ICE CREAM MAKING UNIT

INTRODUCTION

The proposed project envisions setting up of an ice cream manufacturing unit. This is an innovative concept for ice cream product in north eastern region.

In this project, 6-8 mm size ice cream are formed from ice cream mix, using individual freezing technology, where in each individual ice cream is formed, in cryogenic temperature range (below 30°C to 40°C), the environment created by using liquid nitrogen vapors in closed chamber. Liquid Nitrogen creates coldest temperature for instant freezing of ice cream.

Ice cream balls are stored at 20°C to 30°C and to make it appealing, they are made colourful and containing blends of exotic flavour. Ice cream is uniquely shaped and can be produced in a wide variety of colours, flavour and coatings.

PRODUCT USES

The ice cream makes easy and quick to serve like popcorns, in pre formed paper or thermocol disposable cups or plastic containers, to maximize its sales at site like shopping malls, amusement parks, air ports and railway stations etc. It also make it much cleaner than “ordinary” ice cream, especially with young kids, as unlike regular ice creams, it can be eaten using ordinary spoons easily, without creating a mess. Ice creams are popular and commonly available in the form of cups, bars and candies.

MARKET POTENTIAL

The ice-cream business in India was approximately INR 8955 million in the year 2005-06. The per capita consumption of ice-creams in India is approximately 200 ml. per annum, while the average global per capita consumption is 2 ltrs. The lowest per capita consumption of ice-cream in the world leaves ample scope for Ice cream products in general in India as well as in north eastern states.

Increase in population, fast changing life style increasing percentage of youths in population in north eastern states will result a satisfactory growth in current market. Ice cream finds round the year market and is consumed in all class of people as readily available hygienic food for all ages. Ice cream is consumed more in cities. However, occasionally, particularly in marriages, meetings and social gatherings. It is being used even in villages and towns. The consumption of ice cream is likely to increase in future. There is good scope for any new entrepreneur to venture in this field.

SUGGESTED CAPACITY

Ice cream is marketed in cups, cones, family pack or party packs and as slabs. The capacity is estimated as under:

<table>
<thead>
<tr>
<th>Item</th>
<th>March to October</th>
<th>November to February</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In nos.</td>
<td>In nos.</td>
</tr>
<tr>
<td>1. Ice-Cream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) big size cups</td>
<td>50,000</td>
<td>25,000</td>
</tr>
<tr>
<td>b) small size cups</td>
<td>80,000</td>
<td>50,000</td>
</tr>
<tr>
<td>2. Ice-cream slabs</td>
<td>16,000</td>
<td>8,000</td>
</tr>
<tr>
<td>3. Ice-cream (party pack or loose for selling in outlet pour lour/vendors)</td>
<td>10,000</td>
<td>4,000</td>
</tr>
</tbody>
</table>

Basis:-
No. of working days = 25 days per month
= 300 days per year
No. of Shifts = 1 per day.
One shift = 8 hours
INFRASstructure REQUIRED

The main infrastructural facilities required are:

- Covered Shed Area: 600 sq. ft.
- Power requirement: 20 kw.
- Water (Required every working day): 10,000 ltrs.

RAW MATERIALS REQUIRED AND AVAILABILITY

The major raw materials required for production of ice-cream are milk, milk powder, cream or butter. Various other ingredients are sugar, flavors, stabilizer, colour powder. Consumables are big cups (100 ml. size), small cups (50 ml. size), paper wrapper, polythene coated box (500 ml & 1000 ml. size) and carton packet. All the raw materials and consumables are locally available. The unit will have to tie up with nearby sources for milk, either in fresh or solid form and fat cream. Milk required for ice-cream manufacture commands a higher price.

SUGGESTED LOCATION

Ice cream project should be located in urban areas surrounded by available raw materials and as well as skilled manpower, location for setting up of ice-cream making unit should be based on well developed road and air connectivity, since ice-cream is a perishable commodity and considering transportation bottlenecks which are a common feature in this region, small units are envisaged in urban as well as semi-urban areas.

