer preferences, and key success factors related to the product.

Current product offerings in the market and availability of low cost Fortified Energy Foods

The market currently lacks commercially available low cost Fortified Energy Foods although there is a clear gap for the product in the market. Since the product is not available in the market, there is no defined route to market (accessibility of product) for low cost Fortified Energy Foods for rural and urban markets. The Fortified Energy Food products currently commercially available, such as malt and protein based Health Food Drinks (HFDs), do not qualify as low cost products because of their high price points, while products manufactured by local players are low on nutritional content. Other energy foods such as RUTFs and locally prepared fortified energy foods do not have retail distribution, and are distributed by public bodies.

The current portfolio of products, which can be classified under the universe of Fortified Energy Foods, include the categories below, and their descriptions and features have been provided in Table 18:

- Health food drinks (HFDs): Fortified Energy Foods including malt and protein based milk powders
- Local products manufactured by regional players: These are food products based on regional diets and food preferences of people in different states, and include products such as Chudda or Chatua (Rice cereal) powders. Eg – Both Chudda and Chatua powders are available in Orissa, while Chatua is also used in Uttar Pradesh
- RUTFs (Ready to eat therapeutic foods): These products are meant for prescription based consumption by people suffering from Severe Acute

Malnourishment (SAM). They are manufactured by private manufacturers who supply them to public bodies such as UNICEF or state governments

- Locally prepared fortified foods: These include local preparations such as fortified upma, poha or laddoos, which are distributed free of cost by local public bodies such as NGOs, hospitals, and state governments through Aanganwadis

Table 18: Fortified Energy Foods Categories & Features

Product Category	Product Description	Product Features
Health food drinks (HFDs)	• This category comprises malt or protein based powders consumed along with milk e.g. Bournvita & Horlicks • These are most commonly consumed Fortified Energy Foods, and are available across most of the grocery stores and pharmacies • This category has witnessed the emergence of niche premium products that are targeted towards specific age groups e.g. Protinex, Women's Horlicks, Mother's Horlicks, and Bournvita Little Champs • ~ 40 – 50% of the population has access to these products	• The bigger stock keeping units of these products (500gm and 1 kg) are expensive for poor and lower middle class consumers to purchase regularly (A 500gm version of Bournvita costs INR 200, while niche brands such as Protinex or Women & Protein Horlicks start from INR 250 and may extend up to INR 500) • Poor and lower middle class consumers cannot afford these, and hence go for smaller stock keeping units such as 75gm and 200gm, for irregular need based consumption • As a result, these products cannot be classified as low cost products
Local products manufactured by regional players	• This category comprises of food products based on regional diets and food preferences, and are made from locally available food products that are commonly consumed by the people residing in those states, such as chudda powder (rice cereal) in Orissa, and chatua in some states • These products are manufactured and distributed by regional players, and cater to a limited market of the state in which it is manufactured, and a few nearby states	• Relatively cheaper in comparison to malt and protein based products (health food drinks) e.g. 500gm packet of a chatua powder costs INR 70 • Although these products can be classified as low cost, they lack in overall benefits provided by low cost Fortified Energy Foods These products are also perceived to be inferior and are used as a cheaper version of the malt and protein based products available in the market

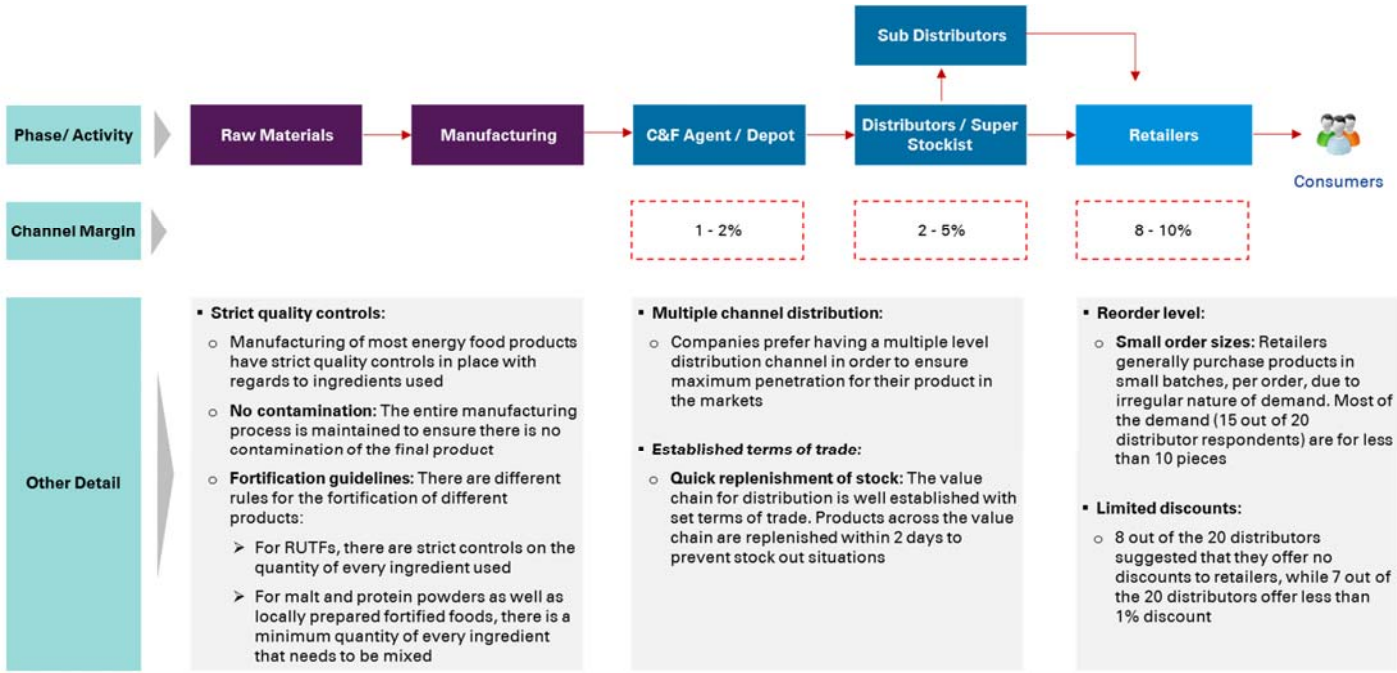
	• ~ 20 – 30% of the population has access to these products	
RUTFs (Ready to eat therapeutic foods)	• RUTFs are ready to eat pastes that are generally administered to people suffering from Severe Acute Malnourishment (SAM), and generally contain ingredients such as roasted peanuts, milk powder, sugar, non-hydrogenated vegetable oil, emulsifier, and vitamin mineral premix. • Along with RUTFs, there are also supplementary foods that are similar to RUTFs but have a lesser fortification of Vitamin Mineral premix. These are generally administered to Moderately Acutely Malnourished (MAM) people • Both RUTFs as well as supplementary foods serve as emergency or therapeutic foods to be administered to malnourished people, especially children based on a prescription • ~ 5-10% of the population has access to these products	• These products are not available commercially at grocery stores or pharmacies, and are generally administered through government workers to the designated population of affected people • There are several companies in India that manufacture such products and supply them to government agencies or public bodies such as UNICEF, for their specific nutrition programs, on a contractual basis
Locally prepared fortified foods	• Most states in India have local preparations that are often used as Fortified Energy Foods, especially in rural areas where people do not have the spending capacity to purchase commercially available Fortified Energy Foods • These include products such as fortified laddoos, upma, poha, etc. • ~ 10 – 20% of the population has access to these products	• These preparations are also not available commercially. They are either prepared at homes for own consumption, or by local public bodies including Aanganwadis, local hospitals, NGOs, to be distributed at their centers free of cost, to the identified target groups • In addition, there are also certain private players that manufacture and provide these products to state governments, to be distributed through their programs

Key findings related to manufacturing, distribution, and retailing

The assessment of the current industry structure of Fortified Energy Foods, is based on primary interactions with supply side stakeholders covering manufacturers, distributors, and retailers, the details of which are furnished in annexure 2 of vol. 2 of this report. The annexures furnished detailed inputs captured across villages, tribal, and urban backward areas across 5 states. The interactions were also carried out with manufacturers and distributors of different types of Fortified Energy Foods. The retail channels covered included kirana stores, hand carts, pharmacies, and supermarkets.

- **Value chain**
  - Health Food Drink companies such as Cadbury, GSK Consumer Healthcare, Abbott, Nestle, etc. have an integrated value chain from sourcing to point of retail
  - Regional players manufacturing local products have a localized set-up across the value chain
  - Any low cost Fortified Energy Food introduced in the market would have distributed demand. To address this demand a localized set-up with regional sourcing of raw materials and decentralized manufacturing, using a distribution structure comprising of direct coverage and controlled distribution, along with use of regional ATL channels to promote the product is proposed

Figure 9: Value chain of Fortified Energy Foods



- **Product manufacturing**
  - Currently, manufacturers like Cadbury, GSK Consumer Healthcare, Abbott, Nestle, etc., are primarily producing Fortified Energy Foods that are targeted at the premium consumer segments, or products that lack fortification
  - Very few regional manufacturers like SD Real Foods and Ruchi Foodline have introduced low cost Energy Foods but not fortified due to lack of awareness on fortification and possible benefits with limited additional costs on account of fortification
  - Manufacturers of products like RUTFs and locally prepared fortified foods, prefer operating in a Business to Business environment, wherein they would receive a fixed price for supplying a certain quantity, without the risk of having to make significant investments required in the retail distribution. Such manufacturers do contract manufacturing for public bodies such as a state governments or UNICEF. The export volume data is available for products classified as per the Harmonized System (HS) codes. There is no specific export data available for low cost Fortified Energy Foods as the export volumes available under these codes are not classified as fortified energy foods due to the lack of a standard definition of these products under the HS codes. The total volumes exported in 2017/18, for the different product categories as per the most appropriate HS codes is ~97,000 MT out of which ~20 – 25% were for RUTF products which are supplied to UNICEF and other agencies such as International Committee of the Red Cross, Save the Children Fund, Pan American Health Organization, etc.
  - There are currently no low cost Fortified Energy Food manufacturers addressing the retail market targeting the poor and lower middle class consumers
  - The detailed observations related to the manufacturers are furnished in annexure 2 of vol.2 of this report
  - Ideally, regional FMCG players and MSMEs in the food sector, which have a strong regional presence with an existing infrastructure are the most appropriate for launching low cost Fortified Energy Foods
- **Product formulation**
  - Fortified Energy Foods are preferred by consumers in the powdered form that could be mixed with milk or water, which was ascertained by the retail shelf space that they occupied. The other forms like biscuits, bars, and ready drinks had relatively less shelf space allocated which indicated lower demand in comparison to powdered form. This is also corroborated by consumer surveys which highlighted that 62% of the respondents

preferred having Fortified Energy Foods in the powder form that could be mixed with milk or water. It was also observed that the depth of the stocking of powdered form was largely malt and protein based

- The current products available in the market have high distribution reach and visibility, which drives consumer's awareness about the health benefits of these products and thereby driving demand for these products
- Any product introductions of low cost Fortified Energy Food preferably should be done in the protein based powder form

- **Product quality**
  - Health Food Drinks like Bournvita, Horlicks, Complan, etc., available in the market are high on quality because of their nutritional content, but are expensive for poor and lower middle class consumers
  - Local products manufactured by regional players such as Chudda and Chatua powder, are perceived to be of inferior quality leading to limited acceptability amongst the consumers. Distributors and retailers cited limited consumer preference and lack of demand as the reason for not stocking these local products
  - Any product introductions of low cost Fortified Energy Food should be clearly positioned as fortified with nutritional benefits leading to being positioned as high quality among the poor and lower middle class consumers
- **Taste of product**
  - Chocolate and fruit based tastes are most preferred for Fortified Energy Foods. Drinks like Bournvita and Horlicks, which have chocolate flavor, are preferred by target consumers, especially children, and hence influence their buying behavior
  - Any product introductions of low cost Fortified Energy Food preferably should be launched in chocolate or fruit based flavors
- **Price**
  - Health Food Drinks are priced in excess of INR 200 for a 500gm pack, which makes them expensive for poor and lower middle class consumers, leading to limited and irregular demand for these products
  - Local products manufactured by regional players are economically priced between INR 70 – 80 for a 500gm pack, but are not fortified
  - Any product introductions of low cost Fortified Energy Food should be priced in the range of ~ INR 50 - 60/ Kg to the distributor

- **Pack size**
  - Depending on the socio-economic profile of the catchment, demand of stock keeping unit sizes vary with pockets of higher income seeing higher sales of larger packs
  - 500gm packets of Health Food Drinks are priced in excess of INR 200, which makes their regular purchase a challenge for poor and lower middle class consumers
  - Any product introductions of low cost Fortified Energy Food should have standard industry stock keeping unit sizes of 250gm, 500gm, and 1kg. In addition, smaller stock keeping unit sizes such as 75gm which are affordable for poor and lower middle class consumers, should also be considered so as to have per serving cost of less than INR 10 / -
- **Product placement**
  - Health Food Drinks have good in store visibility which contributes to increased awareness and improved demand. In addition, the supply chain of these products are designed in such a way that there are no stock out situations
  - Local products manufactured by regional players do not have deep distribution reach, and hence have limited availability across retail stores, which impacts their demand
  - Any product introductions of low cost Fortified Energy Food need to have strong in store availability, supported by a deep distribution set-up and a strong supply chain, which prevents stock outs
- **Advertising & Promotion**
  - Companies manufacturing Health Food Drinks invest heavily in advertising & promotion, which increases consumer awareness about these products and their health benefits, driving demand for the products. Health food companies invest heavily in advertisements through TV and newspapers, which play an important role in improving awareness and influencing consumer demand
  - Local products manufactured by regional players have limited spend on advertising & promotion due to financial constraints, which in turn affects the brand awareness, access to retail shelf space, and consumer demand
  - Any product introductions of low cost Fortified Energy Food needs to invest in relevant advertising & promotion in order to have strong brand awareness and high visibility among the poor and lower middle class consumers

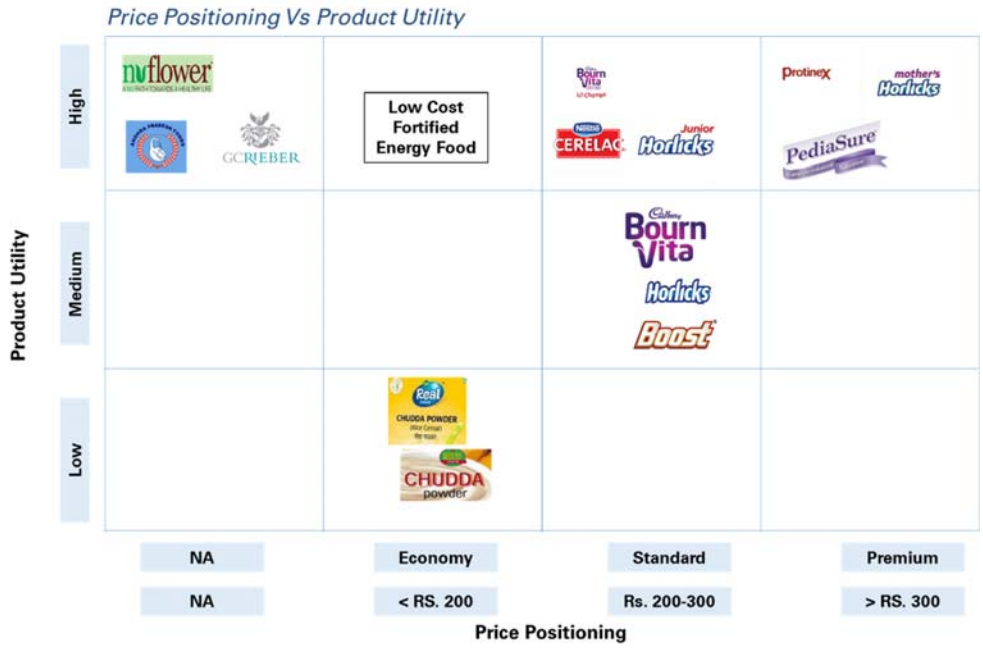
- **Investments**
  - Existing manufacturers have large scale infrastructure that have high overhead costs, which are feasible for premium Health Food Drinks available in the market
  - Local products manufactured by regional players have small scale infrastructure with low overheads, but lack the prescribed quality standards
  - Based on interactions with the existing manufacturers, the investment required to create a manufacturing capacity of 60,000 MT would require an investment of INR 50-60 Cr for land, plant & machinery, and civil structures
  - Existing manufacturers perceive that the return on investment will be low and also will have a longer gestation for break-even in comparison to alternate investment opportunities
  - Since low cost Fortified Energy Food is targeted at poor and lower middle class consumers, the manufacturers perceive that there would be challenges regarding consistent demand leading to higher risk on the investment

Considering all the above factors, the product positioning of low cost Fortified Energy Food was evaluated on the basis of Price and Product Utility.

