



Development of Agri-Marketing Facilities at Bapgaon, Thane

mazars

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Background of Study

Maharashtra, a key player in India's agriculture, boasts a diverse landscape cultivating rice, wheat, sugarcane, and more. State dominates in fruit and vegetable production, making significant strides in export markets, showcasing immense potential for agricultural growth. State contributes significantly to India's exports, accounting for 25% of the total share in the GDP.

In total, there are 306 main markets and 621 sub-markets functioning in the state. To support export from the state, MSAMB has established basic export-oriented infrastructure for sorting, grading, packaging, handling, storage etc. Currently, there are 22 such export facility centres, 20 fruit and vegetable modern marketing facility centre and 3 flowers export facility centre.

However, there is a lack of integration of produce in the production cluster and there is need of marketing/ post-harvest management/processing facilities near the farm gate, to reduce the post-harvest losses during transportation, farm operations, and storage. As a result, a projects like Maharashtra Agribusiness Network (MAGNET). State of Maharashtra Agribusiness and Rural Transformation (SMART) are being implemented in the State.

The promoter's rationale to undertake this project is the vision to develop and promote the agro processing infrastructure in the district by establishment of these Agri Marketing Facilities. These Agri Marketing Facilities will help in creation of enabling infrastructure for agro processing and a comprehensive "Farm- to-Fork" supply chain system.

These facilities would be providing state-of-the art infrastructure for agro processing in the State. This aims at reducing wastages and ensuring value addition, especially in perishable food products, spices, coarse grains etc. Agri Marketing Facility besides making storage and primary processing more economically viable will also help in reviving the agricultural sector by increasing the returns to the stakeholders. It will also help in creating large employment opportunities particularly in the rural areas of the state.

For integration of produce at farm gate, state-of-art marketing infrastructure would be developed at the six locations of Maharashtra viz. Kaldongari, Bapgaon, Talegaon, Jadhavwadi, Sillod and Shrirampur which will act as a hub in the region for value addition and marketing of produce, resulting in increased value realization for all value chain players including farmers.

With this regard MSAMB has appointed Mazars Advisory LLP – Global AgriSystem Pvt Ltd (GAPL) to undertake the study to prepare a Detailed Project report for the development of integrated agri-marketing project and post-harvest infrastructures in Bapgaon (Dist. Thane).

Methodology adopted to accomplish the study is to use a deliberative and consultative approach in a multi- stakeholder platform. Information in this report has been drawn from secondary resources and primary survey. The secondary resources include review of literature such as research papers, data from various state and central government portals including state agriculture and horticulture departments, MSAMB etc. The primary information collection tools included:

- *Focused Group Discussions with Stakeholders*
- *Key Informant Interviews (KIIs) with various Government officials*
- *Site survey & assessment of the sites*

The stakeholder included traders, exporters, importers, processors, farmers, FPOs, FPCs, mandi officials, state agriculture and horticulture officials. Structured questionnaire was used for extracting relevant information. The teams used a mixed of open and close ended questions. The team of experts visited the sites and assessed them on the basis of various parameters for establishing the proposed facility.

Based on the above approach and methodology, the Detailed Project Report has been prepared.

Executive Summary

Introduction

MSAMB intends to provide marketing, post-harvest management, and processing facilities for major horticulture/agricultural crops at one place. The upcoming infrastructure will act as a hub in the region for value addition and marketing of horticultural produce, resulting in increased value realisation for all value chain players including farmers. State-of-art marketing infrastructure should act as a one stop solution for all the actors across the value chain of the produce.

Concept of Agri Marketing Facility

In order to attain the objective of the project, integrated marketing infrastructure would be having four categories of infrastructure:

1. Basic enabling / Support infrastructure
2. Marketing infrastructure
3. Common infrastructure
4. Infrastructure to be developed in partnership with private players

With the based on the above concept to have an Integrated Mandi Infrastructure, MSAMB is coming up with an agri marketing facility in the region.

Proposed Infrastructure

The proposed facility is detailed as per the requirement viz., warehouse, temperature-controlled storage, packhouse including the post-harvest treatment for increasing the shelf life of the commodity are as follows

Table 1 Capacities for the common infrastructure

Facility	Common Infrastructure	Crops	Phase-1	Mode of Implementation
Packhouse for F&V export	Automated sorting & grading line	F&V	10 lines of 2MT each	MSAMB
	Pre – Cooling Facility		6 rooms 6 MT each	
	Cold storage		2400 MT	
	Hot water Treatment		-	
	Vapor Heat Treatment		2* 2.5MT	
	Irradiation facility		100MT/Day	
	Trader shops		24 Nos	
Facility	Common Infrastructure	Crops	Phase-2	
Import Complex	Cold Storage	F & V	5,400 MT	MSAMB
	Trader shops		30 Nos	
Packhouse for Onion	Automated sorting & grading line	Onion	2-lines of 2MT each	PPP/Lease
	CA storage		2200MT	
	Trader shops		10 Nos	
Space for Organised Retail			To be decided by private player	PPP/Lease
Space for Warehousing			Dry warehouses (capacity to be decided by MSAMB and MSWC)	PPP/Lease

Financial Analysis

The total cost of project is 157.52 crores. The details are given in the table below:

Particulars- Phase1	Cost (Rs. Lakhs)
Land	2,277.09
Land development cost	1,321.55
Basis Enabling Infrastructure	1,227.18
Core processing facilities	6,648.47
Non core infrastructure	1,149.37
Working capital	116.00
Interest During Construction	452.11
Pre-operative expenses	13.12
Contingencies	494.39
Sub- Total	13,698.28
Particulars- Phase2	Cost (Rs. Lakhs)
Core processing facilities- Import Complex (Including Escalation)	1,943.15
Sub- Total	1,943.15
Total	15,641.43

Means of Finance

The funding pattern will be as follows:

Particulars- Phase1	%	Amount (in lakhs)
Equity	25.00%	3,275.85
Subsidy	4.34%	594.88
Term Loans	75.00%	9,827.55
Sub- Total	100.00%	13,698.28
Particulars- Phase2	%	Amount (in lakhs)
Internal Accruals	100.00%	1,943.15
Sub- Total	100.00%	1,943.15
Total	100.00%	15,641.43

The financial indices of the project are mentioned in the following table:

Net present value	₹ 2,936.27
Project Internal rate of return (IRR)(%)	19.03%
Avg. Debt service coverage ratio	2.08
Cash Break Even point	16.87
Payback period (yrs)	8.58

The need of the hour is a professionally managed marketing facility that provides a comprehensive solution to meet key needs of all the stakeholders. Such a facility entails a high investment cost and efficient management skills. Thus, the Agri-Marketing Infrastructure to be conceptualized with the objective of fulfilling the above goals.

Introduction



1. Introduction

State has long been at the forefront of horticulture/agriculture development in the country and with its highly developed and modernised agriculture, progressive farmers, nearness to export markets, well established and efficient regulatory setup and well developed agri-marketing system is poised for next big step in the development of agriculture sector in the state that is processing/value-addition.

In lines of the above, MSAMB intends to provide marketing, post-harvest management, and processing facilities for major horticulture/agricultural crops at one place. The upcoming infrastructure will act as a hub in the region for value addition and marketing of horticultural produce, resulting in increased value realisation for all value chain players including farmers. State-of-art marketing infrastructure should act as a one stop solution for all the actors across the value chain of the produce.

The scope of work has been categorized in to following sections: -

Inception Report: Inception report has been shared with MSAMB dated 25th January 2024, covering overall frame of the project including work plan, approach, and methodology of the project.

Concept Plan: Concept plan was prepared after conducting desk research, analysing secondary data, preparing questionnaires, consulting stakeholders, and assessing the infrastructure and its capacity. based on findings and finalization of capacities concept plan was shared and presented to the client on 4th March 2024. After receiving feedback twice, the concept plan updated accordingly and finalized.

Feasibility Report: Feasibility report was prepared after assessing existing supply chain and gaps in marketing, Mapping of existing Infrastructure, Proposed infrastructure and benchmarking, site assessment. Based on it, layout and financial will be prepared.

Detailed Project Report: Detailed project report is prepared after the approval on feasibility reports from MSAMB. It will include:

- Finalization of design of Infrastructure, Capacities, technology, design etc
- Operations & Management, Mode of implementation of Project
- Socio-Economic Benefits: employment generation, remuneration to farmers, environment etc

This report is Detailed Project Report of the Agri Marketing Infrastructure which has the potential to come up in Bapgaon Dist. Thane, Maharashtra.

1.1 Methodology

The study involved three steps:

- **Assessment of Current Status:** This involved study of the existing marketing infrastructure, and established processes followed by a gap analysis identifying critical infrastructure gaps and deficiencies in the processes. It also involved benchmarking with best practices at national & International levels.
- **Throughput Assessment/ Market Potential Assessment:** It involved estimation of projected volumes best on past 5 years' arrival trends and future projections.
- **Development of the market design:** Based on gap analysis, throughput projections and need assessment (based on stakeholders' feedback)

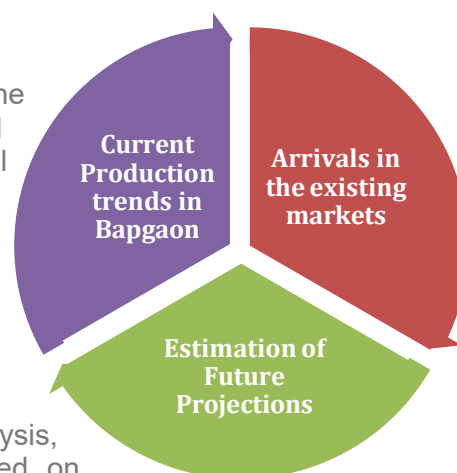


Figure 1 Parameters for designing the Agri marketing infrastructure

In order to prepare a design for the integrated market, following parameters have been taken into consideration:

- Arrivals in the existing markets
- Current production trends in nearby existing markets and
- Estimation of future production taking into consideration the production and arrival data

Cluster Analysis



2. Project location: Bapgaon, Thane

Thane stands out as one of Maharashtra's industrially advanced districts, situated in the northern part of the Konkan division. It is bounded by Sahyadri mountain ranges to east, Arabian Sea to west, Gujarat state on the north, and the south of Mumbai, which are considered to be world famous and the financial capital of India, are the four pillars of this district. According to census 2011, it ranks 3rd in state in terms of population.

2.1 Geographical Profile

Bapgaon, situated in the Bhiwandi taluka of the Thane district Maharashtra. The total geographical area of the village is 248 hectares. Bapgaon has a total population of 892 people, around 181 houses reside in the village. Bhiwandi is nearest town to Bapgaon for all major economic activities, which is approximately 11km away.



2.2 District: Agriculture Glimpse

- Field crops

In the domain of field crops, cereals, notably rice, assume a primary role, in terms of pulses, gram contribute significantly to Thane's agricultural landscape. The statistics for the area and production of total cereals, pulses, and oilseeds in Thane over the past year are as follows:

Table 1 Area and production of field crops in the district (2022-23)

Area- '00 Ha and Production- '00 T		
Crops	Area	Production
Total cereals and foodgrains	574.53	1498.24
Total Pulses	51.89	43.08
Total Oilseeds	1.92	1.20

Source: Department of Agriculture, Maharashtra

- Horticultural crops

The major vegetables in Thane include Bitter Gourd, Brinjal, Cucumber, Green Chilli and Okra/Ladies Finger. The statistics regarding area and production of vegetables in Thane over the past year are as follows:

Table 2 Crop wise area and production in the district (Vegetables, 2022-23)

Area- '000Ha and Production- '000MT		
Crops	Area	Production
Okra/ Ladies Finger	1.822	16.8932
Green Chilli	0.4752	4.3506
Cucumber	0.2952	4.152

Brinjal	0.2852	3.2452
Bitter Gourd	0.1932	2.320
Other Vegetables	0.2702	2.7623

Source: Department of Horticulture, Maharashtra

The major fruits include Mango, Sapota, Papaya, Banana, Watermelon and Guava. The statistics regarding area and production of fruits in Thane over the past year are as follows:

Table 3 Crop wise Area and Production in the district (Fruits, 2022-23)

Area- '000Ha and Production- '000MT		
Crops	Area	Production
Mango	2.8808	2.73935
Sapota	0.201	1.7095
Papaya	0.01	0.33625
Banana	0.016	0.2435
Watermelon	0.01	0.187
Guava	0.018	0.15
Other Fruits	0.098	0.882

Source: Department of Horticulture, Maharashtra

2.3 Cluster

Cluster for upcoming infrastructure is considered as the radius which can cater the crops produced in the adjoining districts and mandis to be serviced by the infrastructure. On the basis of major production belts, connectivity with districts, distance and also trade occurring, the nearby production cluster and mandis has been identified. Coverage of mandi cluster and production cluster for the proposed facility in Bapgaon is as provided below (selection of cluster is done in concept plan).

Commodities from the nearby states such as Gujarat, Madhya Pradesh has been arriving to Mumbai for storage and export purpose. based on connectivity of Gujarat to the proposed location, several districts from the Gujarat are included in the cluster.

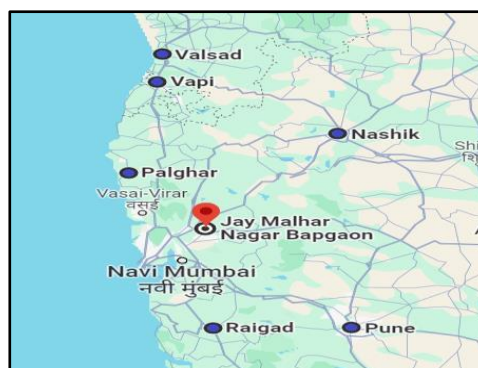
Table 4 Identified Cluster

Identified Mandis in Mandi Cluster (in the radius of 100 km)	Identified Districts in Production Cluster (in the radius of 150 - 200 Km)
• APMC Kalyan • APMC Bhiwandi • Fruit Market, Vashi • Murbad Market • Shahapur Vegetable Market • Palghar Vegetable Market	• Ahmednagar • Pune • Thane • Palghar • Raigad • Nashik Gujarat districts • Vapi • Valsad • Surat • Navsari

Basis of selection of above districts are:

- Major production belts
- Trade occurring
- Connectivity with districts

For assessment of crops produced and traded in the radius of upcoming infrastructure, the adjoining districts / mandis have been extensively analyzed through secondary research for identification of the infrastructure to be proposed in the project.



Keeping in view the arrivals from the above mentioned mandi's, arrival data of the major crops for the five years has been depicted below:

1. Fruit crops

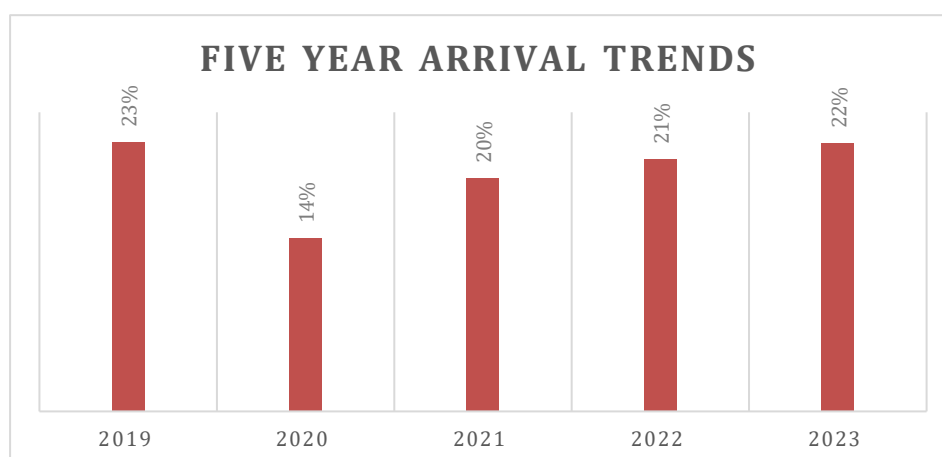
Table 5 Major fruit crops arrival in the adjoining Mandis

Arrival (in QTL)					
Crop	2019	2020	2021	2022	2023
Mango	9,66,117	3,51,239	8,42,395	10,31,342	12,54,376
Watermelon	9,90,184	4,82,938	7,92,543	8,09,491	8,97,341
Mosambi	3,59,080	2,52,717	3,36,107	3,75,881	4,17,673
Apple	7,40,715	5,67,878	4,18,151	6,90,096	4,17,352
Orange	4,16,968	4,38,676	3,83,296	2,89,106	3,50,774
Muskmelon	2,39,148	1,72,292	2,43,000	2,34,793	2,74,909
Pineapple	2,70,506	1,45,883	2,42,806	2,29,007	2,47,305
Pomegranate	2,70,565	1,87,262	1,83,649	1,48,259	1,70,524
Custard Apple	98,941	1,02,293	1,00,486	79,499	1,05,375
Guava	25,755	48,515	66,680	82,070	97,037
Chikoo	95,915	70,666	1,06,023	93,765	94,304
Grapes	5,288	43,660	95,649	68,655	82,727
Other Fruits	55,013	51,489	1,19,422	1,14,433	1,07,105
Total Fruits	45,34,195	29,15,508	39,30,207	42,46,397	45,16,802

Source: MSAMB

As per the arrival data of major mandis, Mango, Watermelon, Mosambi, Apple, Orange and Pineapple constitute major quantities in Mumbai. In the graph below also depicts the arrivals of other fruits such as Litchi, Peach, Strawberry, Cherry, Fig, Pear, and Plum.

The below graph shows the growth trend of the major fruit's crops over the 5 years.



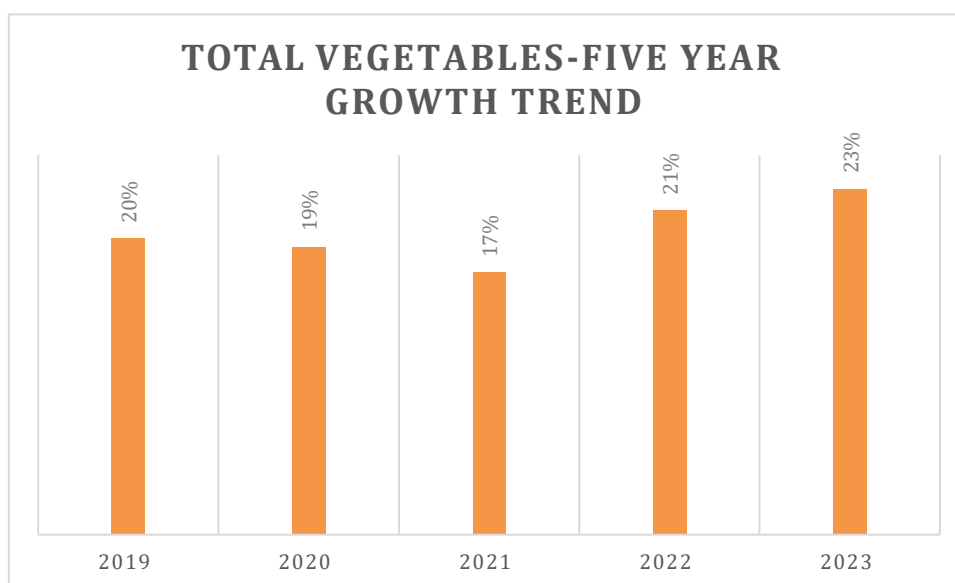
2. Vegetable crops

Table 9 Major vegetable crops arrival in the adjoining Mandis

Commodities	Arrivals (Qtl)				
Major Crops	2019	2020	2021	2022	2023
Potato	779	837	690	969	918
Onion	945	1,032	814	1,167	913
Tomato	687	876	576	711	910
Bottle Gourd	663	534	588	729	812
Cabbage	711	775	600	753	794
Capsicum	681	638	612	717	793
Okra/Lady Finger	637	682	606	754	792
Cucumber	666	423	545	654	777
Brinjal	552	528	605	714	750
Carrot	676	471	557	489	702
Total Vegetables	6,997	6,796	6,193	7,657	8,161

Source: MSAMB

The below graph clearly depicts that the vegetables like Potato, Onion, Tomato and Bottle Gourd show a significant growth over the last 5 years, however, arrivals of other vegetables like cabbage, Capsicum, Okra, Brinjal and Carrot has decreased.

