

Sector	Agro and Food Processing
Sub - sector	Food Processing
Project No.	AF-04
Project Title	Organic Milk & Milk products

Project Description

The proposed project envisages setting up of a unit that will adopt integrated methodology to manufacture Organic milk and milk products. This includes animal husbandry project of dairy farming integrated with a modern milk processing unit, to manufacture range of organic milk products under strict hygienic condition to meet organic standards and specifications of domestic and global markets.

Product Application

Organic milk is a healthy and environment friendly product. It is free from any pesticide/ chemical content and its derivatives are prepared using natural ingredients (Natural food colors and chemical free sweetener). The product range proposed in this project will include cream, paneer (cottage cheese), Curd, Butter, Ghee(Butter Oil), Khoa (Milk Mawa), yoghurts, milk based desserts & sweets, Flavored milk & Lassi.

Market & Growth Drivers

World milk production for the year 2005 as estimated by *FAO (Food and Agriculture Organization)* was 629.2 million MT. India dominates the world in liquid milk production. It produced around 91.94 million MT in the year 2005 and contributed around 14.61 % of the world production, about 50 per cent of it is converted into traditional products like Curd, buttermilk, yogurt, cream, paneer, ghee, white butter, khoa etc.

The major global Organic milk markets are UK, USA, Germany, Netherlands, France and Sweden.

USA & U.K lead the world in consumption and production of organic milk. UK produced around 322 million liters in 2005, which is estimated to increase to 451 million litres by 2007-2008.

India exports milk and milk products to Philippines, Bangladesh, Singapore, U.A.E and other Gulf countries etc; Indian milk products market is summarized in the following table.

Estimated Traditional Indian Milk Products in Global Market

Sr.No.	Product	Volume in (Million Tons)	Unit Rate (Rs.'000/tons)	Value (INR Million)
1	Ghee	1.3	100	130000
2	Butter	0.4	100	40000
3	Khoa-Based Sweets	2.0	100	200000
4	Chhana-Based Sweet	1.0	70	70000
5	Paneer (cottage cheese)	0.2	90	18000
6	Curd & Curd products	6.0	20	120000
7	Total Market Size			578000 (US\$11500 Million)

Source: *Indian Milk Products*

It is important to note that almost 46 per cent of the milk produced in our country is consumed as liquid milk, and increase in consumption can be stimulated further. Milk plays an important role in the Indian diet. Increasing health consciousness and awareness regarding harmful effects of pesticides and chemical traces in milk, market for organic milk and milk product is likely to grow manifold in India in the coming period.

The value of khoa and chhana produced in the unorganized sector is probably twice the value of all milk handled by the organized sector in the country. The traditional dairy products sector in India, like its agricultural counterpart, is grossly under managed. It, however, provides economic opportunities that even the Western dairy world would be envious of. The value of khoa and chhana-based sweets could possibly exceed INR 130,000 million.

Gujarat produced 6745.41 thousand tons of milk in the year 2004-05. Gujarat is one of the leading states in milk and milk products manufacturing, having a share of approx. 20 % of the Indian dairy products market. Gujarat is having several units manufacturing milk products in Co-operative and Private sector.

Growth Drivers

- Milk and milk products are daily consumption items in India and fall under FMCG category which has average growth rate of 12 to 15% in India and 5 to 7 % in the Global market.
- Demand for Organic milk and milk products will grow initially at a slower rate than ordinary milk products due to its higher pricing level and small volumes.
- Consumer's outlook for food products is becoming more precise and definite in terms of safety and quality. This will lead to growth of organic food industry in general and Organic milk and milk products in particular.
- Organic milk and milk products market will increase subsequently at a faster rate with increase in awareness about the benefit offered by the product group and with increase in production that will reduce the price gap, to generate further demand.

Why Gujarat?

- Gujarat is having well established dairy industry and offers synergy for organic milk and milk products production.
- Technical manpower for milk production and processing is readily available in Gujarat as several operating units already exist in the state.
- Gujarat also has traditional knowledge about the methodology adopted for organic milk and milk products manufacturing.
- Due to limited irrigation facilities available in many pockets of Gujarat, there is limited use of Chemical pesticides and fertilizer and this offers good potential for converting these areas into Organic milk and milk products manufacturing pockets.

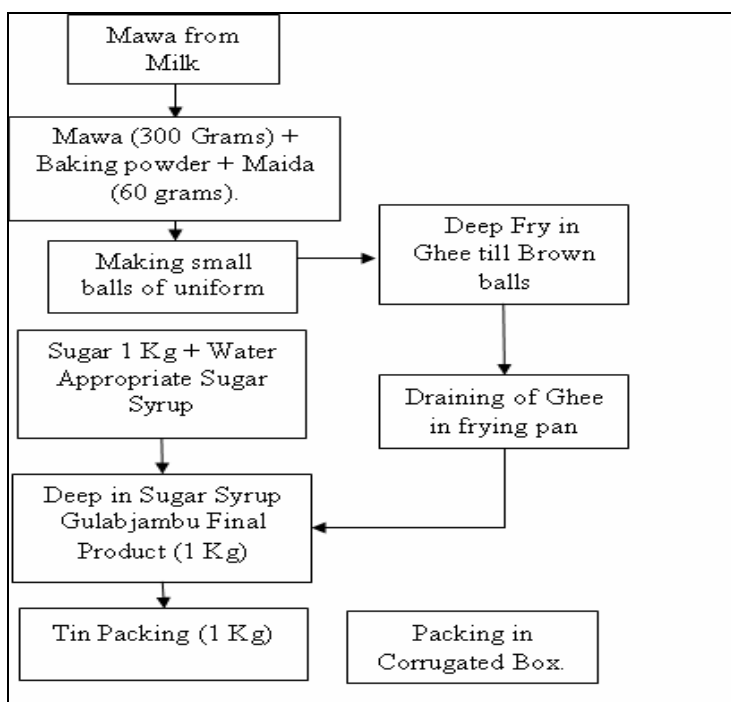
Technology and Manufacturing Process

Organic milk and milk products unit is more of a concept, and hence technology and process have been discussed keeping these aspects in view. This project has two distinct activities;