Proposed positioning of low cost Fortified Energy Foods:

The positioning of low cost Fortified Energy Foods has been analyzed considering price and product utility, defined as the number of different vital nutrients offered by the product. The Pricing has been categorized across Economy, Standard, and Premium, and Product Utility has been categorized across Low, Medium, and High. An illustrative list of brands categorized in table 18 are mapped across these parameters in the illustration shown below:

Figure 10: Price Positioning vs Product Utility



Based on the above matrix on product utility and price positioning, the following conclusions can be drawn:

- RUTFs - High product utility, price is not applicable as the products are not available in retail markets. They also cater to
- Health food drinks - High product utility but are expensive for poor and lower middle class customers, as the price is more than INR 200 for a 500gm pack
- Local products manufactured by regional players – Low product utility though price range is less than INR 200 for a 500gm pack
- Low cost Fortified Energy Foods - High product utility and price range is less than INR 200 for a 500gm pack

Based on the above findings it can be clearly concluded that there is a gap in the marketplace for low cost Fortified Energy Foods, which offer a unique positioning for the target group of poor and lower middle class consumers. In addition, low cost Fortified Energy Foods could address a wide group of target consumers such as infants, women, adolescents, the elderly and sick.

Further, the analysis of current food and FMCG companies who have successfully penetrated the rural markets with non – traditional products was carried out to draw inferences enabling to draw appropriate route to market strategic levers. The key success factors critical to penetrate rural and low income urban markets were also captured from the analysis.

Cavinkare – Chik Shampoo - Launched shampoos in sachets to tap into the rural market

Cavinkare's strategy of launching Chik shampoo in sachets, is an example of an innovative rural marketing strategy. Traditionally, shampoos in India were targeted towards the urban consumers that had the purchasing power to spend on personal care products. Therefore, companies sold these products in big bottles, and only from fancy stores. The rural market and smaller retail points such as kirana stores, had not been explored.

Cavinkare approached the rural market which was not a traditional market for shampoos. As per the study conducted by Cavinkare, an average rural family had roughly 5 adults who washed their hair once a week. In addition, the cost of one wash was INR 2. Hence, the cost of washing hair for one person per month was INR 8, and for a family was INR 40, which was not economical.

Cavinkare addressed this by bringing the cost of one wash down to 50 paise by launching small one time use sachets of shampoo. These sachets were specifically targeted at the rural areas, and were made available at local kirana stores and roadside shops, which earlier did not stock these products. In addition, Cavinkare also conducted free hair wash demonstrations for the rural consumers, to make them aware of the benefits of the product.

Thereby, by lowering the cost of consumption of a product and making it affordable, along with displaying the benefits of using the product, Cavinkare was able to penetrate the rural market with a non – traditional product that was not used before.

HUL – Project Shakti - Developed a cost-efficient distribution and sales network in rural areas by empowering rural women

One of India's leading Consumer Goods Company – Hindustan Unilever (HUL), developed a unique one of its kind distribution set-up wherein they empowered rural women to become the distributors of their products, thereby enabling them to enhance the distribution reach of their products in rural areas which was earlier a challenge for most Consumer Good companies.

Traditionally, most Consumer Goods companies would struggle to reach rural markets, especially for non-traditional items such as health and beauty products. This was due to the fact that most companies use traditional media channels, which have a limited reach, and hence may not be the most cost effective. As a result, HUL developed a model wherein they appointed local female entrepreneurs, known as Shakti Ammas, to deliver the products in villages and also act as brand builders. HUL would deliver their products to central locations from where the women would take the delivery and further distribute the products. The set-up for this model was similar to a Hub & Spoke model.

Therefore, by adopting a unique marketing strategy, which was earlier not adopted at such a large scale, HUL was able to open and expand their base in a lesser explored market, thereby boosting their rural sales.

The **key success factors** captured from the above case analysis are:

- **Minimal cost of consumption**
  - In order to make the customers try a new product and gain acceptance, the cost of consumption of one serving needs to be kept at a minimum.
  - This was one of the major success factor behind Cavinkare's strategy of launching shampoos in sachets, thereby bringing down the cost of one wash.
  - The existing Fortified Energy Foods available in the market have found limited acceptance in the poor and lower middle class segment as their cost of one serving is too high when consumed on a regular basis.
- **Right sizing of stock keeping units**
  - Rural consumers prefer cost-effective stock keeping units, because of the irregular nature of their demand. Personal products, especially health and beauty products, do not have a high repeated consumption in the rural areas. Hence, smaller stock keeping unit sizes are more cost effective.
  - This was a key reason why shampoos introduced by Cavinkare in sachet gained acceptance with the rural consumer, as it enabled economical need based consumption.

- As a result, larger stock keeping unit sizes of malt based powders like 500gm and 1kg, have had limited success in rural areas, while smaller stock keeping units such as 75gm and 200gm have greater acceptance.

- **Greater on – ground awareness**
  - Creating greater on – ground awareness about the product is important as it helps in informing the customers about the benefits of the product. Since education levels in rural areas are low, only exposure to advertisements cannot help generate demand. The consumers need to be made aware of the benefits of the product through personalized demonstrations and awareness programs.
  - Cavinkare followed this strategy by holding shampoo demonstrations in villages, in order to make people appreciate the benefits of washing their hair with a shampoo.
  - Several Fortified Energy Food brands still rely heavily on commercial media campaigns, thereby missing out on attracting rural consumers.

- **Deep distribution networks**
  - In order to serve rural markets, companies need to adopt deep penetrative distribution networks to ensure the products have a wide reach. Rural markets have point of sales located at scattered locations, and hence need a wide distribution network to address these dispersed retail points.
  - Several FMCG companies like Dabur, HUL, and Colgate, have ensured they develop a strong distribution network to cater to rural markets, thereby creating strong product visibility. While HUL reaches ~ 6.5 million outlets throughout the country, Dabur has a reach of nearly ~ 6.3 million outlets, while Colgate reaches ~ 5.5 million outlets.

- **Positioning of the product as cost effective and aspirational, and not as an inferior alternative**
  - The rural consumers are aspirational and want to purchase the best products especially for their children. Cheaper variants of existing products are often perceived as inferior quality.
  - While launching a new product, especially food products, one has to be careful that a product is not positioned as an inferior alternative of an existing product, but rather as a cost effective alternative, which even the urban customers can consume.

To conclude, presently there is no low cost Fortified Energy Food available in the market, due to which there is no defined route to market (accessibility of the product) for the target population. The different Fortified Energy Foods that are currently available in the market have certain limitations that prevent them from being classified as low cost Fortified Energy Foods. These include:

- Health food drinks (HFDs): These are malt and dairy based Fortified Energy Foods that are available to ~40-50% of the population. These products are expensive, and hence cannot be classified as low cost
- Local products manufactured by regional players: These are food products based on regional diets and food preferences. Although these products are low cost, they are low on nutritional content
- RUTFs (Ready to eat therapeutic foods): These are Fortified Energy Food that are not distributed in the retail markets and are generally administered as emergency or therapeutic foods to malnourished people, especially children based on a prescription
- Locally prepared fortified foods: These preparations are also not available in retail markets. They are either prepared at homes for own consumption, or by local public bodies including Aanganwadis, local hospitals, NGOs, to be distributed at their centers free of cost, to the identified target groups

5 Correlation analysis between prevalence of malnutrition and the lack of low cost Fortified Energy Foods in the market

Objective - Examining the correlation between malnutrition and the lack of low cost Fortified Energy Foods in the market.

KPMG analysis indicates inadequate dietary pattern as one of the major concern. The gap between the nutrition intake and Recommended Dietary Allowance (RDA)[5] was observed across all household respondents and an estimate of the gap is provided in Table 20 (urban areas) and Table 21 (rural areas) below.

For the purpose of comparing dietary intake of respondent group, with the RDA, occupation of the respondent was categorized as heavy, moderate or sedentary basis an estimate of physical exertion involved in the occupation. The categorization of occupation into heavy, moderate or sedentary in provided in Table 19 below:

Table 19: Classification of occupation as heavy, moderate or sedentary

Heavy	Moderate	Sedentary
Works in slaughter house	Welding	Work in a company
BMC worker	House wife	Trainer
Service	Shop worker	Tailor
Office worker/boy	Ship welding	Shop owner/worker
Migrant labor	Gardner	Teacher
Laborers	Sales man	Warden
House-help	Small Business	Retired teacher
Grocery	Hawkers	Ration shop
Farmers	Gardener	Guards
Farm labor	Furniture	Electronics shop
Daily wage labor	Darban	Construction contractor
Cleaner	Carpenter	Computer operator
Buffalo keeper		College professor
Goat rearing		Business
		Auto drivers

[5] The Indian Council of Medical Research (ICMR) has delineated recommended dietary allowances (RDA). The recommended dietary allowances (RDAs) are "estimates of nutrients to be consumed daily to ensure the requirements of all individuals in a given population"

- **Analysis of dietary intake and its comparison with RDA**
  - Gap between RDA and caloric intake across urban and rural areas is provided in Table 20 and Table 21

    Heavy Physical Activity
    - Urban Areas: 63% for males and 48% for females
    - Rural Areas: 68% for males and 55% for females

    Moderate Physical Activity
    - Urban Areas: 37% for males and 32% for females
    - Rural Areas: 49% for males and 32% for females

    Sedentary Physical Activity
    - Urban Areas: 37% for male and 19% for females
    - Rural Areas: 31% for males and 32% for females

  - Gap in caloric intake is higher for males and females involved in Heavy physical activity for both urban and rural areas.

  - Across the categories of physical activity, gap in nutrient intake is higher in urban areas as compared to rural areas.

  - Gap between RDA and protein intake across urban and rural areas is provided in Table 20 and Table 21

    Heavy Physical Activity
    - Urban Areas: 23% for males and 2% for females
    - Rural Areas: 35% for males and 21% for females

    Moderate Physical Activity
    - Urban Areas: 1% for males and 3% for females
    - Rural Areas: 17% for males and 2% for females

    Sedentary Physical Activity
    - Urban Areas: 16% for male and 1% for females
    - Rural Areas: 5% for males and 20% for females

  - Gap between RDA and calcium intake across urban and rural areas is provided in Table 20 and Table 21

    Heavy Physical Activity
    - Urban Areas: 38% for males and 33% for females
    - Rural Areas: 58% for males and 44% for females

    Moderate Physical Activity
    - Urban Areas: 34% for males and 35% for females
    - Rural Areas: 41% for males and 44% for females

    Sedentary Physical Activity
    - Urban Areas: 37% for male and 40% for females
    - Rural Areas: 30% for males and 46% for females

- Gap between RDA and iron intake across urban and rural areas is provided in Table 20 and Table 21

  Heavy Physical Activity
  - Urban Areas: 26% for males and 35% for females
  - Rural Areas: 41% for males and 43% for females

  Moderate Physical Activity
  - Urban Areas: 10% for males and 35% for females
  - Rural Areas: 35% for males and 39% for females

  Sedentary Physical Activity
  - Urban Areas: 22% for male and 38% for females
  - Rural Areas: 13% for males and 46% for females

- Gap in energy, protein, calcium and iron intake is similar to major food related concern highlighted in NIN Dietary Guidelines[6] that includes insufficient intake of foods (nutrients).

[6] These guidelines are issued by National Institute of Nutrition (NIN). As per these guidelines, malnutrition is a lifelong issue, as per the report, around 22% of the newborns have low birth weight which is due to extensive maternal malnutrition. This carries through in their adult life in the form of lower Body Mass Index (BMI) which can cause Chronic Energy Deficiency (CED), if the BMI is below 18.5. The common nutrition problems prevalent especially in rural areas are, Protein Energy Malnutrition (PEM), micronutrient deficiencies such as Iron Deficiency Anemia (IDA).