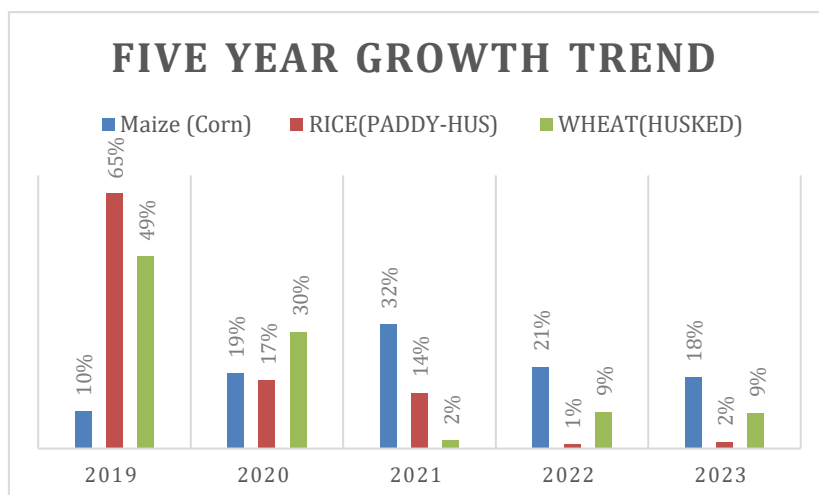


3. Principal crops

Table 10 Major principal crops arrival in the adjoining Mandis

	Arrival (in QTL)				
Crops	2019	2020	2021	2022	2023
Maize (Corn)	21,571	43,310	71,819	47,000	41,140
Rice (Paddy-Hus)	61,748	16,498	13,472	1,027	1,692
Wheat (Husked)	5,221	3,169	222	990	974
Total	88,540	62,977	85,513	49,017	43,806

Source: MSAMB



The above graph clearly depicts that the maize crop shows a drastic growth over the 5 years, however, arrivals of other principal crops like Rice and Wheat has decreased.

Production & Mandi arrivals for various agricultural and Horticultural commodities were studied and mentioned focused crops were selected:

Table 6 Identified Commodities

• Major Fruits	• Major Vegetables	• Food grains	• Spices
• Grapes • Pomegranate • Banana • Apple • Mango • Custard Apple • Guava • Sapota • Limes and Lemons • Papaya • Sweet Orange / Mosambi • Orange • Watermelon • Pineapple • Aonla / Gooseberry	• Onion • Tomato • Potato • Cauliflower • Brinjal • Cabbage • Green Chilly • Okra/Ladies Finger • Beans • Cucumber • Bottle Gourd • Capsicum	• Maize • Jowar • Wheat	• Garlic • Green Chillies • Ginger • Curry leaves • Coriander • Red chilli

As per the above table, the major commodities based on the secondary research (production and arrival) have been identified for the projection's calculations.

A photograph showing the process of rice seedling cultivation. In the foreground, a dense patch of young, bright green rice seedlings grows in a muddy, water-filled field. A person's hand is visible on the left, reaching into the water near the seedlings. In the background, another person is partially visible, working in the field. The scene is set in a rural, agricultural environment.

Throughput Estimation

3. Throughput Estimation

Throughput is based on historical arrival trends and future projections (based on projected growth) in the existing markets in the vicinity of the proposed location, which has been identified as mandi cluster. The Agri Marketing Facility has been designed in two Phase to cater to the expected volumes for next 25 years with a provision for expansion of similar capacities.

Throughput assessment for setting up of the proposed Integrated marketing infrastructure is based on

- Data available from secondary sources, which includes
 - Production of selected commodities in the identified cluster
 - Arrival volumes of selected commodities in the mandi cluster
 - Primary information obtained through stakeholder consultation

Throughput for food grains, spices and vegetables have been calculated mainly on the basis of arrival data along with mapping in the mandi cluster. The data provided by MSAMB, regarding the quantity of various commodities handled in the existing market served as a basis for estimation of the throughput.

However, in case of fruits, production data (in the identified production cluster) has been considered for the throughput calculation due to the following reasons:

- Inconsistence arrival of fruits in the existing mandis
- Direct purchase of fruits by traders at farmgate

The above is attributed to the delisting of fruits from APMC Act by Government of Maharashtra in 2016. As per the amended regulation, fruits & vegetables and spices & condiments can be sold outside mandi premises by the farmers and accordingly the mandi tax is not levied on such trade happening outside the mandi premises. However, the effect of the regulation is much visible on fruits and negligible on other delisted commodities.

3.1 Commodity Projections: Methodology

To arrive at the projections for arrivals and production, major crops were considered under categories viz. cereals & grains, F&V and spices. Following is the methodology adopted for the purpose of calculating projections:

1. Data Collection:

- Gathered the historical data for each crop from Department of Agriculture, Department of Horticulture for Production Data and Maharashtra State Agricultural Marketing Board for arrivals.
- Calculating the proportion of each crop relative to the total agricultural production/arrival during the specified period

2. Threshold Check:

- Examine the percentage of each crop contributing to the total crop production
- If the percent exceeds 0.20%, crop is selected for further analysis under the specific category.
- It is assumed that crops with lower percentage may not significantly impact overall projections.

3. Year-on-Year Growth Calculation:

- Focused on the last 6 years of data for each category.
- Calculate the year-on-year growth rate for each of these 6 years
- Outliers: In certain instances, we observed exceptionally high and low year-on-year growth rates. These outliers may significantly impact on overall analysis, leading to skewed results and potentially misleading projections. Refer **Table 7.1** for YoY growth calculations based on past year data (*Table 7.2*) made available.

4. Average Growth Rate:

- The total growth rate for each crop was divided by 6 to obtain the average annual growth rate
- The average growth rates represent the typical increase in arrival or production for each specific crop over recent years.

5. Projection Intervals:

- Used the average growth rates to project arrival or production at specific intervals for each crop (fruits, vegetables, grains, and flowers):
 - **5 years:** Multiply the current arrival or production by the growth rate raised to the power of 5.
 - **10 years:** Multiply the current arrival or production by the growth rate raised to the power of 10.

6. Final Projections:

- Calculated the projected arrival or production for each crop (fruits, vegetables, grains, and flowers) based on the chosen interval.
- These projections provide insights into the potential growth of each specific crop over the specified time frames.

7. Impact of External Factors:

- Recognize that projections are based on historical trends and assumptions.
- External factors unique to each crop (such as climate conditions, technological advancements, market dynamics, and policy changes) can significantly impact actual arrival or production.

It was further projected the quantity of commodities in next 25 years.

3.1.1 Projections

Table 7 Crop Projections

Crops	Production (MT)					Arrivals (MT)				
	2023	2027-2028	2028-2033	2033-2043	2043-2053	2023	2027-2028	2028-2033	2033-2043	2043-2053
Banana	36,23,574	1,05,90,914	3,09,54,923	26,44,37,032	2,25,89,92,694					
Grapes	13,00,766	13,36,773	13,73,776	14,50,885	15,32,321	8,273	2,68,53,022	87,16,43,85,549	9,18,39,78,75,92,45,93,000	96,76,59,73,07,36,20,80,00,000,000,000
Mango	13,65,032	23,70,521	41,16,656	1,24,14,986	3,74,41,037	1,25,438	2,92,167	6,80,509	36,91,815	2,00,28,387
Pomegranate	8,32,373	7,32,095	6,43,899	4,98,100	3,85,315	17,052	9,865	5,707	1,910	639
Sapota	3,20,996	26,72,079	2,22,43,288	1,54,13,39,399	1,06,80,64,75,030	9,430	9,014	8,617	7,873	7,194
Limes and Lemons	1,11,927	1,22,934	1,35,023	1,62,886	1,96,498	-	-	-	-	-
Guava	1,42,999	2,36,855	3,92,313	10,76,294	29,52,770	9,704	27,474	77,786	6,23,542	49,98,384
Custard apple	90,399	1,47,459	2,40,535	6,40,022	17,02,987	10,538	60,55,854	3,48,02,72,376	1,14,94,46,81,51,13,960	37,96,33,49,92,96,47,90,00,000
Kinnow/mandarin	48,252	3,55,438	26,18,246	14,20,70,501	7,70,89,88,532					
Mosambi	34,585	2,86,357	23,70,961	16,25,38,909	11,14,26,96,492	41,767	40,679	39,619	37,581	35,648
Aonla/gooseberry	11,389	44,150	1,71,146	25,71,815	3,86,46,754					
Onion	93,77,112	1,18,89,880	1,50,75,990	2,42,38,323	3,89,69,004	118	43	15	2	0
Tomato	8,43,060	9,13,684	9,90,224	11,63,076	13,66,101	258	450	785	2,390	7,277
Brinjal	5,31,768	53,45,936	5,37,43,400	5,43,16,01,644	5,48,94,73,40,327	412	954	2,208	11,830	63,388
Okra	5,44,387	4,84,31,526	4,30,87,21,290	3,41,02,71,06,32,920	2,69,91,64,77,36,51,58,000	2,235	2,534	2,874	3,694	4,750
Potato	2,13,200	4,64,828	10,13,438	48,17,342	2,28,99,056	142	58	24	4	1
Cauliflower	2,16,546	3,54,109	5,79,059	15,48,444	41,40,646	88	121	167	319	610
Cabbage	1,56,407	3,16,870	6,41,957	26,34,846	1,08,14,460	133	97	71	38	20
Green chilly	1,12,624	1,52,325	2,06,021	3,76,871	6,89,406	85	70	58	39	26
Rice	10,00,284	10,71,955	12,55,171	17,20,902	23,59,442					
Maize	11,50,613	24,57,089	1,10,32,204	22,24,05,301	4,48,36,11,670	4,114	15,213	56,257	7,69,285	1,05,19,596
Wheat	5,00,902	10,62,078	22,51,959	1,01,24,371	4,55,17,215	1,471	867	511	178	62
Jowar	1,88,033	4,68,280	11,66,211	72,33,034	4,48,60,459	It is observed that arrival of grain market during last 5 year is not consistence hence it is not considered for throughput calculations				
Bajra	2,91,207	3,02,747	10,66,691	1,32,42,135	16,43,90,705					
Soyabean	4,94,766	7,01,762	30,02,826	5,49,80,825	1,00,66,82,012					
Gram	1,81,914	3,13,748	5,41,124	16,09,633	47,88,036					
Mung	53,764	1,76,538	29,35,915	81,19,97,244	2,24,57,72,17,700					
Udid	39,036	78,898	5,78,121	3,10,40,073	1,66,65,81,873					
Tur	30,840	3,38,475	55,99,203	1,53,22,35,835	4,19,30,01,27,925					

Source: Department of Horticulture (Horticulture Production), Department of Agriculture (Agriculture Production), MSAMB (Arrivals), Outliers are marked as red.

Table 7.1 YoY Growth

		Production							Arrivals						
Crops	2017	2018	2019	2020	2021	2022	2023	Average	2018	2019	2020	2021	2022	2023	Average
Banana	6.68%	4.42%	88.34%	-1.31%	-38.53%	1.32%	106.56%	23.93%							
Grapes	1.31%	0.26%	0.71%	-21.41%	20.69%	0.86%	1.40%	0.55%	126.00%	1459.88%	725.64%	119.08%	-28.22%	20.50%	403.81%
Mango	16.28%	-11.34%	78.52%	-1.07%	-23.15%	-10.56%	33.02%	11.67%	-3.39%	-6.31%	-63.64%	139.84%	22.43%	21.63%	18.42%
Pomegranate	-3.06%	13.71%	-0.92%	-0.42%	-5.24%	-14.49%	-7.33%	-2.53%	-10.30%	-14.94%	-30.79%	-1.93%	-19.27%	15.02%	-10.37%
Sapota	0.76%	-3.86%	395.86%	-4.34%	-16.10%	-0.59%	-2.26%	52.78%	-32.15%	14.04%	-26.32%	50.03%	-11.56%	0.57%	-32.15%
Limes and Lemons	-20.29%	4.29%	-0.73%	-2.91%	-9.69%	9.97%	32.62%	1.89%							
Guava	-3.08%	9.72%	34.18%	1.96%	4.57%	8.76%	18.23%	10.62%	-26.12%	-2.17%	88.37%	37.44%	23.08%	18.24%	23.14%
Custard apple	-9.62%	28.52%	13.67%	-9.68%	28.02%	1.79%	19.27%	10.28%	-40.52%	1565.39%	3.39%	-1.77%	-20.89%	32.55%	256.36%
Kinnow/mandarin	16.48%	-33.03%	0.00%	13.38%	353.98%	-1.47%	-5.71%	49.09%							
Mosambi	-19.70%	-39.64%	6.25%	-2.29%	90.62%	-3.83%	336.90%	52.62%	-13.96%	-15.53%	-29.62%	33.00%	11.83%	11.12%	-0.53%
Aonla/gooseberry	-0.20%	74.89%	149.32%	-3.32%	0.08%	-0.22%	-2.67%	31.13%							
Onion		-2.34%	-12.61%	14.57%	23.00%	10.36%	-3.81%	4.86%	-57.21%	-48.70%	25.76%	-4.28%	-22.28%	-4.21%	-18.49%
Tomato		7.14%	-13.11%	2.52%	27.89%	-11.05%	-3.66%	1.62%	-27.12%	-62.53%	17.77%	-22.34%	48.07%	116.82%	11.78%
Brinjal		4.10%	346.38%	-32.80%	36.32%	-0.64%	-1.42%	58.66%	-34.18%	-57.41%	-70.56%	9.07%	136.75%	126.00%	18.28%
Okra		5.70%	862.48%	-0.71%	1.63%	3.88%	-0.69%	145.38%	-31.10%	25.54%	-52.89%	4.39%	40.82%	28.51%	-31.10%
Potato		-59.60%	253.39%	-41.69%	-0.29%	-26.68%	-23.92%	16.87%	-69.16%	-73.62%	11.11%	16.63%	1.07%	15.42%	-16.42%
Cauliflower		-0.13%	66.56%	-31.34%	54.46%	-6.88%	-20.66%	10.34%	30.63%	-29.34%	16.67%	-27.32%	3.45%	46.00%	6.68%
Cabbage		57.72%	37.88%	-27.93%	18.92%	6.93%	-2.52%	15.17%	-57.94%	-59.17%	7.02%	-24.34%	57.50%	40.32%	-6.10%
Green chilly		8.27%	-4.34%	11.06%	31.36%	-6.20%	-2.80%	6.23%	13.49%	-27.37%	-17.07%	-11.94%	26.97%	-7.19%	-3.85%
Rice	11.79%	-10.44%	-3.34%	-20.52%	11.91%	15.26%	17.78%	3.21%							
Maize	104.80%	6.07%	-31.38%	-39.42%	199.83%	-2.90%	8.25%	35.04%			100.78%	65.83%	-34.56%	-12.47%	29.89%
Wheat	80.22%	23.02%	-46.36%	40.98%	-6.67%	1.81%	20.54%	16.22%	-22.03%	-13.34%	-12.18%	-39.04%	-25.99%	52.42%	-10.03%
Jowar	53.90%	34.10%	-74.96%	157.42%	2.50%	13.16%	-45.99%	20.02%	It is observed that arrival of grain market during last 5 year is not consistence hence it is not considered for throughput calculations						
Bajra	187.77%	-18.56%	-47.58%	54.85%	63.56%	-26.44%	-13.09%	28.64%							
Soyabean	34.16%	45.03%	-48.78%	-1.53%	173.95%	5.61%	27.75%	33.74%							
Gram	90.76%	26.49%	-43.26%	19.38%	-3.34%	22.59%	-32.00%	11.52%							
Mung	378.31%	11.18%	-47.36%	8.08%	181.92%	12.36%	-16.27%	75.46%							
Udid	114.30%	-22.19%	-25.93%	26.03%	210.10%	-31.91%	72.12%	48.93%							
Tur	430.19%	-25.47%	-69.82%	99.12%	72.52%	10.54%	9.84%	75.27%							

Source: Department of Horticulture (Horticulture Production), Department of Agriculture (Agriculture Production), MSAMB (Arrivals)

Table 7.2 Past year data

		Production (MT)							Arrivals (MT)						
Crops	2016	2017	2018	2019	2020	2021	2022	2023	2017	2018	2019	2020	2021	2022	2023
Banana	1360411	1451289	1515397	2854088	2816842	1731424	1754268	3623574							
Grapes	1310670	1327875	1331375	1340875	1053822	1271882	1282847	1300766	15	33.9	528.8	4366	9564.9	6865.5	8272.7
Mango	819982.9	953459.4	845303.7	1508999	1492922	1147361	1026192	1365032	106738	103116	96612	35124	84240	103134	125438
Pomegranate	1019169	987990.2	1123485	1113126	1108456	1050363	898206	832373	35459.3	31807.2	27057	18726	18365	14825.9	17052.4
Sapota	85699.44	86352.11	83015.56	411644.2	393771.2	330358.5	328406.6	320996	12396	8410.9	9591.5	7066.6	10602	9376.5	9430.4
Limes and Lemons	106067.5	84543.21	88166.32	87525.2	84979.2	76744.4	84399.61	111926.6							
Guava	73103.85	70848.79	77734.2	104300	106340.4	111204.7	120945.6	142999.3	3563.6	2632.7	2575.5	4851.5	6668	8207	9703.7
Custard apple	48773.43	44079.52	56651.34	64392.9	58159.61	74458.6	75794.93	90398.6	998.9	594.1	9894.1	10229	10049	7949.9	10537.5
Kinnow/mandarin	12934.97	15067	10091	10091	11441	51939.98	51174.98	48252.18							
Mosambi	8581	6890	4159	4419	4318	8231	7916	34585	49406.3	42507.7	35908	25272	33611	37588.1	41767.3
Aonla/gooseberry	2785.3	2779.86	4861.8	12121.3	11718.37	11728.2	11702.23	11389.2							
Onion		7344106.84	7172546.98	6268303.58	7181380.7	8833285.38	9748285	9377112	601.3	257.3	132	166	158.9	123.5	118.3
Tomato		805996.2	863504.89	750327.39	769266.7	983838	875115.3	843060.25	321.5	234.3	87.8	103.4	80.3	118.9	257.8
Brinjal		127535.59	132768.65	592656.1	398256	542902	539447.9	531768.2	855.5	563.1	239.8	70.6	77	182.3	412
Okra		51401.95	54333.15	522948.3	519218.7	527677.25	548155.26	544387.2	2903.4	2000.4	2511.3	1183.1	1235	1739.1	2235
Potato		460372	185999.6	657298	383290	382182	280234.84	213200	1150.4	354.8	93.6	104	121.3	122.6	141.5
Cauliflower		166135	165916	276347	189752	293099	272948	216546	74.1	96.8	68.4	79.8	58	60	87.6
Cabbage		80509.3	126976.03	175072	126178.35	150052.75	160456.95	156407	431.5	181.5	74.1	79.3	60	94.5	132.6
Green chilly		72714.7	106322.85	102230.5	63994.52	203345.2	170801.59	131143.2	120.1	136.3	99	82.1	72.3	91.8	85.2
Rice	856000	956900	857000	828370	658388	736800	849270	1000284							
Maize	404300	828000	878300	602654	365107	1094700	1062945	1150613	0	0	2157.1	4331	7181.9	4700	4114
Wheat	260851	470102	578322	310207	437341	408170	415541	500902	3605.2	2810.9	2435.8	2139.1	1304.1	965.1	1471
Jowar	225600	347200	465600	116600	300156	307673	348169	188033							
Bajra	146400	421300	343100	179841	278490	455500	335057	291207							
Soyabean	136400	183000	265400	135937	133858	366700	387289	494766							
Gram	138130	263500	333300	189100	225750	218216	267504	181914							
Mung	6700	32047	35631	18755	20270	57146	64210	53764							
Udid	6900	14787	11506	8522	10740	33305	22679	39036							
Tur	6200	32872	24500	7394	14723	25400	28076	30840							

3.1.2 Trends

1. Fruit crops

The projection for fruits has been depicted from past production data of last 5 years, which shows average decrease in growth by -0.26 % in the Identified focused fruits. However, it was observed that there are certain discrepancies in the data.

As per the current and projected data, it can be clearly seen the average percentage share of the fruit crops such as increasing over the years such as Custard apple (10.01%) and guava (9.68 %). Whereas Grapes show only (0.5%) growth. Mangoes and pomegranate also show the declining trend. However, these crop percentage indicates an alarming situation for the sector.

It is anticipated that unavailability of dedicated infrastructure is one of the major factor in the decreasing crop wise growth rate.

2. Vegetables crops

Similar to fruits, projection for vegetables have been depicted from production data last 5 years which shows an average decrease in growth by -3.23 % total vegetables in the cluster. The district is the major hub for onion and the commodity is increasing at a rate of 4.86%.

