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Redefining Food and Agriculture

WAREHOUSE CONSTRUCTION

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Construction of an Agri-Warehouse

Introduction

It is a fact that supply chain losses of agro-commodities are the highest among that of all produced commodities. The only solution to curtail supply chain losses of agro-commodities is its quality storage. While considering the supply chain efficiency of farm produce, the vital link that requires special attention is hi-tech storage or warehousing facilities. Seasonal production of crops, weather fluctuations, and demand throughout the year are other major factors that necessitate the establishment of a hi-tech warehouse facility at a strategic location. Considering the agrarian economy of our country, it can be undoubtedly stated that there is indeed an immense potential for warehouse enterprises in India. A professionally managed large warehouse facility has huge potential to generate Crores of Rupees as income through rental charges and also it is an avenue for employment generation

Objectives of the Project

The proposed warehouse facility is targeted for primary producers of agro-commodities. A warehouse facility provides the best possible scientific and modern storage facilities for primary producers, thus curtailing the possible produce losses to the minimum extent. Producers who store their produce in bulk quantities in a warehouse may be issued a warehouse receipt (WHR) which may help producers avail finance facilities against the pledging of the WHR. A professionally managed warehouse facility help producers regulate the supply of their products according to market demand by releasing small lots, as and when required and also when the price of the product is stable and most reasonable in the market

Project Description

This project envisages establishing a fully operational warehouse that operates for 24x7 for 365 days in order to store 1 Lakh bags of 100 Kg each. This warehouse is meant for maximum utilization i.e. efforts will be taken to see that 95% of the warehouse capacity is utilized at any given point of time. During initial years capacity utilization is not expected at 95%; rather it will be somewhere between 50% and 85%. However it is expected that from fifth year onwards capacity utilization will be constant at 95 %. Major revenue stream for this warehouse unit is through rental charges which are assumed to be at around INR 1200/- per MT per year. (Note: To know most recent warehouse tariffs, please refer respective state warehouse corporation website). Anyone who is a primary producer is welcome to deposit his/her produce in the warehouse; however the depositor should arrange his/her security and insurance arrangements for his/her produce. (Please visit Central Warehouse Corporation website to verify the accuracy of the data given in this project report which is prepared in the year 2012).

Assumptions Considered

1. Warehouse Parameters
    a. Warehouse standards set by IGMRI (Indian Grain Storage Management and Research Institute) are taken for consideration while preparing this project. Some of the important parameters that are considered are,

        - Standard stack size – 30 ft X 20 ft (9 m X 6m)
        - Standard bag size – 100 Kg (44''X26" or 40"X28")
        - Stack capacity – 1 truck load (10 -15 MT/1500 bags)
        - Stack height – 16 layers
        - Space requirement/MT – 6 Sq.ft.

    Note: 30 % of the total space should be left vacant for operational purposes.

2. Annual rental charges of a standard warehouse for 1 MT – INR 1200/-
3. Cost of land near a crop production center/rural location – INR 300/Sq.ft.

Economics of a Warehouse Construction

Warehouse Capacity

Capacity in number of bags = 1 Lakh bags of 100 Kg each

Capacity in MT- 10, 000 MT

Cost of the Land and Building

Warehouse area required per 1 MT	6 sq. ft
Warehouse area required per 10, 000 MT	60, 000 sq. ft
Cost of land in rural location	INR 300/sq. ft
Cost of total warehouse area	INR 1.8 Crores
Construction cost/MT (refer CWC rates as standard)	INR 2500
Total construction cost for 10, 000 MT	INR 2.5 Crores
Total Cost of Land and Building	**INR 4.3 Crores**

Cost of Machinery and Warehouse Equipments

Dunnage crates @INR 200/crate	
Number of crates required per 10000 MT – 5000	
Total cost of the crates	**1000000**
Cost of moisture meters @INR 1000/ moisture meter	
No. of moisture meters /10,000 MT – 2	
Total cost of the moisture meters	**2000**