Table 20: Gap in nutrient intake and RDA – Urban Household Respondents

Urban	Measure	Unit	Intake				Total	RDA	Gap	%age Gap
			Breakfast	Lunch	Dinner	Other meal				
Male, Heavy	Energy	Kcal/Day	199.45	515.67	532.34	35.85	1283.33	3490	2206.67	63%
	Proteins	g/day	7.96	17.84	19.12	1.35	46.27	60	13.73	23%
	Calcium	mg/day	59.92	134.34	157.81	18.54	370.62	600	229.38	38%
	Iron	mg/day	1.09	5.57	5.80	0.08	12.53	17	4.47	26%
Female, Heavy	Energy	Kcal/Day	239.87	641.71	569.981	29.79	1481.35	2850	1368.65	48%
	Proteins	g/day	8.48	22.49	21.683	1.11	53.76	55	1.24	2%
	Calcium	mg/day	93.86	140.43	143.426	21.64	399.35	600	200.65	33%
	Iron	mg/day	1.62	6.20	5.514	0.33	13.66	21	7.34	35%
Male, Moderate	Energy	Kcal/Day	256.47	697.67	714.81	48.23	1717.17	2730	1012.83	37%
	Proteins	g/day	7.80	24.70	25.49	1.37	59.36	60	0.64	1%
	Calcium	mg/day	104.67	133.3	133.99	25.67	397.65	600	202.35	34%
	Iron	mg/day	3.19	5.86	5.93	0.39	15.38	17	1.62	10%
Female, Moderate	Energy	Kcal/Day	317.37	618	563.77	18.42	1517.74	2230	712.26	32%
	Proteins	g/day	10.75	22	20.41	0.50	53.61	55	1.39	3%
	Calcium	mg/day	102.00	130	148.08	10.02	389.87	600	210.13	35%
	Iron	mg/day	1.80	6	6.14	0.12	13.70	21	7.30	35%
Male, Sedentary	Energy	Kcal/Day	293.48	582.70	550.30	41.37	1467.84	2320	852.16	37%
	Proteins	g/day	9.53	20.14	19.75	0.90	50.31	60	9.69	16%
	Calcium	mg/day	102.67	138.00	118.57	17.83	377.06	600	222.94	37%
	Iron	mg/day	2.01	6.13	4.94	0.24	13.32	17	3.68	22%
Female, Sedentary	Energy	Kcal/Day	323.72	639.95	543.98	28.25	1535.90	1900	364.10	19%
	Proteins	g/day	10.82	22.56	20.23	0.78	54.39	55	0.61	1%
	Calcium	mg/day	91.55	131.81	117.55	18.40	359.31	600	240.69	40%
	Iron	mg/day	2.18	5.90	4.86	0.14	13.08	21	7.92	38%

Table 21: Gap in nutrient intake and RDA – Rural Household Respondents

Rural	Measure	Unit	Intake				Total	RDA	Gap	%age Gap
			Breakfast	Lunch	Dinner	Other meal				
Male, Heavy	Energy	Kcal/Day	215.86	430.00	415.12	53.21	1114.18	3490	2375.82	68%
	Proteins	g/day	6.46	15.64	15.17	1.56	38.84	60	21.16	35%
	Calcium	mg/day	59.43	81.34	85.22	28.60	254.59	600	345.41	58%
	Iron	mg/day	1.86	3.86	3.90	0.42	10.04	17	6.96	41%
Female, Heavy	Energy	Kcal/Day	224.08	472.41	524.08	50.69	1271.26	2850	1578.74	55%
	Proteins	g/day	6.78	16.07	19.17	1.63	43.65	55	11.35	21%
	Calcium	mg/day	80.06	93.77	127.94	32.01	333.78	600	266.22	44%
	Iron	mg/day	2.20	4.52	4.83	0.43	11.98	21	9.02	43%
Male, Moderate	Energy	Kcal/Day	170.97	561.7	519.77	132.87	1385.27	2730	1344.73	49%
	Proteins	g/day	4.25	20.7	19.02	5.55	49.52	60	10.48	17%
	Calcium	mg/day	59.33	102.0	105.03	87.00	353.36	600	246.64	41%
	Iron	mg/day	1.45	4.3	4.42	0.89	11.02	17	5.98	35%
Female, Moderate	Energy	Kcal/Day	233.15	606.81	589.639	87.21	1516.81	2230	713.19	32%
	Proteins	g/day	7.18	22.10	22.62	1.79	53.68	55	1.32	2%
	Calcium	mg/day	42.94	116.68	151.885	22.25	333.75	600	266.25	44%
	Iron	mg/day	1.88	5.09	5.061045	0.71	12.74	21	8.26	39%
Male, Sedentary	Energy	Kcal/Day	252.90	645.44	619.13	85.03	1602.50	2320	717.50	31%
	Proteins	g/day	7.27	24.31	22.81	2.34	56.74	60	3.26	5%
	Calcium	mg/day	80.07	165.47	143.40	31.13	420.07	600	179.93	30%
	Iron	mg/day	3.48	5.68	5.14	0.50	14.80	17	2.20	13%
Female, Sedentary	Energy	Kcal/Day	239.90	517.83	453.41	49.9	1261.00	1900	639.00	34%
	Proteins	g/day	8.15	18.43	16.14	1.2	43.94	55	11.06	20%
	Calcium	mg/day	109.13	98.30	100.41	16.2	324.02	600	275.98	46%
	Iron	mg/day	2.49	4.19	4.20	0.4	11.30	21	9.70	46%

- Gap between RDA and nutrient intake across the income segments is provided in Table 22.
- Variation in gap across income segments and geographical presence is provided below:

Income Segment of INR 1,000 to INR 10,000 and Urban areas

- Energy : 18% - 64%
- Protein : 0% - 25%
- Calcium : 31% - 40%
- Iron : 8% - 36%

Income Segment of INR 10,000 to INR 30,000 and Urban areas

- Energy : 21% - 62%
- Protein : 2% - 22%
- Calcium : 32% - 44%
- Iron : 12% - 42%

Income Segment of INR 1,000 to INR 10,000 and Rural areas

- Energy : 32% - 69%
- Protein : 13% - 55%
- Calcium : 13% - 58%
- Iron : 13% - 47%

Income Segment of INR 10,000 to INR 30,000 and Rural areas

- Energy : 23% - 61%
- Protein : 26% - 15%
- Calcium : 43% - 58%
- Iron : 17% - 48%

Table 22: Gap in nutrient intake and RDA across income segments

	Measure	Unit	Gap in Intake (Urban)		Gap in Intake (Rural)	
			INR 1,000-10,000	INR 10,000 –30,000	INR 1,000-10,000	INR 10,000 –30,000
Male, Heavy	Energy	Kcal/Day	64%	62%	69%	61%
	Proteins	g/day	25%	16%	36%	26%
	Calcium	mg/day	40%	32%	58%	47%
	Iron	mg/day	27%	22%	42%	26%
Female, Heavy	Energy	Kcal/Day	47%	50%	55%	58%
	Proteins	g/day	1%	8%	20%	23%
	Calcium	mg/day	35%	33%	45%	43%
	Iron	mg/day	36%	34%	42%	48%
Male, Moderate	Energy	Kcal/Day	36%	39%	50%	48%
	Proteins	g/day	3%	-3%	17%	18%
	Calcium	mg/day	31%	39%	41%	42%
	Iron	mg/day	8%	12%	44%	17%
Female, Moderate	Energy	Kcal/Day	31%	33%	32%	32%

	Proteins	g/day	2%	4%	6%	-2%
	Calcium	mg/day	32%	44%	31%	58%
	Iron	mg/day	34%	38%	33%	46%
Male, Sedentary	Energy	Kcal/Day	30%	43%	35%	23%
	Proteins	g/day	9%	22%	11%	-7%
	Calcium	mg/day	35%	35%	28%	39%
	Iron	mg/day	14%	28%	13%	17%
Female, Sedentary	Energy	Kcal/Day	18%	21%	35%	29%
	Proteins	g/day	0%	2%	22%	15%
	Calcium	mg/day	38%	43%	51%	34%
	Iron	mg/day	35%	42%	47%	38%

(Detailed Analysis on dietary intake has been undertaken for migrant workers and is presented in Annexure 5 of Vol. 2 of this report)

Further, ~70% respondents of this study do not consume meat and are dependent on plant based diets. NIN guidelines also state similar finding that a large proportion of the Indian population subsists on diets consisting mostly of plant foods with low nutrient bio-availability[7]. This high dependence on plant food with low nutrient bio-availability makes access to Fortified Energy Food essential to meet the RDA requirements in the diet. The current consumption levels of Fortified Energy Food is low (37.5% of respondents consume Fortified Energy Foods) and cost of the products currently available in the market is cited as one of reasons for low level of consumptions. About 70% of consumers (195) of Fortified Energy Food felt that they do not have purchasing power to buy the products and 71% of the non-consumers, who responded to the questions regarding Fortified Energy Food (223) cited pricing of such products as the reason for non-consumption. It was further observed during the visits that there is no low cost Fortified Energy Food available in the market. Thereby, necessitating a need for introducing low cost Fortified Energy Foods in the market.

[7] Dietary Guidelines For Indians (2011), National Institute for Nutrition, Indian Council of Medical Research

6 Assessment of Market Size for low cost Fortified Energy Foods

Objective - Estimating the size of the market for low cost Fortified Energy Foods.

The market size for low cost Fortified Energy Foods is a factor of (i) target population and (ii) suggested serving per day. The market size so estimated represents the total potential opportunity for low cost Fortified Energy Foods. The approach to estimate the target population is given as below:

Approach to estimating target population

- The findings from our consumer surveys suggest the target population – people falling in the poor and lower middle class segment, are classified as people having a monthly income of up to INR 10,000.
- The Ministry of Labour & Employment, Government of India in its 5th annual employment – unemployment survey for 2015 - 16, estimates the percentage of households in India in different income categories. The percentage of households earning up to INR 10,000 per month was used to benchmark the poor and lower middle class households for rural and urban areas. The national population data from 2011 Census was projected to 2018 at a CAGR of 1.2% for rural areas and 2.8% for urban areas, to estimate the population in 2018.
- The resultant target population, i.e. number of people in the poor and lower middle class category is ~883 million, out of which ~678 million reside in rural areas and ~205 million in urban areas, as presented in Table 23 below:

Table 23: Estimated total number of people in the poor and lower middle class category

	Rural (A)	Urban (B)	Total (A + B)
Total Population in 2011	833,748,852	377,106,125	1,210,854,977
Total Population in 2018 (2011 population grown at a CAGR of 1.2% for Rural and 2.8% for Urban)	904,476,940	457,525,589	1,362,002,529
Percentage of population in the poor & lower middle class category with annual earnings up to INR 10,000 per month	74.9%	44.9%	
Number of people in the poor & lower middle class category	**677,453,228**	**205,428,990**	**882,882,218**

Source: Census of India, 2011; Employment – unemployment survey, Ministry of Labour & Employment, Government of India

- Based on the **findings from the primary surveys of 520 household respondents**, the proportion of population willing to purchase a low cost Fortified Energy Food or have a higher probability to try the product if made available at the right price, is 92.8% for rural areas and 79.9% for urban areas.
- Applying these factors to the estimated number of people in the poor and lower middle class category gives the number of people in the poor and lower middle class category willing to buy low cost Fortified Energy Foods.
- The estimated number of people in the poor and lower middle class category willing to buy a low cost Fortified Energy Foods is ~793 million, out of which ~629 million reside in rural areas and ~164 million in urban areas, as shown in Table 24 below:

Table 24: Estimated total number of people in the poor and lower middle class category willing to purchase a low cost Fortified Energy Food

	Rural (A)	Urban (B)	Total (A + B)
Number of people in the poor and lower middle class category	677,453,228	205,428,990	882,882,218
Percentage of population willing to buy low cost Fortified Energy Foods	92.8%	79.9%	
Number of people in the poor and lower middle class category willing to buy low cost Fortified Energy Foods	**628,676,596**	**164,137,763**	**792,814,358**

Source: Household surveys conducted by KPMG

Estimating the suggested serving per day

The suggested serving per day for the low cost Fortified Energy Food is benchmarked to the recommendations of the Karnataka Comprehensive Nutrition Mission by age groups. The suggested serving per day for Infants is 60 gms, while for the rest of the population it is 105gms, as shown in Table 25 below:

Table 25: Category wise classification of estimated population and suggested serving per day

	Rural (A)	Urban (B)	Total (A + B)
Suggested Serving per day (in gms)			
- Infant Population	60	60	60
- Rest of the Population	105	105	105

** Note: For the purpose of this exercise we have referred to the suggested serving per day recommended by the Karnataka Comprehensive Nutrition Mission.*

Market Size for low cost Fortified Energy Foods

The market size for Low Cost Fortified Energy Foods for each relevant segment of the population is a factor of the segment population willing to buy the product (Table 24) and suggested serving per day for the segment (Table 25).

Approach

- The segment of population in the poor and lower middle class category willing to buy low cost Fortified Energy Foods is categorized as Infant and Rest of the population across Urban and Rural
- The suggested servings across populations are as per benchmarks based on recommendations of the Karnataka Comprehensive Nutrition Mission
- The demand by population segments is derived as the size of the segment population and suggested daily servings
- The total market opportunity for low cost Fortified Energy Foods is the total demand across population segments (infants and rest of the population). This market opportunity is estimated at ~29.1 million tonnes. The rural market is estimated at ~23.0 million tonnes (~79% of total annual demand) and the urban market is estimated at ~6.1 million tonnes, as presented in Table 26 below:

Table 26: Estimated total demand for low cost Fortified Energy Foods

	Rural (A)	Urban (B)	Total (A + B)
Number of people in the poor and lower middle class category willing to buy Fortified Energy Foods	628,676,596	164,137,763	792,814,358
- Infant Population (%)	10%	8%	
- Infant Population (C)	62,574,924	12,979,390	75,554,314
- Rest of Population (%)	90%	92%	
- Rest of Population (D)	566,101,672	151,158,373	717,260,045
Suggested Serving per day (in gms)			
- Infant Population (E)	60	60	60
- Rest of Population (F)	105	105	105
Total Demand per day (in tonnes) (G)	63,195	16,650	79,846
- Infants Population (C x E)	3,754	779	4,533
- Rest of Population (D x F)	59,441	15,872	75,312
Total Annual Demand (in tonnes) (G x 365)	23,066,237	6,077,393	29,143,631

To conclude,

- The target group for low cost Fortified Energy Foods is classified as poor and lower middle class, with a monthly income up to INR 10,000
- The estimated target population, i.e. number of people in the poor and lower middle class category is ~883 million people, out of which ~678 million people reside in rural areas and ~205 million people in urban areas
- Out of the total estimated target population, ~90% (92.8% for rural areas and 79.9% for urban areas) are willing to consume low cost Fortified Energy Foods. This estimated target population ~793 million people, out of which ~629 million people reside in rural areas and ~164 million people in urban areas
- The suggested serving per day for the low cost Fortified Energy Food, which varies according to the age group of the target population, is 60 gms for Infants, while for the rest of the population it is 105gms
- The resultant market opportunity derived from the two factors – (i) target population and (ii) suggested serving per day, is estimated at ~29.1 million tonnes. The rural market is estimated at ~23.0 million tonnes (~79% of total annual demand) and the urban market is estimated at ~6.1 million tonnes

7 Preferred or in-demand variants for low cost Fortified Energy Foods

Objective - Identifying and listing the most preferred or in-demand variants from the people for low cost Fortified Energy Foods

This chapter presents the variants of Fortified Energy Foods currently consumed by the respondents.