Onions and other vegetables have been coming from all over the country for export. Lack of Infrastructure is somewhere hindering the actual export potential from country. Therefore, an export-oriented packhouse for onion will help in uplifting the sector.

3. Grains

The projections for field crops, depicted from arrival data of last 5 years which shows declining trend. on the basis on secondary assessment. It was found that there are around 6-7 warehouses of more than 25,000 MT capacity of Maharashtra Warehousing Corporation is available in the region. However, in upcoming project grain facility has not been proposed but in case the demand generated facility can be developed for same

There is an anticipation that a dedicated infrastructure such as packhouse, cold store etc. will help in uplifting the sector.

Table 8 Average growth % of past 5 years of major crops

Crop	Growth Average
Fruits	-0.26%
Vegetables	-3.23%
Grains	-8.69%
Mango	-12.57%
Onion	-18.49%

3.1.3 Basis of percentage selection

In this section, the basis of percentage selection for different commodities have been analysed and triangulated through desk research, data analysis and multi-level stakeholder consultations (farmers, wholesalers, commission agents, exporters, importers, traders, mandi officials, department of agriculture and horticulture, cold store owners etc.

Capacity estimates were based on capturing an informed estimate of daily throughput that was based on stakeholder consultations, technical experts and based on potential storage per commodity bands.

The commodity wise percentage assessment is given below.

Table 9 Basis of Percentage Selection

Crops	Rationale	Percentage considered	Percentage considered
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		for storage based on projections	for storage based on peak arrivals
Banana	Thane being very close Mumbai usually and mostly urbanised, production is very less in the whole region. Produce arrives from all over the country. Fruits like apples, pears, oranges, kiwis, litchi etc. are the most popular among imported fruits. As per the current and projected data, it can be clearly seen the average percentage share of the fruit crops keeps on increasing over the years. Thane has already enough infrastructure available followed by the facilities getting developed under the SMART and Magnet.	3%	3%
Grapes		3%	3%
Mango		3%	3%
Pomegranate		3%	3%
Sapota		3%	3%
Custard apple		3%	3%
	Existing export-oriented facilities available in the vicinity were visited during the field study. However, the keeping in view the existing condition, capacity utilisation and increasing demand, facilities has been proposed with modern infrastructure. Proposed infrastructure will cater and attract more produce to Mumbai from all over the country. Proposed facility will have sufficient separate holding space for mangoes during main season which can be further utilised for other fruits and vegetable during lean season.		
	Most of the cold storages are utilised at more than 90% capacity in the entire MMR. Importers find it difficult to manage the trade with produce stored at distant locations and shops being in APMC Vashi and multiple handling. Sample is displayed shops and product delivery takes between 1-3 hours. Proposed Import complex will have multi-storage which will reduce the time takes in delivery of produce.		
Onion	Similar to fruits, production in the district is very less majority of its produce has been coming from all over country, Projection has been made considering the production from the selected cluster. It is observed after mango, onion is one of the major crops getting export from the region, reportedly had production of 99.33 lakh MT in 2023 with in the selected cluster. it was reported that facilities existing infrastructure in vicinity in Navi Mumbai operate on more than 90% capacity however the proposed infrastructure for vegetables will address the challenges in the current value chain, including the need for better handling, storage, and marketing infrastructure.	3%	3%
Tomato		3%	3%
Brinjal		3%	3%
Okra/ladies finger		3%	3%
Potato		3%	3%
Cauliflower		3%	3%
Cabbage		3%	3%
Green chilly		3%	3%
	It is projected that around 1-5% of produce will be coming to the proposed unit. Proposed facility will have proper plug-in facility in order the reduce the post-harvest losses generally occur during waiting lines during unloading of produce to facilities.		

3.2 Capacity Calculations

Table 10 Capacity Calculations

Crops	Seasonality (In days)	Per Day Handling (MT) 2023		Per Day Handling (MT) 2027-2028		Per Day Handling (MT) 2028-2033		Annual Throughput (MT) 2023		Annual Throughput (MT) 2027-2028		Annual Throughput (MT) 2028-2033	
		Production (MT)	Arrivals (MT)	Production (MT)	Arrivals (MT)	Production (MT)	Arrivals (MT)	Production	Arrivals	Production	Arrivals	Production	Arrivals
Banana	240	15,098.23	-	44,128.81	-	1,28,978.84	-	1,08,707.23	25.92	3,17,727.42	25.92	9,28,647.68	25.92
Grapes	180	7,226.48	45.96	7,426.52	1,49,183.46	7,632.09	48,42,46,586.40	39,022.98	16,582.10	40,103.19	8,21,924.59	41,213.29	2,61,49,47,900.00
Mango	90	15,167.03	1,393.75	26,339.12	3,246.30	45,740.63	7,561.21	40,950.97	1,03,041.32	71,115.63	1,08,043.19	1,23,499.69	1,19,693.46
Pomegranate	150	5,549.15	113.68	4,880.64	65.77	4,292.66	38.05	24,971.19	1,16,940.07	21,962.86	1,16,724.46	19,316.96	1,16,599.72
Sapota	90	3,566.62	104.78	29,689.77	100.16	2,47,147.64	95.74	9,629.88	4,188.73	80,162.38	4,176.25	6,67,298.63	4,164.32
Limes and Lemons	240	466.36	-	512.22	-	562.60	-	3,357.80	64.08	3,688.01	64.08	4,050.69	64.08
Guava	90	1,588.88	107.82	2,631.73	305.26	4,359.03	864.29	4,289.98	5,223.74	7,105.66	5,756.85	11,769.38	7,266.21
Custard apple	210	430.47	50.18	702.18	28,837.40	1,145.40	1,65,72,725.60	2,711.96	13,961.30	4,423.76	1,95,320.80	7,216.05	10,44,21,816.50
Kinnow/ mandarin	240	201.05	-	1,480.99	-	10,909.36	-	1,447.57	-	10,663.14	-	78,547.38	-
/Mosambi	240	144.11	174.03	1,193.15	169.50	9,879.00	165.08	1,037.56	76,394.38	8,590.71	76,361.73	71,128.83	76,329.92
Aonla/gooseberry	120	94.91	-	367.92	-	1,426.22	-	341.68	-	1,324.50	-	5,134.38	-
Onion	240	39,071.30	0.49	49,541.17	0.18	62,816.62	0.06	2,81,313.36	171.31	3,56,696.40	169.04	4,52,279.70	168.22
Tomato	300	2,810.20	0.86	3,045.61	1.50	3,300.75	2.62	25,291.81	515.33	27,410.52	521.10	29,706.71	531.15
Brinjal	150	3,545.12	2.75	35,639.57	6.36	3,58,289.33	14.72	15,953.05	332.76	1,60,378.08	349.01	16,12,302.00	386.63
Okra/ladies finger	240	2,268.28	9.31	2,01,798.03	10.56	1,79,53,005.37	11.97	16,331.62	2,577.69	14,52,945	2,586.67	12,92,61,638	2,596.85
Potato	300	710.67	0.47	1,549.43	0.19	3,378.13	0.08	6,396.00	950.15	13,944.84	947.63	30,403.15	946.61
Cauliflower	90	2,406.07	0.97	3,934.54	1.34	6,433.99	1.86	6,496.38	49.61	10,623.26	50.61	17,371.77	52.00
Cabbage	90	1,737.86	1.47	3,520.78	1.08	7,132.85	0.78	4,692.21	39.35	9,506.10	38.27	19,258.70	37.49
Green chilly	180	625.69	0.47	846.25	0.39	1,144.56	0.32	3,378.71	62.50	4,569.74	62.04	6,180.63	61.67
Peas (green)	120	502.52	0.61	868.02	0.78	1,499.36	1.00	1,809.06	29.91	3,124.86	30.53	5,397.70	31.34
Bottle gourd	90	418.82	-	515.14	-	633.60	-	1,130.82	22.95	1,390.87	22.95	1,710.73	22.95
Ridge gourd	90	167.95	1.37	154.06	2.20	141.33	4.43	453.47	52.56	415.97	54.82	381.58	60.83
Capsicum	180	147.17	1.95	372.59	3.09	943.30	4.88	794.70	253.01	2,011.98	259.13	5,093.81	268.81

Source: GAPL Analysis

Based on the stakeholder consultations (as mentioned in the concept note), probable per day handling and storage days the capacity of the infrastructure has been estimated. Based on the different categories, the desired infrastructure along with the calculated capacity has been estimated below. The proposed facility is detailed as per the requirement viz., warehouse, temperature-controlled storage, packhouse including the post-harvest treatment for increasing the shelf life of the commodity.

Table 11 Capacities for the common infrastructure

Facility	Common Infrastructure	Crops	Phase-1	Mode of Implementation
Packhouse for F&V export	Automated sorting & grading line	F&V	10 lines of 2MT each	MSAMB
	Pre – Cooling Facility		6 rooms 6 MT each	
	Cold storage		2400 MT	
	Hot water Treatment		-	
	Vapor Heat Treatment		2* 2.5MT	
	Irradiation facility		100MT/Day	
	Trader shops		24 Nos	
Facility	Common Infrastructure	Crops	Phase-2	
Import Complex	Cold Storage	F & V	5,400 MT	MSAMB
	Trader shops		30 Nos	
Packhouse for Onion	Automated sorting & grading line	Onion	2-lines of 2MT each	PPP/Lease
	CA storage		2200MT	
	Trader shops		10 Nos	
Space for Organised Retail			To be decided by private player	PPP/Lease
Space for Warehousing			Dry warehouses (capacity to be decided by MSAMB and MSWC)	PPP/Lease

The above-mentioned facilities and capacities will facilitate the demand for next 5-10 years. Once the facility is implemented and based on the increased demand and utilisation of the proposed facilities, the proposed project can be further expanded.

Currently the existing facilities are mainly getting utilized by Australia, USA, UAE. Demand in past 2 years has been considering the future expansion, dedicated area of 11.98 acre has been kept, it has been anticipated that proposed facility will grow at fast rate.

Recently major imports are from New Zealand, Europe, U.S and Africa, imports are also increasing however it is also expected that import complex also need expansion in future

Keeping-in-view the merging crops like Custard Apple, Papaya, fig, and other exotic fruits and vegetables etc. can be considered for the next phase.

Site Assessment



4. Site Assessment

The dedicated Team of Senior Civil Engineer and Senior Architect along with MSAMB officials, visited the proposed site at Bapgaon, Maharashtra on 1st Feb 2024, for assessment of site for implementation of integrated marketing infrastructure.

A total of 115-acre land has been proposed by MSAMB at Bapgaon, out of which there is encroachment in around 5-acre of land.

- Co-ordinate of proposed site: 19.273798,73.141960



4.1 Connectivity

Road: National and state roadways link Thane to every corner of the nation. Proposed location is well connected to Kalyan-Sape Road, which is single lane internal road connects to Mumbai-Nashik Highway at 8 km. Road connections exist between Thane and Dhule, Malegaon, Nashik, Thane and Mumbai and other locations. The newly constructed Samruddhi Mahamarg (Mumbai-Nagpur Expressway) is 5-6 Km away from the location.

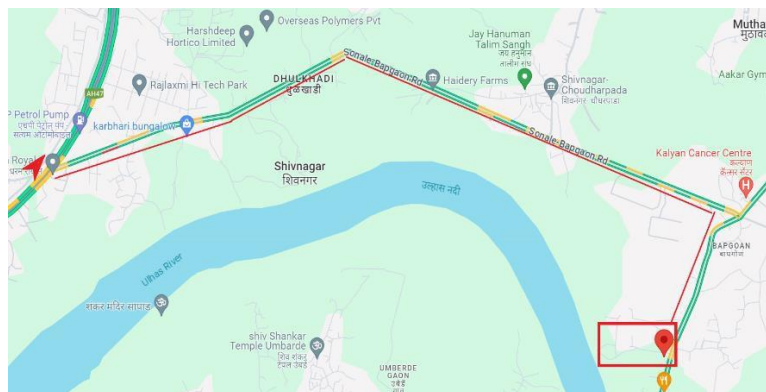


Figure 2 Road Connectivity of Kalyan Sape Road to Mumbai -Nashik Highway

Rail: Kalyan Junction is well connected to proposed location at a distance of 5.6 Km serves as a crucial railway hub on the central line of the Mumbai Suburban Railway network, situated at the convergence point of the north-east and south-east lines within the suburban Mumbai division of the Central Railway.

It is located 54 Km to the north-east of Mumbai, it ranks among the top 10 busiest railway stations in India. Kalyan Junction holds significant importance as a stop for numerous trains traversing the region.

Other Nearby Major Railway stations:

- CSMT railway station - 58 km

Air: Chhatrapati Shivaji International Airport is nearby airport that connects the proposed location at **48.2 km**. other than this proposed location also have connectivity with the upcoming **D B Patil International Airport Navi Mumbai**, Ulwe, Navi Mumbai with **42.8 km**

4.2 Topography

Land divided into fragments due to build structure. The central portion of the land is a flat land & is directly accessible to approach road. Land contour is linear in shape.

The flat portion of land is feasible for market activity and could be developed horizontally and vertically.

4.3 Water Availability

Proposed site has underground availability; however, it is hard water which will requiring treatment before consumption. Land is surrounded by Kalu river adjacent to site towards the north and eastern side.

4.4 Power Availability

Site has proper power availability. There is 33Kva substation which is around 3.5km and 11kva is around 1km located from the site.

Planning and Designing of the Agri Marketing Facility



5. Planning and Designing of the Agri Marketing Facility

The design of various facilities such as building, parking, waste disposal, site plan and environmental features of the Agri-market has been undertaken as per the estimated load and by benchmarking with other markets / infrastructures.

The local trade practices have also been considered while designing the facilities and location of various facilities within the proposed infrastructure.

5.1 Stakeholder Consultation

Meeting with stakeholder was conducted at APMC kalyan and APMC Vasi and visit to export facility Vasi. Various points have been discussed and observations have been noted. Based on the demand and requirement from the stakeholders Agri marketing facilities has been proposed. Given in Annexure -1

5.2 Flow of Produce

APMC Bapgaon, where majorly the trade happens for Fruits and Vegetables (as shown in the stakeholder assessment). Keeping-in-view, the traditional produce flow in the cluster is from farm to the market and thereafter to the secondary markets which will have very critical influence on sizing of infrastructure, layouts and configuration of various facilities.

The proposed infrastructure will have easy access from production belts in the catchment area. The markets in Bapgaon will cater to the upcoming infrastructure which will fulfil the needs of the beneficiaries.

Further, on account of its integrated infrastructure, it is expected that a greater number of farmers, commission agents, traders, exporters, processors etc. from nearby areas will bring their produce to the facility.

Therefore, the agri-marketing infrastructure will also function as the transit market for surplus fruits & vegetables grown in the catchment area. The planned capacity of the infrastructure is capable of handling increased volumes.

5.3 Site Master Plan

The AMF is proposed to be located on an area of 115 acres, which will house the proposed facilities and also have a provision for future expansion.

A master plan has been proposed to be developed in such a way to meet international standards with a futuristic view.

The facility should be able to cater to the requirements of the stakeholders for the identified commodities for next 25 years.

The design of the site master plan is expected to ensure the following:

- The development of various infrastructure based on the assessment of essential requirements.
- Modern facility for handling agriculture and horticulture produce in an efficient manner
- Relationship between different commodities, movement of these commodities and stakeholders involved such as the farmers, commission agents, wholesalers, buyers etc.

- Adequate space for storage of the commodities in a dedicated infrastructure like dry commodities in warehouses and perishable commodities in cold storages
- Adequate space for product handling, weighing, cleaning, grading and packing etc.;
- Minimizing traffic hassles within the facility.
- The traffic and environment concerns are addressed in the most optimum manner.
- Adequate parking space for commercial as well as personal vehicles entering into the facility;
- Facilitation of export by keeping container plug points & parking
- Provision for future expansion has been envisaged in such a way as to ensure minimum disruption to the existing functions at the time of expansion.

A layout plan of various facilities to be provided in the agri-marketing infrastructure such as shops, auction area, Kisan Ghar car parking, trucks parking, rest rooms, packhouses, cold storages, warehouses etc. has been depicted in the enclosed drawings.

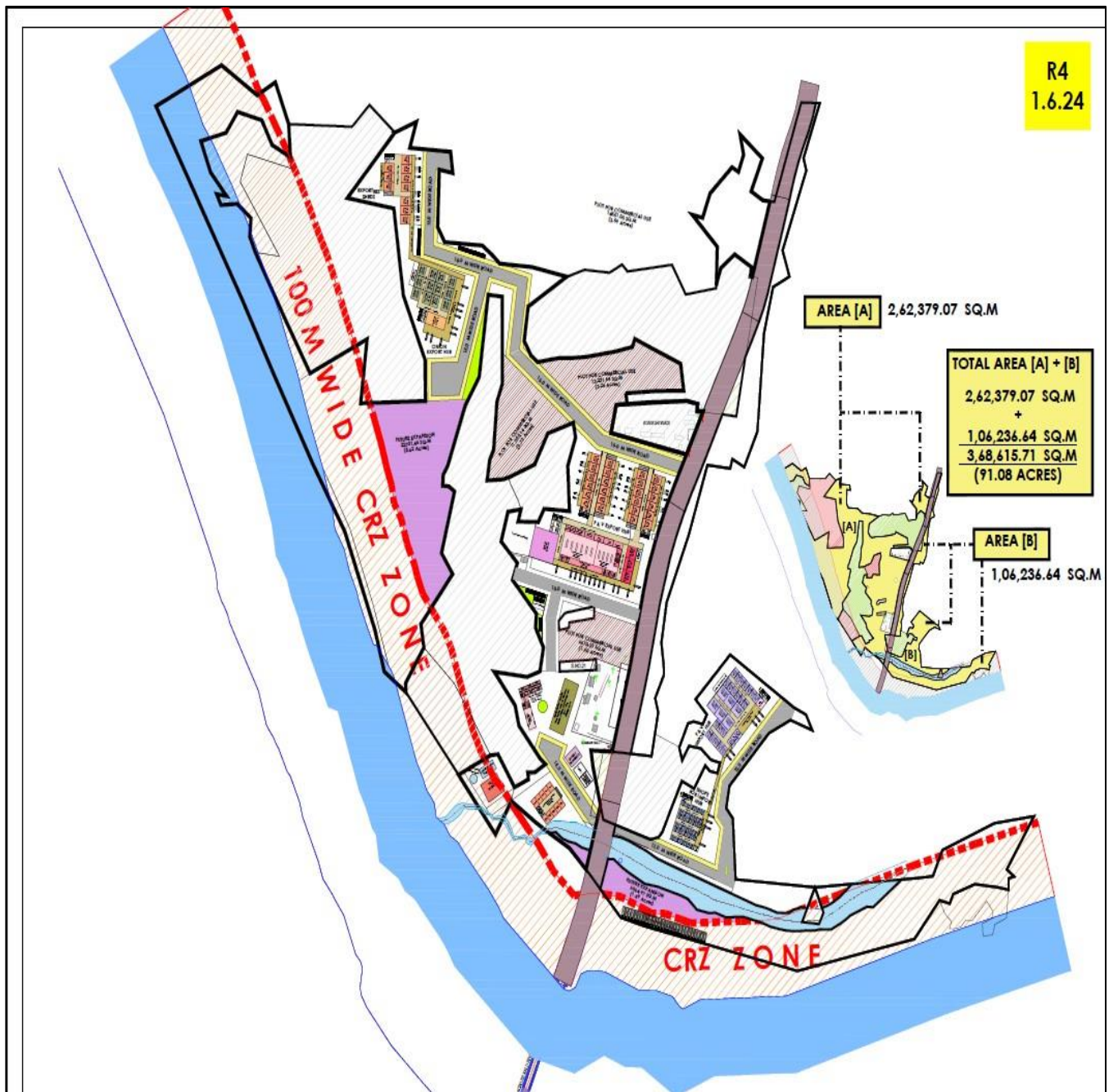
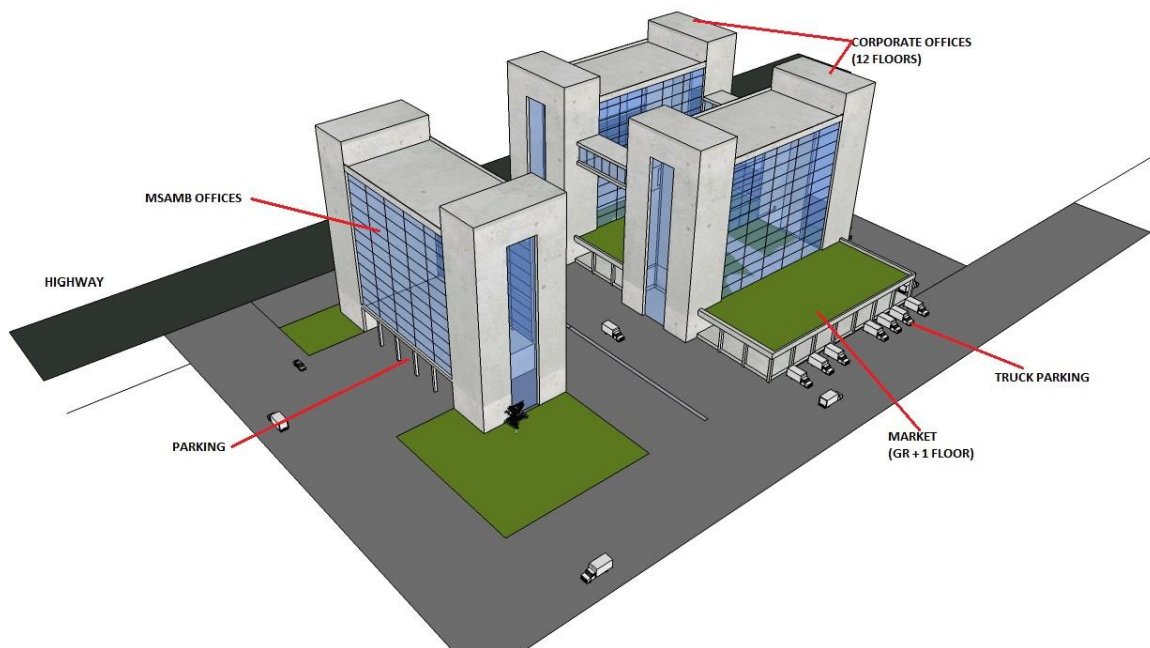


Figure 3 Master Plan for Bapgaon



The proposed Agri-Marketing Facility at Bapgaon is planned as a modern, tower-based 3D agri-infrastructure complex, designed to optimize land use and improve market efficiency. The vertical layout integrates corporate offices MSAMB offices, and agri-business services within a compact footprint, creating a centralized agri-commerce hub.

