

PROJECT PROFILE

ON

**INDIVIDUAL QUICK
FREEZING**

PREPARED BY



**Formerly Andhra Pradesh Industrial & Technical
Consultancy Organisation Limited**

**8th Floor, Parishrama Bhavan,
Basheerbagh, Hyderabad**

1. Introduction:

Individual Quick freezing (IQF) technology used will be latest and indigenous. It is a freezing method of choice for seasonal products such as fruits and vegetables and over the years it has further developed to cover a broader range of other product such as diced meat, shrimps, pasta and rice etc. IQF is a technology originally developed by Frigoscandia Equipment as a specific solution to block or cluster-freezing of small-sized products, to preserve quality and to give unparalleled convenience to end-users. Quick Freezing is the only process whereby, virtually all the properties of most of the parent food stuffs can preserved.

2. Market:

India is the world's 2nd largest producer of food next to China, and has the potential of being the biggest within the food and agricultural sector. With India's food production likely to double in the next decade, there is an opportunity for large investments in food and food processing technologies, skills and equipment, especially in areas of Canning, Dairy and Food Processing, Specialty Processing, Packaging, Frozen Food/ Refrigeration and Thermo Processing.

3. Raw Material:

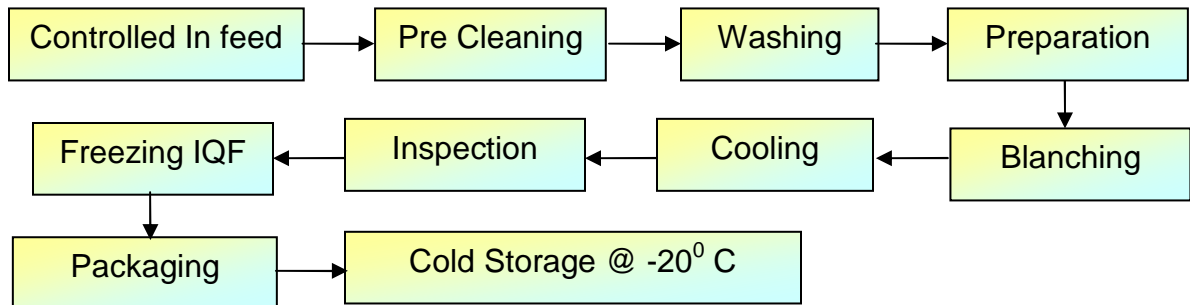
IQF frozen vegetables are produced from fresh, field-selected raw materials which are sorted, washed, pitted, peeled, cut according to requirements, blanched and frozen in IQF flow-freezer and finally packed in poly lined cardboard boxes after being metal detected.

4. Manufacturing Process & Technology

Oxidation (rancidity) can occur during freezer storage causing off flavors through exposure of frozen product to air. Using high quality plastic bags or containers designed for freezing can prevent rancid flavor development as well as protect against freezer burn which is a result of moisture loss.

The process of freezing involves freezing the water in the cellular spaces of fruit tissue. As this water freezes it expands forming ice crystals that rupture cell walls resulting in softer texture once fruit is thawed. To reduce cellular damage chill and freeze fruit quickly so that the ice crystals formed are smaller.

Process flow of IQF is given below:



5. Technology:

The technology of IQF involves three sub sections:

- Processing Equipment
- Individual Quick Freezing Equipment
- Auxiliary Equipment

Processing equipments involves Pea Podder, cross collection conveyor for peas, waste collection conveyor, bucket elevator, Winnower, Fruit/Vegetable washer, Inspection Conveyor, Pea blancher, After cooler, dewatering conveyor, grain recovery system and potato dicer etc.

Freezing equipment is with Polyethylene product belting. High efficiency SS coils, air foil fans. It consists of Conveyor System, Defrost system, refrigeration evaporator, freezer enclosure, Belt washer and dryer and electrical control panel, Caycore IQF soft, Dual Defrost Mechanism and refrigeration machine etc.,

Auxiliary Equipment consists of Boiler, Reverse Osmosis plant, Laboratory Equipments, Fire Fighting equipments, ETP, Electrical infrastructure and accessories etc.

6. Investment:

The investment for setting up a IQF Food Processing Plant works out to **Rs. 5.82 Crores** and the break up of the cost is tabulated below.

The land requirement will be around 0.5 acres. The Preliminary & Pre-operative expense works out to Rs 0.42 crores. Plant & Machinery including installation, erecting & transportation charges are of 4.06 crores. Buildings and civil works are estimated to be 0.70 crores. Contingencies @ 5% have been considered in the project cost. Margin money for working capital is estimated to be 0.37 crore.

Table 1: Project Cost

S.No.	Description	Cost (Rs in Crores)
1	Land & Site Development	0.03
2	Buildings & Civil works	0.70
3	Plant & Machinery including ert., ins.,& trans	4.06
4	Misc. Fixed Assets	0.10
5	Preliminary & Pre-operative Expenses	0.42
7	Contingency @5%	0.15
8	Margin Money for Working capital	0.37
Total Project Cost		5.82

Means of Finance

The project is proposed to finance with a debt equity ratio of 1.14:1 and the means of finance is as follows:

Table 2: Means of Finance

S.No.	Sources of Funds	Cost (Rs in Crores)
1	Share Capital - Equity	2.72
2	Term Loan	3.10
	Total	5.82

7. Profitability Assumptions:

Basic assumptions of the IQF unit are given in the table below:

The total production per day of some of the products considered is given in the table below:

S.No	Product	Per Day Output in MTs
1	Green Peas	36
2	Shelled White Corn	12
3	Diced Potatoes	15
4	Diced Carrot/Okra	7.50
5	Other Vegetables	7.50

The IQF unit can work at 75% for the first two years and 80% is considered from third year onwards. The manpower requirement is considered at 20 personnel for various level viz. food technologists, refrigeration engineers, Boiler operator, casual labours, Technical & Supervisory staff and administrative staff.

8. Key Financial indicators:

The returns are adequate enough to repay the term loan in 6 years. The key financial indicators are tabulated below.

(Rs. in Crores)

S No	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
1	Sales	1374.75	1374.75	1466.40	1466.40	1466.40	1466.40
2	Total Expenditure	1165.32	1171.29	1253.09	1259.93	1267.08	1273.14
3	PBIDT	209.43	203.46	213.31	206.47	199.32	193.26
4	PBT	120.63	125.76	144.09	146.25	147.97	150.91
5	PAT	120.63	125.76	144.09	146.25	147.97	114.50
6	Cash Accruals	147.55	152.69	171.02	173.18	174.90	141.43
7	BEP @ Operating capacity	58.47%	55.85%	51.98%	50.19%	46.86%	46.06%
8	Debt Equity Ratio	1.05	0.60	0.34	0.18	0.08	0.00
9	DSCR (Gross)	1.19	1.82	2.08	2.21	2.37	2.05
10	Average DSCR	1.84					
11	DSCR (Net)	1.28	2.31	2.59	2.62	2.64	2.12
12	Average DSCR	2.15					
13	IRR (%)	31.80%					