KPMG analysis indicates the following consumption pattern of Fortified Energy Foods:

- ~37.5% (out of 520) consume Fortified Energy Foods.
- ~68% of these respondents buy Fortified Energy Food and the rest are dependent on government-led initiatives.
- List of Fortified Energy Foods used across five states is provided below and detailed in Table 27 and Table 28.
    - Top 3 preferred variants across the states, in urban areas are provided below and detailed in table 27:

      Gujarat
        - Bournvita (~48%)
        - Cerelac (~19%)
        - Protein Powder (~14%)

      Karnataka
        - Horlicks (~37%)
        - Boost (~20%)
        - Bournvita (~13%)

      Maharashtra
        - Horlicks (~13%)
        - Protein powder (~13%)
        - Bournvita (~11%)

      Odisha
        - Horlicks (~37%)
        - Mother Horlicks (~11%)
        - Complan (~11%)
        - Cerelac (~11%)

      Uttar Pradesh
        - Bournvita (~33%)
        - Horlicks (~23%)
        - Chyawanprash (~22%)
    - Top 3 preferred variants across the states, in rural areas are provided below and detailed in table 28:

      Gujarat

- Bournvita (~35%)
- Horlicks (~26%)
- Protein powder (~13%)
- Chyawanprash (~13%)

Karnataka

- Horlicks (~22%)
- Bournvita (~17%)
- Boost (~15%)

Maharashtra

- Chyawanprash (~29%)
- Cerelac (~29%)
- Bournvita (~25%)

Uttar Pradesh

- Bournvita (~32%)
- Chyawanprash (~27%)
- Complan (~13%)

Table 27: Preferred variants- Urban areas

Product Consumed	Gujarat	Karnataka	Maharashtra	Odisha	Uttar Pradesh
Urban Areas					
Bournvita	48%	13%	11%	-	33%
Cerelac	19%	10%	7%	11%	-
Chyawanprash	5%	-	9%	5%	22%
Protein Powder – Protein X, Pro PL, Protodox	14%	7%	22%	9%	-
Complan	-	7%	11%	11%	19%
Horlicks	10%	37%	13%	37%	23%
Boost		20%	-	2%	-
Women Horlicks	-	7%	-	14%	-
Bournvita Little Champs			2%	-	-
Calcium Sandox			2%	-	-

Vitamin tablets			2%	-	-
Iron tablets				2%	-
PediaSure			2%	-	-
Lactogen				3%	-
Glucose biscuits			9%	-	-
Protein biscuits				1%	-
Farex				3%	-
Respondent doesn't know the brand			9%	-	-

Table 28: Preferred Variants - Rural areas

Product Consumed	Gujarat	Karnataka	Maharashtra	Uttar Pradesh
Rural Areas				
Bournvita	35%	17%	25%	32%
Cerelac	-	11%	29%	4%
Chyawanprash	13%	10%	29%	27%
Protein Powder – Protein X, Pro PL, Protodox	13%	11%	17%	
Complan	4%	1%		13%
Horlicks	26%	22%		5%
Power Vita	9%	-		
Boost		15%		
Dimageen				4%
Multi-vitamin Syrups		10%		
Iron Syrup				11%

To conclude, across states (urban and rural areas), most preferred variants are protein powder and health food drinks:

- Protein Powder: ~28%
- Horlicks: ~21%
- Cerelac: ~19.5%
- Bournvita: ~19%
- Lactogen: ~6%

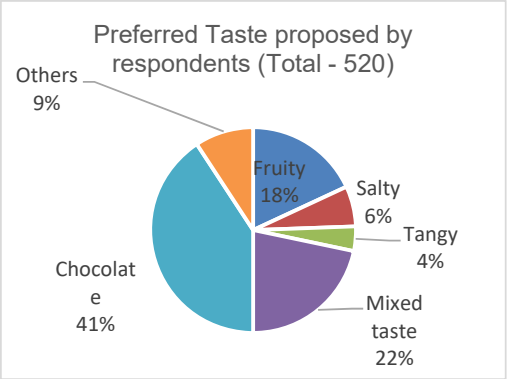
Additionally, preferences of respondents (520) from Fortified Energy Foods are provided in following sub-section, on below-mentioned parameters:

- preferred taste,
- packet size,
- form and
- price

The key findings related to the preferences for Fortified Energy Food are as given below:

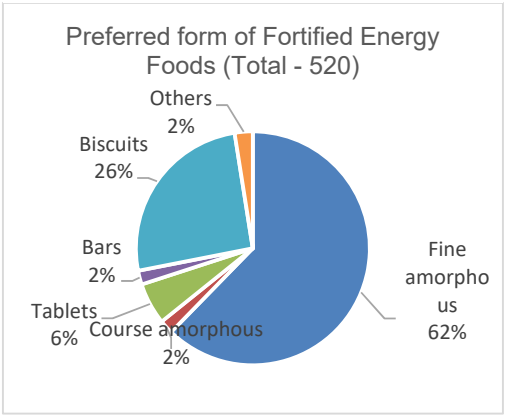
- **Taste:** Figure 11 presents the preferred taste for Fortified Energy Food. 40% prefer chocolate flavor, 21% prefer mixed flavor and 18% prefer fruity flavor and 9% suggested new flavors such as coffee, lemon, sweet and vanilla.

Figure 11: Preferred Taste of Fortified Energy Food



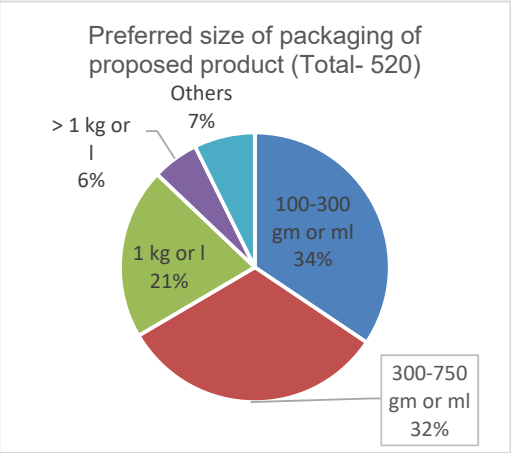
- **Preferred form:** Figure 12 presents the preferred form for Fortified Energy Food. 62% prefer fine amorphous form generally mixed with water or milk, 26% prefer biscuits and 6% prefer tablets. 2% coarse amorphous form (mixed with vegetables, fruits, water or juice).

Figure 12: Preferred Form of Fortified Energy Food



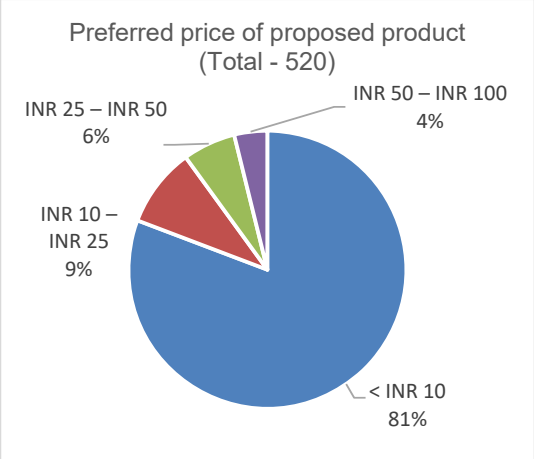
- **Size of packaging:** Figure 13 presents the preferred size for packaging of Fortified Energy Foods. 34% prefer 100 -300 gm packets, 32% prefer 300 – 750 gm packets and 20% prefer 1 kg packets. 7.31% responded that they prefer small packets/pouches.

Figure 13: Preferred size of packaging



- **Price:** Figure 14 provides the preferred price for one time consumption. 80% prefer price to be less than INR 10, 9% prefer price to be between INR 10 – INR 25 and 6% prefer price to be between INR 25 – INR 50.

Figure 14: Preferred price of Fortified Energy Food



8 Roadmap for facilitating private sector participation

Objective - Examining the reasons why in spite of a large potential market, which would make it a viable business proposition, there is still no major initiative from the private food industry sector to enter the market for low cost Fortified Energy Foods.

The estimated potential demand for low cost Fortified Energy Foods in India for poor and lower middle class consumers is about ~29.1 million tonnes per annum, but there are no organized private player addressing this opportunity.

Based on interactions with various stakeholders, it is assessed that there is awareness of the prevailing need gap for Low Cost Fortified Energy Foods in general as well as the situation with regards to addressing malnutrition. There is a need for generating awareness amongst the private players on low cost Fortified Energy Foods in order to encourage participation from them, which would help address this large opportunity.

Regional FMCG players & MSMEs in food businesses are the most relevant to address the market opportunity in low cost Fortified Energy Foods

Regional FMCG players and MSMEs in the food sector are the most appropriate players to address the vast market opportunity for low cost Fortified Energy Foods due to their strong regional presence, and are thus better equipped to serve scattered markets. Other players such as large corporates and small and medium enterprises dependent on government and other channels, have certain limitations that have prevent them from addressing the opportunity. The following factors have been identified as reasons for lack of participation by these existing players manufacturing fortified energy foods currently available in the market:

a) Large corporates manufacturing health food drink products target high income consumers

The large corporates manufacturing and distributing health food drinks (such as GSK Consumer Healthcare, Cadbury, Nestle, Abbott, etc.) target the high income groups for their products. Such high income consumers can regularly purchase the health food drinks and thus serve as an appropriate market for these large corporates. Poor and lower middle class consumers, who are the target consumer segments of low cost Fortified Energy Foods, are not targeted by these large corporates.

b) Lack of retail distribution for Small and Medium enterprises which manufacture RUTFs and local fortified foods, while local products manufactured by regional players have limited focus on quality

The small and medium enterprises which manufacture fortified energy foods other than health food drinks, such as RUTFs and local fortified foods, lack the ability to distribute their products in retail markets. As a result, they are dependent on government or other channels for distribution. Such players lack the financial capacity to create a market for their products, as industry interactions suggest an investment of INR 50 – 60 Cr for land, plant and machinery, and civil structures for a manufacturing capacity of 60,000 MT. In addition, the local products which are manufactured by regional players are primarily focused on increasing their sales and margins, rather than on nutritional content of the products they manufacture. This results in lower nutritional content in such products.

c) Regional FMCG players & MSMEs in food businesses have strong regional presence and can serve scattered markets

Regional FMCG players and MSMEs in the food sector have strong regional presence in the markets where they operate. Such a presence enables them to have an already established infrastructure set-up which can be utilized to serve scattered markets. As a result, these regional players are appropriate for serving the vast market opportunity for low cost Fortified Energy Foods. Limited awareness about this existing vast opportunity has prevented these players from launching such a product in the markets.

Given the suitability of the regional FMCG companies and MSMEs in the food sector, and the inherent limitations of the existing industry players, there is a need for efforts to help increase awareness amongst these regional players about low cost Fortified Energy Foods and about ways to gather financial support to effectively the serve the market with a product.

Perceptional factors highlighted by large corporates and MSMEs dependent on government channels

Based on discussions with these private players, the following factors have also been identified as reasons for lack of participation from the private sector to address the large potential opportunity.

a) Lack of purchasing power amongst the target consumer

Although the opportunity for low cost Fortified Energy Foods is large in India, the private sector has refrained from launching the product as they perceive the target consumers across poor and lower middle class lack the purchasing power to buy the product. As per the manufacturers, the target consumers of low cost product are mostly poor and lower middle class farmers or daily laborers, and

hence have limited spending capacity for Fortified Energy Foods. This is considered as the major reason why products such as Health Food Drinks have had limited success with poor and lower middle class consumers.

As per consumer survey of 520 household respondents, 74% of the people in the evaluated catchments have a monthly income of INR 1,000 – 10,000, with an average spend of INR 350 per month for the entire family on Fortified Energy Foods. As such there is spend that is already being done by these households that the manufacturers can address.

b) Concerns related to Return on Investment

Potential investments required for entering the low cost Fortified Energy Foods market in India include capital investment in manufacturing, which would include INR 50-60 Cr in land, plant and machinery, and civil structures such as buildings for offices and storage, for a 60,000 MT capacity plant. In addition, investments would be required to build a distribution network supported by sales and marketing. The category would require significant investments in advertising and promotions to build awareness of the product through different channels. All these investments would lead to significant initial capital requirement.

Given that pricing of the product would be a relatively lower than other Fortified Energy Foods available in the market, the private sector is of the view that margins would be a concern in the domestic market and hence impact return on investments.

Ways to promote participation by regional FMCG companies and MSMEs in the food sector

Given the perceptions of the private sector leading to lack of participation, the following potential approaches could help promote participation in low cost Fortified Energy Foods in India by suitable players such as regional FMCG companies and MSMEs in the food sector.

a) Tying up with philanthropic funds or family offices of business conglomerates specifically focusing on initiatives with social objectives

Several large business houses in India have their own investment arms that provide funding to new initiatives / companies that have their objectives based on social themes. In addition to the funding, it also helps the new venture expand its outreach and build brand awareness by making use of the network of the conglomerate. Unlike other Venture Capital funds, the objectives of these family funds is not primarily profits, but they also aim to carry out their social responsibility objectives by funding these ventures. Therefore, the private sector can approach family funds for funding/ investments to setup/ operate the business.

b) Leveraging Alternate investment funds

Private organizations that have their own social funds include Reliance Industries, ONGC, TCS, Infosys, among others. In addition, there are some impact funds that invest specifically in social objectives such as Caspian Impact Investment based in Hyderabad, which was founded for specifically investing in microfinance opportunities, but is now looking at other social ventures as well. Other examples include Omidyar Network, started by Pierre Omidyar - Founder of eBay, Aavishkaar, which was founded in 2001, to serve India's underserved regions by identifying capable entrepreneurs, and providing them with capital, supplements to help build sustainable enterprises, Unitus Impact, and Acumen Fund, among others.

To conclude, despite a large addressable market for low cost Fortified Energy Foods, the private sector has refrained from launching products in the market. Existing players in the Fortified Energy Food industry such as large corporates that manufacture health food drinks, focus on high income customers as their target group. Small and medium enterprises that manufacture RUTFs and local fortified foods are dependent on government and other channels for the distribution of their products. Local products manufactured by regional players are focused on sales and margins with limited attention on quality. Regional FMCG companies and MSMEs in the food sector are most suited to address this market opportunity given their strong regional presence, but lack awareness about low cost Fortified Energy Foods. Efforts are needed to help create this awareness and provide financial support for effectively serving the markets. Approaching philanthropic funds or family offices of large conglomerates or alternate investment funds are ways of obtaining this support. Some SMEs and large corporates also indicated limited interest due to factors such as limited purchasing power amongst the poor and lower middle class consumers for the low cost Fortified Energy Food, which would result in limited demand for the product. In addition, lower margins associated with these low cost products and the high investments required, make the manufacturers unsure about their returns. However, availability and consumption of other non – traditional food products in the retail markets suggests that purchasing power amongst the poor and lower middle class is not a factor that should prevent the private food industry sector to enter the market for low cost Fortified Energy Foods.

9 Route to market strategy

Objective - Proposing sound business models & Recommending most effective and appropriate rural distribution and marketing strategies for the new low cost Fortified Energy Foods

Success of the route to market strategy (rural distribution and marketing) is subject to identifying the right contours of operations through which the business addresses the identified opportunity.

In current context following are the objectives of operation –

1) Primary focus is to address the need and demand for **low cost Fortified Energy Foods** for infants, women, adolescents, the elderly and sick among poor and lower middle class families, in both urban and rural areas, by introducing a **functional low cost Fortified Energy Food** capable of addressing the nutritional gap leading to deficiencies and impacting growth

2) Product is to be **positioned as a low cost Fortified Energy Food** to ensure greater acceptability and affordability vis-à-vis costlier variants currently available in the market

To design the right strategy it is important to understand the current market construct in terms of the value chain.

Functional set-up of the value chain of existing players in the Fortified Energy Foods market

The key elements of each level of the value chain of the existing players in the industry is as follows:

- **Sourcing of raw materials:** Existing players in the market have their own procurement teams that are responsible for sourcing of raw materials. These teams either directly procure the raw materials or in some cases may also outsource the sourcing to third party aggregators. Direct sourcing allows more control over the quality of the raw materials, which is extremely important given that food products have strict quality regulations. Economic considerations such as product margin and efficient replenishment of the stock, are factors that play in role in deciding the optimum strategy.

- **Manufacturing:** The industry uses two types of manufacturing processes – the product may either be manufactured by the player himself, or it may be outsourced to a contract manufacturer. The contract manufacturer either manufactures the entire product or may manufacture a part of the

final product. E.g. – in case of health food drinks, certain contract manufacturers only manufacture products such as liquid malt extract, which are then further processed by the corporates themselves to produce the malt based powders. Own manufacturing of the product allows greater control over the quality and hygiene factors related to the product, and also helps optimize conversion cost. Manufacturing of food products have strict quality controls to ensure contamination of the final product. In some cases, fortification guidelines may also need to be adhered to ensure the right quantity of the ingredients are being used.