Cost of Polythene covers @INR 50/unit	
Polythene covers for fumigation /10,000 MT – 1000 No.s	
Total cost of the Polythene covers	**50000**
Cost of Weighing Machine to weigh a truckload @INR 10,000/unit	
Weighing machines required/10,000 MT – 2 No.s	
Total cost of the Weighing Machines	**20000**
Cost of Fire Extinguishers @ INR 15,000/-	
Fire Extinguishers required/10,000 MT – 2 No.s	
Total cost of the Fire Extinguishers	**30000**
Cost of the Office Furniture (estimated)	100000
Cost of the Lab Equipments (sprayers, petridishes for sample analysis, ladders, sand snakes etc)	50000
TOTAL COST OF THE MACHINERY AND EQUIPMENTS	**1252000**

Capital Investment Required For the Project = Total Cost of Land and Building + Total Cost of Machinery and Equipments

Income flow analysis of the Project for the initial 15 years

Description/ year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Installed capacity 10000															
Total capital investment @ INR 4,42,52000/-															
Capacity utilization in per-	60	65	75	85	95	95	95	95	95	95	95	95	95	95	95
A. Income flow from rental charges															
Effective capacity in MT	6000	6500	7500	8500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500
Income flow @ INR 1300/ MT/year	7800000	8450000	9750000	11050000	12350000	12350000	12350000	12350000	12350000	12350000	12350000	12350000	12350000	12350000	12350000
B. Warehouse operating expenses															
1. Office Expenses															
Salary of the staff															
Security guard - 1 @INR 5000 per month for 12 months	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000
Warehouse Manager—1 @INR 10000 per month for 12 months	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000
Assistants - 2 @INR 8000 per month for 12 months	192000	192000	192000	192000	192000	192000	192000	192000	192000	192000	192000	192000	192000	192000	192000
2. Cost of Chemicals															
Cost of Fumigation chemical	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Cost of disinfestations	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000

3. Cost of office expenditure															
Stationery and other expenses	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Electricity, water & miscellaneous	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
4. Maintenance Cost															
Maintenance of the building @ 1% of the cost of the building (2.5 crore)	250000	250000	250000	250000	250000	250000	250000	250000	250000	250000	250000	250000	250000	250000	250000
Maintenance of the machinery & equipment @5% of the actual cost (1252000/-	62600	62600	62600	62600	62600	62600	62600	62600	62600	62600	62600	62600	62600	62600	62600
5. Marketing cost															
Marketing & promotional services@ 2% of rental income	156000	169000	195000	221000	247000	247000	247000	247000	247000	247000	247000	247000	247000	247000	247000
6. Depreciation Cost															
Depreciation on building @ 5% of cost (2.5 cr.)	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000	1250000
Dep. Machinery & equipment @ 12.5% of the cost (1252000)	156500	156500	156500	156500	156500	156500	156500	156500	156500	156500	156500	156500	156500	156500	156500
Interest on capital investment @ 13%	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760	5752760
B. Total warehouse operating cost	7923860	7941860	7953860	7965860	7977860	7977860	7977860	7977860	7977860	7977860	7977860	7977860	7977860	7977860	7977860
C. Profit before Tax	-123860	508140	1796140	3084140	4372140	4372140	4372140	4372140	4372140	4372140	4372140	4372140	4372140	4372140	4372140

Key Inferences

During the first year of the project implementation, project tends to make slight financial losses as seen in the above income- flow analysis chart. However, if the entrepreneur is able to curtail some of the unnecessary costs, project can be run on 'no profit-no loss' basis. Another reason why project is not profit-making in the first year is that the capacity utilization is only at 60 % while project operational costs are comparatively high. From second year onwards, the project seems to be economically viable and over a period of time the project establishes itself as a profit-making venture. The economics of the project clearly reveals that the project can be undertaken as a profit-making enterprise by ambitious entrepreneurs.

FOR FURTHER INFO…

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To arrange a one-on-one session or a video session with us