



Project Based Components

Model Detailed Project Report

Cold Storage, Type -I

Construction of 2000 MT Capacity of Cold Storage

Commodity: Potato

Directorate of Horticulture Department of Agriculture

Govt. of Bihar

Disclaimer: This is just a model DPR prepared based on assumptions for reference purpose only. The project cost and financial projections may vary project to project as per technology selection, nature of civil work, price of raw materials etc.



अपने जिले के सहायक निदेशक उद्द्यान से संपर्क करें। विशेष जानकारी हेत् किसान कॉल सेंटर में संपर्क करें: 18001801551





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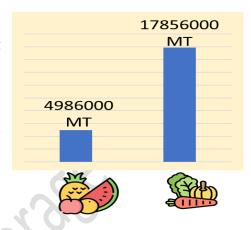




Introduction

Horticulture is considered as new sunrise sector as it not only provides much needed crop diversification, but it can also increase farmer's income. Bihar is 5th Largest vegetable producing and 8th largest fruits producing state in the country.

However, due to absence of cold storage unit, postharvest loss of horticulture produce is huge there by financial loss of farmers and value chain actor. Traders and farmers tend to sell their produce even market demand is low because they would not get suitable storage infrastructure in the vicinity.



In light of the above problems faced by farmers, traders, XYZ (Name of the promoter/Entrepreneur) finds the suitable economic opportunity in establishing modern state of art cold storage unit.

Problem Statement and Business Opportunity

It was found that due to lack of cold chain infrastructure, more than 15% of the Potatoes are getting wastage. Farmers are also facing difficulties in storing potato seeds for next cropping season. It is found that more than 40% of the potato are being consumed through direct retailing.

Seasonality of Potato Storage in Proposed Location



A 2000 MT cold storage will be established and run on a rental model. Which means farmers/





traders can store their produce for certain period of time and promoter can charge money in lieu of service be provided to the farmers and traders.

Location of	the Proj	posed Col	d Storage	Unit
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Cold Storage unit will be established inblock of district of Bihar. Location is well connected with national and state highway. Nearby railway station is less than 10 km of the project site.

The selection of the location has been done in consideration with the various favorable aspects related with the plant such as:

- · Raw material availability
- Connectivity
- Linkages with markets/procurement center
- Availability of infrastructure such as water
- Availability of manpower

Land Details and Built up Area

In order to set up a modern cold storage of the proposed capacity, a land size of approx. 14500 Square feet would be ideal including cold chamber, drying shed, loading and unloading space, office and other utilities however, this may vary with increase in capacity.

Organization and Promoter Details

Organizational details The M/s XYZ is a proprietorship/partnership/private company is associated with potato trading for about 10 years. The unit was incorporated on as private limited company under Company's Act. The details of the unit are given below:

CIN	
Company / LLP Name	
ROC Code	
Registration Number	
Date of Incorporation	
Registered Address	
Date of last AGM	





Promoters' Background

The unit is a proprietorship/partnership/private limited company/ firm and the proprietor/partners/promoters of the firm has experience in trading of fruits and vegetables and is associated processors. He/They has/have identified fruit juice industry as a profitable business seeing its ever-increasing demand in the local market as well market in the neighboring districts and States. Brief profile of the proprietor/partners/promoters is given below:

- a) Mr. ABC
- b) Mrs. XYZ
- c) Mr. DEF





Technical Specification and Layout Plan of Construction of Cold Storage

Cold Storage would be designed under single temperature control & designed for single product storage i.e. Potato. Capacity of the proposed cold storage would be 2000 MT.¹ This storage facility would be designed for bulk long-term storage of Potato. Mezzanine structure would be developed. The mezzanine floors would be accessed through staircase

The unit will be equipped with some of the best and modern plant and machinery available. Equipment providers for the unit will be reputed firms in their industry. Technology for the unit will be chosen carefully keeping in mind the best practices observed in India. During construction all mandatory rules & regulations (BIS, ISO, IS etc.) relevant to the items will be complied with.

Chamber Dimension	
(90'X90'X30')	
Drying Shed	
90'X15'	
Londing Hulanding Congr. Office Other Httlitics Ower Congr.	
Loading Unloading Space, Office, Other Utilities, Open Space	
90'x40	

Note: It is Indicative Layout, It must be duly signed by CE

^{1 3.4} Cubic Meter capacity of the cold storage would be equivalent to 1 MT capacity.