- **Sales & Distribution:** Multiple level distribution channels are preferred by the existing companies in the industry. This ensures a wide reach for the product and maximum penetration in the markets. A mix of direct and indirect distribution channels is used to attain such a reach. Direct distribution channels provide visibility to the company up to the POS (point of sale) level, and is primarily focused on urban areas. Indirect channels are used for attaining a wide network, especially in rural areas. This method involves the use of sub – distributors. The companies also have their own Area Sales Managers who are responsible for overseeing the sale in their assigned geography / territory. In order to service certain emerging channels like modern retail and ecommerce, companies deploy key account managers who directly service these large accounts.
- **Advertising & Promotion:** For Advertising & Promotion, companies use a combination of ATL as well as BTL tools. ATL tools include options such as advertising through mass media options like television, radio and print media. These are the most important tools and utilize the maximum proportion of the advertising budgets of these companies, as it enables them to reach a wide number of customers. BTL tools include options such as pamphlets and in – shop merchandising. These tools are important as they create a better point of sale visibility. In some cases, companies may have tie – ups with third parties to assist them in their BTL advertising.

The retail markets in the rural areas visited as a part of the consumer surveys are localized in a central area where mobilization and assembly of a large number of people is possible, such as a bus stop in case of large administrative blocks or near a large central spot in a small village.

The marketplace includes a cluster of shops including kirana stores, vegetable mandis, food and drink stalls and utility stores like hardware shops and barber stores. The relevant point of sales for low cost Fortified Energy Foods, in both rural as well as urban areas, are given in the Table 29 below:

Table 29: Relevant point of sales

Point of Sale	Assortment	Stock Keeping Unit Size	Target Groups	Reach
Rural Markets				
Kirana Stores	• Food products, other FMCG items, groceries and other household products. Fortified Energy Foods include malt based powders, baby food cereals, and local products manufactured by regional players	• Mostly smaller stock keeping units such as 75gm and 200gm. Larger stock keeping units such as 500gm available in larger blocks	• While people from across age groups purchase products from these stores, the adult of the household, who purchase daily groceries for the household are the main target groups	• A rural administrative block generally contains a cluster of 15 – 20 kirana stores that might be located in a central market or closer to houses. These stores have footfall of ~80 – 100 consumers per day
Pharmacies	• Medicines including both prescription and OTC products. Fortified Energy Foods include malt based powders including certain niche products like protein powders, baby food cereals. However, the quantity stocked is lesser than a kirana store	• Smaller size stock keeping units are prominent	• Adults of the household, who come to purchases medicines	• Pharmacies have a lesser concentration than kirana stores, with 5 – 10 per administrative block, with an average footfall of ~50 – 60 consumers per day
Food & Beverage Stalls (Hand Carts)	• Beverages such as tea and Fortified Energy Foods such as malt based powders particularly the chocolate flavored ones.	• Stock keeping units of 200gm and 500gm	• People from across age groups	• 2 – 5 such stalls are usually located within the market, with an average footfall of ~40 – 50 consumers per day
Urban Markets				
Retail Outlets	• Food products, other FMCG items, groceries and other	• In urban markets, the stock keeping unit size varies as per the demand	• While people from across age groups purchase products from	• An urban administrative block would have ~20 – 30 retail

	household products. Fortified Energy Foods include malt based powders including niche products, baby food cereals, and local products manufactured by regional players. The assortment would be higher in comparison to rural areas.	in the catchment area. In backward areas, smaller stock keeping units such as 75gm and 200gm are stocked, while in more affluent areas larger stock keeping units such as 500gm and 1kg are available	these stores, the adult female of the household, and in some case the males, who do the grocery shopping for the household are the main target groups	outlets. The average footfall would be ~150 – 200 consumers per day
Pharmacies	• Medicines including both prescription as well as non – prescription OTC products. Fortified Energy Foods products like malt based powders including certain niche products along with protein supplements. Also stock baby food cereals. Similar to retail outlets, the assortment in these pharmacies are much higher than rural areas.	• Mostly stock larger stock keeping units such as 500gm and 1kg, especially for niche malt and protein based products. However, for low income areas, outlets may also stock 75gm and 200gm units to serve the irregular demand	• The adult of the household, who purchases medicines for the households. Also, include elderly population and young adults who purchase supplements for bodybuilding	• Pharmacies also have a lesser concentration in urban administrative blocks, with ~15-20 in one block. The footfall would be ~80 – 100 consumers per day
Food & Beverage Supermarkets	• Have a higher assortment of products of daily requirement, including food products, other FMCG items, groceries, and other household items. Fortified Energy Foods include mostly malt and protein	• Larger stock keeping units such as 500gm and 1kg are preferred, as the purchases are made in bulk for a longer duration, mostly a month.	• The adult of the household, who do grocery shopping	• ~1-2 outlets in an administrative block. 2,000 – 3,000 footfall per day driven by larger assortment of products

	based powders including niche products. Also stock baby food cereals			

Based on the factors discussed above, the key elements of the value chain of the proposed business model would include own sourcing of raw materials, sales and distribution through the FMCG channels, and advertising & promotion using an optimum mix of ATL & BTL tools. The decision regarding the choice of manufacturing - own or contractual manufacturing, and through own or leased premises would ultimately determine the final construct of the model. Keeping this in mind the following three business models have been narrowed upon, out of which the most feasible one would be selected based on their financial feasibility:

- Own Manufacturing through own premises - Commercial launch of the product using FMCG channels
- Own Manufacturing from leased premises - Commercial launch of the product using FMCG channels
- Contract Manufacturing - Commercial launch of the product using FMCG channels

In addition, the route to market strategy needs to be designed keeping in mind the following considerations to serve rural markets:

- **Addressing supply chain and infrastructural challenges**
  - Establishing supply chain infrastructure to address rural areas that have limited and inconsistent demand
  - Challenges associated with the cost to serve rural markets, where the cost of serving is nearly double that of urban markets due to high cost of logistics.
- **Using existing distribution networks along with developing innovative methods for launching new product to meet disparate demand**
  - Typically, retail shops / pharmacies in rural areas get their products from distributors who are generally located in a large block.
  - The demand from the geographically disperse retail points in the rural areas is limited and hence at times leads to availability issues for products as distributors find it difficult to serve these small demands at regular intervals while maintaining their cost and expected returns.
  - Hindustan Unilever, which has one of the deepest rural distribution network in India, tried to address this issue under their Project Shakti

by developing a new distribution model wherein they empowered rural women to become the distributors for their products. This was similar to a hub and spoke model, where the rural women would take the delivery of the product from a central location and then distribute them within their areas.

- Existing distribution networks of Dairy and Fertilizers companies that have established reach across rural markets can also be used.

- **Serving irregular demand from agrarian rural centers, which impacts the profitability from serving these markets**
  - The target consumers are primarily engaged in the agrarian sector. Seasonality of income in this sector results in demand fluctuations. This increases the cost to serve these markets, thereby impacting profitability. Due to this fluctuating nature of the demand, smaller stock keeping unit sizes are more popular in rural areas, as they turn out to be more cost effective for need based irregular consumption. Also, limited storage spaces make smaller sizes more convenient to stock.

- **Addressing skewed consumer buying behavior based on traditional practices like preference for homemade alternatives**
  - There is an inherent bias in the minds of rural consumers to prefer homemade alternatives to purchases from commercial markets. As a result, before accepting a product, they need to be convinced that there is a need for that product which cannot be met with their homemade alternatives, or the commercial product offers better value than the homemade products.
  - This problem was addressed by Cavinkare while launching their shampoos. Demonstrations were held in villages in order to convince consumers about the benefits from using shampoos. Once the rural consumer was convinced that it was getting value for its money, which could not be met through homemade alternatives, they accepted the product.

- **Devising appropriate advertising & promotion strategies in order to overcome challenges with traditional marketing channels**
  - Rural consumers suffer from inherent societal challenges surrounding literacy, language barriers, access to uninterrupted supply of electricity, and access to variety of media resources, which typical urban consumers have access to, which impacts their awareness levels for the products existing in the markets.

- As a result, there is a need for a very directed and customized advertising and promotional approach to address and capture the demand.

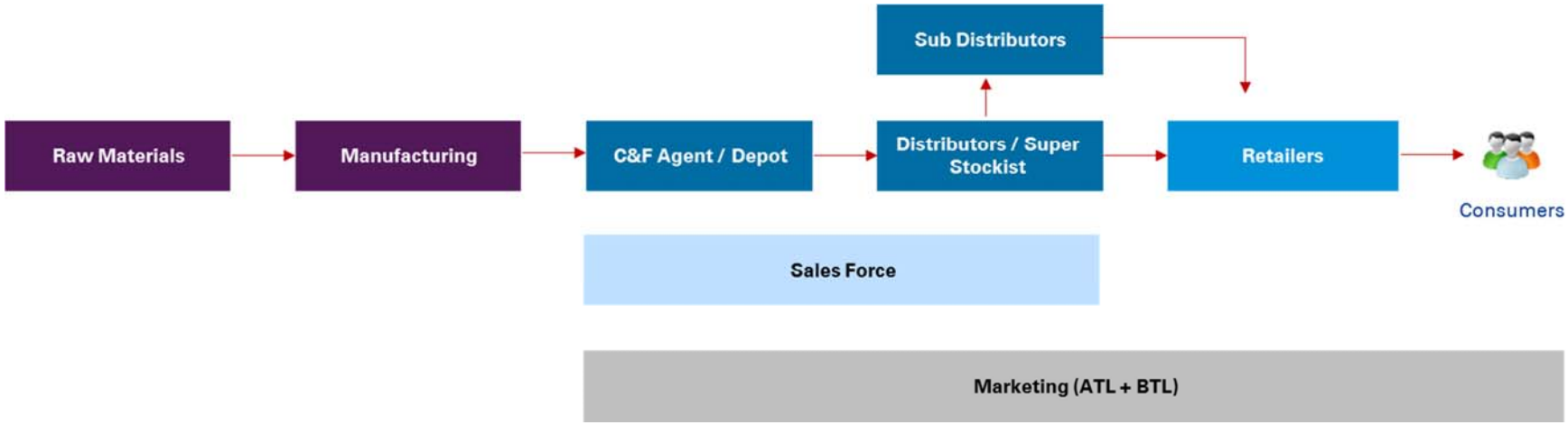
Proposed Strategy / Operating Model

Consumer surveys and industry interactions indicate that the stock keeping unit size and product pricing are key determinants to drive product offtake. These two metrics should be factored in at each stage of the strategy.

- **Stock keeping unit size** – The focus should be on standard industry stock keeping unit sizes of 250gm, 500gm, and 1kg. In addition, considering the disparate demand in some catchment areas, especially in rural markets, option of sachets (75gm) could also be evaluated containing recommended dietary intake for a day for each of the target consumer segments
- **Price –** Consumer surveys indicate that per serving cost of anything below INR 10 is desirable, with 81% of the respondents opting for this price point. To serve this price sensitive market, it is imperative that cost overheads are minimized across the value chain.

Based on the assessment of the points of sales and considerations identified, key considerations along the product value chain would help formulate a successful route to market strategy. An overview of the product value chain is depicted on the next page:

Figure 15: Proposed value chain of low cost Fortified Energy Foods



Sourcing:

The key considerations that the sourcing strategy should address include:

- Effective procurement cost to maximize margins
- Sustainable supply of key raw materials to meet production requirements
- On demand replenishment to optimize warehousing cost

Local in-season sourcing to optimize input cost with proper storage infrastructure along with hedging strategies to optimize cost overlay during off season procurement could alleviate sourcing related cost pressures. Raw materials for such a low cost Fortified Energy Food product are largely commoditized, and could be procured by the firm through three different modes:

- **Direct procurement from farmers:** Under this set-up the manufacturer would procure the raw material directly from the farmers. This mode would maximize the firm's control on quality and minimize cost by eliminating middlemen. Given the scale of the business, the cost of coordination and in-bound logistics for dealing with multiple farmers is likely to be high.

- **Procurement from centralized Mandis:** Structured and centralized nature of the mandi set-up would help reduce the sourcing overheads. Further, this mode helps address the sustained supply and on-demand replenishment of raw materials. However, the bidding process associated with this mode could lead to higher procurement costs.

- **Procurement through third party aggregators:** The third party contracts would help hedge against price fluctuations and ensure sustained material supply while minimizing overhead costs. However, the aggregator commission would get built into the procurement cost.

The best suited sourcing strategy would be subject to the product formulation and the associated dependency on agricultural or processed agricultural input.

Manufacturing:

A decentralized manufacturing set-up is suggested to cater to the widespread demand centers for the product. Multiple manufacturing centers would help reduce the time and cost to serve the dispersed rural markets. Low cost per unit with this mode would translate to lower prices for end consumers.

The firm has two manufacturing options -

1) Own manufacturing (Asset heavy model)
2) Contract manufacturing (Asset light model)

The trade-off between the two models is captured in Table 30 below:

Table 30: Own vs Contract Manufacturing

Manufacturing set-up	Remarks	Examples of industries using this model
Own manufacturing	• In-house manufacturing increases control over process and operational costs • High up-front capex requirements to build the manufacturing plant	• RUTF manufacturers • Manufacturers of malt and protein based Health Food Drink products *(Manufacturers of malt and protein based products use a combination of own plus contract manufacturing)* • Manufacturers of local products such as Chuda and Chattua powders.
Contract manufacturing	• Under this set-up, the private player outsources the manufacturing to smaller private players • This arrangement reduces the capex requirements but increases operational expenses due to the conversion cost paid to the third party • Checks and processes have to be in place for quality control	• Manufacturers of certain malt and protein based products use a combination of own and contract manufacturing

Identifying the right model to operate is critical as it impacts upfront capital outlay and process control. Based on industry interactions the capex requirement for setting up a plant of this nature, is estimated at INR 50 - 60 Cr for 60,000 MT manufacturing capacity.

The firm can leverage on 'Structural Support' being extended by the Government. Government of India through Ministry of Food Processing Industries offers grants to manufacturing facilities involved in the manufacturing of products such as fortified and energy dense foods under the category of Creation / Expansion of Food Processing / Preservation Capacities. The main objective of this scheme is creation of processing and preservation capacities and modernization / expansion of existing food processing units with a view to increasing the level of processing, value addition leading to reduction of wastage. The setting up of new units and modernization / expansion of existing units are covered under the scheme.

Eligible project components for the grant includes the cost of plant & machinery and the technical civil work. Cost of 'Utilities' essential for the plant i.e. water pipeline, DG set, boiler, solid waste treatment plant, ETP etc. are also considered under eligible project cost subject to restriction of above cost being maximum 25% of the total project cost.