The G+1 modern wholesale market at the podium level is supported by dedicated truck parking, loading–unloading bays, and internal circulation, ensuring smooth handling of agricultural produce. Strategically located along the highway, the facility enhances regional connectivity, logistics efficiency, and market access.

Overall, the project represents a next-generation agri-marketing ecosystem, strengthening value chains, improving trade transparency, and supporting farmers, traders, and agri-enterprises in the Bapgaon region.

5.4 Designing of Buildings

The designing of the buildings has been done keeping in view the trade practices being followed in the cluster.

- The traffic movement in the arrivals in the cluster have also been taken into consideration while planning the design of buildings of the facility
- The horticulture produce requires optimum temperature without too much variation within the building.
- Various options for the construction of buildings have been evaluated. A simple type of construction with brick and mortar is suggested for all kinds of buildings.
- International practices and standard codes have been taken into consideration while designing the buildings.
- For effective traffic management, it has been proposed that the traffic in the facility will be one-way only

5.5 Land Use of Agri Marketing Facility

The land use is shown in table below:

S.No.	Land Use	Total Area (Sqm)
A.	PPP mode	
	Plots	30797
	Export oriented packhouse for onion	10263
B.	Core Processing Infrastructure	
	Export oriented packhouse for fruit and vegetable	10688
	Traders shop for fruit and vegetable export hub	8298.1
	Import complex for fruit and vegetable	6632.5
	Traders shop for fruit and vegetable Import hub	2752
C.	Support Infrastructure	
	Admin and Commercial	3360
	Kisan Bhavan Farmer facility training centre	3472
D.	Enabling Basic Infrastructure	
	Area under STP, Fire station Water tank, Scarp yard etc	5355.77
	Weighbridge	160
	Boundary Wall	11986
	Roads	
	12 M wide road	6787.88
	15 M wide road	22081.89
	Container parking	2188.87
	Car Parking	4328.81
	Security Office	256
	Common toilets	241.75
E.	Saleable plots Commercial Complex	3200
F.	Non-Built-up area	1,82,667.70
G.	Future expansion	28,816.44

Summary	Total Area in Sqm	Total Area in Acres
Grand Total - Core Facilities	28,370.60	7.01
Grand Total for Non-core	6,832.00	1.69
Grand Total of Basic Enabling facilities	53,386.97	13.19
PPP mode	41,060.00	10.15
Future expansion	28,816.44	7.12
Non-Built-up area	1,82,667.70	45.14

Summary	Total Area in Sqm	Total Area in Acres
Leasable / saleable plots	3,200.00	0.79
Green Area	24,282.00	6.00
Total	3,68,615.71	91.08

5.6 Salient Features of Proposed Infrastructure

All the sections of the facility will work as independent units, but at the same time will be integrated and complementary to each other. For effective traffic management, it has been proposed that the traffic in the facility will be one-way only.

All the sections would have their own infrastructural facilities as per the throughput and requirements of the proposed facility.

Proposed Agri Marketing Facility



6. Proposed Agri Marketing Facility

Total 115 acre of land has been proposed by MSAMB for the development of Agri Marketing Facility in Bapgaon to attain the objective of the project, different types of complex's infrastructure, support infrastructure, mandi infrastructure, mode and basic enabling facilities will be established to add value to the crop

On the basis of throughput analysis and data related to production, consumption and market arrivals upcoming Agri- Marketing Facility would comprise of Four major complex:

1. F&V Export Complex
2. F&V Import Complex
3. Onion Complex

Each Complex will also have support facilities like offices, meeting rooms, traders and wholesaler shops etc.

Apart from it, AMF will be supported by Admin building, commercial complex, and farmer training centres etc. facility will also have Basic Enabling Infrastructure which will ensure the efficient and smooth running of the facilities such as roads, drainage, ETP, STP etc. facilities have been described in detail further below.

Agri Marketing Facility will include all the activities which are directly or will be indirectly involved in primary processing like sorting, grading, and cleaning sections, warehouses, cold store etc.

The proposed infrastructure will essentially be catering to the needs of the stakeholders. Therefore, the proposed facility will also function as the transit market for surplus produce grown in the catchment area. The Agri-marketing Facility has been designed to handle seasonal spikes in the production and undulated high arrivals.

The infrastructure to be established under common infrastructure are depicted in the table below.

Table 12 Facilities under common Infrastructure

Facility	Common Infrastructure	Crops	Capacities
Packhouse for F&V export	Automated sorting & grading line	F&V	2 lines of 2MT each
	Pre – Cooling Facility		6 rooms 6 MT each
	Cold storage		2400 MT
	Hot water Treatment		100kg/batch
	Vapor Heat Treatment		2* 2.5MT
	Irradiation facility		100MT/Day
	Trader shops		24 Nos
Packhouse for Onion	Automated sorting & grading line	Onion	2-lines of 2MT each
	CA storage		2200MT
	Trader shops		10 Nos
Import Complex	Cold Storage	F & V	5,400 MT
	Trader shops		30 shops

Each facility will also have provision of material handling equipment like Crates, HPT, weighing scale etc. Miscellaneous tools and accessories required for repair & maintenance of plant machinery, office furniture, computer, telephones etc. will also be kept at the facility to carry out smooth day to day operation.

The detailed description for various common infrastructure is as follows:

6.1 F&V Export Packhouse

A packhouse is a facility used for cleaning, sorting, grading, and packaging of fresh produce. Mumbai is major export centre of the country, fruits and vegetables from all over the country came to Mumbai for export. Keeping in view the Export potential of the location one export dedicated packhouse has been proposed

Produce will be brought to these facilities by trucks, where it be unloaded at receiving/loading dock area. Receiving area is connected to pre-cooling section, After the receiving, produce will move to pre-cooling area.

Produce will further taken to sorting grading area where 6 lines for vegetables and 4 lines for fruits has been set up and connected with staking area. after sorting and grading produce will be collected at staking area from where it will get packed in suitable packing material and stored in cold rooms placed opposite to pre-cooling area having connecting corridor of 8 m wide.

An area of 18, 986 sqm has been kept for setting up of the Facility. Facility will also have Vapour heat treatment, Hot water treatment and Irradiation facility which will dedicated for certain fruits and vegetables only and can be used by operators on charge basis.

APEDA recognition for the packhouse would be obtained. It would be designed based on general requirements for EU countries/ other importing countries such as

- Handle of inflow to outflow in a unidirectional manner with no chances of cross infestation/contamination.
- Loading of consignment will be ensured in clean and disinfested cargo containers preventing cross contamination
- Plant Quarantine Information System (PQIS) would be adopted to maintain the backward traceability information for the consignment
- Other necessary requirement meeting the export protocols would be considered

The packhouse process involves:



Technology Involved

Hot water Treatment

Hot water treatment mainly undertaken helps in controlling pests and diseases in mangoes and other fruits. The process involves immersing the commodities in hot water for a specific period at a controlled temperature. The treatment is effective in reducing or eliminating fruit flies, mealybugs, and other pathogens, ensuring that the fruit meets the necessary quarantine requirements for international trade. The duration and temperature of the treatment varies with the country of origin, cultivar and fruit size.

During the visit to existing export facility as Vasi, Mumbai it was informed that currently hot water treatment is used by exporters for mango and pomegranate to Europe, US, New Zealand. It was further informed that demand has increased in the past 2-3 years (after covid). The existing facility has small holding area and has limited and congested area for packing.

Hot water treatment plays a crucial role in preparing mangoes for export by ensuring compliance with import regulations, controlling pests, and maintaining fruit quality. It facilitates the safe and responsible export of mangoes to various international markets, fostering a thriving global mango

trade. Facility having capacity to handle 500kg of produce per batch has been produced with proper handling and packing space.



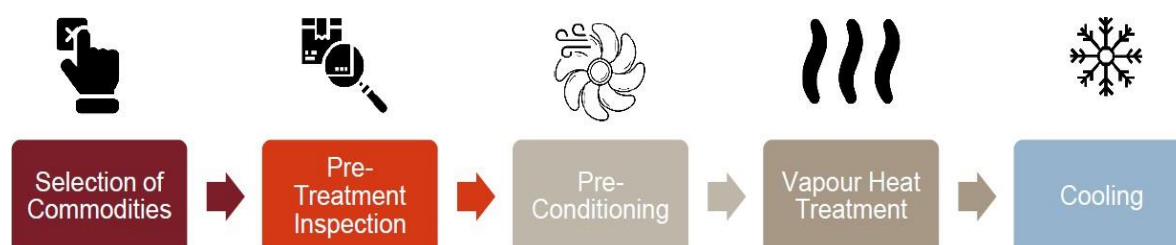
Vapor Heat Treatment

VHT ensures the quality of fresh mangoes for international trade and offers several key benefits such as shelf-life extension, Market competitiveness as the risk of pest and insect infestations for the export of fresh mangoes is a serious concern.

It involves exposing the fruits to hot, moist air (vapour) for a specific duration to eliminate insects, larvae, and pathogens, while minimizing the impact on the fruit's quality. Fruits are generally heated with air saturated with water at 40–50°C. The most difficult stage to control is the larval stage because it tends to be further from the fruit surface and thus exposed to high temperatures for shorter periods.

Existing VHT at export facility Vasi, one chamber of 2.5 MT is available which is used by exporters for Mangoes to Japan and by processors for sapota and custard apple for ice-cream making. total process takes 3-4 hours including holding period, produce is treated with saturated vapour by raising fruit core temperature up to 47.5 degree C for 20 minutes and gradually cooled down. However, facility is 25 years old and poorly maintained in terms of hygiene.

Keeping in view the future demand, VHT facility having 2 chambers of 2.5 MT each has been proposed under the project to cater the domestic demand from industries as well as export.

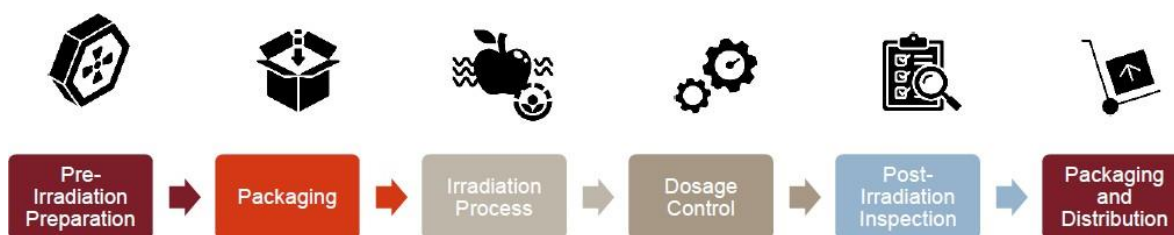


Irradiation Facility

Irradiation of fresh fruits & vegetables is a food safety and preservation technology. The process is similar to pasteurization. The pasteurization process requires heat to kill the microorganisms whereas the irradiation uses ionizing radiation which is a form of energy help in control the pests, pathogens, and spoilage microorganisms in the commodity. The irradiation process involves passing the high energy radiation such as gamma rays, electron beams or X-rays either to commodities in bulk or packaged.



The Radura is the international symbol indicating a food product has been irradiated. The Radura is usually green and resembles a plant in circle. The top half of the circle is dashed.



The packaged fruits and vegetables are exposed to ionizing radiation in a controlled environment. The most common sources of ionizing radiation used for irradiation are gamma rays, electron beams, and X-rays. The radiation passes through the packaging, penetrating the produce and affecting the DNA of microorganisms and pests present on or inside the produce.

The dosage of radiation applied is carefully controlled and monitored to ensure that it is sufficient to eliminate pests, pathogens, and spoilage microorganisms, but not high enough to cause harm to the produce or compromise its nutritional quality.

Throughout the entire process, strict quality control and safety measures are implemented to ensure that the irradiation treatment effectively preserves the fruits and vegetables while meeting food safety standards and regulatory requirements.

Currently facility available at Vasi is getting used for Mangoes to US, 400-1000 grey gamma ray's treatment is given using cobalt 60. Commercial blue dye imported from US is used to check the dose of gamma rays given to the produce. As informed, the facility can handle 30MT per day.

Proposed component

Export oriented Multi-Commodity Pack house for Fruits and Vegetables

The pack house for F & V is designed to handle 200 MT of produce per day. Major components of the pack house would be as follows.

S. No.	Component	Specifications
1.	Sorting & Grading Line	An area of 2,816 sqm has been kept for setting of 10 lines of 2MT, out of which 4 lines dedicated for fruits, 6 lines of 2MT for vegetables.
2.	Pre-cooling Chambers	An area of 192 sqm 3 chambers of 6 MT each adjacent to receiving area and pre-cooling chambers
3.	Cold Storage	An area of 768 sqm is kept for Cold storage having 3 chambers of 300MT, provision will be made based requirements.
4.	Hot Water Treatment	Handling capacity of 500 KG per batch having area of 128 sqm
5.	Vapour Heat Treatment	VHT facility with 2 chambers of 2.5 MT each having area of 128 sqm
6.	Irradiation facility	100 MT per day in an area of 1600sqm has been proposed
7.	Unloading/ Corridors	Facility has 8 m wide unloading platform at receiving side and have 8 m wide corridors at other 3 side of facility.

Other support Infrastructure

- 1. Traders Shops:** Facility will be supported by 24 trader's shops; Traders can take these shops on lease from MSAMB. In case of delay in shipments, traders can store produce in shop. Trader's shops will have Receiving/Docking 6 m wide platforms and entrance of shops. Packhouse facility is connected through corridor to these shops
- 2. Lab:** Export of fruits and vegetables require certain testing as per the norms/guidelines of Importing countries. Keeping in view the requirements quality control lab has been proposed

Other than this facility will also have chiller room, offices dedicated for operators, resting area, toilets etc.

6.2 Import Complex

A separate and dedicated Import complex is proposed to be set up in an area of 9,384 sqm in the AMF with facilities to cater to the specific requirement of imports.

It is proposed to have a common cold storage facility in import complex section of capacity 7800MT which will have multiple chambers of Variable size and can be accessible as a common facility which can be used by Importers.

Multi-commodity chambers have been proposed in order to preserve to commodity from any post-harvest losses in case to storage period extends

Import complex will be supported by 30 shops where importers can store and display the produce.

S. No.	Component	Specifications
1.	Cold storage	Multi-commodity cold storage of capacity 7,800MT having 24 chambers of 200MT and 6 chambers of 500MT
2.	Shops	30 shops of 40 sqm has been provided for Importers

Other than this facility will also have chiller room, offices dedicated for operators, resting area, toilets etc.

6.3 Pack house for Onion

Similar to Export complex for F&V, Separate area for establishment Export pack house for onion having area of 10,263 sqm is designed to handle 150 MT of produce per day.

Onion from the nearby districts and state arriving to the facility will be unloaded at receiving section from where it will be sorted & graded and treated as per the requirement of importing country. Onions are further packed and stored in the cold storage.

Major components of the pack house would be as follows.

S. No.	Component	Specifications
1.	Sorting, Grading & Packaging Area	512 sqm area for primary processing of the produce
2.	CA storage	12 chambers each having an area of 208 sqm with storage capacity of 2200MT
3.	Loading/unloading platform	12-meter-wide platform on receiving side of the facility

Other support Infrastructure

1. **Traders Shops:** Facility will be supported by 30 trader's shops; Traders can take these shops on lease from MSAMB. In case of delay in shipments, traders can store produce in shop. Trader's shops will have Receiving/Docking 6 m wide platforms and entrance of shops. Packhouse facility is connected through corridor to these shops
2. **Lab:** Export of produce require certain testing as per the norms/guidelines of Importing countries. Keeping in view the requirements quality control lab has been proposed

Other than this facility will also have chiller room, offices dedicated for operators, resting area, toilets etc.

6.4 Support Infrastructure

1) Administrative Block

The administrative block will house the management offices, training facility for farmers/ traders/ exporters, conference rooms, testing lab, offices for transporters and traders etc. It will be a two storied building equipped with all day-to-day requirement of the people enhancing the Agri-marketing Facilities like Bank etc. It will house the administrative office where day to day information and records will be maintained. An area of 3,360 sq. m. has been proposed to construct the administrative. Also, offices of various other departments will be located on the ground floor of the administrative block.

Sufficient two-wheeler and car parking has been provided around this block for the convenience of the visitors.

Guest house facility would be provided for various visitors & farmers, custom officers coming to the facility. It is proposed to construct a single storey guest house admeasuring sq. m. Adjacent to the guest house it is proposed to have a commercial complex with a cafeteria on second floor of the administrative block.

Parking facility for trucks have been provided for the convenience of the drivers using the guest house and canteen facility.

2) Commercial complex

Guest house facility would be provided for various visitors & farmers coming to the facility. It is proposed to construct a G + 1 Commercial complex admeasuring 3200 sq. m. Ground floor will have provision of several shops floor.

3) Kisan Bhavan

Krishi bhavan will be a dedicated building having g+ 3 floors which will have farmers meetings and training rooms. Along with dormitories and other facilities such as cafeteria, Multipurpose Hall etc. A total area of 3472 sqm has been proposed for construction of Krishi bhavan near the facilities.

4) Container Yard

A designated area for staking of 28 containers has been provided for Containers admeasuring 2189.00 sq. m. having plug in facility.

5) Plots for commercial use

Three plots having of area 6510.23 sqm, 11,055 sqm and 13, 232 sqm has been proposed which can be availed on PPP or lease basis by any private entity for setting up of any agri-marketing facility.

6) Non-Market Facilities

The market will have other commercial facilities, to serve the interests of the stakeholders.

- Input Store
- Banks/ ATM
- Cafeteria
- Rest Rooms / Dormitories
- Toilets

6.5 Basic Enabling Infrastructure

The state of art basic enabling infrastructure will be provided to support the common infrastructure in the Agri Marketing Facility. The basic enabling infrastructure will be directly supporting the facilities in the upcoming units. The basic enabling infrastructure within the agri marketing facility will have the following classification:

- Site Development
- Roads, main gate & boundary wall
- Drainage
- Power supply
- Water Supply
- Waste treatment and disposal
- Fire fighting

1) Main Gate & Boundary Wall

There will be one gate in the Agri Marketing Facility, opening towards the main road, for smooth entry and exit of commercial vehicles. The gate will be comprehensively planned and will have other requisite infrastructure to exercise proper control such as information board, check posts, control room, security, and parking space etc. Entry road to the facility will be before the security gate.

