



# MODEL PROJECT REPORT



## PROJECT REPORT ON COLD ROOM

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## **INTRODUCTION**

In today's changing global climate scenario, which presents threats to sustainable food production, the need for conservation of resources becomes more relevant. It calls for sustainable and eco-friendly preservation techniques to prevent wastage and maximise utilisation

India is the largest producer of fruits and vegetables in the world scenario but the availability of fruits and vegetables per capita is significantly low because of Post Harvest losses which account for about 25% to 30% of production. Further, the quality of sizeable quantity of produces also deteriorates the moment it reaches the consumer. This happens because of perishable nature of the products. If consumption is not getting stabilized, the farmers switch over to other crops instead of going for one crop in the subsequent year, and cycle continues. Our farmers continue to remain poor even though they take risk to cultivate high value fruits and vegetables year after year. Introduction of Cold storage / Cold room facility will help them in removing the risk of distress sale and simultaneously will ensure better returns



A cold storage room is a great place to store fruits and vegetables, as well as other products, as they prolong the life and help prevent spoilage of foods. Cold Rooms are a great idea as they will keep items much cooler than regular room temperature. This makes cold storage rooms and cooler rooms refrigeration a great choice for storing perishable items. There are several benefits that these units provide, they are also beneficial for both personal and business use. Cold room storage is also essential for several other industries, including the storage of medical and chemical products. The horticulture industry also has a need for cold storage as plant and flower crops often have to be stored below room temperature.

## **OBJECTIVES**

- ✓ To establish the small capacity of cool chamber / cold room in vegetable mandi / markets or in the field of farmers growing vegetables/fruits.
- ✓ To store the surplus amount of vegetables in daily market for selling the products later.
- ✓ To reduce the distress sale of the vegetables in the market.
- ✓ Farmers/Beneficiaries will get profit by selling the vegetables in the market in subsequent days.

## **NECESSITY OF COLD ROOM**

In most of the cases the financial condition of the farmers/business man does not permit to establish a cold storage having capacity of 5000 MT or more to store products in the cold storage which require crores of Rupees to establish it.

The concept of cold room is to store vegetables, fruits, flowers and other commodities for shorter duration for which a small farmer/business man can store products for shorter period and sell it without deterioration of the product.

Farmers will also get appropriate value of the product. It will reduce the distress sale.

Since the investment of such cold room is low a farmer/Business man can easily establish a cold room to store his own surplus products or may provide storage facilities to the needed farmers/traders.

### **BASIC DESIGN 10MT COLD ROOM**

|                                                                                    |              |
|------------------------------------------------------------------------------------|--------------|
| Size(LXWXH)                                                                        | 15X10X8 FT3  |
| Puf Panels                                                                         |              |
| Insulation Material                                                                | Puf          |
| Puf Panel Finish                                                                   | PP/PP        |
| Insulation Thickness                                                               | 60 MM        |
| Floor insulation should be same of puf panel thickness                             | Puf Slabs    |
| Cold room door                                                                     | Overlap Type |
| Refrigeration machine in HP                                                        | 3HP          |
| Refrigeration machine in BTU/HR at Evap. Temp. -5 Deg and condensing temp 35 deg C | 18000        |
| Machine Quantity                                                                   | 1            |
| Evaporator finish                                                                  | Repainted    |
| Evap. Fan size and quantity                                                        | 12"/14"X3 No |
| Compressor Type                                                                    | Hermetic     |
| Compressor Model                                                                   | CR-36        |
| Refrigerant gas specification                                                      | R-22         |
| Electrical power supply                                                            | 220V/50HZ/01 |

## VARIOUS COMPONENTS OF COLD ROOM

|                             |                                                                                      |
|-----------------------------|--------------------------------------------------------------------------------------|
| Cold Room Panel (PUF panel) |    |
| Cold Room Door              |    |
| Compressor                  |   |
| Condensing Unit             |  |
| Ceiling Unit Cooler         |  |
| Electric Control Panel      |  |