Sales & Distribution:

To ensure market reach, commercial players invest heavily in developing their distribution channels. Most FMCG players tie-up with distributors, and incentivize them to push the products through retail channels. Typically distributor margins range from 2 – 5%, and retailer margins range between 8 – 10%. Our discussions with channel members such as retailers and distributors

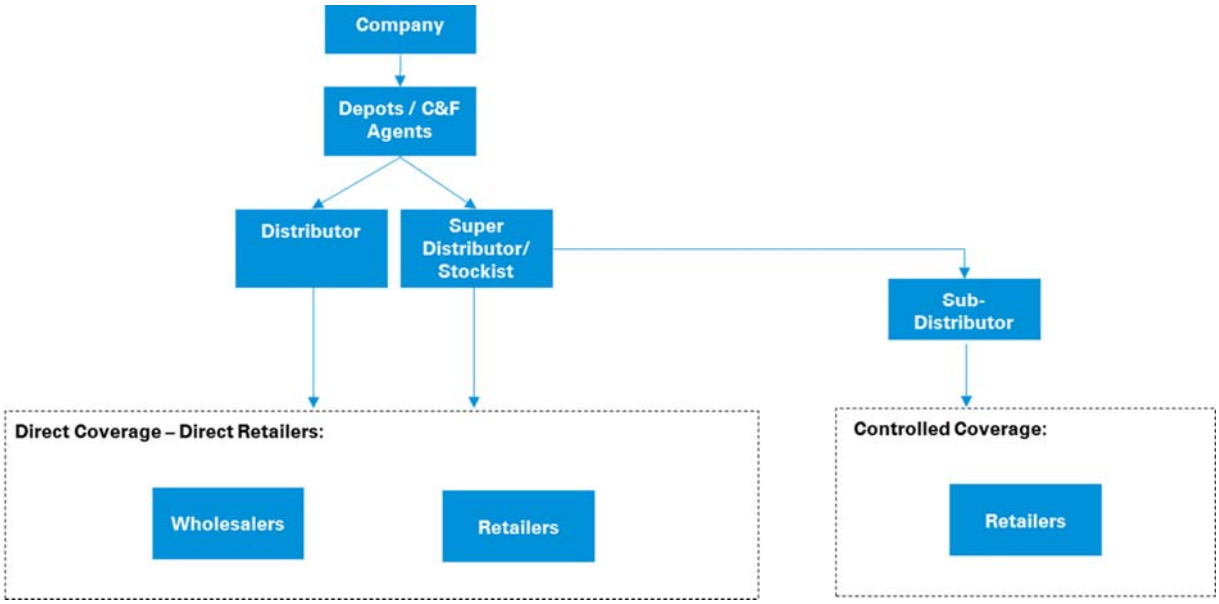
revealed that channel margins are critical, especially during the initial years of the launch of new product. Hence, in case of a low cost Fortified Energy Food, a structured strategy needs to be adopted wherein during the initial phase higher margins should be offered to channel members to build the market.

In addition, as seen from the examples of rural marketing success, discussed in the sections above, having robust distribution channels is necessary to attain rural success, as rural areas have a more disparate demand structure as compared to the urban markets.

Industry discussions indicate that rural distribution requires higher penetration in the rural markets through informal localized distribution set-ups such as the Shakti Amma program used by HUL.

The proposed distribution structure is illustrated in Figure 16 below:

Figure 16: Proposed distribution structure of low cost Fortified Energy Foods



- **Direct Coverage:** Industry experts indicate that target markets with population greater than 1,50,000 should be serviced through direct distributors served by the company. These distributors would receive the goods directly from the factory depots and dispatch the products to wholesalers and retailers.
- **Controlled Distribution:** Smaller markets should typically be serviced through a sub – distributor model. The sub – distributor receives the goods from bigger super distributor / stockist. This two – tier model is ideal to service the low volume and fragmented consumption centers. To increase reach to isolated rural centers with limited periodic demands, the company should on-board local village influencers to distribute the product on a cash and carry basis.

Additionally the company should offer higher channel margins during the initial years to incentivize the channel members to push the new product in the market. These margins would then phase out to industry aligned margin structure over a period of time as the product acceptance increases in focus markets.

Based on industry benchmarks and business scale, a lean field sales team is proposed. The responsibility of this team would essentially be channel coordination with the distributors. Order procurement related beat activities is expected to be carried out by distributor sales representatives.

Marketing:

Traditional FMCG companies spend heavily on advertising and promotion in order to ensure they are able to reach a large number of target customers. As per consumers as well as several commercial stakeholders (42 out of the 57 retailers that stock some Fortified Energy Food, and 18 out of the 20 distributors, said that advertising & promotion is important to create awareness about the product), a key perception among the target consumers, especially in the rural areas is that advertising and promotion of the products is important in order to create awareness about the products and their uses.

During the primary visits, one of the major factor driving consumption was advertising and promotion of the products (26% of the respondents said that they knew about Fortified Energy Foods through advertisements, neighbors, or someone in the family). As per the respondents, they were aware of commercial Health Food Drinks and malt based powdered products due to the advertisements shown on TV, and believed that such products would benefit them. When it came to buying products for their children, the respondents agreed that advertisements played a key role as children would often demand the products whose advertisements they would see on TV.

The company is expected to apportion its marketing spend between ATL and BTL activities to drive sales through end customers and channel partners.

- **ATL activities** – For a low cost Fortified Energy Food, use of television, radio and print media in regional languages would be the key to get the message across.
    - For television, since the cost of placing the advertisement is higher as compared to other media, it becomes important to place the advertisements on channels that would generate the maximum viewership for our target audience. Since the purchase decision would be made by the adults of the households, majority advertisements should be placed on general entertainment as well as news channels. In addition to these, there needs to be a

presence on sports and kids channels, which are often viewed by children and could drive the demand for the products.

- The cost of placing the ad on radio is lesser than television, while its rural reach is higher. Regional radio channels are an effective medium to reach the rural consumers. For rural areas, local radio channels especially the ones run by All India Radio have a much higher reach in comparison to private channels. They also run special programs which could further be used for putting the message across.
- With print media, given its considerable reach, selection of local newspapers would be critical and should depend on the readership in a specific area, and would involve a mix of regional as well as state level newspapers.
- Challenges associated with low literacy levels, regional language limitations, and access to reliable electricity sources impact the efficacy of conventional ATL tools.

- **BTL activities** – BTL includes promotional activities such as outdoor billboards, pamphlets, and product sampling. Although they form a lesser proportion of the total advertising spend in comparison to ATL options, they still play an important role in the overall promotional strategy. Trade marketing activities such as channel schemes and localized promotions would be especially crucial to mitigate the limitations of ATL in the rural regions. Some ways of using such options include distribution of pamphlets and leaflets at primary schools and PHCs in order to create more awareness about the product and its uses. In addition, merchandising activities at point of sales such as kirana stores and pharmacies, would be required to create better in-shop visibility and awareness.

Detailed below is an illustrative case study of a successful rural marketing initiative:

Nirma Washing Powder – An example of an effective advertising and promotional strategy targeted at rural areas

In 1969, Nirma was launched by Dr. Karsanbhai Patel, a chemist working at the Gujarat Government's Department of Mining and Geology. He manufactured a phosphate free detergent powder, and would sell it locally.

While detergent powders sold by global FMCG companies such as Surf (by HUL) was sold at INR 15 / kg, Nirma was priced at INR 3.5 / kg. Although the product was much cheaper than its competitors, it was not positioned as an inferior alternative. In fact, rural consumers found it to be equally good as compared to Surf, and therefore found it to be a cost effective alternative to it.

While its low pricing helped Nirma find a market with its target audience – rural and semi-urban consumers, one of the most important factor which led to Nirma's success was its effective advertising & promotional strategy. Nirma's marketing strategy has been focused around its positioning of providing a quality product at affordable prices. Nirma developed catchy jingles such as the iconic "*Washing Powder Nirma"* which became extremely popular throughout the country, and was widely advertised across ATL options such as TV and Radio. Its other campaigns such as "*Hema, Rekha, Jaya aur Sushma"* resonated with housewives throughout the country, and made Nirma the favorite choice of lower and middle class women.

In addition, Nirma got its name from the late daughter of the founder. The image of young girl in a white dress, known as 'the Nirma Girl', has become one of the most iconic brand mascot in India and is synonymous with Nirma's ATL advertising strategy. Therefore, Nirma has been able to make its advertising strategy iconic such that it has been able to cut across generations and retain its market over the years, using the same logos and jingles that have found connect with the audience.

Hence, by making an effective use of advertising as well as promotional strategies, Nirma has been able to create its image as an iconic brand that resonates in the minds of Indian consumers, especially belonging to the rural and middle class.

Given awareness and acceptance is critical to mass adoption, special focus on the following initiatives is likely to drive faster product offtake:

a) **Leveraging on existing local healthcare setup to increase acceptance**
Based on the market assessment it has been ascertained that people in economically backward sections of the society consume EDFs only when they were sick and such products were prescribed for consumption by a doctor. About 33% of the respondents in our consumer surveys knew about Fortified Energy Foods only through doctors or physicians and about 18% through nutritionists.
Thus, it becomes important to leverage the current healthcare infrastructure to promote the use of such products. Driving doctor participation, running information drives regarding benefits of the low cost Fortified Energy Food for medical fraternity could significantly drive faster adoption of the product.

b) **Leveraging on existing education setup to increase awareness**
Primary schools play an important role in creating awareness and information dissemination in rural areas. Special workshops and programs can be deployed at these schools in order to encourage children to consume low cost Fortified Energy Foods. The parents of these children, especially mothers, should also be made participants for such programs to drive the product usage. The meal programs at such facilities can also become an important platform for product launch / rollout.

In addition to above focused approaches, innovative models such as product vans can be deployed in rural areas. Such vans would carry the product to the village, and also create awareness through small roadshows. This is an extremely cost effective way of mobilizing demand in a small area by creating awareness and instantly providing product samples. A similar local awareness strategy was adopted by HUL in Project Shakti to promote the sale of their personal care and beauty products, in rural markets.

Role of brand ambassadors: Brand ambassadors play a very important role in the advertising and promotion of consumer products in order to create a high visibility and brand recall in the minds of the target consumer. As a result, most FMCG companies rope in popular brand ambassadors to extend the reach of their products. Leveraging popular celebrities such as movie stars and sportspersons who have a national / regional appeal would be beneficial to further promote the use of such products. Such celebrities have often associated themselves with several campaigns for similar products, and help in creating a wider reach and acceptability for the programs

Keeping in mind the success factors for rural markets, it is important that all marketing initiatives are directed to ensure that the low cost Fortified Energy Food is positioned as an independent product. We have seen examples of failures in the past of products which were launched as cheaper variants of existing products, especially for the rural market. Low price variants were perceived as inferior products. Thus, the company needs to ensure that the rural consumer is convinced that is getting value for the money he is spending on this product, and that it cannot be replaced by homemade alternatives.

To conclude, the route to market proposed for launching a low cost Fortified Energy Food has been suggested keeping in mind the target audience – poor and lower middle class consumers, and the inherent challenges associated while dealing with rural markets. These include:

- Sourcing: The key considerations related to sourcing include procurement cost, sustainable supply of key raw materials and on demand replenishment. Raw materials for low cost Fortified Energy Food product are largely commoditized and the proposed sourcing models could include direct procurement from farmers in the catchment area, procurement through centralized mandis and procurement through third party aggregators. Based on the key considerations identified, the most optimum sourcing model could be used.
- Manufacturing: A decentralized manufacturing set-up with multiple manufacturing facilities is suggested. Each manufacturing facilities will address the demand in its catchment area. This would help in optimizing the cost and time involved in serving the dispersed rural markets. The options for manufacturing include own and contract manufacturing. A comparative assessment between own and contractual manufacturing is proposed for setting up of each decentralized unit. Analysis indicates higher returns from own manufacturing using leased premises. In addition, own manufacturing also helps the manufacturer retain control over the manufacturing process.
- Sales & Distribution: The objective of the sales & distribution strategy is to effectively serve the disparate demand centers, especially in rural areas. A multi - level distribution network is proposed comprising of "direct coverage" and "controlled distribution" models. "Direct coverage" is proposed for areas with a population of more than 1,50,000 people with the company retaining control over the distribution set – up. "Controlled distribution" is proposed to serve smaller markets through a sub – distributors. It is also proposed that trade partners are provided higher margins during the initial years of launch, to incentivize them to stock and push the product.
- Marketing: The proposed marketing strategy involves an effective mix of ATL and BTL options. Use of regional languages is suggested for ATL advertising across local newspapers and radio channels, to help create a connect with the product amongst the consumers. To help create brand awareness, BTL

strategies such as channel schemes and distribution of pamphlets and leaflets at primary schools and primary health centers is proposed. Use of popular regional celebrities is also recommended to enhance the reach and connect of the product with the target audience.

10 Indicative Business Plan

Objective - Assessing the investment feasibility for manufacturing, distributing and marketing the low cost Fortified Energy Foods

- Proposed business will be assumed to address the market of Karnataka
- The annual demand for Karnataka based on market sizing is estimated at ~1.3 million tonnes a year
- We have assumed roll out of annual capacity of 120,000 tonnes which translates to ~10% of the demand identified

Business Model

- Production of Low Cost Fortified Energy Foods can be achieved by following business models:
  - **Model 1**: **Own Manufacturing**
    - Variant 1 – Own manufacturing carried out through owned premises
    - Variant 2 – Own manufacturing carried out from leased premises
  - **Model 2**: Contract Manufacturing

Rollout Plan: Model 1 (Own Manufacturing)

- The project rollout is proposed to take place in two phases with first phase aimed at creating awareness and acceptability while second phase to cater to incremental demand
- Phase wise details
  - **Phase 1**: (Total Capacity – 60,000MT)
    - Phase 1 commissioning will commence in Year 0 and commercial ops starting year 1
    - Two plants will be installed in Phase 1 – each with production capacity of 30,000 MT
  - **Phase 2:** (Total Capacity – 60,000MT)
    - Phase 2 commissioning will commence in Year 5 and commercial ops starting year 6

- Two plants will be installed in Phase 2 – each production capacity of 30,000 MT

- Complete rollout of all the facilities to be completed in a period of 12 months
- For variant 2 (operating out of leased premises) of Model 1 rollout plan will remain the same, only the same will be rolled out from leased premises

Proposed CAPEX Assumptions: Model 1

- Project life is assumed at 30 years for the purpose of financial plan
- **Project Cost for Phase 1**:
  - Cost estimates have been established basis discussions with industry stakeholders –

Phase 1 Project Cost (INR crores)	
Land (3 acres @INR 0.4 crore/acre)	2.4
Plant & Machinery	40.0
Building	14.0
Total Fixed Assets	**56.4**
IDC (Interest During Construction)	2.5
Pre Ops @2% of fixed assets	1.1
Contingency @5% of fixed assets	2.8
Working Capital Margin	0.2
Total Capex	**63.1**

- Source of funding – **Grant: 5.0 Crores; Debt: INR 40.7 Crores; Equity: 17.4 Crores** (Debt contribution assumed at 70% of balance CAPEX adjusted for Grant)
- In **Rental variant** of this model, cost of land and building won't be incurred; leading to total **CAPEX of INR 44.7 Crores**
  - Source of funding – **Grant: 5.0 Crores; Debt: INR 27.8 Crores; Equity: 11.9 Crores** (Debt contribution assumed at 70% of balance CAPEX adjusted for Grant)
- **Project cost for Phase 2:**

Phase 1 Project Cost (INR crores)*	
Land	2.8
Plant & Machinery	51.1
Building	17.9
Total Fixed Assets	**71.7**
IDC (Interest During Construction)	3.5
Pre Ops @2% of fixed assets	1.4
Contingency @5% of fixed assets	3.6
Working Capital Margin	0.2
Total Capex	**80.4**

**Land price escalation assumed @3% p.a. and Civil work escalation @5% p.a.*

- Source of funding – **Debt: INR 56.3 Crores; Equity: 24.1 Crores** (Debt contribution assumed at 70% of CAPEX)
- In **Rental variant** of this model, **CAPEX: INR 58.3 Crores**
  - Source of funding –**Debt: INR 40.8 Crores; Equity: 17.5 Crores** (Debt contribution assumed at 70% CAPEX)

Business Plan Assumptions: Model 1 (Own manufacturing)

	Model Assumption
Capacity Utilisation	■ Phase 1 & Phase 2 utilization trend is expected to be similar across respective years post individual phase of commissioning **Utilization Details for Phase 1 & Phase 2:** ■ Capacity utilisation in the first 2 years is assumed to be 30% ■ Utilization is assumed to increase by 5% each year starting year 3 after commissioning until year 13 post which utilization will increase by 1% each year peaking at 90%