Financial Analysis²

FINAL PROJECT COST - 2000MT. CAPACITY COLD STORAGE- Type 1 (Potato)

COST OF PROJECT

S.No.	Particulars Particulars Particulars	Supplier	An	nount (INR)
1	Land & Site Development Cost	4 0.0	₹	312,180.18
	Civil Construction Cost		₹	8,585,000.00
	Land Lease	Self.	₹	-
2	Plant and Machinery	As per Industry Standards	₹	3,858,008.00
3	Furniture and Fixture	Market	₹	169,000.00
5	Pre-operative and Contingency	LS	₹	200,000.00
6	Working Capital		₹	-
		Total Project Cost	₹	13,124,188.18

MEANS OF FINANCE

S.No.	Particulars Particulars	Percentage	Amount
1	Grant (Subsidy)	50% (Excluding Working Capital)	₹ 6,562,094.09
2	Term Loan	50% (Excluding Working Capital)	₹ 6,562,094.09
3	Owners Contribution for Working Capital		₹ -

² MIDH Provision: Project Cost is Rs. 8000/MT Capacity, i.e for 2000 MT project cost would be considered as 1.6 Cr.
अधिक जानकारी के लिए उद्द्यान निदेशालय की वेबसाईट <u>HTTP://HORTICULTURE.BIHAR.GOV.IN/</u> पर क्लिक करें अथवा अपने जिले के सहायक निदेशक उद्द्यान से संपर्क





4	Bank Loan for Working Capital		₹		-
		Total Funds		₹	13,124,188.18

PART C: - FINANCIAL ANALYSIS

1	Civil Cost Analysis					
SI. No.	Component Description	UoM	Quantit y	Unit Rate	Amount (INR)	Remarks
1.1	Commercial Storage Point - 2000 mt. capacity	Sqm.	561	10000	5605000	Lum Sum
1.2	Administrative Building	Sqm.	100	12000	1200000	Lum Sum
1.3	Sorting, Grading Area	Sqm.	50	5000	250000	Lum Sum
1.4	Plant & Machinery Storage Area	Sqm.	100	12000	1200000	Lum Sum
1.5	Ramp for Refrigeration Point Installation	Sqm.	20	5000	100000	Lum Sum
1.6	Pilot - Tube Well	Sqm.	1	50000	50000	Lum Sum
1.7	Toilet Bath Room & Septic Tank	Sqm.	10	8000	80000	Lum Sum
1.8	Decomposed Pit - 150 Sq. Foot	Sqm.	1	100000	100000	Lum Sum

2	Land & Site Development					
SI.	Component Description	UoM	Quantit	Unit	Amount	Remarks
No.	Component Description	OOW	у	Rate	(INR)	Remarks
2.1	Land Filling & Site Development	Cum.	1086.6	287.3	312180.18	BCD SOR'2022 Item No 2.28
	Total Cost of Land & Site Development =			312180.18		





3	Plant & Machinery Cost					
SI. No.	Component Description	UoM	Quantit y	Unit Rate	Amount (INR)	Remarks
3.1	Refrigeration Units, Insultation Materials, Air Circulation Equipment, Temperature & Humidity Monitoring System, Pallet Racking, Ventilation System & Fire Suppuration System.	LS	1	1000000	1000000	
	320 kVA 3 ph kohler make silet DG Set	LS	1	1600000	1600000	
	630KVA, 11/0.433 3- Phase, 50 Cycles, ONAN cooled, Delta/Star (Dyn 11 Group), Al Wound Transformer with first fill of Transformer Oil and with standard fittings confirming to IS-2026.	As per Quotatio n	1 C*	830000	830000	
	Motor - 1.5 Hp Capacity (Crompton SWJ 1HP Shallow Well Jet Pump, SWJ100Y-36, Head: 24-36 m)	Nos.	1	10000	10000	
	PVC Garden Hose Pipe - 30mm Dia. Colored & Pre-Flexible - 30 Mtr. Full Length	Kg.	50	93	4650	
	Total Cost Plant & Machinery =				3444650	
	Add Transportation Cost @5% =				172232.5	
	Applicable Insurance Fee @ 7% =				241125.5	
	Grand Total Co	st of P&M	Equipment	Supply =	3858008	

4	Fixture & Furniture					
SI.	Component Description	UoM	Quantit	Unit	Amount	Remarks
No.	Component Description	OOW	у	Rate	(INR)	Kelliaiks
4.1	Manager Room					





	Table	No.	1	2500	2500	
	Chair	No.	1	1000	1000	
	Plastic Chair	No.	4	500	2000	
4.2	Accountants Room					
	Table	No.	1	2500	2500	
	Chair	No.	1	1000	1000	
4.3	Wooden Block Patter (For Total 2000Mt. Cold Storage)	LS	1	100000	100000	
4.4	Electricity Connection each set (Full Setup for Cold Storage)	LS	1	50000	50000	
4.5	Stationary Items	LS	1 4	10000	10000	
	Т	otal Cost F	urniture =	169000		