**Temperature requirement and life of storage for some of the most common/ popular types of fruit and veg.**

| <b>Produce Type</b>           | <b>Optimum Temperature °C</b> | <b>Optimum humidity %</b> | <b>Storage life</b>                                                               |
|-------------------------------|-------------------------------|---------------------------|-----------------------------------------------------------------------------------|
| Apples                        | 1-4                           | 90-95                     | Up to 12 months                                                                   |
| Bananas                       | 13-16                         | 80-95                     | Up to 3 weeks                                                                     |
| Berries (incl. Strawberries)  | 0                             | 90-95                     | Blackberries and raspberries up to 3 days, strawberries and cherries up to 7 days |
| Grapes                        | 0                             | 85                        | Up to 8 weeks                                                                     |
| Nectarines, plums and peaches | 0                             | 90-95                     | Up to 5 weeks                                                                     |
| Pears                         | -1-0                          | 90–95                     | Up to 7 months                                                                    |
| Broccoli and cauliflower      | 0                             | 95-100                    | Up to 4 weeks                                                                     |
| Carrots, mature and immature  | 0                             | 98-100                    | Mature, up to 9 months and immature up to 6 weeks                                 |
| Onion, white and red          | 0                             | 65–70                     | Up to 8 months                                                                    |
| Lettuce                       | 0                             | 98–100                    | Up to 3 week                                                                      |

## **BREIF PROJECTED FINANCIALS**

# COLD ROOM PROJECT

## PROJECT AT GLANCE

Name of the Beneficiary : XXXXX

Constitution : XXXXX

Name of Main Promotor : XXXXX

Proposed Project : XXXXX

Project Site : XXXXX

Land Area : 1000 Sq Ft.

Contact Info : XXXXX

Total Cost of Project : 21.40 Lacs

Bank Loan : 15.00 Lacs

Own margin : 6.40 Lacs

## INVESTMENT REQUIRED

| PARTICULARS                          | AMOUNT       |
|--------------------------------------|--------------|
| Land (Owned/Leased)                  | Leased       |
| Civil Work (400 Sq. Ft @600/-)       | 2.40         |
| Cost of Machine/Cold Room/Equipments | 11.50        |
| Plastic Crates/Racks                 | 4.00         |
| DG Set/Electrical Etc                | 3.50         |
| <b>TOTAL</b>                         | <b>21.40</b> |

## MEANS OF FINANCE

| PARTICULARS         | AMOUNT       |
|---------------------|--------------|
| Own Contribution    | 6.40         |
| Term Loan from Bank | 15.00        |
| <b>TOTAL</b>        | <b>21.40</b> |

Capital Subsidy of Rs. 5.40 Lacs

# COLD ROOM PROJECT

## PROJECTED BALANCE SHEET

| <b>PARTICULARS</b>        |                      | <b>IYR</b>   | <b>IYR</b>   | <b>IIYR</b>  | <b>IIIYR</b> | <b>IVYR</b>  | <b>VYR</b> |
|---------------------------|----------------------|--------------|--------------|--------------|--------------|--------------|------------|
|                           | <b>Const. Period</b> |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
| <b>LIABILITIES</b>        |                      |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
| Capital                   | 6.40                 | 6.40         | 6.40         | 6.40         | 6.40         | 6.40         | 6.40       |
| Net Profit                | -                    | 0.92         | 3.70         | 8.45         | 15.01        | 23.21        |            |
| General Reserve           | -                    | 5.40         | 5.40         | 5.40         | 5.40         | 5.40         | 5.40       |
| Term Loan                 | 15.00                | 12.00        | 9.00         | 6.00         | 3.00         | -            |            |
| Expenses Payable          | -                    | 0.60         | 0.66         | 0.73         | 0.80         | 0.88         |            |
|                           |                      |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
| <b>TOTAL</b>              | <b>21.40</b>         | <b>25.32</b> | <b>25.16</b> | <b>26.97</b> | <b>30.60</b> | <b>35.89</b> |            |
|                           |                      |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
| <b>ASSETS</b>             |                      |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
| <b>FIXED ASSETS/PLANT</b> | 21.40                | 21.40        | 21.40        | 21.40        | 21.40        | 21.40        | 21.40      |
| <b>Less Depreciation</b>  | -                    | 2.97         | 5.51         | 7.67         | 9.53         | 11.11        |            |
|                           | 21.40                | 18.43        | 15.89        | 13.73        | 11.87        | 10.29        |            |
|                           |                      |              |              |              |              |              |            |
| Capital Subsidy           | -                    | 5.40         | 5.40         | 5.40         | 5.40         | 5.40         | 5.40       |
| <b>CURRENT ASSETS</b>     |                      |              |              |              |              |              |            |
|                           |                      |              |              |              |              |              |            |
| Advances & Receivables    | -                    | 1.25         | 1.50         | 1.75         | 2.00         | 2.25         |            |
| Cash & Bank Balance       | -                    | 0.24         | 2.36         | 6.10         | 11.33        | 17.95        |            |
|                           |                      |              |              |              |              |              |            |
| <b>TOTAL</b>              | <b>21.40</b>         | <b>25.32</b> | <b>25.16</b> | <b>26.97</b> | <b>30.60</b> | <b>35.89</b> |            |

