
Sector	Agro and Food Processing
Sub - sector	Marine Sector
Project No.	AF-18
Project Title	Shrimp farming and processing unit in Kutchh

Project Description

The project envisions setting up of integrated shrimp farming and a processing unit in the coastal area of Gulf of Kutchh. The project shall have its own feed mill to supply fish feed for hatchery and shrimp farms.

Product Application

A shrimp is a kind of seafood that is used as an input, for a variety of processed food products. It can be barbecued, boiled, broiled, baked and sautéed. Variety of shrimp products like pineapple, lemon, coconut, pepper shrimp and shrimp soup, stew, salad, burger, sandwich, kebabs, gumbo, pan fried, deep fried, stir fried are available and largely consumed in USA and Japan. Thus, Shrimp has domestic and global market as an important sea food and as input into a variety of processed food products. Apart from Fresh Shrimp, there is also very large demand for frozen shrimp in international market and hence the proposed project will also have Shrimp processing and Cold storage as integral part of the project.

Market & Growth Drivers

Market

China leads the world in Shrimp production, followed by Indonesia, India and Thailand.

USA and Japan are the leading Shrimp importing countries, with USA recently surpassing Japan followed by Spain, UK, France, and Italy, while Singapore and Canada are minor importers of Shrimp.

India's total marine export for the year 2005-2006 was around 5.12 million MT, valued at US \$ 1644.21million. Frozen shrimps dominated the market in terms of value, valued approx. US \$ 970 million i.e. 59% of the total exports. Quantifying the same, around 14.34 Lac MT of frozen shrimp were exported, that accounts for 28% quantity of the total exports done in the same period.

The major importers of Indian frozen Shrimp for 2005-2006, is USA importing around 4.57 Lac MT followed by European union 4.01 Lac MT, Japan 2.90 Lac MT and South East Asia 0.66 Lac MT.

Growth Drivers

- Compared to agriculture/animal husbandry production, aquaculture production is more cost effective and has more efficient feed to end product conversion, both in natural as well as controlled farming. This has increased market share of marine products in general and fish products like shrimps in particular.

- Shrimp farming is fast developing as against shrimp catching from deep sea fishing. This has made shrimp products cost competitive and increased their demand against poultry and meat products.
- The global demand of shrimp is growing at a rate of about 4% per year with maximum demand from United States, Europe and Japan.
- Change in food consumption pattern with the trend escalating towards preference for cosmopolitan food and increased used of fast food products world over.

Why Gujarat?

- Gulf of Kutchh is having low rain fall and hence shrimp farming can be carried out through out the year. Zingha fish catching is largely done in brackish water of Gulf of Kutchh and finds excellent domestic and export market.
- Land shelf is extending into Gulf of Kutchh up to the distance of 200 to 1000 meters from coastal area and this provides opportunity for creating shrimp farms in brackish water of the area.
- Kutchh is also having Jakhaou port where highest quantity of fish catch is brought by fishermen from deep sea fishing. This provides opportunity for fish processing for domestic and export market, including shrimp from shrimp farm.

Technology/Process

Proposed integrated shrimp farming project will have four components, feed mill, hatchery, Shrimp farm and processing unit. The technology and process aspect are briefly described here below:

Feed Mill

Shrimp nutrition or feed is not of the required quality in India. It constitutes 40-60% of the operational cost in semi intensive and intensive culture operations, and largely determines the viability of the shrimp farming industry there arise a requirement of feed mill manufacturing and hence 9600 TPD feed mill is proposed in this project. Technology for feed mill is indigenously available.

Hatchery

The high quality seed for proposed shrimp farm is available from two sources. One is the Natural Seed Resource and other is Hatchery production of prawn seeds mainly undertaken in the states of Orissa and Andhra Pradesh. The latter source is advisable as it has the advantage of controlling quality, consistency and availability of the seeds as desired while eliminating the problem of uncertainty. This would also facilitate the rearing facility within the Hatchery for brood stock rearing, maturation, spawning, larvae rearing, post larvae rearing/nursery phase, artemia hatching, isolation and maintenance of axenic unialgae culture, mass culture of algae, sea water reservoir, water treatment facility and laboratory. All these facilities will be integral part of proposed Shrimp farm project.

Farm

The suggested output of the farm would be 1500 TPA. The species of Shrimp / Prawn that can be grown is the black tiger prawn (*Penaeus Monodon*), and is the one favoured world over. The post larvae to be grown out in the farm will be available from the hatchery within the complex. The harvested prawn will also be processed in the complex.

Processing Unit

The processing unit will suffice the requirements of value addition, where initially the shrimps will be processed as plate frozen- headless raw shrimps and later on Individually Quick Frozen (IQF) and block frozen. There is scope for manufacturing several other products from Shrimp so the unit can avail value added processing advantage.

Raw Materials

The crucial requirement for a shrimp farm except for spanners, feed for fry and shrimps are pond, water intake structure, store room for feed and equipments, an area for cleaning of the harvest, a workshop and pump house, office, watch, mini laboratory and a ward room.

Shrimp Production - Gujarat

Sr. No	Year	Total Marine Production	Shrimp Production
1	2000-01	620474	53983
2	2001-02	650829	48773
3	2002-03	743638	49896
4	2003-04	609136	54196
5	2004-05	584951	55069

Source: Commissioner of Fisheries, Government of Gujarat. Production in MT

The major raw materials for an integrated shrimp project are spanners, feed for fry and shrimps.