PRODUCTION PROCESS

Ice cream is defined as a frozen dairy product, made by suitable blending and processing of milk cream and other milk products with sugar, flavors, stabilizer and creamy texture is formed by incorporation of air by agitating during the freezing process. The main steps in the production of ice-cream are:

i) Boiling of milk
ii) Cooling
iii) Chilling of milk
iv) Mixing of milk, sugar, flavors and other ingredients into semi-solid paste form
v) Freezing, hardening & packaging

PROJECT ECONOMICS

Total Capital Requirement

The total capital requirement including fixed capital and working capital is estimated at Rs 19.57 lakhs as follows. Of this, the project cost comprising fixed capital and margin money on working capital is Rs. 17.00 lakhs.

A. Fixed Capital (Rs. in lakhs)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land on rent</td>
<td>0.50</td>
</tr>
<tr>
<td>Land Development Cost</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Building/Civil works:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Work shed 400 sq. ft</td>
<td>2.40</td>
</tr>
<tr>
<td>ii) Office/Store 300 sq. ft</td>
<td>1.60</td>
</tr>
<tr>
<td>iii) Toilet/Bathroom/Cemented open space, Drainage facilities etc.</td>
<td>0.80</td>
</tr>
<tr>
<td>Plant &amp; Machinery</td>
<td>6.40</td>
</tr>
<tr>
<td>Misc. Fixed Assets</td>
<td>2.00</td>
</tr>
<tr>
<td>(Water arrangement/Overhead reservoir/pump set/power)</td>
<td></td>
</tr>
</tbody>
</table>

155
line connection/water & electrical fittings/office equipment
Preliminary & Pre-operative Expenses 0.60
Contingency provision 0.65
Total 14.95

B. Working Capital:
Raw materials/consumables & 7 days 1.12
Packing materials
Working expenses 1 month 1.10
Finished goods 3 days 0.50
Receivable 5 days 1.50
Total 4.62

Note: Working capital to be financed as –
Margin Money : 2.05
Bank Finance : 2.17
4.22

Means of Finance:
The project cost of Rs.17.00 lakhs may be financed as under:
Promoter’s Equity(25%) : 4.25 Lakhs
Term Loan(75%) : 12.75 Lakhs
17.00 Lakhs

Operating Expenses
The annual operating expenses are estimated as under:
(Rs. in Lakhs)
Raw materials/consumables packing-materials & printed levels etc. 40.00
Wages & Salaries 10.17
Utilities 3.00
Repair & Maintenance 0.25
Administrative Overhead 0.40
Selling expenses 10% on sales 7.08
Depreciation 1.10
Interest 1.96
Total 63.96

Sales Turn Over
Based on product-mix and ex-factory price considered, the annual sales realization is estimated at Rs70.80.
1. 75,000 cups ice-cream (big size) @ Rs 12/- each 9.00 lakhs
2. 1.30 lakhs cups ice-cream (small size) @ Rs.6/- each 7.80 lakhs
3. 24,000 nos. ice-cream slab @ Rs. 50/- each 12.00 lakhs
4. 14,000 nos. ice-cream party pack/loose for outlet sale etc. @ Rs.300.00 per packet. 42.00 lakhs
Total 70.80 lakhs

Profitability:
Based on the sales realization and the operating expenses, the profit would be Rs. 6.84 lakhs per year. This works out to a return on capital investment of 36%. The unit would break-even at about 66% of the rated capacity.

Break Even Analysis
A. Variable Cost: (Rs. in Lakhs)
Raw Materials/Consumables & 40.00
Packing Materials
Utilities 3.00
Selling Expenses 7.08
50.08

B. Semi-Variable Cost:  
(Rs. in Lakhs)

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages &amp; Salaries</td>
<td>10.17</td>
</tr>
<tr>
<td>Repair &amp; Maintenance</td>
<td>0.25</td>
</tr>
<tr>
<td>Administrative Overhead</td>
<td>0.40</td>
</tr>
<tr>
<td>Depreciation</td>
<td>1.10</td>
</tr>
<tr>
<td>Interest</td>
<td>1.96</td>
</tr>
<tr>
<td><strong>Total Semi-Variable Costs</strong></td>
<td><strong>13.88</strong></td>
</tr>
</tbody>
</table>

C. Sales Realisation:  
Rs. 70.80 Lakhs

D. Contribution  
Rs. 20.72 Lakhs

E. Break Even Point (B/D X 80% (capacity Utilization)  
54%

Machinery & Equipment:

An ice-cream plant has two main sections namely (A) condensing section and (B) freezing section. Besides, there is a host of other electrical and mechanical equipment along with piping. The main equipment required are:

i) Refrigeration compressor (open type) : 1 no.
   5 TR capacity complete with motor and accessories.

ii) Cooled condenser complete with piping : 1 set.
   ,water spray assembly.

iii) Liquid receiver : 1 no.

iv) M.S. Brine tank (10’ X 4’ x 3’) : 1 no.

v) Agitator fan assembly : 1 no.

vi) Thermocole : 300 nos.

vii) Push Cart trolleys : 250 nos.

viii) Ice-cream freezer complete with extension : 3 nos
   Valve, shut off valve etc.

ix) Electrical including motors : complete set
   ranging from ½ to 20 hp

x) Mechanical accessories such de-hydrator,
   suction line,copper pipe, liquid distribution
   pipe, shut off valve etc.

Raw Materials/Consumable (Annually):

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Annual (Rs in lakh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat/Cream/Butter</td>
<td>12,000 kg</td>
<td>18.00</td>
</tr>
<tr>
<td>Milk solid(non fat)</td>
<td>10,000 kg</td>
<td>15.00</td>
</tr>
<tr>
<td>Sugar</td>
<td>20,000 kg</td>
<td>3.20</td>
</tr>
<tr>
<td>Colour/essence/stabilizer</td>
<td>3,000 kg.</td>
<td>1.50</td>
</tr>
<tr>
<td>Water</td>
<td>To make 100%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Packing Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big cup with printed levels.</td>
<td>52,000 nos.</td>
<td>0.55</td>
</tr>
<tr>
<td>Small cup with printed levels fine quality paper wrapper, poly coated &amp; small paper box</td>
<td>78,000 nos.</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>20,000 nos.</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>40.00</td>
</tr>
</tbody>
</table>

Manpower:

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of person</th>
<th>Salary per person per month(Rs)</th>
<th>Monthly Requirement (Rs )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager/Accountant</td>
<td>1</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Skilled worker</td>
<td>2</td>
<td>8000</td>
<td>16,000</td>
</tr>
<tr>
<td>Semi-Skilled workers</td>
<td>3</td>
<td>6000</td>
<td>18,000</td>
</tr>
<tr>
<td>Unskilled workers</td>
<td>3</td>
<td>3000</td>
<td>9,000</td>
</tr>
<tr>
<td>Sales personnel</td>
<td>4</td>
<td>6000</td>
<td>24,000</td>
</tr>
<tr>
<td><strong>Total Manpower Cost</strong></td>
<td></td>
<td></td>
<td><strong>77,000</strong></td>
</tr>
</tbody>
</table>

Salary Bill Rs 9.24 Lakhs + Benefits @ 10% annually i.e. Rs 0.93  
Total Annual Salary Bill : Rs 10.17 Lakh.
Utilities

Power for Machinery: 30 H.P.
General Lighting: 10 H.P.

b) Electricity Bill:
40 H.P. X 0.746 KW X 6 Hrs. X 250 days X Rs. 5.50
Hence, annual Electric bill Rs. 2.45 lakh

b) Water Charge = 10000 Ltrs. per day (L.S.) Rs. 0.10 lakh

c) Fuel (Gas Cylinders) 150 cylinder X 300 Rs. 0.45 lakh
Rs. 3.00 lakh

Highlights:
The major highlights of the project are as follows:

Total Capital requirement Rs. 19.17 lakhs
Promoter’s contribution Rs. 4.25 lakhs
Annual Sales realization Rs. 70.80 lakhs
Annual Operating Expenses Rs. 63.96 lakhs
Annual Profit Rs. 6.84 lakhs
Return on sales 10%
Break-even point 54%
No. of person employed 13

Address of Plant of Machineries suppliers

1. M/S Frick India ltd,
   3, parliament street,
   Jeevan Vihar
   New Delhi-110 001

   181-183 Bapu Khote Street,
   Pydhonie, Mumbai-400003

3. M/s Kundlia Industries Corporation,
   1, Chandney chowk street
   Kolkata-700 072

4. M/S Indian Dairy Machinery Co. ltd.
   Vithal Udyog Nagar GIDC,
   Ahmedabad, Gujrat-388 121