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# COLD ROOM PROJECT

## CASH FUND FLOW STATEMENT

| <b>PARTICULARS</b>                | <b>Const.</b> | <b>IYR</b>   | <b>IIYR</b> | <b>IIIIYR</b> | <b>IVYR</b>  | <b>VYR</b>   |
|-----------------------------------|---------------|--------------|-------------|---------------|--------------|--------------|
| <b><u>SOURCES OF FUND</u></b>     |               |              |             |               |              |              |
| Incr. in Capital                  | 6.40          | -            | -           | -             | -            | -            |
| Fund From operators               | -             | 2.12         | 4.58        | 7.15          | 9.56         | 11.80        |
| Incr. in Subsidy                  | -             | 5.40         |             |               |              |              |
| Incr. in Term Loan from           | 15.00         | -            | -           | -             | -            | -            |
| Depreciation                      | -             | 2.97         | 2.54        | 2.17          | 1.85         | 1.59         |
| Incr. in Expenses Payable         | -             | 0.60         | 0.06        | 0.07          | 0.07         | 0.08         |
| Adjustment of Subsidy             | -             | -            | -           | -             | -            | -            |
|                                   |               |              |             |               |              |              |
| <b>TOTAL</b>                      | <b>21.40</b>  | <b>11.09</b> | <b>7.17</b> | <b>9.38</b>   | <b>11.49</b> | <b>13.47</b> |
|                                   |               |              |             |               |              |              |
|                                   |               |              |             |               |              |              |
|                                   |               |              |             |               |              |              |
| <b><u>APPLICATION OF FUND</u></b> |               |              |             |               |              |              |
| Incr. in Fixed Assets/Plant       | 21.40         | -            | -           | -             | -            | -            |
| Incr. in Subsidy                  | -             | 5.40         | -           | -             | -            | -            |
| Incr. in Advances & Rece.         | -             | 1.25         | 0.25        | 0.25          | 0.25         | 0.25         |
| Rep. Loan of Bank Loan            | -             | 3.00         | 3.00        | 3.00          | 3.00         | 3.00         |
| Drawings                          | -             | 1.20         | 1.80        | 2.40          | 3.00         | 3.60         |
|                                   |               |              |             |               |              |              |
|                                   |               |              |             |               |              |              |
|                                   |               |              |             |               |              |              |
| <b>TOTAL</b>                      | <b>21.40</b>  | <b>10.85</b> | <b>5.05</b> | <b>5.65</b>   | <b>6.25</b>  | <b>6.85</b>  |
|                                   |               |              |             |               |              |              |
| Opening Balance                   | -             | -            | 0.24        | 2.36          | 6.10         | 11.33        |
| Surplus                           | -             | 0.24         | 2.12        | 3.73          | 5.24         | 6.62         |
| Closing Balance                   | -             | 0.24         | 2.36        | 6.10          | 11.33        | 17.95        |

