ENERGY FOOD

1.0 INTRODUCTION

With growing health awareness, many people have become very selective about their diet and there is a marked preference for low calorie high protein food supplements. At the same time, poor people cannot afford costly energy food available in the market. Thus, there is a growing market for good quality health food if the prices are reasonable. Growing children is yet another target group. CFTRI, Mysore, has standardised the process long time back.

2.0 PRODUCT

2.1 Applications

Energy food is prepared from easily available ingredients like wheat, gram dal, jaggery, edible groundnut cake and minerals and vitamins. It is ready-to-eat food item and does not require extensive cooking. Some water or milk can be added depending upon individual choice. It can also be used along with other materials while making halwa, chapati etc. This product is a common product and can be produces across the nation. However, this note considers UP as a potential location.

2.2 Availability of know-how and Compliances

CFTRI, Mysore, has successfully developed the technical know-how. Compliance under the PFA Act is compulsory.

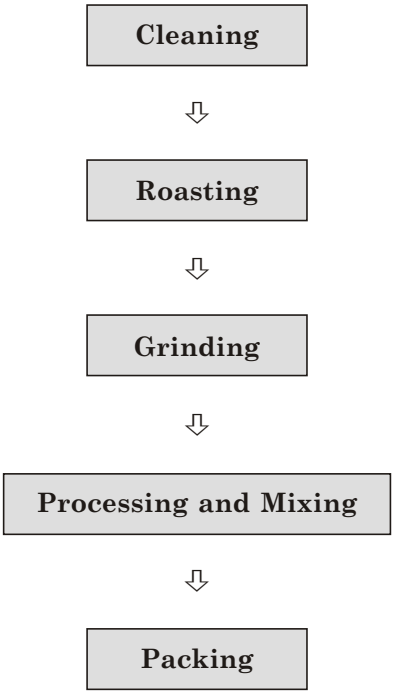
3.0 MARKET POTENTIAL

There are many health foods especially targetted at urban markets as they are priced at around Rs.100-120 per kg. But bulk of them are for children. But there is a large semi-urban and rural market wherein these products are considered to be very costly. With greater health awareness, people are preferring diet food but presently such products are not easily

available in the price range of around Rs.25-30 per kg. If such product is made available then many people who can not afford prices of some of the existing products may also opt for such a product. Adequate publicity, proper distribution channels and affordable pricing would play a major role.

4.0 MANUFACTURING PROCESS

It is not very complicated. Cleaned wheat is roasted in the roaster into golden brown colour and then ground in a hammer mill. Similarly, gram dal and edible groundnut cake are also roasted and ground. Jaggery is mixed with calcium carbonate and wheat flour and processed in multi-mill to obtain coarse flour. Finally, all the ingredients alongwith pre-mixed minerals and vitamins are thoroughly mixed and packed. The typical mix could be 60% wheat flour, 10% gram dal, 10% edible groundnut cake, 15-16% jaggery and balance would be calcium carbonate and vitamins. It is imperative to maintain strict quality control. The process flow Chart is as under:



5.0 CAPITAL INPUTS

5.1 Land and Building

Land of around 200 sq.mtrs. with built-up area of 125 sq.mtrs. would be adequate. Main production area would not require more than 60 sq.mtrs. but storage and packing would occupy considerable space. Cost of land is assumed to be Rs. 60,000/- whereas construction cost is taken at Rs. 3.25 lacs.

5.2 Machinery

Rated annual capacity of 200 tonnes would need following equipments.

Item	Qty.	Price (Rs.)
Electrically-operated Roaster	1	1,25,000
Hammer Mill	1	60,000
Multi-Mill	1	70,000
Homogeniser	1	70,000
Sieves, SS Utensils, Weighing scales etc	--	50,000
	Total	**3,75,000**

5.3 Miscellaneous Assets

Other assets like furniture & fixtures, packing tables, plastic tubs, storage racks etc. would cost Rs. 70,000/-.

5.4 Utilities

Total power requirement shall be 30 HP whereas per day water requirement shall be around 1000 ltrs.

5.5 Raw and Packing Materials

Materials like wheat, gram dal, edible groundnut cake, jaggery shall be available locally. Major requirement will be wheat for which arrangements for bulk supply must be made. Printed polythene bags with cartons and BOPP tape shall be the packing materials.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	2	2,500	5,000
Helpers	4	1,250	5,000
Salesman	1	2,500	2,500
		Total	**12,500**

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	2
Completion of civil work and placement of orders for machinery	6
Erection, installation and trial runs	2

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Land and Building

Particulars	Area (Sq.Mtrs)	Cost (Rs.)
Land	200	60,000
Building	125	3,25,000
	Total	**3,85,000**

8.2 Machinery

Total cost of machinery is expected to be Rs. 3.75 lacs as explained earlier.

8.3 Miscellaneous Assets

Expenditure under this head is estimated to be Rs. 70,000/- as stated before.

8.4 Preliminary & Pre-operative Expenses

Pre-production expenses like resigration, establishment, administrative and travelling charges, interest during implementation, trial runs etc. are likely to be Rs.75,000/-.