MANPOWER COST

Labour Cost

S.No	Manpower	No. of Employee	Monthly Salary	Salary Per Year
1	Manager	1	25000	300000
2	Accountant	1	16980	203760
3	Storekeeper	1	13890	166680
4	Supervisor	3	13890	500040





	Total =	20	103,120	3020160
7	Un Skilled Labour	10	10980	1317600
6	Guard	3	10980	395280
5	Electrician	1	11400	136800

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Wages Cost	3,020,160.00	3,171,168.00	3,329,726.40	3,496,212.72	3,671,023.36	3,854,574.53

Note: - Rate to be consider from Labour Commission Department, Govt. of Bihar.

ELECTRICITY EXPENSES											
Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year					
Consumption per day (In units) at 100% capacity	80	80	80	80	80	80					
Capacity Utilization	75%	80%	85%	90%	100%	100%					
Consumption per day (In units) at utilized capacity	60.0	64	68	72	80	80					
Consumption per month (in units)	1500	1600	1700	1800	2000	2000					
Rate per Unit (In Rs.)	10.00	10.00	10.00	10.00	10.00	10.00					





Power Bill per Ye	ear (In Lacs) 18000	192000.0	204000.00	216000.00	240000.00	240000.00
Power Bill per mor	nth 15	000 1600	17000	18000	20000	20000

Revenue from 2000Mt. Cold Storage

SI. No.	Details Description	Unit	Quantity (kg.)	Unit Rate	Total Amount (INR)				
1	Collection Capacity Per Annum	Kg.	2000000	2.85	5700000				
	Total Revenue =								

	Land Requirement								
SI. No.	UoM	Quantity							
1	Commercial Storage Point - 2000 mt. capacity	Sqm.	561						
2	Administrative Building	Sqm.	100						
3	Shorting, Grading Area	Sqm.	50						
4	Loading/Unloading Point	Sqm.	20						
5	Parking Area	Sqm.	20						
6	Plant & Machinery Storage Area	Sqm.	100						





7	Ramp for Refrigerator Point Installation S	qm.	20			
8	Pilot - Tube Well S	iqm.	5			
9	Toilet Bath Room & Septic Tank	iqm.	10			
10	10 Decomposed Pit - 150 Sq. Foot Sqm.					
	Total Land Requirement =					
	Add Extra Land for Drainage system @20% =					
Grand Total Land Requirement (in Sqm.) =						

DEPRECIATION

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Plant and Machinery	3444650.00	3100185.00	2790166.50	2511149.85	2260034.87	2034031.38
Depreciation @ 15%	344465.00	310018.50	279016.65	251114.99	226003.49	203403.14
Closing P & M =	3100185.00	2790166.50	2511149.85	2260034.87	2034031.38	1830628.24
	01					
Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Furniture and Fixture	169000.00	152100.00	136890.00	123201.00	110880.90	99792.81
Depreciation @ 10%	16900.00	15210.00	13689.00	12320.10	11088.09	9979.28
Closing Furniture =	152100.00	136890.00	123201.00	110880.90	99792.81	89813.53





Total Depreciation =	361,365.00	325,228.50	292,705.65	263,435.09	237,091.58	213,382.42

Revenue Collection from 2000MT. Cold Storage

From Applicable Face Charge as open market SI. No. **Description** UoM **Unit Rate** Amount (INR) **Remarks** Quantity Collection & Storage of 2000Mt. Potato (Fare Charge to be consider Kg. 2000000 5700000 as per market price on storage Capacity @2.85 /Kg.). Capacity utilization for vacant four Kg. 2 2.85 40000 114000 month Total Sales = 5814000

Note: - Storage of Potato hold for 8 month duration. Otherwise vacant for balance 04 month