The road width and circulation areas have been calculated based on CPWD Norms prevailing.

The facility will also be enclosed with a boundary wall surrounding the entire complex of Agri Marketing Facility. The height of boundary wall will be 2.5 m.

2) Roads

To support the smooth movement of operations within the facility, road will be developed. There will be different type's roads as described below:

The facilities will be connected through 15m and 12 m wide road. This road will be used for access to the common infrastructure as well the saleable plots. They have been designed based on CPWD norms.

3) Parking and Weighbridge

Combined parking space for various vehicles visiting the Agri Marketing Facility is an important requirement allotted for the parking calculation. The parking space made with concrete is demarcated for goods carrying vehicles and for general parking of private cars, scooters, trucks

etc., a paver type parking provision is taken into consideration. Separate parking place has also been earmarked in the administrative corridor and commercial complex.

Provision of two fully welded Sandwich Type Modular weighbridge of requisite 60 MT*2 capacity have been made in the facility. Modular weighbridge needs no foundation, just smooth hard surface on which the load cell plates rest. This saves lots of cost and time.

Generally, for pit / pit less foundation type weighbridge, the installation normally takes 2-3 months while in Modular weighbridge it can be installed in 2 hours. The modular design helps with easy cost-effective transportation and re-installation. weigh bridge cabin cum security cabin Along with Public amenities will also be built to monitor and direct man and material through the AMF. The location of weighbridges is near to the entrance of the proposed facility. Any goods vehicle coming inside the AMF premises or going outside the premises shall be weighed & records shall be kept. The proposed area for the weighbridge and security cabin is 160 sqm.

4) Drainage

Agro industry is very sensitive to the hygienic conditions not only within the premises of the unit but also in the surrounding areas. Therefore, a strong drainage system for rainwater along with proper discharge facilities of sewerage and effluents from industries and facilities will be developed along the roadside so that water and sewerage does not stagnate on the roads and idle areas. External drains for storm water will be built with 500 mm diameter pipeline will be laid with the external and internal roads for the same.

Drainage system for rainwater along with proper discharge facilities of sewerage and effluents from industries and facilities will be developed along the roadside so that water and sewerage does not stagnate on the roads and idle areas.

For sewerage system and ETP lines cement trench line with proper circular manhole facilities is planned so as to efficiently manage the sewerage system in the AMF. Individual facilities will connect their respective pipes to these main pipes (for rainwater harvesting, storm water drainage, sewerage and ETP) for forward movement and treatment.

5) Power Supply

The power requirement of the Agri Marketing Facility will be met through the following ways:

- **HT power supply from State Electricity Board**

A stable power supply shall be provided to the entire AMF. A grid substation of 1.5 MW (has been designed based on the requirement from common infra and upcoming units) will be installed at the project site. Additional power requirements of the facility for illumination purpose and for units inside the AMF will be considered while designing the facility by developing both HT and LT line transmission.

Site has 33Kva substation which is around 3.5km and 11kva is around 1km.

- **Diesel Generators**

In addition, DG sets for each common facility as per the individual unit's load requirement and has been proposed to keep the unit's function uninterrupted even when power supply is not constant from the supply sources.

6) Fire Fighting

All facilities (Common infrastructure, Mandi infrastructure, enabling and upcoming PPP mode infrastructure) will be separately and independently supported by both external and internal firefighting as per industry standard. Dedicated underground water storage tank with piping and pumping facilities would be designed for each facility.

7) Public Facilities

The public facility for the AMF will be envisaged with the facility of computer systems and other IT hardware, Info-com lines, hardware for telecommunication and info com network, telephone networking, security posts and office furniture. The security posts will help the verification of goods, identification of trucks and smooth flow of traffic within the facility. Info-com lines will be laid down within the AMF for the facility for easy and smooth communication and prompt exchange of information, leading to seamless communication within one department or with other departments, if necessary.

8) Common Utilities

Separate common area of 5,355.00 sqm has been kept where the facilities like Fire Station, Water Tank, STP, Scrap Yard etc will be set up.

Main utilities that will serve the Agri Marketing Facility are as follows:

- **Effluent Treatment Plant (ETP)**

As the upcoming units are mostly primary processed and not generating any effluent, however wastewater which is generated during various operations like washing of floors, equipment, CIP etc. will be treated in Effluent Treatment Plant (ETP) in order to maintain the BOD, COD limits and other specifications led by state's pollution control board before disposing off to environment.

It is also proposed to keep a provision of ETP, if in future any secondary processing unit would be established in the AMF as a PPP mode infrastructure.

In the view of above common Effluent Treatment Plant (CETP) of 50 KLD is proposed. The proposed facility will ensure zero effluent disposal from the facility.

- **Sewerage Treatment Plant (STP)**

A common Sewerage Treatment Plant (STP) of capacity 50 KLD is proposed on the basis of the fact that at full capacity approximately 1500-2000 workforces will directly use the AMF, Garbage collection and disposal. A power load of mere 15 kW will be imposed by STP.

A network of garbage collection boxes would be installed in the premise of the facility. Facility would have provision for the collection and transportation of garbage and solid waste to the garbage disposal area.

- **Underground and Overhead Water Tanks**

A provision of underground water reservoir with capacity of 200 KI and separate 50,000 L overhead tank for industrial usage will be constructed. The planning and construction of the common facilities will be as per the requirement of Codex Alimentations.

Available Incentives



7. Available Incentives

Government of India is actively promoting sector development through robust infrastructure initiatives, financial aid, and fiscal incentives. National and State financial institutions are channelizing significant funds to support viable projects in areas like cold chain development and packhouses. Numerous schemes from government agencies offer financial and fiscal assistance in this regard are mentioned below:

7.1 Central Sector Scheme of financing facility under- 'Agriculture Infrastructure Fund'

Launched on August 9, 2020, the 'Agriculture Infrastructure Fund' is a Rs. 1 lakh crore medium-long term debt financing facility, addressing India's agricultural infrastructure gaps. The 10-year scheme provides interest subvention and financial support for credit guarantees, focusing on post-harvest management projects and community farming assets. Banks and financial institutions extend loans to various entities, including PACS, FPOs, SHGs, and startups, with credit guarantee coverage up to Rs. 2 crores. The government covers the guaranteed fee. Notably, a 3% per annum interest subvention is granted for loans up to Rs. 2 crores for a maximum of 7 years, stimulating agricultural investment and development.

7.2 Integrated Scheme for Agricultural Marketing (ISAM)

The Government of India has approved the Integrated Scheme for Agricultural Marketing (ISAM) to enhance agricultural marketing infrastructure, scientific storage capacity, and promote value chains. With a budget of Rs. 4548 Crores, ISAM includes sub-schemes like:

Agriculture Marketing Infrastructure (AMI), Marketing Research and Information Network (MRIN), Strengthening of Agmark Grading Facilities (SAGF), Agribusiness Development through Venture Capital Assistance (VCA) and Project Development Facility (PDF) and Choudhary Charan Singh National Institute of Agricultural Marketing (NIAM), aiming to boost farmers' income, ensure market information dissemination, and catalyse private investment in agribusiness.

7.3 Schemes of Ministry of Food Processing Industries, Government of India

7.3.1 Pradhan Mantri Kisan Sampada Yojana (PMKSY)

Introduction: The Pradhan Mantri Kisan Sampada Yojana (PMKSY), initiated by the Ministry of Food Processing Industries, integrates various schemes to attract private investment in the food processing sector. Launched on May 3rd, 2017, PMKSY aims to enhance infrastructure, expand processing capacity, and support the overall growth of the industry through a comprehensive program.

PMKSY has the following component schemes:

- **Integrated Addition Cold Chain and Value Infrastructure:** This scheme aims to establish a seamless cold chain from farm to consumer, encompassing pre-cooling, sorting, storage, and distribution facilities. Eligible entities include partnerships, corporations, NGOs, and more. Financial assistance is capped at Rs 10 crore per project, with grant-in-aid ranging from 35-50% for storage infrastructure and 50-75% for value addition and processing, depending on the region. This includes frozen storage, irradiation facilities, and transport infrastructure. The scheme encourages project flexibility,

emphasizing cold chain development at the farm level to enhance the preservation and quality of agricultural products.

- **Creation/Expansion of Food Processing & Preservation Capacities (Unit Scheme):** The Scheme aims to enhance food processing capacities, modernize existing units, and reduce wastage by promoting post-harvest processes. It supports the establishment, expansion, and upgrading of processing units through Central & State PSUs, Joint Ventures, FPOs, NGOs, Cooperatives, SHGs, Pvt. Ltd companies, and individual proprietorship firms. Grants-in-aid are provided at 35% in general areas and 50% in Northeast States, Himalayan States, ITDP areas, and Islands, with a maximum limit of Rs. 5.00 crore per project. The focus is on incorporating modern technology to improve efficiency and product quality, ultimately contributing to increased value addition in food processing.
- **Food Safety and Quality Assurance Infrastructure:** Ensuring quality and food safety is crucial for the global competitiveness of food products. The government supports the food processing sector through financial assistance, focusing on setting up/upgrading Quality Control/Food Testing Laboratories. These labs play a vital role in monitoring contaminants, additives, and pesticide residues, ensuring compliance with domestic and international standards. Central/State Governments, universities, and private sector organizations are eligible for grants to establish these laboratories. Government entities receive 100% funding for approved equipment, while private organizations receive 50-70% funding. There is also support for Technical Civil Work and Furniture & Fixtures. Government-established labs have flexible funding based on project needs.
- **Infrastructure for Agro-Processing Clusters:** The scheme aims at development of modern infrastructure and common facilities to encourage group of entrepreneurs to set up food processing units based on cluster approach by linking groups of producers/farmers to the processors and markets through well-equipped supply chain with modern infrastructure. Each agro processing clusters under the scheme have two basic components i.e. Basic Enabling Infrastructure (roads, water supply, power supply, drainage, ETP etc.), Core Infrastructure/ Common facilities (warehouses, cold storages, IQF, tetra pack, sorting, grading etc) and at least 5 food processing units with a minimum investment of Rs. 25 crores. The units are set up simultaneous along with creation of common infrastructure. At least 10 acres of land is required to be arranged either by purchase or on lease for at least 50 years for setting up of Agro Processing Cluster.
- **Creation of Backward and Forward Linkages:** The objective of the scheme has been to provide effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain in terms of availability of raw material and linkages with the market. Under the scheme, financial assistance is being provided for setting up of primary processing centres/ collection centres at farm gate and modern retail outlets at the front end along with connectivity through insulated/ refrigerated transport. The Scheme has been applicable to perishable horticulture and non-horticulture produce such as fruits, vegetables, dairy products, meat, poultry, fish, Ready to Cook Food Products, Honey, Coconut, Spices, Mushroom, Retails Shops for Perishable Food Products etc.
- **Operation Greens:** Initially, Ministry has been implementing the scheme for development of Tomato, Onion and Potato (TOP) value chain since November 2018. However, the scheme is expanded to all fruits and vegetables (22 perishable crops). The scheme has two components namely (I) Long Term Intervention-Integrated Value Chain Development Projects and (II) Short-Term Interventions. Subsidy is provided @ 50% on the following two components as per the provisions of scheme guidelines
 - (I) **Long Term Interventions**
 - Enhancing value realisation of farmers by targeted interventions to strengthen production clusters and FPOs and linking/ connecting the farmers with the market.

- Reduction in post-harvest losses by creation of farm gate infrastructure, development of suitable agri-logistics, creation of appropriate storage capacity linking consumption centres.
 - Increase in food processing capacities and value addition in value chain by creating firm linkages with identified production clusters.
- (II) **Short Term Interventions**
- The objective of the Scheme is to protect the growers of Eligible Crops from making distress sale and to reduce post-harvest losses.

The Pradhan Mantri Kisan SAMPADA Yojana (PMKSY) is a comprehensive initiative aimed at establishing modern infrastructure with efficient supply chain management in the food processing sector, from farm gate to retail outlet. With an initial budget of INR 6,000 Crore for 2016-20, later extended to FY 2020-21, the government has now restructured the component schemes for the 15th Finance Commission, allocating a total outlay of INR 4,600 crore. While some schemes have been discontinued, others like Integrated Cold Chain, Food Processing Capacities, Agro-Processing Clusters, Food Safety Infrastructure, and Human Resource Development will continue. PMKSY plays a crucial role in doubling farmers' income, generating rural employment, reducing wastage, promoting processing, and boosting exports, contributing significantly to the growth of the food processing sector in India.

SCHEME NAME	NO. OF PROJECTS APPROVED	TOTAL PROJECT COST (INR CR.)
MEGA FOOD PARK	3	356.21
COLD CHAIN	68	1922.16
AGRO PROCESSING CLUSTERS	14	431.19
CEFPPC UNIT	87	1299.53
CREATION OF BACKWARD AND FORWARD LINKAGES	11	118.73
FOOD TESTING LABORATORY	28	150.04
OPERATION GREENS	8	355.45

Achievement of PMKSY Scheme in Maharashtra (as on date: 31.05.2023)

7.3.2 Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme (PMFME)

Introduction: The Ministry of Food Processing Industries, under the Aatmanirbhar Bharat Abhiyan, launched the "PM Formalisation of Micro food processing Enterprises (PMFME) Scheme" to support micro food processing units. Approved on May 20, 2020, and guided by directives from June 19, 2020, the scheme, spanning from 2020-21 to 2024-25 with a budget of INR 10,000 Crore, aims to assist two lakh units through financial, technical, and business aid, with credit-linked subsidies as a key component.

Objectives:

- Increased access to credit by existing Micro Food Processing entrepreneurs, FPOs, Self Help Groups and Co-operatives.
- Integration with organized supply chain by strengthening branding & marketing
- Support for transition of existing 2,00,000 enterprises into formal framework.
- Increased access to common services like common processing facility, laboratories, storage, packaging, marketing, and incubation services.
- Strengthening of institutions, research, and training in the food processing sector.

- Increased access for the enterprises to professional and technical support.

Provisions under the Scheme:

Support for setting / upgrading of Micro Food Processing Enterprises:

The scheme supports the establishment and upgrading of micro food processing enterprises, catering to various organizations like individual entrepreneurs, firms, FPOs, NGOs, cooperatives, SHGs, and Pvt. Ltd. Companies. Financial assistance includes a credit-linked capital subsidy of 35% of the eligible project cost, up to INR 10 lakhs per unit, with a beneficiary contribution of a minimum of 10%. The eligible project cost covers plant and machinery, technical civil work (limited to 30% of the project cost), excluding land/rental. Applicants can avail of bank loans, interest subvention, and top-up convergence with other government schemes, with no subsidy on working capital.

Support for setting up of common Infrastructure Facilities:

Financial assistance is available for Farmer Producer Organizations (FPOs), Farmer Producer Companies (FPCs), Cooperatives, Self-Help Groups (SHGs), and related entities establishing food processing lines. Credit-linked capital subsidy of 35%, up to INR 3 Crore per unit, is offered. Eligible project cost includes plant/machinery and technical civil work (limited to 30%). The total project cost should not exceed INR 10 Crore, with no turnover or experience precondition. The organization must contribute a minimum of 10%, and the remaining funds can be obtained through a bank loan, requiring in-principal approval for project financing. A grant of INR 50,000 is provided for preparing a Detailed Project Report.

Support to Self-Help Groups (SHGs):

Seed capital of INR 40,000 per Self-Help Group (SHG) member supports working capital and small tools. Grant provided to SHG Federations acts as a loan for SHG members, empowering them economically and facilitating sustainable entrepreneurship within the community.

Branding and Marketing Support:

Provide up to 50% funding for branding and marketing assistance to groups of FPOs/SHGs/Cooperatives or an SPV of micro food processing enterprises. This includes developing a common brand and packaging, establishing quality standards, and forming partnerships with national and regional retail chains for competitive pricing.

Capacity Building:

The Scheme focuses on comprehensive capacity development, empowering institutions and individuals through various initiatives. Training is pivotal, targeting stakeholders like Master Trainers, District Level Trainers, and Resource Persons. It extends to existing and new food processing entrepreneurs, including members of SHGs, FPOs, and Cooperatives. DRPs, appointed by SNAs, offer continuous support, aiding with application processes, DPR preparation, and operational guidance.

SCHEME NAME	NO. OF PROJECTS APPROVED
MICRO ENTERPRISES APPROVED UNDER FME (Formalisation of Micro Food Processing Enterprises Scheme)	7483
INCUBATION CENTRES	3

Achievement of PMFME Scheme in Maharashtra (as on date: 31.05.2023)

7.3.3 Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)

The Indian food processing industry, ranging from micro to large enterprises, holds a competitive advantage with abundant resources and a vast domestic market. The Production Linked Incentive Scheme for Food Processing Industry (PLISFPI), with a budget of INR 10,900 crore, aims to enhance global competitiveness, promote Indian brands internationally, and generate employment. Implemented from 2021-22 to 2026-27, the scheme focuses on supporting food manufacturing entities, incentivizing investment, and facilitating the development of strong Indian food product brands. Components include incentives for primary food segments, support for SMEs producing innovative products, and branding initiatives, with a special focus on millet-based products for domestic and export markets.

SCHEME NAME	NO. OF PROJECTS APPROVED	TOTAL PROJECT COST (INR CR.)
FOOD PROCESSING FACTORIES UNDER PLI (production linked incentive)	42	998.44

Achievement of PLISFPI Scheme in Maharashtra (as on date: 31.05.2023)

7.4 Scheme of National Horticulture Board

7.4.1 PHM/Primary Processing related components

Eligible Projects for Assistance:

- Washing, drying, sorting, grading, waxing, packing, palletizing, freezing units, etc.
- Pre-cooling units / Cool Stores
- Reefer Van / Containers
- Specialized Transport Vehicle
- Retail outlets
- Auction platform
- Ripening / curing chamber
- Market yards / rope ways
- Irradiation / Vapour Heat Treatment unit
- Primary processing of products (Fermentation, extraction, distillation, juice vending, pulping, dressing, cutting, chopping, dehydration, etc.)
- Natural color and dyes extraction
- Essential oils, perfumery, and cosmetics from horticulture products
- Products from horticulture waste
- Horticulture ancillary industry for indigenous manufacturing of farm tools, machinery, plastics containers, packaging, etc.
- Adoption of Quality Assurance Systems (HACCP, TQM, ISO, EurepGap, etc.)
- For Plastic Crates and Bins, Cartons, Aseptic Packaging, and Nets (50% subsidy)

Pattern of Assistance:

Credit-linked back-ended subsidy:

- 40% of the total project cost (limited to Rs 50 lakh) in general areas.
- 5% of project cost (limited to Rs 60.00 lakh) in Hilly and Scheduled areas.
- 50% subsidy for plastic crates.

General conditions from PHM/PP projects:

- Implement PHM projects as on-farm or common facilities for commercial horticulture. Consider new automation or tech, excluding regular maintenance.
- Provide one-time 50% subsidy for crates and nets in commercial horticulture projects at fruiting/harvesting stages, released separately for crates.
- Offer assistance for plastic crates/bins as part of credit-linked pack-house/processing projects led by Producers' Company/Association/PSU, subject to appraisal by the lending bank.
- Grant one-time assistance for shade nets, anti-hail nets, CFB cartons, aseptic packaging, punnets/poly bags in credit-linked projects meeting area norms.
- Extend benefits of cold storage scheme as additional support for integrated production and PHM projects beyond Commercial Horticulture Scheme assistance.
- Select units for indigenous manufacturing of specific items under NHB Committee's discretion.
- Ensure at least 15% more term loan from financial institutions than the admissible subsidy for project financing.
- Appraise new production units for technical and financial feasibility, emphasizing the incorporation of latest technology for quality, cost efficiency, energy savings, safety, and environmental considerations.
- Integrate projects within new or existing production-related projects, on-farm or off-farm, led by service providers/traders/processors with proper backward linkages.
- NHB will periodically prescribe normative costs for various project components.

7.5 Agricultural and Processed Food Products Export Development Authority

The APEDA's Agriculture Export Promotion Plan Scheme champions the export growth of diverse products such as fruits, vegetables, meat, poultry, dairy, confectionery, and bakery items. Tailored to uplift agricultural exports, the initiative tackles industry challenges through targeted support, encompassing infrastructure development, market development, and product quality development, thereby ensuring comprehensive assistance for exporters.

• **Scheme Component for Infrastructure Development**

The Pattern of Assistance under the Infrastructure Development Scheme comprises three parts.

