

# FISH MEAL



## 1.0 INTRODUCTION

Fish meal is a valuable feeding material with high contents of digestible vitamins, minerals and proteins. Fish meal is given as supplementary food to increase production of meat or eggs. By mixing in the correct proportion in compound feeds, fish meal is considered as an important poultry feed. Since the diet of domestic and poultry animals is often deficient in proteins and vitamins, fish meal has become very popular as it provides important nutrients and fills the gap.

Fish meal is made from fish which cannot be economically utilised, or fish wastes like trimmings, heads and so on.

This project profile is for setting up of a Fish Meal production unit with installed processing capacity of 150 tonnes per annum of Fish & Fish Wastes.

## 2.0 MARKET POTENTIAL

Demand for fish meal is increasing since it is an important animal feed. Many govt. and other agencies are promoting eggs as a vegetarian food and special incentives are offered to poultry farming. Changing lifestyles and increase in disposable incomes have

witnessed constant increase in consumption of eggs and chicken. This has in turn, given boost to poultry farming. This augurs well for the fish meal industry. There are some organised sector units producing fish meal but there is a good scope for small scale units as they can offer the product at competitive prices. It is necessary that the factory is located at a place where raw materials are easily available round the year e.g. near coastal area or nearer to a large fish canning and freezing factory.

## 3.0 PROCESS DETAILS

There are two types of fish viz. fatty and non-fatty fish. In case of non-fatty fish and fish wastes, the material is fed to the drier wherein the process of cooking and drying is carried out. Drying takes around 6 to 8 hours as the moisture content has to be 10%. This dried material is then pulverised and sieved to segregate large particles and then packed in jute bags with plastic liner. As regards fatty fish, the material is cooked in open pan cooker and then it is pressed under screwed press to remove water. Cakes thus obtained are dried as per the process adopted for non-fatty fish. The yield is around 40%.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	5.54
Machinery & Equipment	7.13
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	1.17
Contingencies & Escalation @ 3%	0.44
Working Capital	0.93
<b>TOTAL</b>	<b>17.21</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project will be set up in own land.

**4.2 Building & Civil Works:** Details of building & civil works are given below.

Particulars	Area (Sqm)	Rate (Rs)	Amount (Rs)
Workshed (Open shed, CGI sheet roof, Concrete floor)	80	3500	280000
Store Room (Brick wall, CGI sheet roof, Concrete floor)	45	5500	247500
<b>Sub-total</b>			<b>527500</b>
Add: Electrification, water supply, etc @ 5%			26375
<b>TOTAL</b>			<b>553875</b>
<b>Say (Rs. in lacs)</b>			<b>5.54</b>

**4.3 Machinery & Equipment:** Details of machinery & equipment are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Rotary drum dryer with accessories	1	350000	350000
Electric Mini Boiler	1	75000	75000
Hammer type pulveriser with electric motor	1	80000	80000
Steam-jacketted cooking vessel	1	25000	25000
Screwed Press	1	20000	20000
Water tanks	LS	LS	50000
Miscellaneous items	LS	LS	20000
<b>Sub-total</b>			<b>620000</b>
Add: Transportation, taxes, etc @ 15%			93000
<b>TOTAL</b>			<b>713000</b>
<b>Say (Rs. in lacs)</b>			<b>7.13</b>

**4.4 Misc. Fixed Assets:** Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (60 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>200000</b>
<b>Say (Rs. in lacs)</b>			<b>2.00</b>

**4.5 Preliminary & Pre-operative Expenses:** Details of preliminary & pre-operative expenses are given below.

Particulars	Amount (Rs lacs)
Travelling expenses	0.40
Professional & other fees	0.40
Interest during implementation	0.27
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>1.17</b>

**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipments and miscellaneous fixed assets.**4.7 Working Capital:** Details of working capital are given below.

	Period (Days)	Amount (Rs lacs)		
		Year 1	Year 2	Year 3
Raw Materials & Consumables	15	0.37	0.47	0.56
Power	30	0.12	0.15	0.19
Salary	30	0.42	0.43	0.43
Finished Goods	15	0.67	0.78	0.89
Receivables	15	0.74	0.92	1.11
<b>Total</b>		<b>2.33</b>	<b>2.75</b>	<b>3.18</b>
Working Capital Margin in Year 1 (40%)	0.93			

**5.0 MEANS OF FINANCE**

The means of finance for the project is estimated as below.