8.5 Working Capital Requirements

At 60% capacity utilisation in the first year, the working capital needs would be as under:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Raw and Packing Materials	½ Month	30%	0.92	0.65	0.27
Stock of Finished Goods	½ Month	25%	1.00	0.75	0.25
Receivables	½ Month	25%	1.50	1.10	0.40
Other Expenses	1 Month	100%	0.30	--	0.30
		Total	**3.72**	**2.50**	**1.22**

8.6 Cost of the Project & Means of Financing (Rs. in lacs)

Item	Amount
Land and Building	3.85
Machinery	3.75
Miscellaneous Assets	0.70
P&P Expenses	0.75
Contingencies @ 10% on Land and Building & Plant & Machinery	0.75
Working Capital Margin	1.22
Total	**11.02**
Means of Finance	
Promoters' Contribution	3.32
Term Loan from Bank/FI	7.70
Total	**11.02**
Debt Equity Ratio	2.32 : 1
Promoters' Contribution	30%

Financial assistance in the form of grant is available from the Ministry of Food Processing Industries, Govt. of India, towards expenditure on technical civil works and plant and machinery for eligible projects subject to certain terms and conditions.

9.0 PROFITABILITY CALCULATIONS

9.1 Production Capacity & Build-up

As against the annual rated capacity of 200 tonnes, actual working in the 1st year is envisaged to be 60% and thereafter 75%.

9.2 Sales Revenue at 100%

Assuming selling price of Rs. 32,000/ton, the annual sales at 100% activity level would be Rs.64.00 lacs.

9.3 Raw and Packing Materials Required at 100% (Rs. in lacs)

Product	Qty. (Tonnes)	Price/Ton (Rs.)	Value
Wheat	120	14,000	16.80
Gram Dal	20	35,000	7.00
Edible Groundnut Cake	20	20,000	4.00
Jaggery	30	25,000	7.50
Vitamins, Minerals, Calcium Carbonate etc	--	--	0.75
Packing Materials @ Rs.1500 per ton	--	--	3.00
		Total	**39.05**

9.4 Utilities
Annual cost of utilities is estimated to be Rs. 75,000/-.

9.5 Selling Expenses
Advertisement and publicity, free sampling, attractive selling commission etc. would account for 20% of sales every year.

9.6 Interest
Interest on term loan of Rs. 7.70 lacs is computed @ 12% per annum assuming repayment in 4 years including a moratorium period of 1 year whereas on working capital from bank it is taken @ 14% per annum.

9.7 Depreciation
It is calculated on WDV basis @ 10% on building and 20% on machinery and miscellaneous assets.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	**Installed Capacity**	**-- 200 Tonnes ---**	
	Capacity Utilisation	60%	75%
	Sales Realisation	38.40	48.00
B	**Cost of Production**		
	Raw and Packing Materials	23.43	29.29
	Utilities	0.45	0.56
	Salaries	1.50	1.80
	Stores and Spares	0.24	0.36
	Repairs & Maintenance	0.36	0.50
	Selling Expenses @ 20%	7.68	9.60
	Administrative Expenses	0.60	0.75
	Total	**34.26**	**42.86**
C	**Profit before Interest & Depreciation**	**4.14**	**5.14**
	Interest on Term Loan	0.84	0.63
	Interest on Working Capital	0.35	0.44
	Depreciation	1.22	1.00
	Profit before Tax	1.73	3.07
	Income-tax @ 20%	0.35	0.61
	Profit after Tax	1.38	2.46
	Cash Accruals	2.60	3.46
	Repayment of Term Loan	--	2.30

11.0 BREAK-EVEN ANALYSIS (Rs. in lacs)

No	Particulars		Amount
[A]	**Sales**		**38.40**
[B]	**Variable Costs**		
	Raw and Packing Materials	23.43	
	Utilities (70%)	0.32	
	Salaries (70%)	1.05	
	Stores & Spares	0.24	
	Selling Expenses (70%)	5.38	
	Admn Expenses (50%)	0.30	
	Interest on WC	0.35	**31.07**
[C]	**Contribution [A] - [B]**		**7.33**
[D]	**Fixed Cost**		**4.40**
[E]	**Break-Even Point [D] ÷ [C]**		**60%**

12.0 [A] LEVERAGES

Financial Leverage

= EBIT/EBT

= 2.92 ÷1.73

= 1.69

Operating Leverage

= Contribution/EBT

= 7.33 ÷ 1.73

= 4.24

Degree of Total Leverage

= FL/OL

= 1.69 ÷ 4.24

= 0.40

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr
Cash Accruals	2.60	3.46	4.12	4.73
Interest on TL	0.84	0.63	0.35	0.17
Total [A]	**3.44**	**4.09**	**4.47**	**4.90**
Interest on TL	0.84	0.63	0.35	0.17
Repayment of TL	--	2.55	2.55	2.60
Total [B]	**0.84**	**3.18**	**2.90**	**2.77**
DSCR [A] ÷ [B]	**4.10**	**1.24**	**1.54**	**1.86**
Average DSCR	**---------- 2.18 ----------**			

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 11.02 lacs.

(Rs. in lacs)

Year	Cash Accruals	20%	24%	28%	32%
1	2.60	2.17	2.10	2.03	1.97
2	3.46	2.40	2.25	2.11	1.99
3	4.12	2.39	2.16	1.97	1.79
4	4.74	2.28	2.01	1.77	1.56
5	4.90	1.97	1.67	1.43	1.23
	19.82	**11.21**	**10.19**	**9.31**	**8.54**

The IRR is around 22%.

Some of the machinery suppliers are

1. Gardeners Corpn, 158, Golf Links, New Delhi 110 003
2. B. Sen. Berry & Co, 65/11, Rohatak Rd., Karol Bagh, New Delhi 110 005
3. SP Engg. Corpn, Fazalgunj, Kanpur