Project Balance Sheet										
Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year				
Income:										
Revenue from Storage of Potato										
during 8 months	5,700,000.0	5,700,000.0	5,700,000.0	5,700,000.0	5,700,000.0	5,700,000.0				
Storage utilization for balance 04	111 000 00	111 000 00	114 000 00	111 000 00	114 000 00	111 000 00				
month during.	114,000.00	114,000.00	114,000.00	114,000.00	114,000.00	114,000.00				
Total	5,814,000.00	5,814,000.00	5,814,000.00	5,814,000.00	5,814,000.00	5,814,000.00				
			640		•					
Cost										
Electricity Expenses	180,000.00	192,000.00	204,000.00	216,000.00	240,000.00	240,000.00				
Manpower Cost	3,020,160.00	3,171,168.00	3,329,726.40	3,496,212.72	3,671,023.36	3,854,574.53				
Other Misc. Expenses	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00				
	, , , , , , , , , , , , , , , , , , , ,	12,000.00			, , , , , , , , , , , , , , , , , , , ,					
Total Cost =	3,212,160.00	3,375,168.00	3,545,726.40	3,724,212.72	3,923,023.36	4,106,574.53				
0 5	0.004.040.00	0.400.000.00	0 000 070 00	0 000 707 00	4 000 070 04	4 707 405 47				
Gross Profit	2,601,840.00	2,438,832.00	2,268,273.60	2,089,787.28	1,890,976.64	1,707,425.47				
Administrative Expenses		-	-	-	-	-				
Profit before Interest and										
Depreciation	2,601,840.00	2,438,832.00	2,268,273.60	2,089,787.28	1,890,976.64	1,707,425.47				
Depreciation	361,365.00	325,228.50	292,705.65	263,435.09	237,091.58	213,382.42				





Profit before Interest & Taxation	2,240,475.00	2,113,603.50	1,975,567.95	1,826,352.20	1,653,885.06	1,494,043.05
					0,,	
Interest on Bank Loan (TL) / EMI	656,209.41	656,209.41	656,209.41	656,209.41	656,209.41	656,209.41
Interest on Bank Loan (CC)	-	-	-	- /	Ź	-
Profit Before Tax	1,584,265.59	1,457,394.09	1,319,358.54	1,170,142.79	997,675.65	837,833.64
Income Tax	-	-	-	00	-	-
Profit After Tax	1,584,265.59	1,457,394.09	1,319,358.54	1,170,142.79	997,675.65	837,833.64
	27.79%	25.57%	23.15%	20.53%	17.50%	14.70%

Loan Amortization Schedule							
Loan Terms		Results & Summary					
Loan Amount	6,562,094.09	Semi-Annual Interest Rate	.000				
Annual Interest	0.00%	Number of Scheduled Payments	20				
Loan Period in Years	10	TOTAL SCHOOLING PAVIDANTS	562, 4.09				
Payment Frequency	Semi-Annual	Total Interest 0	0.00				
Compound Frequency	Semi-Annual	Actual Number of Payments	20				
Payment Type	End of Period	Lotal of Payments	562, 4.09				





First Payment Date	9/30/2023	Total Interest	0.00
		Estimated Saved Interest	0.00
		Semi-Annual	328,10
Amortization Schedule OPayment Schedule	☐Rounding Or	Payment	4.70
		Pay Off Date	3/30/2
		Pay Oil Date	033

Amortization Schedule

No. Payment Scheduled		Additional			Intere			
NO.	Date	Payment	Payment		Total Payment	st	Principal	Balance
								6,562,09
								4.09
1	9/30/2023	328,104.70	0.00		328,104.70	0.00	328,10	6,233,98
	0/00/2020	020,101.70	0.00		020,101.70	0.00	4.70	9.39
2	3/30/2024	328,104.70	0.00		328,104.70	0.00	328,10	5,905,88
	0/00/2021	020,101.70	0.00		020,101.70	0.00	4.70	4.68
3	9/30/2024	328,104.70	0.00		328,104.70	0.00	328,10	5,577,77
	0/00/2021	020,101.70	0.00)	020,101.70	0.00	4.70	9.98
4	3/30/2025	328,104.70	28,104.70 0.00 328,104.70		0.00	328,10	5,249,67	
	0/00/2020	020,101.70	0.00		020,101.70	0.00	4.70	5.27
5	9/30/2025	328,104.70	0.00		328,104.70	0.00	328,10	4,921,57
	0/00/2020	020,101.70	0.00		323,131.13	0.00	4.70	0.57
6	3/30/2026	328,104.70	0.00		328,104.70		328,10	4,593,46
	0,00,2020	020,10 1110	0.00	0.00	0.00	4.70	5.86	
7	9/30/2026	328,104.70	0.00		328,104.70	0.00	328,10	4,265,36
	0,00,2020	020,10 0	0.00		3_3, 13 3		4.70	1.16
8	3/30/2027	328,104.70	0.00		328,104.70	0.00	328,10	3,937,25
	0,00,202.	23,155			3_3, 13		4.70	6.45
9	9/30/2027	328,104.70	0.00		328,104.70	0.00	328,10	3,609,15
	0,00,2021	323,101110	3.00		523, 13 111 0	0.00	4.70	1.75
10	3/30/2028	328,104.70	0.00		328,104.70	0.00	328,10	3,281,04
	0,00,2020	323,134.70	0.00		020,101.70	0.00	4.70	7.05