In Part I, common infrastructure facilities are established by APEDA or other government agencies, with 90% grant-in-aid from APEDA and 10% from another government or public sector agency. However, assistance for land procurement is not provided.

Part II outlines assistance for the purchase of specialized transport units and infrastructure for APEDA scheduled products. This includes setting up storage sheds, mechanized handling facilities, pre-cooling and cold storage, treatment facilities, integrated post-harvest handling systems, cable cars for plantations, vapor heat treatment, electronic beam processing, irradiation facilities, and environment control systems. The assistance ranges from 40% of the cost with various ceilings, such as INR 7.5 lakh to INR 75 lakh per beneficiary.

Part III focuses on assistance for fresh and processed horticultural produce, providing support for specialized storage facilities like high humidity cold storage, deep freezers, controlled atmosphere storage, etc., with a 40% assistance and a ceiling of INR 25 lakh per beneficiary.

The maximum assistance per unit per plan period under Part II-B is capped at INR 75 lakhs.

• **Scheme Component for Quality Development**

The Pattern of Assistance under the Quality and Quality Control Promotion scheme comprises several sub-components. Sub-Component 1 provides a 50% subsidy, up to Rs 25 lakh per

beneficiary, for installing quality testing equipment, with adherence to quality standards. Sub-Component 2 offers 50% assistance, capped at Rs 5 lakh, for installing quality management systems like ISO series, HACCP, etc. Sub-Component 3 supports standardization and quality control activities with 100% funding for APEDA. Sub-Component 4 includes upgradation of labs with varying percentages of cost coverage based on the lab type. Sub-Component 5 allows 50% assistance for testing agricultural produce contaminants. Sub-Component 6 facilitates adoption of global standards with various funding percentages and ceilings. In the Capacity Building and Organisation Management section, Sub-Component 1 aids in skill upgradation with 100% funding for APEDA and farmers, while Sub-Component 2 supports seminars with 50% assistance, and Sub-Component 5 provides 100% funding for relevant research activities.

- **Scheme Component for Market Development**

The assistance program comprises three main components: Packaging Development, Feasibility Studies, Surveys, Consultancy, and Database Up-gradation, and Export Promotion and Market Development.

Under Packaging Development, APEDA supports the development and up-gradation of packaging standards, offering 100% assistance for internal schemes. Additionally, registered exporters of specific products receive 25% assistance for packaging material costs, capped at Rs 5 lakh per beneficiary annually.

Feasibility Studies, Surveys, Consultancy, and Database Up-gradation involve 100% support for market information dissemination, 50% for feasibility studies (up to Rs 10 lakh per beneficiary), and assistance for common benefit surveys.

Export Promotion includes various sub-components, such as material supply, brand publicity, and market facilitation centers, with APEDA providing different levels of financial assistance for each.

The Brand Image Development sub-component aids in establishing Indian product identity overseas, focusing on high value-added processed food products. This includes activities like display in international departmental stores, publicity campaigns, and brand promotion for eligible products listed, with APEDA offering 100% financial support.

7.6 Schemes by Allied Ministries

7.6.1 National Agriculture Infra Financing Facility (NAIFF) Scheme

The National Agriculture Infra Financing Facility (NAIFF) operates as a centralized online platform, overseen by the Department of Agriculture & Farmers Welfare. This initiative aims to catalyse the growth of farm gate and aggregation points, as well as establish cost-effective and economically sustainable Post Harvest Management infrastructure. The financing facility, amounting to INR 1,00,000 Crores, is designed to integrate various central and state government schemes, streamlining the process for enhanced agricultural development.

7.7 GOI Incentives for the Food Processing Sector

- **Income tax incentive to the food processing sector**

New Food Processing Units are eligible for a complete deduction of profits and gains during their initial 5 assessment years. Following this, they can benefit from a 25% deduction (30% for companies) for the subsequent 5 years.

Additionally, there is a provision for a 100% deduction on the capital invested in establishing and operating Cold Chain and Warehouse Storage facilities for agricultural produce.

- **Agro - Processing included in Priority Sector Lending**

Under RBI Master Directions as of September 4, 2020, Priority Sector Lending (PSL) includes loans for agricultural activities, specifically food and agro processing, with an aggregate limit of INR 100 crore per borrower. Loans to MSMEs in the "food and agro processing" sector also qualify for PSL classification.

- **100% FDI Permitted**

Since 2016-17, 100% Foreign Direct Investment (FDI) is automatically permitted in the manufacturing of food products. Additionally, 100% FDI in retail trading, including e-commerce, for food products produced in India is allowed through government approval.

7.8 Mission for Integrated Development of Horticulture

7.8.1 Integrated Pack House Facility for Fresh Fruits and Vegetables

With the objective of establishing a prominent position for Indian horticultural produce in the global market and ensuring the export of high-quality products, APEDA has developed integrated facilities such as pack houses. These facilities aim to provide intending exporters with the necessary infrastructure and support to meet international standards in terms of product quality and quarantine safety.

Objective:

The primary goal of these pack houses is to encourage the horticultural produce to meet international quality standards. This includes ensuring the quality of produce, adherence to quarantine safety measures, and compliance with internationally accepted standards and practices. The pack houses are designed to handle various stages of postharvest management, from material handling and pre-inspection to packaging, cold storage, and quarantine checks. Additionally, the pack houses play a crucial role in maintaining traceability, promoting and publicizing Indian produce at the international level, and creating a competitive environment among exporters.

Provisions:

- Pack houses are applicable for handling and processing all horticulture produce intended for export.
- APEDA Recognition for pack houses is granted based on appropriate facilities and procedural compliances verified through inspections by an Inspection Committee.
- Stakeholders are responsible for complying with procedural formalities to ensure quality export as per the requirements of importing countries.

Traceability:

- Approved pack houses are responsible for maintaining backward traceability information for each consignment.
- Exporters must file applications for Plant Quarantine Service Certificates (PSC) through the web-based Plant Quarantine Information System (PQIS).
- Each consignment is assigned a unique registration number printed on the PSC for traceability.
- Responsibilities of Pack Houses for Vegetable & Fruit Export to EU, etc.
- Design the pack house to ensure unidirectional flow of commodities to prevent cross-infestation/contamination.
- Procure fruits and vegetables only from registered farmers.
- Maintain hygiene and cleanliness records.
- Implement pest control measures and maintain records.

- Provide exclusive areas for plant quarantine inspection, proper inspection tables, required equipment, and separate storage areas.
- Install insect-proof nets, traps, and ensure insect-proof packing.
- Maintain all requisite registers and ensure compliance with standard operating procedures (SOPs).

7.8.2 Cold Chain Infrastructure Assistance Scheme

The Cold Chain Infrastructure Assistance Scheme aims to promote the establishment of energy-efficient multi-chamber cold storage units equipped with advanced technologies such as thermal insulation, humidity control, advanced cooling systems, and automation. The scheme provides financial assistance for the setting up of new cold storage infrastructure to ensure efficient storage and distribution of agricultural produce.

Objective:

- To promote the establishment of energy-efficient multi-chamber cold storage units with advanced technologies.
- To encourage the construction of cold storages with specifications and standards approved by the Ministry.
- To enhance the capacity of cold storage facilities for long-term storage and distribution of agricultural produce.
- To support the integration of cold chain components into single projects.
- To facilitate the development of long-distance transport solutions for perishable goods.

Provisions:

- Financial assistance for setting up new cold storage infrastructure will be available only to multi-chamber cold storage units with energy-efficient technologies.
- Cold storages with a capacity of up to 5000 MT will be promoted under NHM/HMNEH sub-schemes, while those with a capacity above 5000 MT up to 10000 MT will be promoted under NHB sub-scheme.
- For cold storages, 3.4 cubic metres (cum.) (120 cubic feet (cft.) of chamber volume is considered equivalent to one MT of storage capacity.
- Assistance for pre-cooling units will be linked to pack-houses and cold rooms.
- Extant specifications, standards, and protocols on cold storage and cold-chain components will be adhered to while approving cold storage projects.
- Assistance can be availed by individuals, groups of farmers/growers/consumers, partnerships, proprietary firms, self-help groups (SHGs), Farmers Producer Organizations (FPOs), companies, corporations, cooperatives, cooperative marketing federations, local bodies, Agricultural Produce Market Committees (APMC), Marketing Boards, and State Governments.
- Assistance will be available for taking up cold chain components to integrate the activities into a single project.
- Proposals on long-distance transport solutions on a project basis shall be supported under NHB sub-scheme.

7.9 Agricultural Marketing Infrastructure (AMI) by DMI

The agricultural sector has achieved self-sufficiency in food production, necessitating a focus on improving remuneration for producers by enhancing the agricultural marketing sector. To achieve this, investments in infrastructure for value addition, reduction of post-harvest losses, and strengthening the supply chain are imperative. The XII Plan Working Group on Agricultural Marketing Infrastructure and Policy, as well as the Planning Commission Working Group on Warehousing Development, have highlighted the need for substantial investments in marketing

infrastructure and storage capacity. To address these requirements, schemes like Grameen Bhandaran Yojana (GBY) and Scheme for Development/Strengthening of Agricultural Marketing Infrastructure, Grading & Standardisation (AMIGS) have been implemented, and now, they are consolidated into the Integrated Scheme for Agriculture Marketing (ISAM), specifically Agricultural Marketing Infrastructure (AMI).

Objective:

- To develop agricultural marketing infrastructure for effectively managing marketable surplus of agriculture, horticulture, and allied sectors.
- To promote innovative technologies in agricultural marketing infrastructure.
- To encourage private and cooperative sector investments in competitive alternative agricultural marketing infrastructure.
- To facilitate direct marketing, reducing intermediaries and enhancing farmers' income.
- To create scientific storage capacity to minimize post-harvest losses.
- To provide infrastructure for grading, standardization, and quality certification, ensuring fair prices to farmers and promoting marketing credit systems.
- To foster Integrated Value Chains (up to primary processing stage) for vertical integration of farmers with primary processors.
- To impart training and awareness on agricultural marketing to farmers, entrepreneurs, and other stakeholders.

Provision:

- During the XII Plan period, a central assistance of Rs. 4000 crores will be allocated for the AMI sub-scheme.
- The sub-scheme aims to create 4000 marketing infrastructure projects and a storage capacity of 230 lakh tonnes across the country.
- Eligible beneficiaries include individuals, farmer groups, cooperatives, NGOs, corporations, and government agencies.
- Projects must comply with state APMC Acts and promote storage or marketing infrastructure up to the primary processing stage.
- Ancillary facilities, functional infrastructure, direct marketing infrastructure, and mobile infrastructure are among the eligible projects.
- Subsidy is linked to institutional credit and released through agencies like NABARD and NCDC.
- Promoter's contribution should be a minimum of 20% of the project cost, with a minimum term loan of 50% sanctioned by financial institutions.

Business Model



8. Business model

The Agri-Marketing Facilities will be established using a cluster development approach so as to enable development of food processing industry and ensure that the processing units and common facilities that are set up in the processing cluster can carry out their business efficiently.

The main components in the Facility have been classified below:

- A. Development of land and creation of basic infrastructure such as road, water, power and other facilities to enable setting up of food processing units in the Agri-Marketing Facility.
- B. Creation of common infrastructure and processing facilities which can be used as common facilities by various units' setup in the Agri-Marketing Facility for efficient business operations.

8.1 Revenue streams

Based on the above-mentioned components, following types of revenue streams emerge, which are:

- **Service charges for Core Processing Facilities**
- **Charges for Common Infrastructure**
- **Traders Shops and handling area**
- **Import Complex**
- **Lease Rent from Land and Commercial Complex for food processing industries**
- **Parking Fees from Container Parking**

As mentioned, the Agri-Marketing Facility will have four revenue streams in the form of rentals, assumption taken under consideration while characterize each revenue stream is discussed in detail, hereunder:

8.1.1 Revenue from Core Processing Facilities

The Agri-Marketing Facility will service through the core processing facilities on service charge basis. The details are discussed below:

- **Cold store :**

Processing Cluster will have total warehousing capacity of 900MT. The storage space will be rented for storage at a rate of 2,500 Rs/MT/Season. The rent charges include cost of manpower, supervision, loading, unloading etc.

- **Pre coolers:**

Processing Cluster will have total Preecoolers capacity of 36MT. The storage space will be rented for storage at a rate of 2,200 Rs/MT.

8.1.2 Import Complex

A separate and dedicated Import complex is proposed to be set up in an area of 9,384 sqm in the AMF with facilities to cater to the specific requirement of imports.

S. No.	Component	Specifications
1.	Cold storage	Multi-commodity cold storage of capacity 7,800MT having 24 chambers of 200MT and 6 chambers of 500MT
2.	Shops	30 shops of 40 sqm has been provided for Importers

8.1.3 Food Testing Laboratory

Various quality tests will be carried out at the common Food Testing Laboratory designed for the upcoming Agri Marketing Facility. The FTL would have quality testing lab, certification agencies and commodity exchange office. lab will also be equipped with water testing, set ups for Effluent Treatment Analysis like chemical oxygen demand and biological oxygen demand (BOD).

The raw material and intermediate products will also be utilized for research and development activities, academic testing as well as incubation center of new products not only in agro-cluster but also for nearby industries and food research institutions.

Type of test	Tests per day	No of days operational	Price per test
Chemical Test	4	250	8,000
Bacterial Test & Microbiological	3	250	10,000
Analytical test	3	250	12,000
Millets and cereal products testing	3	250	8,000

8.1.4 Lease rent from plots for food processing industries.

Lease rentals will also be a source of revenue for the Facility. Out of the total 91.08 acre land, 0.87% area (approx. 0.79 acres) land is available for leasing out.

Lease rentals will accrue from Plots for processing industries. The lease amounts have been worked out with following assumptions and taking the prevailing market rates of land in the area in consideration:

A nominal or bare minimum premium of 50% (much less than prevailing market standards) is added to the land cost. The lease per acre per annum is charged at the 10% of the total land value after adding premium.

Cost of Land	126.88	per acre
Land development	149.12	
Total Cost/Acre	276.00	per acre
Premium (@50%)	138.00	
Grand Total	414.00	
Lease Rent /annum (10%) (Acre)	41.40	
Lease of Land (Plot Allocation)	41.40	Rs Lakhs/Ac/annum
Lease of Land (Plot Allocation)	1,022.97	Rs /Sq. M/Annum

Operations & Management



9. Operations & Management

It is proposed that there will be a separate O&M operational arrangement for upcoming Agri Marketing Facility. A separate team shall be appointed by the MSAMB team to make the Facility functional. The O&M arrangement proposed for the project will be as follows.

The manpower and organization structure has been envisaged in such manner that the various responsibilities involved in production, procurement, finance, marketing, and administration etc. are distributed among the functional managers reporting directly to the respective General Managers who will be reporting to the Mandi Secretary.

The manpower and organizational structure have been derived in a manner to provide the most competent and specialized management with the optimum manpower at downstream levels, each delegated with specific job application and the extent of accountability. The selection of the personnel for each position shall be strictly based on the merits of qualification, experience, and accomplishments. The manpower and organization chart are further explained below.

9.1 Manpower requirement

As the Project Implementation will be undertaken in Phase- wise manner, therefore manpower in First phase will have at least 39 personnel which will further change as per need during Implementation of Agri Marketing Facility in Bapgaon.

S.No.	Particulars	No. of Shift	No. of personnel
	OPERATIONS		
1	Import Complex		
	Unit head	1	1
	Operator	1	1
	Technician ITI	1	1
	Skilled worker	1	3
	Semi Skilled Worker	2	4
	Sub-Total		10
2	Food Testing lab		
	Laboratory head	1	1
	Senior Technicians	1	1
	lab assistants	1	1
	Semi Skilled Worker	1	3
	Sub-Total		6
3	Export packhouse for F&V		
	Operator	1	1
	Technician ITI	1	1
	Semi Skilled Worker	1	3
	Skilled Worker	2	4

S.No.	Particulars	No. of Shift	No. of personnel
	Sub-Total		9
4	Irradiation		
	Plant In-Charge / Radiation Safety Officer	1	1
	Plant Operators	2	1
	Lab technicians	2	1
	Semi Skilled Worker	2	2
	Sub-Total		5
5	Central Departments		
	MANAGEMENT		
	General Manager	1	1
	Finance Manager	1	1
	Estate Manager-Civil works & Roads	1	1
	Accountants	1	1
	Executives	1	1
	Exec - Mktg	1	1
	TECHNICAL		
	Incharge Engineering,Electrical	1	1
	Water Treatement Plant, ETP & Utilities	2	1
	Sub-total		8
6	SECURITY		
	Incharge Security	1	1
	Security - Supervisors	3	2
	Security Guards	3	4
	Sub Total		7
7	House Keeping staff And Sweepers	1	1
	Sub Total		1

Financial Analysis



10. Financial Analysis

Detailed financial analysis of investment has been carried out based on estimated costs (as per quotations and CPWD plinth rates for 2023) and projected revenues (based on industry norms, Government norms). Contingencies have been considered @ 5% of the estimated cost.

10.1 Proposed project cost

The Total Project Cost is estimated to be Rs. 15,752.83 Lakhs. This includes the cost of Land development, Basis Enabling Infrastructure, Core Processing, Non-Core Infrastructure and Project Implementation Expenses Facilities as given in table below. All the components of the project have been discussed and rationalized in this section.

The Proposed Cost for Phase2 i.e, Import Complex for F&V is assumed to get developed by MSAMB in FY2029-30, i.e., the year when sufficient internal accruals from the facility are available for such construction & development work.

Particulars- Phase1	Total Cost (Rs. In Lakhs)
Land Cost	2,277.09
Land Development	1,321.55
Basis Enabling Infrastructure	1,227.18
Core Processing Facilities	6,648.47
Non-Core Infrastructure	1,149.37
Contingencies	494.39
Working Capital	115.00
Interest During Construction	452.11
Pre- Operative Expenses	13.12
Sub- Total	13,698.28
Particulars- Phase2	Total Cost (Rs. In Lakhs)
Core Processing Facilities	1,943.15
Sub- Total	1,943.15
Total	15,641.43

10.2 Means of finance

The means of finance has been calculated in table below:

Means Of Finance- Phase1		
Promoters Contribution	25.00%	3,275.85
Subsidy	4.34%	594.88
Term Loan	75.00%	9827.55
Sub- Total	100.00%	13,698.28
Means Of Finance- Phase2		
Internal Accruals	100.00%	1,943.15
Sub- Total	100.00%	1,943.15
Total	100.00%	15,641.43

The funds will be generated from following sources i.e.-

Equity: MSAMB would be putting an equity of Rs. 3,275.85 Lakhs, which is 25.00% of the project cost in the Phase1.

*Financial Assistance from MoFPI: -

- 25 % of the project cost in general areas, maximum upto 100 crore per project under MIDH
- 35 % of the capital cost; Rs. 50.00 lakh per unit with size of 9Mx18M under MIDH
- 35 % of the capital cost; Rs. 25.00 lakh per unit with a capacity of 6 MT per unit under MIDH
- 35 % of the capital cost; Rs. 8000 per MT for max. 5000 capacity under MIDH
- 15% of the capital cost of the project, subject to a maximum of INR 1.35 crores under Gramin Bhandarn Yojana / Gramin Warehouse Yojana.
- 25 % of the capital cost; upto 875 Rs per MT for maximum 1,000 MT, upto Rs 750 Rs per MT for above 1000 MT upto 10,000 MT. Maximum subsidy amount is Rs. 75 Lakh under Agricultural Marketing Infrastructure scheme.

10.3 Key Indicators

Key Indicators	Envisaged	
Net Profit After Tax	1,863.36	As per 7th year
Project IRR (Post Tax)	15.39%	Over 25 years
Equity IRR	21.57%	Over 25 years
Break Even Point	32.86	As per 7th year
Cash Break Even Point	16.87	As per 7th year
Avg. DSCR	2.08	
Pay Back Period (Years)	8.58	

10.4 Revenue Recognition

The Proposed infrastructure will be established to ensure that the processing units and common facilities that are set up in the processing cluster can carry out their business efficiently. The main components have been classified below:

- Development of land and creation of basic infrastructure such as road, water, power and other facilities to enable setting up of food processing units in the proposed infrastructure.
- Creation of common infrastructure and processing facilities which can be used as common facilities by various units' setup in the proposed infrastructure for efficient business operations.