## COLD ROOM PROJECT

### PROJECTED PROFITABILITY STATEMENT

| <b>PARTICULARS</b>        | <b>IYR</b>   | <b>IIYR</b>  | <b>IIIIYR</b> | <b>IVYR</b>  | <b>VYR</b>   |
|---------------------------|--------------|--------------|---------------|--------------|--------------|
|                           |              |              |               |              |              |
| <b><u>INCOME</u></b>      |              |              |               |              |              |
|                           |              |              |               |              |              |
| Rental Income             | 15.00        | 18.00        | 21.00         | 24.00        | 27.00        |
|                           |              |              |               |              |              |
|                           |              |              |               |              |              |
| <b>Total</b>              | <b>15.00</b> | <b>18.00</b> | <b>21.00</b>  | <b>24.00</b> | <b>27.00</b> |
|                           |              |              |               |              |              |
|                           |              |              |               |              |              |
| <b><u>EXPENDITURE</u></b> |              |              |               |              |              |
|                           |              |              |               |              |              |
| Power & Fuel Expenss      | 3.00         | 3.30         | 3.63          | 3.99         | 4.39         |
| Consumables/Spares        | 0.75         | 0.90         | 1.05          | 1.20         | 1.35         |
| Salary & Wages            | 3.43         | 3.78         | 4.15          | 4.57         | 5.02         |
| Insurance                 | 0.15         | 0.15         | 0.15          | 0.15         | 0.15         |
| Repair & Maintainance     | 0.48         | 0.90         | 1.08          | 1.30         | 1.56         |
| Admin. & Selling Exp.     | 0.45         | 0.54         | 0.63          | 0.72         | 0.81         |
| Intt. On Term Loan        | 1.65         | 1.32         | 0.99          | 0.66         | 0.33         |
| Depreciation              | 2.97         | 2.54         | 2.17          | 1.85         | 1.59         |
|                           |              |              |               |              |              |
| <b>Total</b>              | <b>12.88</b> | <b>13.42</b> | <b>13.85</b>  | <b>14.44</b> | <b>15.20</b> |
|                           |              |              |               |              |              |
| <b>NET PROFIT</b>         | <b>2.12</b>  | <b>4.58</b>  | <b>7.15</b>   | <b>9.56</b>  | <b>11.80</b> |
|                           |              |              |               |              |              |

COLD ROOM PROJECT

CALCULATION OF COST OF PRODUCTION

|                                 |  |       |            |  |  |  |
|---------------------------------|--|-------|------------|--|--|--|
| No of Chamber                   |  | 2     |            |  |  |  |
|                                 |  |       |            |  |  |  |
| Capacity per Chamber            |  | 10    | MT         |  |  |  |
|                                 |  |       |            |  |  |  |
| Total Capacity                  |  | 20    | MT         |  |  |  |
|                                 |  |       |            |  |  |  |
| No of Operational Day per annum |  | 300   |            |  |  |  |
|                                 |  |       |            |  |  |  |
| Average rental per day          |  | 0.50  | per Kg/Day |  |  |  |
|                                 |  |       |            |  |  |  |
| Total Rental per Annum          |  | 30.00 | Lacs       |  |  |  |
|                                 |  |       |            |  |  |  |

CALCULATION OF SALE OF product

|        |                      |  |  |  |                  |  |
|--------|----------------------|--|--|--|------------------|--|
|        |                      |  |  |  |                  |  |
| Year   | Capacity Utilisation |  |  |  | Amount (in Lacs) |  |
| 1 Yr   | 50%                  |  |  |  | 15.00            |  |
|        |                      |  |  |  |                  |  |
| II Yr  | 60%                  |  |  |  | 18.00            |  |
|        |                      |  |  |  |                  |  |
| III Yr | 70%                  |  |  |  | 21.00            |  |
|        |                      |  |  |  |                  |  |
| IV Yr  | 80%                  |  |  |  | 24.00            |  |
|        |                      |  |  |  |                  |  |
| V Yr   | 90%                  |  |  |  | 27.00            |  |
|        |                      |  |  |  |                  |  |
|        |                      |  |  |  |                  |  |

COLD ROOM PROJECT

DSCR CALCULATION

| PARTICULARS                  | IYR  | IYR  | IIYR  | IIIYR | IVYR  | VYR |
|------------------------------|------|------|-------|-------|-------|-----|
|                              |      |      |       |       |       |     |
| Net Profit                   | 2.12 | 4.58 | 7.15  | 9.56  | 11.80 |     |
| Add Depreciation             | 2.97 | 2.54 | 2.17  | 1.85  | 1.59  |     |
|                              |      |      |       |       |       |     |
| CASH ACCRUALS (A)            | 5.09 | 7.11 | 9.32  | 11.41 | 13.39 |     |
|                              |      |      |       | -     |       |     |
| Add Interest                 | 1.65 | 1.32 | 0.99  | 0.66  | 0.33  |     |
|                              |      |      |       |       |       |     |
| Total Fund                   | 6.74 | 8.43 | 10.31 | 12.07 | 13.72 |     |
|                              |      |      |       |       |       |     |
| REPAYMENT                    |      |      |       |       |       |     |
| Instalment of Loan           | 3.00 | 3.00 | 3.00  | 3.00  | 3.00  |     |
| Interest On Loan             | 1.65 | 1.32 | 0.99  | 0.66  | 0.33  |     |
|                              |      |      |       |       |       |     |
| Total Payment Obligation (B) | 4.65 | 4.32 | 3.99  | 3.66  | 3.33  |     |
|                              |      |      |       |       |       |     |
| D.S.C.R.                     | 1.45 | 1.95 | 2.58  | 3.30  | 4.12  |     |
|                              |      |      |       |       |       |     |
|                              |      |      | 2.57  |       |       |     |