Suggested Project Capacity & Project Cost

Feed mill - 10000 TPA, Hatchery -200 million PA, Farm -1500 TPA and Processing Unit -2500 TPA

The processing plant capacity envisaged is 2500 TPA. The processing facilities will have Two plate freezers of 5 tonnes per day each, One Blast freezer of 10 tonnes per day each, IQF unit of 500 kg/ hour and matching cooking facilities. It is envisaged that processing unit will be operational for 250 days in a year. The project cost is estimated at INR 30.2 million (US \$ 10 million).

Estimated Project cost & Means of finance

Sr. No.	Cost of project	INR in million
1	Land and land development Sq. mt.	10.00
2	Building and civil works 10000 Sq. mt	4.00
3	Plant & Machinery	

Sr. No.	Cost of project	INR in million
	a. Feed Mill 40 MT / day	2.25
	b. Shrimp processing unit 10 MT/ day	5.00
	c. Cold Storage unit 300 MT	1.50
	Sub Total (3)	8.75
4	Misc. Fixed Assets	1.00
5	Preliminary & Pre-operative	1.20
6	Provision for contingencies	1.30
	Total Fixed Assets	26.25
7	Margin Money for working capital	4.00
	Estimated Block Capital Cost of Project	30.25
	Means of Finance	
8	Promoters contribution	8.64
9	Term loan	21.61
	Total Means of Finance	30.25

As indicated above, the proposed project will require an approx 1250000 sq. mt of land with an proposed built up area of 10000 sq. mt. Considering 250 working days in a year the unit is proposed to have an installed capacity of 2500 TPA.

The total fixed cost of the project is estimated at INR 26.25 million and INR 4 million will be as working capital margin, which will make estimated capital cost INR 30.25 million. The unit being proposed to cater to domestic as well as to International demand and hence it is suggested to have a Debt equity ratio of 2.5:1. Thus, the estimated term loan amounts to INR 21.61 million and Equity at INR 8.64 million.

Plant and Machinery

The proposed project would require the following as basic and necessary plant and machinery:

List of Plant and Machinery

Sr. No.	Particulars	Quantity	Suppliers
1	Flow-freezer 10 MT / day	1	Frick India Limited, New Delhi
2	Spiral freezer 10 MT / day	1	Frick India Limited, New Delhi
3	Pre-cooler, Glazo freeze	1	Frick India Limited, New Delhi
4	Packing M/C	1 line	Tool tech, Hyderabad
5	Ice chip making	1	Frick India Limited, New Delhi
6	Paddle wheels	1	Process Masters, Pimpri, Pune
7	Shrimp washing & grading back	1	Process Masters, Pimpri, Pune

Sr. No.	Particulars	Quantity	Suppliers
	feeder		
8	Oil fired boiler	1	Thermax Ltd, Pune
9	Complete Feed mill with 40 TPD Capacity	1	Troika Process Pvt. Ltd, Mumbai.
10	Cooking plant	1	Economode Food Equipment (India) Private Ltd.. Mumbai
11	Cold storage 500 MT storage capacity		Frick India Limited, New Delhi Mech-Air Industries, Vadodara
12	Trolleys, trays & Plastic crates	Lot	Sintex Industries, Kalol. Gujarat

Utilities

The unit would necessitate utilities like water and electric power. 100 KL water per day and 800 KVA power would be a basic requirement for the proposed unit.

Man power required

The proposed unit would require strength of 100 persons, this will include 2 managerial level people, 3 maintenance supervisors, an accountant, 2 office assistant, 20 skilled and 70 unskilled workers and 2 watchmen.

Suggested Location

The suggested location for integrated Shrimp farm and a processing unit is coastal areas of Gulf of Kutchh district.

Project Time Line

The proposed project will have cumulative period of 14 - 16 months of which 6 to 8 months would entail obtaining the obligatory clearances from various authorities.

Financial Indicators

Based on the profitability projections worked out for the proposed project, key financial indicators are summarized below:

Key Financial Indicators

Sr. No	Financial Ratios	1 st Year	2 nd Year	3 rd Year
A	Break-Even Point in % Capacity	39.10	35.54	32.06
B	Debt-service Coverage Ratio	1.72	2.09	2.53
C	Average DSCR	2.11		
D	Return on Investment (ROI)	23%	27%	31%
E	IRR for 10 years Project period	17%		

The project cost and means of finance table suggests Debt Equity Ratio of 2.5:1 and IRR of the proposed project is approx. 17% for a projected period of 10 years.

Clearance Required

The proposed unit will have to register itself with Secretariat of Industrial Approvals (SIA), Ministry of Industries and Government of India, by filing Industrial Entrepreneur's Memorandum (IEM), as it will have plant and machinery investment of more than INR 10 million.

The unit will also cater to global needs and therefore it will necessitate registering with Food and Drugs Administration (FDA) of respective countries, apart from registration with Indian and state food administration.

The most critical aspect of this product will be its shelf life for export consumers and hence there will be need for import of processing and packing equipments meeting international standards and Codex standards followed by them.

The unit being an EOU will be required to obtain registration from RBI, DGFT, MOFPI and MPEDA as registered manufacturer exporter to avail export incentives.

While the need to import machinery for the food processing sector specifically for shrimp processing and imports of new capital goods are allowed without any license or clearance, all imports of machinery from abroad is subject to custom duty @ 16% + education cess + Counter veiling duty(CVD) = Applicable excise to domestic equipment manufacturers.

Agencies to be contacted

Industrial Extension Bureau

Mott MacDonald India

Gujarat Agro Industries Corporation Ltd.

Office of the Commissioner of Fisheries, Government of Gujarat