Raw Material Cost	■ Current prevalent raw material rates are taken as reference ■ **Key raw materials include** – Wheat (INR 22/ Kg), green gram (INR 48/ Kg), soya (INR 33/ Kg), ragi (INR 40/ Kg), sugar (INR 35/ Kg) and ground nut (INR 83/ Kg) ■ **Average raw materials cost –** INR 40/ Kg ■ Raw materials cost is assumed to grow at 5% per year
Advertisement & Promotion Costs	■ As per industry benchmarks, FMCG companies typically segregate their advertisement & promotion cost at 98% for ATL and 2% for BTL activities – for launch of Low Cost Fortified Energy Foods as well, we have assumed a similar split ■ **ATL advertisements:** – **TV Media:** ■ TV advertisements are prpoposed to be aired across various genres of channels including **News** (DD News, Public TV), **General Entertainment** (Colors Kanada, Udaya), **Kids** (Chintu) & **Sports** (Star Sports). ■ **~2-3 advertisements** will be aired daily with focus on prime time slots. ■ Total monthly outlay of ~INR 40 Lakhs for TV advertisements and media production cost of ~INR 50 Lakhs (one time in a year) has been estimated ■ **Total annual budget: INR 5.2 crores** – **Print Media:** ■ Print advertisements would be published across regional (e.g. Vijay Karnataka, Prajavani, etc.) and local dailies in Kannada language focussing on major consumption centers in the state ■ We have assumed **monthly 4 advertisements** to be published in these dailies – translates to monthly outlay of ~INR 8 Lakhs ■ Cost of designing (one time in a year) the advertisement is estimated ~INR 1 Lakh ■ **Outlay of INR 96 Lakhs has been calculated for these advertisements** – **Radio:** ■ Radio advertisements assumed to be broadcasted across various radio channels (Big FM, Vividbharti, AIR local and Community radio) in Kanada language covering major consumption centers ■ **Daily 12 advertisements** are assumed to be broadcated and monthly outlay of INR 11 Lakhs has been calculated for these advertisements ■ Production cost of INR 5 Lakhs (one time in a year) has been assumed for the same ■ **Total annual budget: ~INR 1.4 Crores**

	■ BTL is assumed at 2% of total advertisement cost outlay ■ **Promotions are assumed at 4%** of annual revenue ■ Total A&P including promotions is assumed to grow at 4% on yearly basis
Manpower Cost	**Central Functions** ■ Total 17 full time employess are planned for the central office (Total annual cash outlay of INR 1.5 Crores considered) ■ Employees considered include: – Operation Head (1), Sales & Marketing Head (1), Procurement Head (1), IT Head (1), IT Team (4), HR Head (1), HR Staff (1), Finance Head (1) & Finance Team (6) **For Manufacturing Facility** ■ Total 33 full time personnel planned for each facility of 30,000 MT (Total annual cash outlay of INR 1.2 Crores considered for each facility) ■ Personnel considered for supervising the general operations at the facilities include- – For **each** processing unit: General Manager (1), Engineeres (3), workers (15), Sales Team (4), Sourcing Team (2) & Security guards (8) ■ Total annual cash outlay during phase 1 is assumed to be INR 2.4 Crores for manufacturing facilities and INR 1.5 Crores for Head Office Operations ■ During Phase 2, additional manpower costs have been assumed for 2 additional facilities with same team structure at the adjusted salary levels for that year ■ Yearly Increment in wages / salary considered at 8%
Other Operating Expenses	■ **Logistics cost per ton –** INR 3,529 – Logistics cost increase rate is considered as 5% per year ■ **Power & Fuel –** 5% of revenue – Fuel price increase rate is taken as 3% per year

	■ **Other overheads –** 6% of revenue for first 2 years to support launch related activities & 4% for remaining years
Pricing	■ Price is identified based on cost incurred on production (both – fixed and variable) and 10% additional margin for the manufacturer ■ **Fixed operating cost is allocated at average capacity utilization of 50%** – COGS: INR 40/ Kg – Operating Expenses: INR 11/ Kg – Margin over realization for the manufacturer: 10% – **Selling Price to distributor: INR 56/ Kg** ■ Price increase is taken as 5% per year

Balance Sheet Assumptions – Model 1 (Own manufacturing)

Key heads	Assumptions
Creditors	■ Assumed 45 days of COGS, manpower, fuel and rent (if applicable)
Debtors	■ Assumed 45 days of Revenue
Inventory	■ Assumed 45 days – Inventory is assumed as 5% of Plant & Machinery initial cost
Depreciation	■ Assumed straight line method for depreciation (Full year depreciation charge taken in the year when capacity gets commissioned irrespective of date of commissioning) ■ Depreciation rate taken as 6.67% per annum for Plant & Machinery as per Income Tax Act ■ Building and Civil work depreciation taken as 3.33% ■ At the end of useful life of project 5% of initial investment taken as salvage value, same considered while calculating the project IRR

Term loans	▪ Interest rate of 10% pa and repayment term of 12 years with a moratorium period of 1 year assumed ▪ Short term borrowing facility considered to support working capital requirements in the initial year of operations at interest rate of 12.5%

Projected Profit and Loss Account – Model 1 (Own manufacturing based out of own premises)

In INR Crores	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Phase 1											
Capacity (in tons)	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Utilization rate		30%	30%	35%	40%	45%	50%	55%	60%	65%	70%
Volume produced (in tons)		18,000	18,000	21,000	24,000	27,000	30,000	33,000	36,000	39,000	42,000
Phase 2											
Capacity (in tons)						60,000	60,000	60,000	60,000	60,000	60,000
Utilization rate							30%	30%	35%	40%	45%
Volume produced (in tons)							18,000	18,000	21,000	24,000	27,000
Total Volume produced (in tons)		18,000	18,000	21,000	24,000	27,000	48,000	51,000	57,000	63,000	69,000
Pricing											
Base price (INR/ Kg)		57	60	63	66	69	73	76	80	84	88
Revenue		**103**	**108**	**132**	**158**	**187**	**349**	**390**	**457**	**531**	**610**
COGS		72	76	93	111	131	245	273	321	372	428
Gross Profit		31	32	39	47	56	104	116	136	158	182
Operating expenses											
- Manpower costs		4	4	5	5	5	9	10	11	12	13
- Logistics		6	7	8	10	12	22	24	28	33	38
- Advertising & Promotion		12	12	13	13	14	14	15	16	16	17
- Power & Fuel		5	5	7	8	9	17	19	23	27	31
- Other Overheads		6	6	5	6	7	13	14	16	19	22
Total Operating Expenses		**33**	**35**	**37**	**42**	**47**	**75**	**83**	**94**	**106**	**120**
EBITDA		**(2)**	**(2)**	**3**	**6**	**9**	**29**	**34**	**42**	**52**	**62**

Depreciation and Amortization		3	3	3	3	3	8	8	8	8	8
Interest Expense		5	7	7	8	7	12	10	8	7	6
Less: Tax expense		0	0	0	0	0	3	5	8	11	15
PAT		(11)	(12)	(8)	(5)	(1)	7	11	19	26	34
EBITDA margin		Nm	nm	2%	4%	5%	8%	9%	9%	10%	10%
PAT margin		nm	nm	nm	nm	Nm	2%	3%	4%	5%	6%
In INR Crores	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Net Cash Inflow	(63)	(6)	(3)	2	4	6	17	25	30	36	43

Project IRR: *	**24.1 %**
Payback period :	**8-9 Years**

**Project IRR Computed considering 30 year financial plan and salvage value at 5% of initial capex at the end of 30 years*

Projected Balance Sheet – Model 1 (Own manufacturing based out of own premises)

Balance Sheet INR Crores	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Shareholder Equity											
Equity	17	17	17	17	17	42	42	42	42	42	42
Reserves		(11)	(23)	(31)	(36)	(38)	(31)	(20)	(1)	25	59
Grant	5	5	5	5	5	5	5	5	5	5	5
Liabilities											
Term Loan	41	41	39	37	35	88	86	80	74	67	59
Payables		10	10	13	15	18	33	37	43	50	57
Short term borrowing	-	8	20	27	32	30	24	13	-	-	-
Total Liabilities	**63**	**70**	**69**	**67**	**67**	**145**	**158**	**156**	**162**	**188**	**222**
Assets											
Land	3	3	3	3	3	6	6	6	6	6	6
Gross Block	58	58	54	51	48	118	115	107	100	92	84
Less: Accumulated Depreciation	-	3	3	3	3	3	8	8	8	8	8
Net Block	58	54	51	48	44	115	107	100	92	84	77
Inventory	-	0	0	0	0	0	1	0	0	0	0
Receivables	-	13	13	16	20	23	44	49	57	66	76
Cash & Bank	2.7	0.2	1.4	0.2	0.3	0.5	0.7	1.3	7.0	31.6	63.0
Total Assets	**63**	**70**	**69**	**67**	**67**	**145**	**158**	**156**	**162**	**188**	**222**

Projected Cash Flow Statement – Model 1 (Own manufacturing based out of own premises)

Cash Flow Statement INR Crores	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Cash flow from Operations											
EBITDA	-	(2.4)	(2.5)	2.5	5.6	9.0	28.9	33.6	42.4	52.0	62.4
Corporate tax	-	-	-	-	-	-	(2.9)	(4.8)	(8.1)	(11.2)	(14.5)
Short term borrowing	-	8.2	12.2	6.2	5.2	(1.8)	(6.0)	(11.5)	(12.5)	-	-
Net changes in working capital	-	(3.3)	(0.1)	(0.8)	(0.8)	(0.9)	(5.4)	(1.2)	(2.1)	(2.3)	(2.5)
CFO	**-**	**2.5**	**9.6**	**7.9**	**10.0**	**6.3**	**14.7**	**16.1**	**19.7**	**38.5**	**45.3**
Cash flow from Investing											
Capital Expenditure	(60.3)					(77.0)					
CFI	**(60.3)**	**-**	**-**	**-**	**-**	**(77.0)**	**-**	**-**	**-**	**-**	**-**
Cash flow from Financing											
Initial equity	17.4	-	-	-	-	24.1	-	-	-	-	-
Grant	5.0										
Interest on short term borrowing	-	(1.0)	(2.6)	(3.3)	(4.0)	(3.8)	(3.0)	(1.6)	-	-	-
Interest payment on term loan	-	(4.1)	(4.0)	(3.8)	(3.6)	(3.3)	(8.7)	(8.3)	(7.7)	(7.1)	(6.4)
Change in debt	40.7	-	(1.8)	(2.0)	(2.3)	53.8	(2.8)	(5.6)	(6.2)	(6.8)	(7.5)
CFF	**63.1**	**(5.1)**	**(8.4)**	**(9.2)**	**(9.8)**	**70.8**	**(14.5)**	**(15.5)**	**(13.9)**	**(13.9)**	**(13.9)**
Opening Cash		2.7	0.2	1.4	0.2	0.3	0.5	0.7	1.3	7.0	31.6
Net change in cash	2.7	(2.6)	1.2	(1.2)	0.2	0.2	0.2	0.6	5.8	24.6	31.4
Closing Cash	**2.7**	**0.2**	**1.4**	**0.2**	**0.3**	**0.5**	**0.7**	**1.3**	**7.0**	**31.6**	**63.0**

Projected Profit and Loss Account – Model 1 (Own manufacturing based out of leased premises)

- Since the premises to carry out manufacturing are rented out, there will be additional rental expense which is calculated as follows, rest of the business model assumptions would remain the same as the ones for own manufacturing setup based out of owned premises
  - Area Required for each phase: 6 acres (3 acres for each plant) i.e. ~2.6 lakh Sq. Ft.
  - Rental cost (@ INR 7.5/ Sq. Ft.): INR 2.4 Crores in first year of operations
  - Rental escalation assumed at 10% per year

Profit & Loss In INR Crores	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue		**103**	**108**	**132**	**158**	**187**	**349**	**390**	**457**	**531**	**610**
COGS		72	76	93	111	131	245	273	321	372	428
Gross Profit		31	32	39	47	56	104	116	136	158	182
Operating expenses (As calculated in above model)		33	35	37	42	47	75	83	94	106	120
- Rent		2	3	3	3	3	8	8	9	10	11
Total Operating Expenses		35	37	40	45	50	83	91	103	116	131
EBITDA		(5)	(5)	0	2	6	21	25	33	42	51
Depreciation and Amortization		3	3	3	3	3	7	7	7	7	7
Interest Expense		4	5	6	7	7	11	10	8	5	5
Less: Tax expense		0	0	0	0	0	1	3	6	9	12
PAT		(12)	(13)	(10)	(8)	(5)	3	6	13	21	28
EBITDA margin		Nm	nm	0%	2%	3%	6%	6%	7%	8%	8%
PAT margin		Nm	nm	nm	nm	nm	1%	2%	3%	4%	5%
In INR Crores	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Net Cash Inflow	(45)	(8)	(5)	(1)	2	4	12	19	23	29	35

Project IRR:	**23.9 %**
Payback period :	**8-9 Years**

**Project IRR Computed considering 30 year financial plan and salvage value at 5% of initial capex at the end of 30 years*

Projected Balance Sheet Statement – Model 1 (Own manufacturing based out of leased premises)

Balance Sheet INR Crores	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Shareholder Equity											
Equity	12	12	12	12	12	29	29	29	29	29	29
Reserves		(12)	(25)	(35)	(42)	(47)	(44)	(38)	(24)	(3)	25
Grant	5	5	5	5	5	5	5	5	5	5	5
Liabilities											
Term Loan	28	28	27	25	24	63	61	57	53	48	42
Payables		10	10	13	15	18	33	37	44	51	58
Short term borrowing	-	11	22	31	38	40	38	30	17	-	-
Total Liabilities	**45**	**54**	**51**	**51**	**52**	**108**	**122**	**121**	**123**	**130**	**160**
Assets											
Land	-	-	-	-	-	-	-	-	-	-	-
Gross Block	43	43	40	37	34	87	84	77	71	64	58
Less: Accumulated Depreciation	-	3	3	3	3	3	7	7	7	7	7
Net Block	43	40	37	34	31	84	77	71	64	58	51
Inventory	-	0	0	0	0	0	1	0	0	0	0
Receivables	-	13	13	16	20	23	44	49	57	66	76
Cash & Bank	2.2	0.3	0.2	0.3	0.4	0.3	0.7	0.5	1.1	5.3	32.2
Total Assets	**45**	**54**	**51**	**51**	**52**	**108**	**122**	**121**	**123**	**130**	**160**

Projected Cash Flow Statement – Model 1 (Own manufacturing based out of leased premises)

Cash Flow Statement INR Crores	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Cash flow from Operations											
EBITDA	-	(4.7)	(5.1)	(0.3)	2.5	5.5	21.3	25.3	33.2	41.9	51.3
Corporate tax	-	-	-	-	-	-	(1.2)	(2.8)	(5.7)	(9.1)	(12.1)
Short term borrowing	-	10.7	11.2	9.0	7.2	1.4	(2.0)	(8.0)	(13.0)	(16.5)	-
Net changes in working capital	-	(3.7)	0.5	(0.7)	(0.8)	(0.9)	(5.0)	(1.2)	(2.1)	(2.2)	(2.4)
CFO	**-**	**2.3**	**6.6**	**7.9**	**8.9**	**6.1**	**13.1**	**13.4**	**12.4**	**14.1**	**36.8**
Cash flow from Investing											
Capital Expenditure	(42.5)					(55.6)					
CFI	**(42.5)**	**-**	**-**	**-**	**-**	**(55.6)**	**-**	**-**	**-**	**-**	**-**
Cash flow from Financing											
Initial equity	11.9	-	-	-	-	17.5	-	-	-	-	-
Grant	5.0										
Interest on short term borrowing	-	(1.3)	(2.7)	(3.9)	(4.8)	(4.9)	(4.7)	(3.7)	(2.1)	-	-
Interest payment on term loan	-	(2.8)	(2.7)	(2.6)	(2.4)	(2.3)	(6.2)	(5.9)	(5.5)	(5.0)	(4.5)
Change in debt	27.8	-	(1.3)	(1.4)	(1.5)	39.1	(1.9)	(3.9)	(4.3)	(4.8)	(5.3)
CFF	**44.7**	**(4.1)**	**(6.7)**	**(7.9)**	**(8.8)**	**49.4**	**(12.8)**	**(13.5)**	**(11.9)**	**(9.8)**	**(9.8)**
Opening Cash		2.2	0.3	0.2	0.3	0.4	0.3	0.7	0.5	1.1	5.3
Net change in cash	2.2	(1.9)	(0.1)	0.1	0.1	(0.1)	0.4	(0.1)	0.5	4.2	26.9
Closing Cash	**2.2**	**0.3**	**0.2**	**0.3**	**0.4**	**0.3**	**0.7**	**0.5**	**1.1**	**5.3**	**32.2**

Rollout Plan: Model 2 (Contract Manufacturing setup)

- While opting for contract manufacturing route the private player would have the capability to rollout the products across larger number of districts as against the model where the company manufactures on its own. This is primarily on account of low initial capital investment required which would enable the firm to have a better focus on rolling out the proposed in larger number of districts simultaneously.