**COLD ROOM PROJECT**

**DETAIL OF SALARY WAGES**

| Particular       | Nos. | Salary Per<br>Month      | Total    | Annual<br>Salary |
|------------------|------|--------------------------|----------|------------------|
| Marketing        | 1    | 10000.00                 | 10000.00 | 1,20,000         |
| Helpers/Labours  | 2    | 4000.00                  | 8000.00  | 96,000           |
| Accountant/Other | 1    | 8000.00                  | 8000.00  | 96,000           |
|                  |      |                          |          | <hr/> 3,12,000   |
|                  |      | Add Fringe benefit @ 10% |          | <hr/> 31,200     |
| Total Salary     |      |                          |          | 3,43,200         |
| In Lacs          |      |                          |          | 3.43             |

# COLD ROOM PROJECT

## CALCULATION OF DEPRECIATION ON FIXED ASSETS

| Year | PARTICULARS                       | LAND & SITE<br>DEVPT. | PLANT &<br>MACHINERY | CIVIL WORK | TOTAL |       |
|------|-----------------------------------|-----------------------|----------------------|------------|-------|-------|
| I    | Cost Per Addition during the year | Leased                | 7.50                 | 11.50      | 2.40  | 21.40 |
|      | Add : Contingencies               | -                     | -                    | -          | -     | -     |
|      |                                   | -                     | 7.50                 | 11.50      | 2.40  | 21.40 |
|      |                                   |                       |                      |            |       | -     |
|      | Less : Depreciation               | -                     | 1.13                 | 1.73       | 0.12  | 2.97  |
| II   | WDV at the end of Ist Ye          | -                     | 6.38                 | 9.78       | 2.28  | 18.43 |
|      |                                   | -                     | -                    | -          | -     | -     |
|      | Less : Depreciation               | -                     | 0.96                 | 1.47       | 0.11  | 2.54  |
| III  | WDV at the end of IIInd Y         | -                     | 5.42                 | 8.31       | 2.17  | 15.89 |
|      | Addition                          | -                     | -                    | -          | -     | -     |
|      | Less : Depreciation               | -                     | 0.81                 | 1.25       | 0.11  | 2.17  |
| IV   | WDV at the end of IIIrd Y         | -                     | 4.61                 | 7.06       | 2.06  | 13.73 |
|      | Addition                          | -                     | -                    | -          | -     | -     |
|      | Less : Depreciation               | -                     | 0.69                 | 1.06       | 0.10  | 1.85  |
| V    | WDV at the end of IVth Y          | -                     | 3.92                 | 6.00       | 1.95  | 11.87 |
|      |                                   | -                     |                      |            |       |       |
|      | Less : Depreciation               | -                     | 0.59                 | 0.90       | 0.10  | 1.59  |
| VI   | WDV at the end of Vth Y           | -                     | 3.33                 | 5.10       | 1.86  | 10.29 |
|      | Addition                          | -                     | -                    | -          | -     | -     |
|      | Less : Depreciation               | -                     | 0.50                 | 0.77       | 0.09  | 1.36  |
| VII  | WDV at the end of VIth Y          | -                     | 2.83                 | 4.34       | 1.76  | 8.93  |
|      |                                   |                       |                      | -          | -     | -     |

COLD ROOM PROJECT

TERM LOAN REPAYMENT SCHEDULE

Intt rate @11%

| Year | Particulars          | Op. Balance | Interest | Total | Instalment | Total Repayment | Closing Balance |
|------|----------------------|-------------|----------|-------|------------|-----------------|-----------------|
| I    | Amount Borrowed      | 15.00       |          |       |            |                 |                 |
| II   | Balance Carried down | 15.00       | 1.65     | 16.65 | 3.00       | 4.65            | 12.00           |
| III  | Balance Carried down | 12.00       | 1.32     | 13.32 | 3.00       | 4.32            | 9.00            |
| IV   | Balance Carried down | 9.00        | 0.99     | 9.99  | 3.00       | 3.99            | 6.00            |
| V    | Balance Carried down | 6.00        | 0.66     | 6.66  | 3.00       | 3.66            | 3.00            |
| VI   | Balance Carried down | 3.00        | 0.33     | 3.33  | 3.00       | 3.33            | -               |