	Ī	·						
11	9/30/2028	328,104.70	0.00		328,104.70	0.00	328,10 4.70	2,952,94 2.34
							328,10	2,624,83
12	3/30/2029	328,104.70	0.00		328,104.70	0.00	-	7.64
							4.70	
13	9/30/2029	328,104.70	0.00		328,104.70	0.00	328,10	2,296,73
		,			,		4.70	2.93
14	3/30/2030	328,104.70	0.00		328,104.70	0.00	328,10	1,968,62
'-	3/30/2030	320, 10 4 .70	0.00		320,104.70	0.00	4.70	8.23
4.5	0/00/0000	200 404 70	0.00	000 404 70	000 404 70	0.00	328,10	1,640,52
15	9/30/2030	9/30/2030 328,104.70 0.00	328,104.70	0.00	4.70	3.52		
	0/00/0004	000 404 70					328,10	1,312,41
16	3/30/2031	328,104.70	0.00		328,104.70	0.00	4.70	8.82
							328,10	984,314.
17	9/30/2031	328,104.70	0.00		328,104.70	0.00	4.70	11
								050,000
18	3/30/2032	328,104.70	0.00		328,104.70	0.00	328,10	656,209.
	0,00,000	5=5,15 111 5			020,101.70		4.70	41
19	9 9/30/2032 328	328,104.70	0.00		328,104.70	0.00	328,10	328,104.
	3/30/2032	320,104.70	0.00			0.00	4.70	70
00	20 3/30/2033	/30/2033 328,104.70 0.00	328,104.70	0.00	328,10	0.00		
20				328,104.70	0.00	4.70	0.00	
	l .							

Annual Loan Payment Schedule

Year	Opening Balance	Interest	Principal Repayment	Balance
1st Year	6,562,094.09	0.00	656,209.41	5,905,884.68





Tot	al =	0.00	6,562,094.09	
10th Year	656,209.41	0.00	656,209.41	0.00
9th Year	1,312,418.82	0.00	656,209.41	656,209.41
8th Year	1,968,628.23	0.00	656,209.41	1,312,418.82
7th Year	2,624,837.64	0.00	656,209.41	1,968,628.23
6th Year	3,281,047.05	0.00	656,209.41	2,624,837.64
5th Year	3,937,256.45	0.00	656,209.41	3,281,047.05
4th Year	4,593,465.86	0.00	656,209.41	3,937,256.45
3rd Year	5,249,675.27	0.00	656,209.41	4,593,465.86
2nd Year	5,905,884.68	0.00	656,209.41	5,249,675.27





Intended Impact of Project

I. Financial Benefits to the promoter, Farmers and Other value chain Actor

Cold Storage will be operated on rental basis i.e. Wholesaler and other value chain actors will store their produce for particular period of time and promoter will charge amount for the services. Stored produce will remain afresh for longer period of time thereby increased shelf life of horticulture produce. It is also observed that farmers uses own grown potato as seeds for next cropping season, in that case these potatoes seeds will also be stored in cold storage.

II.Generating Local Employment

Modern state of art cold storage unit generates local employment. It is estimated that it would generate direct employment of about 25 workers and indirect employment of another 50 workers. Most of the manpower requirement will be met from the local area.

III.Local Economic Cluster Development

Local Economic cluster would develop in the vicinity of the cold storage unit there by increased economic of scale. Cold storage would attract other investors as well for setting up similar of related project units i.e. ripening chamber, environmentally controlled retail outlets etc.





Annexure-1 Checklist for Cold Storage

- 1. Partnership/LLP/Company/ Proprietorship paper, if applicable
- 2. KYC Document of Proprietor/Director/Partner
- 3. Board Resolution of signatory, if applicable
- 4. Land Documents-LPC &Land Receipt/Land Lease document/Sale Deed
- 5. DPR including financial project viability (Duly Signed by Chartered Accountant)
- 6. Layout plan, Map, Estimate (clear stating type of cold storage being constructed) (Duly Signed by Chartered Engineer)
- 7. Notarized Declaration stating that Fixed Cost Subsidy from other sources has/will not been claimed.
- 8. Quotation of the various machinery components
- 9. In principal sanction letter or sanction letter from bank and loan appraisal document
- 10. Commissioning License issued from District Horticulture Office
- 11. Consent to establishment form BSPCB (Pollution control board)
- 12. Water testing certificate
- 13. Soil Testing certificate





Annexure-II Application Process

For application please click on below link

https://horticulture.bihar.gov.in/MainSite/SchemeDetails ProjectBasedActivity.aspx