Based on the above-mentioned components, following types of revenue streams emerge, which are:

- Lease Rent from Commercial Complex (40 Sqm)
- Parking Fees
- Common Infrastructure
- Service charges for Core Processing Facilities
- Lease Rent

Particulars	Capacity		Charges	
Commercial Complex (40 Sqm)				
Lease Rent	3,200	Sqm	120.00 sqm	Per
Trader Shops and handling area				

Particulars		Capacity	Charges
Monthly rental	54	Shops	12,000 Per Month
Deposit	54	Shops	5,00,000 Per Shop
Handling area	54	Shops	2,000 Per Month
Parking Fees			
Container Parking and charging plug points	72	Containers/Per day	2,000.00
Two-wheeler parking	100	Per vehicle	25
Car parking	100	Per vehicle	50
Import Complex			
Cold Store	7,800	MT/Month	2,500.00
Export Oriented packhouse for F&V			
Precoolers	36	MT/Month	2,200.00
Cold Store	900	MT/Month	2,500.00

Food Testing Laboratory

Type of test for Lab Testing	Tests per day	No of days operational	Price per test
Chemical Test	4	250	8,000
Bacterial Test & Microbiological	3	250	10,000
Analytical test	3	250	12,000
Millets and cereal products testing	3	250	8,000

10.5 Operation & Maintenance

Manpower requirement:

S.No.	Particulars	No. of Shift	No. of personnel	Monthly Salary	Amount/ Annum
	OPERATIONS				
1	Import Complex				
	Unit head	1	1	45,000	5.40
	Operator	1	1	25,000	3.00
	Technician ITI	1	1	25,000	3.00
	Skilled worker	1	3	15,000	5.40
	Semi Skilled Worker	2	4	9,000	8.64
	Sub-Total		10		25.44
2	Food Testing lab				
	Laboratory head	1	1	75,000	9.00
	Senior Technicians	1	1	35,000	4.20
	lab assistants	1	1	20,000	2.40
	Semi Skilled Worker	1	3	15,000	5.40

S.No.	Particulars	No. of Shift	No. of personnel	Monthly Salary	Amount/ Annum
	Sub-Total		6		21.00
	Sub-Total		0		-
3	Export packhouse for F&V				
	Operator	1	1	25,000	3.00
	Technician ITI	1	1	15,000	1.80
	Semi Skilled Worker	1	3	15,000	5.40
	Skilled Worker	2	4	9,000	8.64
	Sub-Total		9		18.84
4	Irradition				
	Plant In-Charge / Radiation Safety Officer	1	1	45,000	5.40
	Plant Operators	2	1	25,000	6.00
	Lab technicians	2	1	20,000	4.80
	Semi Skilled Worker	2	2	12,000	5.76
	Sub-Total		5		21.96
5	Central Departments				
	MANAGEMENT				
	General Manager	1	1	1,25,000	15.00
	Finance Manager	1	1	50,000	6.00
	Estate Manager-Civil works & Roads	1	1	50,000	6.00
	Accountants	1	1	30,000	3.60
	Executives	1	1	20,000	2.40
	Exec - Mktg	1	1	20,000	2.40
	TECHNICAL				-
	In charge Engineering, Electrical	1	1	50,000	6.00
	Water Treatment Plant, ETP & Utilities	2	1	25,000	6.00
	Sub-total		8		47.40
6	SECURITY				
	In charge Security	1	1	40,000	4.80
	Security - Supervisors	3	2	25,000	18.00
	Security Guards	3	4	10,000	14.40
	Sub Total		7		37.20
7	House Keeping staff And Sweepers	1	1	10,000	1.20

S.No.	Particulars	No. of Shift	No. of personnel	Monthly Salary	Amount/ Annum
	Sub Total				1.20
	TOTAL AT CPC			-	173.04
					173.04

Other expenses:

Particulars	Charges
Marketing Expenses	1.50%
Direct Expense	1.00%
Repair & Maintenance Escalation	3.00%
Insurance	0.50%
Communication	5,000 Per Month
Printing & Stationery	5,000 Per Month
Travel & Conveyance	5,000 Per Month
Miscellaneous Exp.	5,000 Per Month
Internet connection	1,000 Per Month

Project Implementation



11. Project Implementation

The proposed Agri -marketing facility to be owned by Maharashtra State Agricultural Marketing Board. These Marketing Infrastructure will be implemented by MSAMB and PPP mode/ lease by interested promoters.

11.1 Project implementation schedule

The implementation of the proposed Agri Marketing facility will be carried out in a phased manner for systematic development and ensures the successful establishment of a fully functional marketing infrastructure facilities. The project will be divided into two phases each focusing on specific components.

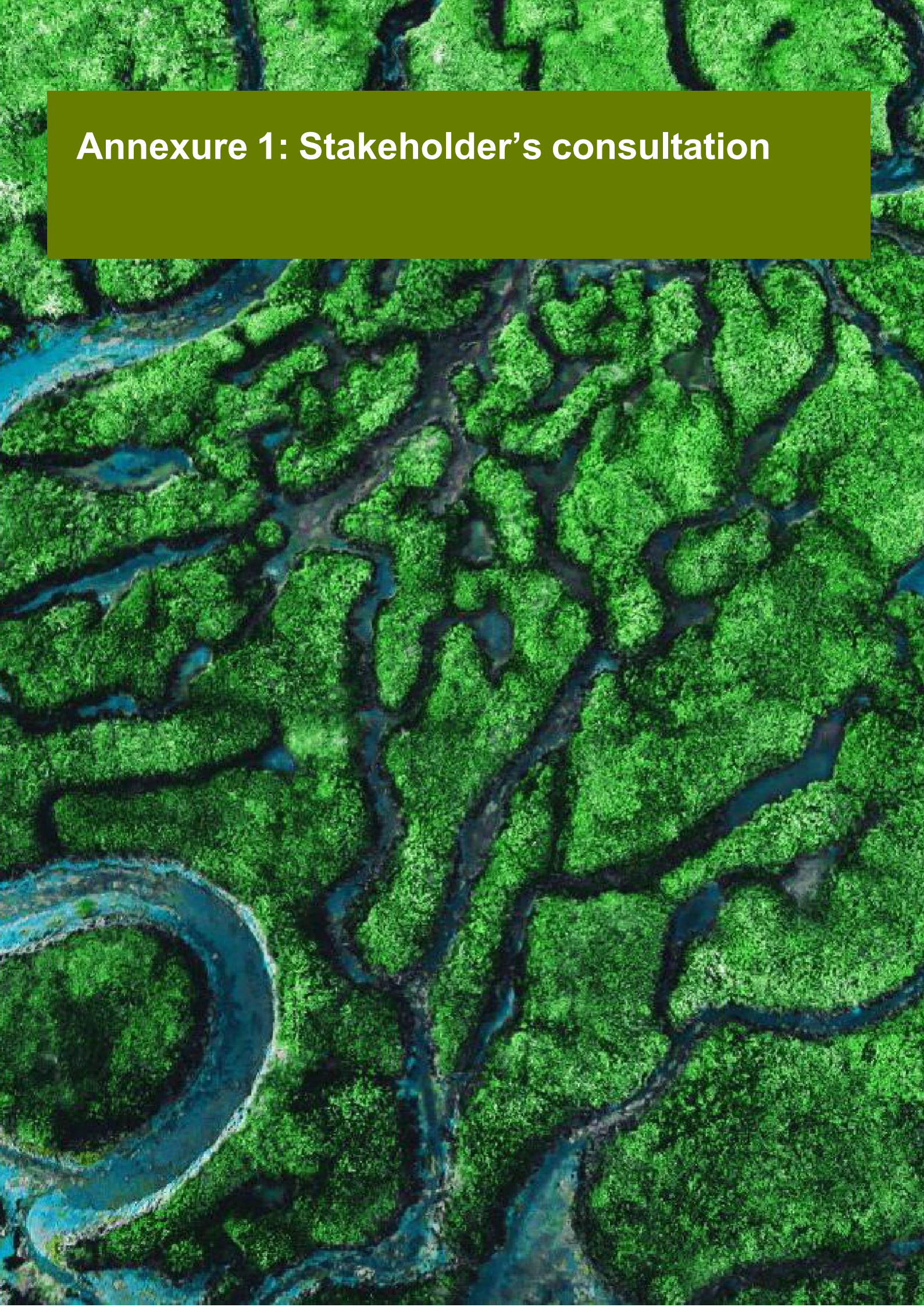
Phase 1: It is proposed to undertake the development of Basic enabling facilities of the Agri-Marketing Facility along with development of Common Infrastructure for F&V Export Packhouse. Apart from it, the basic enabling infrastructure proposed for 1st phase includes land development, earthwork, boundary wall, parking, main gate, drainage facility, HT line, water storage tank, borewell, fire tank, admin block and commercial building.

Food Testing Laboratory, Trader Shops and Container Parking Area will also get developed in the 1st Phase to support the upcoming infrastructure of the facility. The onus of the development work under Phase 1 will be on MSAMB where 60% of the project utilization will be achieved in Phase 1 only.

Phase 2: The 2nd Phase of the Project is proposed as a PPP Mode or Lease Mode Phase, where Common Infrastructure for Onion Packhouse and Warehouse & Retail Shops will get developed. The proposed F&V Import Complex however, will be constructed by MSAMB itself.

Facility	Common Infrastructure	Crops	Phase-1	Mode of Implementation
Packhouse for F&V export	Automated sorting & grading line	F&V	10 lines of 2MT each	MSAMB
	Pre – Cooling Facility		6 rooms 6 MT each	
	Cold storage		2400 MT	
	Hot water Treatment		-	
	Vapor Heat Treatment		2* 2.5MT	
	Irradiation facility		100MT/Day	
	Trader shops		24 Nos	
Facility	Common Infrastructure	Crops	Phase-2	
Import Complex	Cold Storage	F & V	5,400 MT	MSAMB
	Trader shops		30 Nos	
Packhouse for Onion	Automated sorting & grading line	Onion	2-lines of 2MT each	PPP/Lease
	CA storage		2200MT	
	Trader shops		10 Nos	
Space for Organised Retail			To be decided by private player	PPP/Lease
Space for Warehousing			Dry warehouses (capacity to be decided by MSAMB and MSWC)	PPP/Lease

Annexure 1: Stakeholder's consultation



Annexure 1: Stakeholder's consultation

The consultation was organised in the respective Mandi premises viz. -. APMC kalyan and APMC Vashi and visit to export facility Vashi.

The consultation was organized in the respective Mandi premises

Dates: January 31, 2024 to February 1, 2024

Markets covered	Vashi	Kalyan
Stakeholders consulted	- Commission agents - Wholesalers - Exporters - Importers - APEDA - Logistics service providers - Cold storage owners - Irradiation service provider - Processors	- APMC officials - Commission agents - Wholesalers
Existing facilities visited	- Fruit & vegetable market - Irradiation facility - Vapour heat treatment facility - Hot water treatment facility and MSAMB Pack house	- APMC market yard - Proposed site (8 kms from Kalyan APMC)

The mandis identified for the upcoming Agro Marketing Facility based on the distance, connectivity and trade occurring around 100 km radius Bapgaon, Thane. Major stakeholders involved in the meeting includes traders, commission agents, exporters, importers, processors and mandi officials. Meetings were arranged by the Divisional Office of MSAMB, APMC, Vashi and APMC, Kalyan.



Figure 4 Stakeholder Consultation at APMC Kalyan Mandi



Figure 5 Stakeholder Consultation at APMC Vashi Mandi

Apart from the above, the team also interviewed the following stakeholders;

- Private cold storage operators
- Logistics service providers (reefer and non-reefer)
- Irradiation facility operator at Lasalgaon on lease basis



Figure 6 Fruit Market at Kalyan

Major outcomes of the stakeholder consultation

For the listing of information and assessment, value chain approach was followed. Questions pertaining to value chain of major identified crops during secondary research were discussed with stakeholders. Major commodity-group-wise findings are discussed in the following paragraphs.

1. Fruits

a) Production Statistics

- Thane being very close Mumbai usually and mostly urbanised, production is very less in the whole region.
- Produce arrives from all over the country.
- Fruits like apples, pears, oranges, kiwis, litchi etc. are the most popular among imported fruits

b) Collection, Aggregation & Primary Sorting

- The produce is arriving from all over the country
- Most of the produce received is already graded.
- Handling of fruits is mainly done in crates/ corrugated boxes

- Produce is stored in cold storage preferably near APMC.
- Some sample boxes of imported fruits are kept in the shops
- 80-90% of the produce is purchased by commission agents at negotiated price (paid in parts over a week depending on the relationship with traders) from traders in distant markets and sold to wholesalers
- Loading /unloading charges: Rs. 5 per crate (15-20 kg each)

c) Marketing

- APMC Vashi receives about 15000-20000 vehicles (trucks / tempos) everyday.
- Sourcing from production cluster
- Using APEDA approved pack houses near to the production clusters for exports
- For mangoes, VHT and irradiation facilities are used, which remain busy during mango season
- Charges at pack house: Rs. 15,000 per container at Nashik pack houses
- Charges for irradiation: Rs. 36/kg (subsidized)
- Charges for VHT: Rs. 17,500 per batch (1.5 - 2.5 MT)
- Charges for refrigerated transport
- from Nashik to Mumbai: Rs. 48000 per container (2600 boxes X 5 kg)
- Major markets: Netherland, UK, UAE, Bangladesh, Nepal, Malaysia, Qatar, Oman, Iraq, Japan, US
- Fruits are imported from US, New Zealand, Australia, Turkey, Europe etc.
- Now-a-days importers are exploring Africa for import of Avocados and other fruits
- Transportation cost:
- From Maharashtra (Pune, Nashik, Sangli etc.) and Gujarat (Surat, Valsad, Vapi etc.) – Rs. 2-2.5 per kg
- From other parts of Gujarat and MP – Rs. 4-5 per kg
- From UP, Punjab, Rajasthan – Rs. 6-8 per kg
- Cost of daily wage labours – Rs. 600-700 per day

d) Post-Harvest Infrastructure

- Approx. 1.9 lakh MT of cold storage capacity has been created in Maharashtra under PMKSY
- As per an estimate by large cold storage service providers, there is approx. 2.5 lakh MT capacity of cold storages exist in Navi Mumbai
- Most of the cold storages in Navi Mumbai operate on more than 90% capacity.
- Average storage charges are as follows.
 - Fruits imported: Rs. 7-10 per box (15 kg) per week
 - Fruits Indian: Rs. 2-3 per kg per month

e) Suggested Intervention

- Cold storage for fruits
- Bigger size shops atleast 500-800 sq. ft as against 220 sq. ft. in Kalyan and 300 sq. ft in Vashi
- Training centre for export procedures, quality management etc
- Pack house of 1 lakh sq. ft. for fruit and vegetables with;
 - Holding Area: 10,000 Sq.ft.
 - Inspection Area: 20,000 Sq.ft.
- Pre-Cooling facility

- Cold storage for storing 500 containers Mechanized grading lines for pomegranate, green chilies, other vegetables.
- Irradiation facility
- Vapour Heat Treatment facility (2 chambers of 2.5 MT each)

2. Vegetables

a) Production Statistics

- Similar to fruits, Production of vegetables is very limited in the region.
- In Kalyan Mandi, It was reported that the production within the premises of 20km has been declined in past years

b) Collection, Aggregation & Primary Sorting

- Mostly received graded.
- Graded by size (carrots/ cauliflowers / cabbage etc.)
- Graded by variety (brinjal /tomatoes etc.)
- Handled in jute gunny bags (carrots), nylon mesh bags (okra, cabbage, cauliflower, peas), plastic carry bags (vegetables from Surat), plastic crates (tomatoes) etc.
- Loading /unloading charges: Rs. 13 per bag (50-70 kg each), Rs. 8-9 per carry bag (25-30 kg each)

c) Marketing

- Major markets: UAE, Bangladesh, Nepal, Malaysia, Sri Lanka, UK, Qatar, Oman, and Iraq
- Domestic market: PAN India
- Loading /unloading charges: Rs. 13 per bag (50-70 kg each), Rs. 8-9 per carry bag (25-30 kg each)
- Transportation cost:
 - From Maharashtra (Pune, Nashik, Sangli etc.) and Gujarat (Surat, Valsad, Vapi etc.) – Rs. 2-2.5 per kg
 - From other parts of Gujarat and MP – Rs. 4-5 per kg
 - From UP, Punjab, Rajasthan – Rs. 6-8 per kg
- Grading and packing charges: Rs. 0.5 per kg for 24 hours
- Pre-cooling: Rs. 0.75 per kg for 6 hours
- Cold storage: Rs. 0.25 per kg for 24 hours
- Minimum committed quantity for pre-cooling and cold storage is 500 kg

d) Post-Harvest Infrastructure

- Most of the cold storages in Navi Mumbai operate on more than 90% capacity.
- Traders/Exporter usually have storage facilities near export facility in Mumbai.

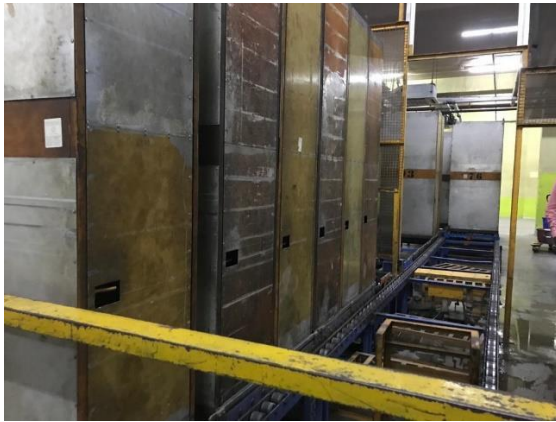
Suggested Intervention

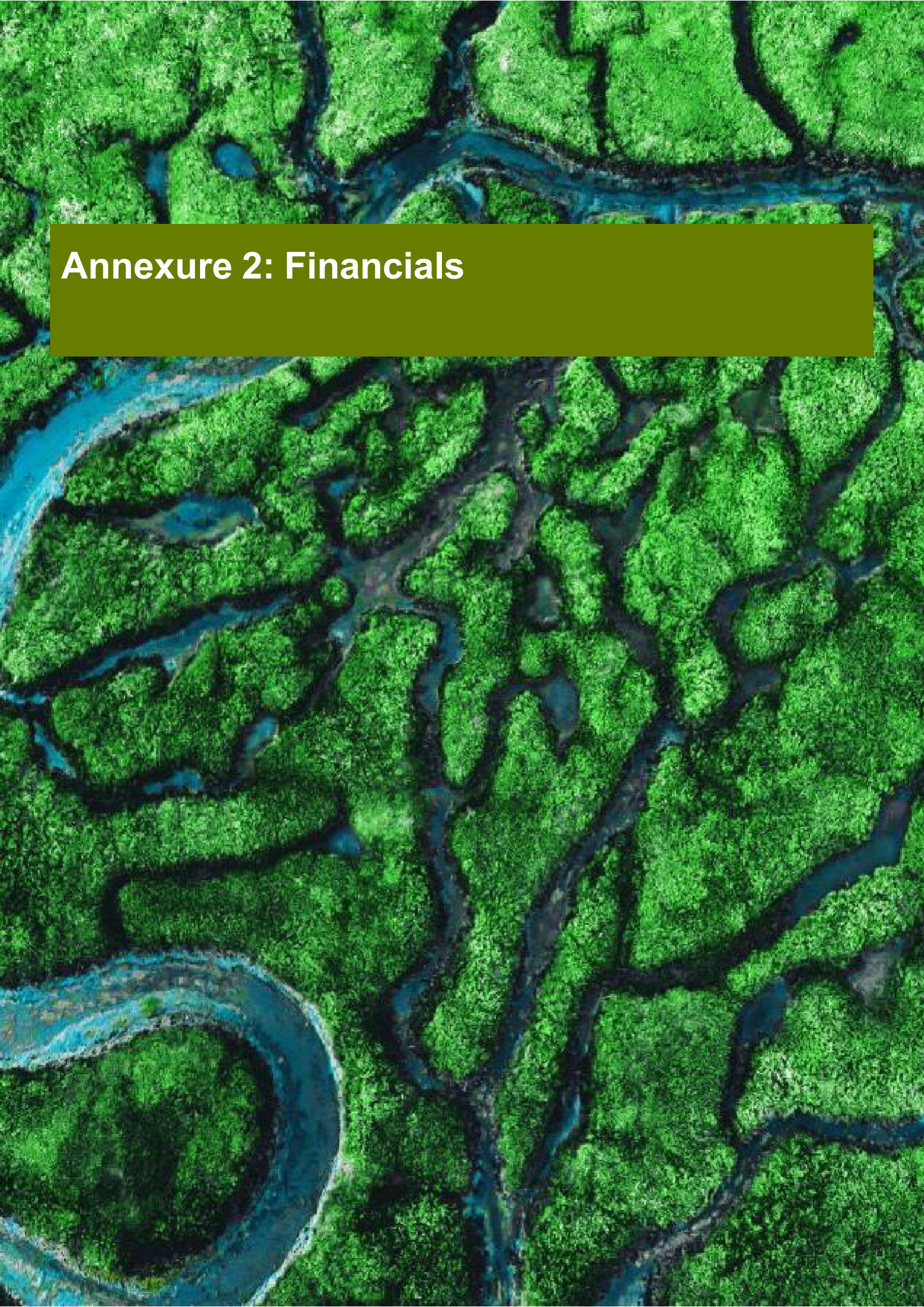
- Separate pack house of 50,000 sq. ft. for onion with
 - Fully automated grading machine
 - Controlled atmosphere storage for 500 containers
 - Irradiation facility of 100 MT per day
- Packaging and other ancillary material complex
- Wholesale shops
- Cold stores

Visit to Export Facility Vashi – Major Outcomes

Existing export-oriented facilities available in the vicinity were visited during the field study. Discussions related to the existing condition, capacity utilisation, challenges faced and any suggestions to address those challenges in the proposed facility etc. were done with the facility in-charge and users. Major findings are as described hereunder.