Particulars	Percent	Amount (Rs lacs)
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	6.88
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/FIs	60%	10.33
<b>TOTAL</b>	<b>100%</b>	<b>17.21</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b><u>A. INCOME</u></b>							
Installed capacity (MT)	60	60	60	60	60	60	60
Capacity utilisation	40%	50%	60%	60%	60%	60%	60%
Production at capacity utilisation	24	30	36	36	36	36	36
Price (Rs/MT)	75000	75000	75000	75000	75000	75000	75000
Income from sales/annum	18.00	22.50	27.00	27.00	27.00	27.00	27.00
<b><u>B. OPERATING EXPENSES</u></b>							
Raw Materials & Consumables	9.12	11.40	13.68	13.68	13.68	13.68	13.68
Power	1.50	1.88	2.26	2.26	2.26	2.26	2.26
Salary	5.16	5.19	5.21	5.24	5.26	5.29	5.32
Repair & Maintenance	0.15	0.18	0.21	0.25	0.30	0.37	0.44
Selling Expenses	0.18	0.23	0.27	0.27	0.27	0.27	0.27

Miscellaneous Expenses	0.09	0.11	0.14	0.14	0.14	0.14	0.14
Total Operating Expenses	16.20	18.98	21.76	21.83	21.91	22.00	22.10
Less: Working expenses capitalised	0.93	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	2.73	3.52	5.24	5.17	5.09	5.00	4.90
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Interest on Term Loan	0.82	0.73	0.60	0.47	0.34	0.20	0.07
Interest on Working Capital Loan	0.22	0.26	0.31	0.31	0.31	0.31	0.31
Net Profit	1.00	1.84	3.64	3.71	3.76	3.81	3.84
Net cash accruals	1.68	2.52	4.33	4.39	4.45	4.49	4.53
Principal Repayment	0.41	1.65	1.65	1.65	1.65	1.65	1.65

**6.1 Production Capacity:** Production of fishmeal at installed capacity is estimated as below.

Rated processing capacity/annum (MT of Fish & Fish Waste)	150
Yield of Fish Meal	40%
Total production per annum at installed capacity (MT)	60

**6.2 Raw Materials & Consumables:** Expenses on raw materials & consumables at installed capacity is estimated as below.

Particulars	Unit	Quantity	Rate (Rs)	Amount (Rs)
Fish & fish waste	Tonnes	150	15000	2250000
Packing material (50 kg jute bags)	Nos	1200	25	30000
Expenses on raw materials & consumables at installed capacity (Rs)				2280000

**6.3 Power:** Expenses on power at installed capacity is estimated as below.

Connected load (kw)	45
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	75197
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	375984

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> year is estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager (Self)	-	-	-
Machine operators/skilled workers	4	6000	288000
Sales Staff	1	4000	48000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			516000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	5.54	1%	0.06
Machinery & Equipment	7.13	1%	0.07
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in year 1			0.15

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% of sales.

**6.8 Depreciation:** Depreciation has been calculated by straight line method. The details of calculation are given below.

Description	Cost (Rs)	Rate	Amount/annum (Rs lacs)
Building & Civil Works	5.54	3.34%	0.18
Machinery & Equipment	7.13	5.28%	0.38
Misc. Fixed Assets	2.00	6.33%	0.13
<b>TOTAL</b>			<b>0.69</b>

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 years including moratorium period of 9 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	10.33	9.91	8.26	6.61	4.96	3.30	1.65
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest (8%)	0.07	0.07	0.06	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.77	8.12	6.47	4.82	3.17	1.51
Month 2	Opening balance	10.33	9.77	8.12	6.47	4.82	3.17	1.51
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.07	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.64	7.99	6.33	4.68	3.03	1.38
Month 3	Opening balance	10.33	9.64	7.99	6.33	4.68	3.03	1.38
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.50	7.85	6.20	4.54	2.89	1.24
Month 4	Opening balance	10.33	9.50	7.85	6.20	4.54	2.89	1.24
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.36	7.71	6.06	4.41	2.75	1.10
Month 5	Opening balance	10.33	9.36	7.71	6.06	4.41	2.75	1.10
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.22	7.57	5.92	4.27	2.62	0.96
Month 6	Opening balance	10.33	9.22	7.57	5.92	4.27	2.62	0.96
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.09	7.43	5.78	4.13	2.48	0.83
Month 7	Opening balance	10.33	9.09	7.43	5.78	4.13	2.48	0.83
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	8.95	7.30	5.64	3.99	2.34	0.69
Month 8	Opening balance	10.33	8.95	7.30	5.64	3.99	2.34	0.69
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.00
	Closing balance	10.33	8.81	7.16	5.51	3.85	2.20	0.55
Month 9	Opening balance	10.33	8.81	7.16	5.51	3.85	2.20	0.55
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.01	0.00
	Closing balance	10.33	8.67	7.02	5.37	3.72	2.07	0.41
Month 10	Opening balance	10.33	8.67	7.02	5.37	3.72	2.07	0.41