Proposed CAPEX Assumptions: Model 2 (Contract Manufacturing)

Phase 1 Project Cost (INR crores)*	
IT Assets	0.14
IDC + Pre-ops + Contingency	0.03
Working Capital Margin	0.2
Total Capex	**0.36**

- Source of funding – **Debt: INR 0.25 Crores; Equity: 0.11 Crores**

Business Plan Assumptions: Model 2 (Contract manufacturing)

	Model Assumption
Volume	■ Quantity procured from contractors in Year 1: 30,000 MT ■ Volume increment assumed at 9% for the first year which eventually stabilises to 3% translating to sales volume of 108,000MT by year 30
Conversion Cost	■ **Conversion cost paid to third party assumed at INR 13/ Kg**, same is **inclusive of portion of logistics cost at INR 3/kg** – Model assumes logistics to shared equally between contract manufacturer and the company ■ Conversion cost increase is taken as 5% per year
Manpower Costs	**Central Functions** ■ Total 22 full time employess planned for the central office (Total annual cash outlay of INR 1.3 Crores considered) ■ Employees considered include: – Sales Manager (1), Sales Team (10), IT Head (1), HR Head (1), Finance Head (1), Finance Staff (1), Sourcing Team (3) & Security Guards (4) ■ Yearly increment in wages / salary considered at 8%
Advertisement & Promotion Costs	■ As in model for own manufacturing, the advertisement cost is segregated as 98% for ATL and 2% for BTL activities for Low Cost Fortified Energy Foods

	■ ATL advertisements cost overlay of ~INR 7.7 Crores will be spread across TV media (INR 5.2 Crores) , Print media (INR 96 Lakhs)and radio media (INR 1.4 Crores) ■ BTL is assumed at 2% of total advertisement cost outlay ■ Promotions are assumed at 4% of annual revenue ■ Total A&P including promotions is assumed to grow at 4% on yearly basis
Other Operating Expenses	■ **Logistics cost per ton –** INR 1,765; this cost per ton is half the cost considered in previous model as it is assumed that the constractor will be bearing other half of the logistics cost – Logistics cost increase rate is considered as 5% per year ■ **Rental Cost** – Rental cost for office space is assumed at ~INR 14 Lakhs at INR 75/sft for 1500 sft office space ■ **Other overheads –** 6% of revenue for first 2 years & 4% for remaining years
Pricing	■ Selling Price is taken as INR 57 /Kg as derived in own manufacturing model ■ Price increase is taken as 5% per year

Balance Sheet Assumptions – Model 2 (Contract Manufacturing)

Key heads	Assumptions
Creditors	■ Assumed 45 days of COGS, manpower, fuel and rent
Debtors	■ Assumed 45 days of Revenue
Inventory	■ Assumed 45 days – Inventory is assumed as 5% of Plant & Machinery initial cost
Loans	■ Short term borrowing interest rate is 12.5%

Projected Profit and Loss Account – Model 2 (Contract Manufacturing)

Profit & Loss In INR Crores	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Volume procured (in tons)		30,000	32,690	35,379	38,069	40,759	43,448	46,138	48,828	51,517	54,207
Pricing											
Base price (INR/ Kg)		57	60	63	66	69	73	76	80	84	88
Revenue		**171**	**196**	**222**	**251**	**282**	**316**	**352**	**392**	**434**	**479**
COGS		120	137	156	176	198	222	247	275	304	336
Gross Profit		51	58	66	75	84	94	105	117	129	143
Conversion Cost		39	45	51	57	64	72	80	89	99	109
Operating expenses											
- Manpower costs		1	1	1	2	2	2	2	2	2	3
- Logistics		5	6	7	8	9	10	11	12	13	15
- Advertising & Promotion		15	15	16	16	17	18	18	19	20	21
- Rent		0	0	0	0	0	0	0	0	0	0
- Other Overheads		10	11	8	9	10	11	13	14	16	17
Total Operating Expenses		70	78	83	92	102	113	125	137	151	165
EBITDA		**(19)**	**(20)**	**(17)**	**(17)**	**(18)**	**(19)**	**(20)**	**(20)**	**(21)**	**(22)**
Depreciation and Amortization		0	0	0	0	0	0	0	0	0	0
Interest Expense		4	7	11	15	20	25	32	40	49	59
Less: Tax expense		0	0	0	0	0	0	0	0	0	0
PAT		**(23)**	**(27)**	**(27)**	**(32)**	**(38)**	**(44)**	**(52)**	**(60)**	**(70)**	**(81)**
EBITDA margin		Nm	nm	nm	nm	nm	nm	nm	nm	nm	nm
PAT margin		Nm	nm	nm	nm	nm	nm	nm	nm	nm	nm
In INR Crores	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Net Cash Inflow	(0)	(25)	(21)	(18)	(18)	(19)	(20)	(21)	(22)	(23)	(24)

- IRR calculated for the above model is negative as the net cash flow is negative throughout the project life leading to non-viable business proposition
- In order to achieve IRR which are similar to own manufacturing model expectations, we will have to increase price of the product to INR 62/ Kg
- However, since we are majorly addressing the rural consumers in lower income group, who are price sensitive this strategy may not be a viable business proposition from product acceptance perspective

Recommendations:

- Basis our analysis we believe **business model around own manufacturing would be better option to execute** not only because it provides better returns at lower price points which is critical for product's target group, also because it provides the company a better control on the quality of product which is critical to strengthen overall brand image of the firm and enhance product's acceptability.
- **Within own manufacturing model we believe going with the operations based out of leased premise would strategically be better option** even though returns from that approach is marginally lower (Project IRR at 23.9% vs 24.1% under operations from owned premise) primarily on account of lesser complications which company might have to deal with while handling land related issues.

To conclude, in order to assess the investment feasibility, we have assessed three business models – (i) Commercial launch of the product using FMCG channels with own manufacturing through own premises, (ii) - Commercial launch of the product using FMCG channels through own manufacturing but from leased premises, and (iii) Commercial launch of the product using FMCG channels through contract manufacturing

The business model around own manufacturing (models i and ii) provides better returns and also helps retain control over the manufacturing process, and is thus a more appropriate model as compared to contract manufacturing (model iii).

Assessment of the options of own manufacturing (models i and ii) indicate that, operations through leased premises (model ii) is more appropriate as compared to own premises (model i) as the returns between them do not vary significantly and leased set – up avoids issues related to land ownership.

11 Conclusion and Recommendation

Inadequate dietary intake across the respondents is a concern, indicating a need for Fortified Energy Foods. The current consumption level of Fortified Energy Foods is low (195 out of 520 respondents) primarily because of lack of awareness regarding Fortified Energy Foods and expensive pricing (70% of the respondents find available products in the market unaffordable).

The latent need for Fortified Energy Foods at low cost was clearly observed amongst the households with monthly income in the range of INR 1000-10000, to address the issues on dietary intake provided awareness is created and accessibility through appropriate distribution channel is established.

The need for low cost Fortified Energy Foods is currently not being addressed and there is lack of such products in the retail markets.

The products currently available in retail markets, such as malt and dairy based Health Food Drinks are expensive for poor and lower middle class consumers, as a 500gm pack size costs in excess of INR 200.

The low cost locally manufactured products, which are based on regional diets and food preferences of people in different states and are manufactured by regional players, are low on nutritional content and lack in overall benefits. In addition, these locally manufactured products have a limited acceptance among consumers due to the perception of being inferior in quality and being non-branded.

Other products such as RUTFs and locally prepared fortified foods do not have a commercial distribution set-up. As a result, there is an addressable opportunity that exists for low cost Fortified Energy Foods that offer high utility to consumers in terms of nutritional elements at a low price, being launched in the retail market.

Consumer surveys indicated that the current products available in the markets were not affordable, and that the per serving cost of less than INR 10 is desirable.

Analysis indicates that the addressable market opportunity for low cost Fortified Energy Foods in India for the poor and lower middle class consumers is estimated at ~29.1 million tonnes across rural and urban markets. Out of this potential demand, the rural market accounts for ~23.0 million tonnes (~79% of the estimated demand) and the rest ~6.1 million tonnes is from the urban market. The addressable market is a large opportunity for private players operating in the food sector.

Despite a large addressable market opportunity, there has been no participation from the private sector with products for the retail markets, although the private sector continue to operate in the Business to Business set-up.

Large corporates manufacturing health food drinks target high income consumers, while small and medium enterprises that manufacture RUTFs and local fortified products lack the ability to distribute their products in retail markets.

Local products manufactured by regional players are focused around sales and margins, and have limited attention on quality.

Regional FMCG players and MSMEs in the food sector are most suited to address the vast opportunity as they have a strong regional presence. However, they do not have awareness about low cost Fortified Energy Foods and need to be made more aware about the existing opportunity.

Some SMEs indicated that the target consumers for the low cost Fortified Energy Food have limited purchasing power and hence would be unable to afford the product which leads to low demand. Additionally, there are concerns that low price points and significant investments would lead to relatively lower return on investments.

To promote private sector participation, certain enablers can be leveraged by private players. These include funding options such as philanthropic funds or family offices of business conglomerates that specifically focus on initiatives with social objectives. These funds do not specifically focus on profits as their objective, but help the conglomerates to fulfil their social responsibility objectives. In addition, there are several alternative investment funds that also invest in projects with social themes.

The proposed strategy for introducing low cost Fortified Energy Foods in the Market through Private Sector has taken into consideration measures to address infrastructural challenges such as limited connectivity, establishing a deep distribution network to launch a new product, serving irregular demand from agrarian rural centers, addressing buying behavior of consumers having preference for homemade alternatives, and devising appropriate advertising & promotion strategies to address limitations with traditional marketing channels.

Sourcing strategy of existing FMCG players in the Fortified Energy Foods sector is either internally controlled or outsourced to third party aggregators. For manufacturing, existing players either use own manufacturing set-up or make use of third party contract manufacturers to manufacture the entire or a part of the product. For distribution, these players use a combination of direct and indirect distribution. While direct distribution is primarily focused on urban areas where the FMCG players have direct visibility up to the POS level, indirect distribution is used for expanding rural markets through sub-distributors.

Advertising & Promotion is usually undertaken using a combination of ATL (television, radio, and print media) and BTL (pamphlets and merchandising) tools.

Based on the findings from these market indicators along with analysis and discussions with industry stakeholders, it is assessed that a localized strategy catering to an immediate catchment can optimize costs associated with serving the market. The sourcing strategy for the low cost Fortified Energy Food should lay emphasis on minimizing the effective procurement cost to maximize margins, as well as on efficient demand replenishment of key raw materials to create a sustained supply chain. Sourcing strategies such as direct procurement from farmers in the catchment area, procurement through centralized mandis, or procurement through third party aggregators can be leveraged to arrive at the most optimum option, keeping in mind the nature of product formulation and the associated dependency on agricultural or processed agricultural input.

Based on the localization approach, we recommend having a decentralized manufacturing set-up with multiple manufacturing facilities catering to the demand in their respective catchment area. The operating model suggest having 4 manufacturing facilities to serve the demand in the state of Karnataka. Based on comparative assessment, to determine the most suited manufacturing set-up between own manufacturing and contractual (3rd party) manufacturing, indicates that an own manufacturing set-up, which is regional in nature, operating from leased premises and catering to a local catchment demand, provides project IRR of ~23.9%. In addition, having such a strategy would also help better control over the product and associated processes.

Given that rural markets have scattered point of sales, it would require a deep distribution set-up. The proposed sales and distribution strategy is to have a mix of direct coverage as well as controlled distribution. The direct coverage model is proposed to cater to markets with population in excess of 1,50,000 with distributors getting serviced by the company directly, the distributors would further sell the products to retailers. This channel helps the company retain control over the distribution set-up. The controlled distribution model would use sub-distributors that receive goods from larger distributors / stockists and would help increase the reach of private player and cater to isolated rural centers that have limited periodic demands. In addition, it is proposed that incentives such as high margins to channel members such as retailers and distributors, be provided as these are important to incentivize these channel members to stock and help push the product with customers. These incentives are more crucial during the initial years of product launch, and can gradually be brought down to industry levels once the product gains acceptance in the market.

To help create brand recognition and acceptability of the low cost Fortified Energy Food, a marketing strategy has been proposed. An effective marketing strategy is necessary in order to have strong brand awareness and high visibility

among the poor and lower middle class consumers. Market surveys also suggest that advertising & promotion is important to create awareness about the product. It is recommend that marketing including ATL and BTL tools addressing the target group be implemented. Given the language barriers in several catchment areas, the communication in regional languages for ATL channels such as television, radio, and newspapers would be relevant to create acceptance and connect for the low cost Fortified Energy Food product. BTL activities such as channel schemes and distribution of pamphlets and leaflets at primary schools and primary health centers, and free sampling at retail stores, are proposed to help create awareness. Use of popular regional celebrities as brand ambassadors are also useful in creating high visibility as well as brand recall in the minds of target consumers.

The viable pricing for the proposed low cost Fortified Energy Food for distributors is projected at INR 57/kg, and for the consumer at INR 67 - 70/kg.

Incorporating the elements of the suggested strategy into a business model with own manufacturing set-up from owned premises gives project level returns of ~ 24.1%, while a model with own manufacturing set-up but from leased premises gives similar returns of ~ 23.9%, but this model has lesser complications related to land ownership.

It is recommended that, a localized strategy for sourcing with own manufacturing from leased premises supported by direct and controlled distribution and ATL and BTL marketing be implemented to address the opportunity for a low cost Fortified Energy Foods in the market through the Private Sector.