- a) Organic milk production by rearing of healthy, local breed of milch cattles, by completely adopting organic procedures, so that milk produced can be certified as organic milk, even by accredited international agencies.
- b) Producing range of Milk products from Organic milk available from farm, using completely manufacturing process and ingredients for meeting organic standards and specifications, as per global demand of these products.

It is important to note here that this project integrates traditional Indian knowledge of animal breeding and rearing for Organic milk production with modern technology to process and produce high quality milk products, meeting organic product standards and specifications of even advance countries. Milk processing will include pasteurization, milk products manufacturing and advance packaging facilities. Thus, the proposed project will be a unique combination and offers a niche in itself.

Manufacturing Process for organic milk products



Suggested Plant Capacity & Project Cost

Capacity – Project will start with rearing of 200 milch cattle in an Organic Dairy farm which will increase gradually, followed by marketing of 300,000 Liters organic milk and manufacturing of approx. 50,000 Kg per annum organic milk products.

Capital cost of the project has been estimated to be INR 30 million (US \$ 0.67 million). The Estimated cost of project and means of finance is summarized in following table:

Estimated Project Cost and Means of Finance

Sr. No.	Cost of project	INR in Million
1	Dairy farm and Processing Unit Land development	2.00
2	Building & Civil works	4.50
3	Live stock (Mich Cattle) initial cost	3.60
4	Plant & Machinery Milk 1000 Liters /day processing	12.00
5	Miscellaneous Fixed Assets	2.50
6	Preliminary & preoperative	2.00
7	Provision for contingencies	2.285
	Fixed cost of project	28.885
8	Margin Money for working capital	1.115
	Means of Finance	
9	Promoters contribution	8.57
10	Term loan	21.43
	Total Means of Finance	30.00

As indicated above, the proposed project will require an approx 20000 sq. mt of land with an proposed built up area of 1500 sq. mt. The total fixed cost of the project is estimated at INR 29 million and INR 1 million is the working capital margin which sums the block capital cost to INR 30 million. The unit being proposed to cater to domestic as well as International demand is suggested to have a Debt equity ratio of 2.5:1. Thus, the estimated term loan amounts to INR 21 million and Equity at INR 9 million.

Utility

The proposed unit will require, electric power of 100 HP and water requirement will be 60 KL per day. The unit will also have bio gas generation and hence no additional fuel requirement has been considered.

Man Power

The proposed unit would require 60 personnel that will include 3 managerial level people, 12 supervisors, an accountant, 2 office assistant, 3 skilled, 4 semi skilled and 30 unskilled workers and 5 security cum drivers.

Suggested Location

Suggested locations are districts of South Gujarat except Dang, Central Gujarat, North Gujarat, Saurashtra and Kutchh region.

Project Time Line

Setting up of organic dairy farm and organic milk processing unit will have implementation period of 12 to 14 months. The project will have project timeline of 6 to 8 months for obtaining obligatory clearances from concerned authorities.

Financial Indicators

The proposed Organic Milk and milk products' export oriented unit (EOU) project will have an indicative IRR of 49 % considering initial 10 years operation. The proposed project will have 2.5:1.0 debt equity.

Key Financial Indicators

Sr. No.	Financial Ratios	1 st Year	2 nd Year	3 rd Year
A	Break-Even Point in %	37.4	31.4	25.7
B	Debt-service Coverage Ratio	1.70	2.00	2.37
C	Average DSCR	2.02		
D	Return on Investment (ROI)	36.8	42.6	48.5
E	IRR for 10 years period	49%		

Clearances required

The unit would cater to both domestic and global requirement. The international markets have stricter norms as they accept organic products only if the farms have the required organic certification and the products are able to meet their quality standards. For obtaining such certification, farmers have to submit an organic-farm plan to an accredited public or private certification authority. The plan must include all current growing and handling methods, all materials that will be used and future intentions and improvements to be made in all areas of production. Organic-farm management practices must not be destructive to the environment or to the future production of crops. They include efficient soil and water conservation, soil fertility management with organic manures, bio-fertilizers, crop rotations and compost and withdrawal of chemical fertilizers and pesticides.

However, municipal solid waste compost and sewerage sludge compost are prohibited.

The first crop must be grown on the land that has been kept free from the prohibited materials for three years. Crops grown during these three years cannot be labeled as organic. Records of all management practices and materials used must be ethically maintained. Products can be exported as "organic" only if certified by an accredited organization like the Agricultural and Processed Export Development Authority (APEDA) or the Spices Board. Based upon these guidelines for production, processing, labeling and marketing, we must develop our national quality standards. The EU and the USA have already developed the norms while India has evolved standards for Organic Milk and Milk Products on the lines of the EU

Agencies to be Contacted

Industrial Extension Bureau

Mott MacDonald India

Gujarat Agro Industries Corporation Ltd