	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.02	0.01	0.00
	Closing balance	10.19	8.54	6.88	5.23	3.58	1.93	0.28
Month 11	Opening balance	10.19	8.54	6.88	5.23	3.58	1.93	0.28
	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.03	0.02	0.01	0.00
	Closing balance	10.05	8.40	6.75	5.09	3.44	1.79	0.14
Month 12	Opening balance	10.05	8.40	6.75	5.09	3.44	1.79	0.14
	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.91	8.26	6.61	4.96	3.30	1.65	0.00
Principal Repayment		0.41	1.65	1.65	1.65	1.65	1.65	1.65
Interest		0.82	0.73	0.60	0.47	0.34	0.20	0.07

**6.10 Interest on Working Capital Loan:** Interest rate on working capital loan has been assumed at 16%. Details of calculation are given below.

(Rs in lacs)

Description	Yr 1	Yr 2	Yr 3
Total Current Assets	2.33	2.75	3.18
Bank Loan (60%)	1.40	1.65	1.91
Interest (16%)	0.22	0.26	0.31

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7	Total
Profit After Tax (Net Profit)	1.00	1.84	3.64	3.71	3.76	3.81	3.84	
Depreciation	0.69	0.69	0.69	0.69	0.69	0.69	0.69	
Interest	0.82	0.73	0.60	0.47	0.34	0.20	0.07	
Total	2.51	3.26	4.93	4.86	4.79	4.70	4.60	29.64
Interest	0.82	0.73	0.60	0.47	0.34	0.20	0.07	
Loan repayment	0.41	1.65	1.65	1.65	1.65	1.65	1.65	
Total	1.24	2.38	2.25	2.12	1.99	1.86	1.72	13.56
DSCR	2.03	1.37	2.19	2.29	2.41	2.53	2.67	

Average DSCR = 2.19

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	18.00	22.50	27.00
B. Variable cost			
Raw Materials & Consumables	9.12	11.40	13.68
Power	1.50	1.88	2.26
Selling Expenses	0.18	0.23	0.27
Miscellaneous Expenses	0.09	0.11	0.14
Total variable cost	10.89	13.62	16.34
C. Contribution (A-B)	7.11	8.88	10.66

D. Fixed & Semi-fixed Costs			
Salary	5.16	5.19	5.21
Repair & maintenance	0.15	0.18	0.21
Interest on Term Loan	0.82	0.73	0.60
Interest on Working Capital Loan	0.22	0.26	0.31
Depreciation	0.69	0.69	0.69
Total fixed cost	7.04	7.05	7.02
E. BREAK EVEN POINT	99.09%	79.33%	65.83%
F. BEP at operating capacity	39.64%	39.67%	39.50%
G. Cash BEP	35.76%	35.79%	35.62%

## 9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)									
Year	0	1	2	3	4	5	6	7	
<b>CASH OUTFLOW</b>									
Capital Expenditure	15.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.33	0.43	0.43	0.00	0.00	0.00	0.00	0.00
Total (A)	15.11	2.33	0.43	0.43	0.00	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>									
Profit After Tax		1.00	1.84	3.64	3.71	3.76	3.81	3.84	
Add: Depreciation		0.69	0.69	0.69	0.69	0.69	0.69	0.69	
Add: Interest		0.82	0.73	0.60	0.47	0.34	0.20	0.07	
Add: Salvage Value (15%)								2.27	
Total (B)	0.00	2.51	3.26	4.93	4.86	4.79	4.70	6.87	
NET FLOW (B-A)	-15.11	0.18	2.83	4.50	4.86	4.79	4.70	6.87	

IRR = 15%

## MACHINERY SUPPLIERS

- Shiva Engineers  
Patel Avenue, Plot No.165, Flat No.1, Right Bhusari Colony, Nr. Kothrud Bus Depot, Paud Road, , Pune, Maharashtra -411038, India
- Giri Plast  
123, Damji Shamji Ind. Complex Off Mahakali Caves Road, Opp. Nelco, Andheri (E), , Mumbai, Maharashtra -400093, India
- Shiva Subramaniya Industries  
No. 55/B, 1st Cross, Manjunatha Nagar, New Guddahalli, Mysore Road, , Bengaluru, Karnataka -560026, India