Irradiation facility	- Used by exporters for Mangoes to US - Lab testing is done for fruit fly infestation. - Rs. 36 per kg is charged from the exporters, which is a subsidized rate to promote exports to US - Holding area at the facility is very small, which makes it congested during the mango season - The facility can handle 30 MT per day produce
Vapour heat treatment facility	- One chamber of 2.5 MT is available - Used by exporters for Mangoes to Japan and by processors for sapota and custard apple for ice-cream making - Total process takes 3-4 hours including holding period - Produce is treated with saturated vapour by raising fruit core temperature up to 47.5 degree C for 20 minutes and gradually cooled down - Facility is 25 years old and poorly maintained in terms of hygiene
Hot water treatment and pack house	- Used by exporters for mango and pomegranate to Europe, US, New Zealand - Treated for 1 hour for Europe; charges: Rs. 8.5 per kg - Treated for 3 minutes for US, Australia; charges: Rs. 2.5 per kg - Small holding area limited and congested area for packing.



An aerial photograph of a lush green forest. A complex network of winding rivers and streams, appearing in shades of blue and grey, meanders through the dense green canopy. The water bodies vary in size, from small pools to larger, more defined channels. The overall pattern is organic and intricate, resembling a map of a natural water system.

Annexure 2: Financials

Annexure 2

Part-I Detailed Breakup of Project Cost

Land cost

						Schedule-1 (Rs Lacs)	
Particulars	Unit Basis	Qty.	Unit Rate	Cost		Contingenc	Total Cost
A. LAND				2,277.09		-	2,277.09
Cost of Land Acquisition							
Total area (acres)							
Land Premium (one time payment)	Sq M	368,615.71					
	Acre	91.08	2,500,000	2,277.09			2277.09
SUB-TOTAL				2,277.09		-	2,277.09
Particulars	Unit Basis	Qty.	Unit Rate	Cost		Contingenc	Total Cost
B. SITE DEVELOPMENT		4047.0		1,321.55		66.08	1,387.63
Cost of Development							
Land Development							
Earthwork in Cutting, filling and compaction	Sqm	47,733.8	340	162.29		8.11	170.41
Land scaping (plinth area rate)	Sqm	47,734	40	19.09		0.95	20.05
Boundary wall	rmt	11,986	9,160.00	1,097.92		54.90	1,152.81
Parking And Loading/Unloading area	Sqm	2,189	1,930	42.25		2.11	44.36
SUB-TOTAL				1,321.55		66.08	1,387.63

Enabling Infrastructure

C. ENABLING BASIC INFRASTRUCTURE					1,227.18	61.36	1,288.54
Internal Road(Bituminous Road)							
Road	Sq M	28,870	1,930	557.19		27.86	585.05
Security cabin Main gate (Entry Point)	1	Sq M	4	12,000	0.48	0.02	0.50
Boom Barrier		No.	2	125,000	2.50	0.13	2.63
Main gate		LS	1	1,000,000	10.00	0.50	10.50
SUB-TOTAL					570.17	28.51	598.67
Drainage							
Drains for storm / rain water (Road running metre)		RMT	2,038	10,150	206.83	10.34	217.18
Sewarage		RMT	2,038	3,810	77.64	3.88	81.52
SUB-TOTAL					284.47	14.22	298.70
Electrification and Water Supply							
HT line from State Electricity Board		Kms	2	1000000.00	20.00	1.00	21.00
Internal Electrification							
Grid Sub - Station & Switch yard(2.5 MW)		KVA	2,500	6000.00	150.00	7.50	157.50
Internal HT distribution(including cable, fitting, joints, panel) - along road		Kms	2.04	1,280,000.000	26.084	1.30	27.39
Street light with double arm bracket(along side boundary wall, roads and		Nos	82	30000.00	24.45	1.223	25.676
Water storage tank (underground) (200 KI)		Ltr	200,000	23	46.00	2.30	48.30
Water storage Tank(Overhead Tank with staging height between 25 m (		Ltr	50,000	34	17.00	0.85	17.85
Bore Well & Pump House		LS	1	500,000	5.00	0.25	5.25
SUB-TOTAL					288.54	14.43	302.96
Utilities and Power backup							
Effluent Treatment Plant (50 KLD)		APQ	50	60,000	30.00	1.50	31.50
STP -50KLD		APQ	50	60,000	30.00	1.50	31.50
Weighbridge (60 MT)		APQ	2	1,200,000	24.00	1.20	25.20
SUB-TOTAL					84.00	4.20	88.20
					4,825.82	127.44	4,953.26

Non-Core Infrastructure

D. NON CORE INFRASTRUCTURE					1,149.37	57.47	1,206.84
	Particulars	Unit Basis	Qty.	Unit Rate	Cost	Contingenc	Total Cost
	BUILDING/CIVIL WORK - Common Facilities						
	Admin block-Ground floor office & First Floor	Sq M	3,360	30,940	1,039.58	51.98	1,091.56
	Internal Road For admin	Sq M	2,520	1,930	48.64	2.43	51.07
	Parking For Admin	Sq M	500	1,930	9.65	0.48	10.13
	Public Facility						
	Computer Systems & other IT Hardwares	LS	1	1,500,000	15.00	0.75	15.75
	Supplying, installation, testing & commisioning of LAN system	LS	1	1,000,000	10.00	0.50	10.50
	Office Furniture	LS	1	2,000,000	20.00	1.00	21.00
	Hardware for tele communication & infocom Network	LS	1	100,000	1.00	0.05	1.05
	DG set-50KVA	KVA	50	11,000	5.50	0.28	5.78
	SUB-TOTAL				1,149.37	57.47	1,206.84

Core Processing Infrastructure

Particulars	Unit Basis	Qty.	Unit Rate	Cost	Contingenc	Total Cost
BUILDINGS						
1 Import Complex for fruit and vegetable		1	88,470,756	884.71	44.24	928.94
2 Food Testing Lab		1	-	-	-	-
3 Export Packhouse for F&V		1	62,839,680	628.40	31.42	659.82
4 Irradiation		1	22,768,000	227.68	11.38	239.06
SUB-TOTAL				1,740.78	87.04	1,827.82
Plant & Machinery						
1 Import Complex for fruit and vegetable		1	141,965,038	1,419.65	70.98	1,490.63
3 Food Testing Lab		1	5,900,000	59.00	2.95	61.95
4 Export Packhouse for F&V		1	357,309,179	3,573.09	178.65	3,751.75
5 Irradiation		1	65,000,000	650.00	32.50	682.50
SUB-TOTAL				4,282.09	214.10	4,496.20
Miscellaneous Fixed Assets						
1 Import Complex for fruit and vegetable		1	150,000	1.50	0.08	1.58
2 Food Testing Lab		1	500,000	5.00	0.25	5.25
3 Export Packhouse for F&V		1	150,000	1.50	0.08	1.58
4 Irradiation		1	4,100,000	41.00	2.05	43.05
SUB-TOTAL				47.50	2.38	49.88
Services - Core & Non Core						
1 Fire Fighting						-
Manual fire alarm system	Sqm	47,734	250	119.33	5.97	125.30
Internal electrification & installation (12.5% of total civil cost)	12.50%			347.55		347.55
Internal water supply & sanitary installation (4% of total civil cost)	4%			111.21		111.21
SUB-TOTAL				578.10	5.97	584.06
GRAND TOTAL				12,623.66	494.39	13,118.05

Import Complex for fruit and vegetable						Sub-Schedu (Rs Lacs)	
Particulars		Unit Basis	Qty.	Unit Rate	Cost	Contingenc	Total Cost
BUILDING (RCC STRUCTURE & Pre-engineered Building)							
TECHNICAL BUILDING Imort complex 7800 MT (109*63	109	62.8	6217				
Pre-engineered Building and Civil Works		Sq M	6217	14,230	884.71	44.24	928.94
SUB-TOTAL					884.71	44.24	928.94
PLANT & MACHINERY							
Cold Store (500MT*6)(200MT*24)		MT	7,800	11,800	920.40	46.02	966.42
Material handling equipment							
Racking system		Mt	7,800	3,900	304.20	15.21	319.41
Crates		Nos	500	413	2.07	0.10	2.17
Weighing Equip		Nos	6	27,709	1.66	0.08	1.75
Hand Pallet truck		Nos	4	33,071	1.32	0.07	1.39
Forlift		Nos	4	1,000,000	40.00	2.00	42.00
Reach Truck		Nos	3	5,000,000	150.00	7.50	157.50
SUB-TOTAL					1,419.65	70.98	1,490.63
MISCELLANEOUS FIXED ASSETS							
TOOLS & ACCESSORIES		LS	1	50,000	0.50	0.03	0.53
Furniture		LS	1	100,000	1.00	0.05	1.05
SUB-TOTAL					1.50	0.08	1.58
GRAND TOTAL					2,305.86	115.29	2,421.15
							-

Food Testing Lab							Sub-Schedule	(Rs Lacs)
Particulars		Unit Basis	Qty.	Unit Rate	Cost	Contingency	Total Cost	
Technical Building		Sq M	-	20500	-	-	-	-
SUB-TOTAL					-	-	-	-
Plant and Machineries								
Lab instruments and glasswares		APQ	1.00	5,900,000	59.00	2.95	61.95	
SUB-TOTAL					59.00	2.95	61.95	
MISCELLANEOUS FIXED ASSETS								
Tools		Lot	1.00	100,000	1.00	0.05	1.05	
Accessories		Lot	1.00	100,000	1.00	0.05	1.05	
Furniture		Lot	1.00	300,000	3.00	0.15	3.15	
SUB-TOTAL					5.00	0.25	5.25	
G total					64.00	3.20	67.20	

Estimated Project Cost (to be implemented on PPP/Lease)

Export Packhouse for F&V								
Particulars		Unit Basis	Qty.	Unit Rate	Cost	Contingency	Total Cost	
BUILDING (RCC STRUCTURE & Pre-engineered Building)								
Packhouse	64		57	3648		-		
Cold Store	16		16	768				
Pre-engineered Building and Civil works		Sqm	4416.00	14,230.00	628.40	31.42	659.82	
SUB-TOTAL					628.40	31.42	659.82	
PLANT & MACHINERY								
Integrated Pack House								
HVAC Packhouse		Nos	1.00	5000000.00	50.00	2.50	52.50	
Preecoolers (6 Ton*6)		Nos	6.00	1740693.52	104.44	5.22	109.66	
Cold Rooms (300 ton*3)		Nos	900.00	11800.00	106.20	5.31	111.51	
Hotwater treatment room		Nos	1.00	5900000.00	59.00	2.95	61.95	
Vaperheat treatment room		Nos	1.00	1239000.00	12.39	0.62	13.01	
Sorting grading Line		Nos	10.00	30353025.54	3035.30	151.77	3187.07	
Sorting grading Conveyers		Nos	2.00	980000.00	19.60	0.98	20.58	
Material handling equipments								
Racking system		Nos	900.00	4720.00	42.48	2.12	44.60	
Crates		Nos	5,000.00	413.00	20.65	1.03	21.68	
Weighing Equip		Nos	6.00	28413.22	1.70	0.09	1.79	
Hand Pallet truck		Nos	4.00	33070.68	1.32	0.07	1.39	
Forlift		Nos	2.00	1000000.00	20.00	1.00	21.00	
Reach Truck		Nos	2.00	5000000.00	100.00	5.00	105.00	
SUB-TOTAL					3,573.09	178.65	3,751.75	
MISCELLANEOUS FIXED ASSETS								
Furniture		LS	1.00	50,000	0.50	0.03	0.53	
TOOLS & ACCESSORIES		LS	1.00	100,000	1.00	0.05	1.05	
SUB-TOTAL					1.50	0.08	1.58	
GRAND TOTAL					4,202.99	210.15	4,413.14	

Part II-Revenue and Financial Statements

Projected Revenue

Revenue calculataion as per differential	1-Apr-25 31-Mar-26	1-Apr-26 31-Mar-27	1-Apr-27 31-Mar-28	1-Apr-28 31-Mar-29	1-Apr-29 31-Mar-30	1-Apr-30 31-Mar-31	1-Apr-31 31-Mar-32	1-Apr-32 31-Mar-33	1-Apr-33 31-Mar-34	1-Apr-34 31-Mar-35	1-Apr-35 31-Mar-36	1-Apr-36 31-Mar-37	1-Apr-37 31-Mar-38
Lease of plots	201.56	548.10	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00
Commercial Complex	201.56	548.10	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00
Lease rent for commercial	34.91	94.93	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47
RENTALS/User Charges	34.91	94.92552	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728
Mandi Handling Charges													
Handling Fees	-	-	-	-	-	-	-	-	-	-	-	-	-
Trader Shops and handling area													
Monthly rental	25.74	69.98	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76
Deposit		54.00	54.00	54.00	54.00	54.00							
Handling area	4.29	11.66	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96
Parking Fees													
two wheeler parking	3.02	8.21	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13
Car Parking	6.04	16.43	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25
Container Parking and charging plug poin	169.12	459.90	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00
Import Complex													
Cold Store	-	-	-	-	-	-	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00
Food Testing Lab	62.88	171.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00
Export Oriented packhouse for F&V													
Preecoolers	50.33	136.86	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06
Cold Store	89.36	243.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00
Irradiation	195.60	531.92	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02
Sub Total	606.38	1,702.96	1,886.18	1,886.18	1,886.18	1,886.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18
TOTAL	842.84	2,345.99	2,600.66	2,600.66	2,600.66	2,600.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66
Growth			10.86%	0.00%	0.00%	0.00%	87.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Revenue calculataion as per differential	1-Apr-38 31-Mar-39	1-Apr-39 31-Mar-40	1-Apr-40 31-Mar-41	1-Apr-41 31-Mar-42	1-Apr-42 31-Mar-43	1-Apr-43 31-Mar-44	1-Apr-44 31-Mar-45	1-Apr-45 31-Mar-46	1-Apr-46 31-Mar-47	1-Apr-47 31-Mar-48	1-Apr-48 31-Mar-49	1-Apr-49 31-Mar-50
Lease of plots	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	357.06
	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	609.00	357.06
Commercial Complex	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47	105.47	61.84
Lease rent for commercial	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	105.4728	61.84
RENTALS/User Charges												
Mandi Handling Charges												
Handling Fees	-	-	-	-	-	-	-	-	-	-	-	-
Trader Shops and handling area												
Monthly rental	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76	77.76	45.59
Deposit												
Handling area	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	7.60
Parking Fees												
two wheeler parking	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	5.35
Car Parking	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	10.70
Container Parking and charging plug poin	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00	511.00	299.60
Import Complex												
Cold Store	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	2,340.00	1,371.95
Food Testing Lab	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	111.40
Export Oriented packhouse for F&V												
Preecoolers	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06	152.06	89.16
Cold Store	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	158.30
Irradiation	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02	591.02	346.52
Sub Total	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	4,172.18	2,446.15
TOTAL	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	2,865.05
Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-41.37%

Projected Balance Sheet

PROJECTED BALANCE SHEET							(RS IN LACS)						
		1-Apr-24 31-Mar-25	1-Apr-25 31-Mar-26	1-Apr-26 31-Mar-27	1-Apr-27 31-Mar-28	1-Apr-28 31-Mar-29	1-Apr-29 31-Mar-30	1-Apr-30 31-Mar-31	1-Apr-31 31-Mar-32	1-Apr-32 31-Mar-33	1-Apr-33 31-Mar-34	1-Apr-34 31-Mar-35	1-Apr-35 31-Mar-36
PARTICULARS													
LIABILITIES													
SHARE CAPITAL		3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10
		-	-	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88
RESERVES & SURPLUSES		-	381.74	1,078.50	1,318.14	1,555.97	1,796.26	2,044.37	3,907.73	5,937.68	7,986.71	10,057.69	12,716.32
TERM LOAN		69.38	5,563.08	9,021.31	8,119.18	7,217.05	6,314.92	5,412.78	4,510.65	3,608.52	2,706.39	1,804.26	902.13
WORKING CAPITAL LOAN		-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		3,076.48	8,951.93	13,699.78	13,039.29	12,374.99	11,713.15	11,059.14	12,020.36	13,148.18	14,295.08	15,463.93	17,220.43
ASSETS													
FIXED ASSETS		2,632.96	9,190.37	13,306.15	13,306.15	13306.1464	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30
LESS DEPRECIATION		-	-	365.71	1,249.72	2,133.72	3,017.73	3,901.74	4,759.10	5,466.10	6,173.11	6,880.12	7,023.89
NET BLOCK		2,632.96	9,190.37	12,940.43	12,056.43	11172.42154	12,709.57	11,825.56	10,968.20	10,261.19	9,554.19	8,847.18	8,703.41
NET CURRENT ASSETS		-	116.00	321.00	357.00	357.00	357.00	357.00	736.00	736.00	736.00	735.00	735.00
PRELIMINARY EXP.NOT W/O		-	-	10.84	9.63	8.43	7.23	6.02	4.82	3.61	2.41	1.20	-
CASH & BANK BALANCE		443.52	(354.44)	427.51	616.23	837.14	(1,360.64)	(1,129.45)	311.35	2,147.38	4,002.48	5,880.55	7,782.02
TOTAL		3,076.48	8,951.93	13,699.78	13,039.29	12,374.99	11,713.15	11,059.14	12,020.36	13,148.18	14,295.08	15,463.93	17,220.43

1-Apr-37 31-Mar-38	1-Apr-38 31-Mar-39	1-Apr-39 31-Mar-40	1-Apr-40 31-Mar-41	1-Apr-41 31-Mar-42	1-Apr-42 31-Mar-43	1-Apr-43 31-Mar-44	1-Apr-44 31-Mar-45	1-Apr-45 31-Mar-46	1-Apr-46 31-Mar-47	1-Apr-47 31-Mar-48	1-Apr-48 31-Mar-49	1-Apr-49 31-Mar-50
3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10	3,007.10
594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88	594.88
18,157.78	20,907.71	23,645.51	26,372.29	29,088.98	31,796.39	34,495.19	37,185.93	39,869.09	42,545.05	45,214.13	47,876.57	49,440.26
0.00	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
21,759.76	24,509.69	27,247.48	29,974.26	32,690.96	35,398.37	38,097.16	40,787.91	43,471.07	46,147.02	48,816.11	51,478.55	53,042.24
15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30	15,727.30
7,243.79	7,314.04	7,384.28	7,454.53	7,524.77	7,595.02	7,665.26	7,735.51	7,805.75	7,876.00	7,946.24	8,016.49	8,057.67
8,483.50	8,413.26	8,343.01	8,272.77	8,202.52	8,132.28	8,062.03	7,991.79	7,921.54	7,851.30	7,781.05	7,710.81	7,669.62
735.00	734.00	734.00	734.00	733.00	733.00	733.00	732.00	732.00	731.00	731.00	730.00	428.00
-	-	-	-	-	-	-	-	-	-	-	-	-
12,541.26	15,362.43	18,170.47	20,967.50	23,755.44	26,533.09	29,302.13	32,064.12	34,817.52	37,564.73	40,304.05	43,037.74	44,944.61
21,759.76	24,509.69	27,247.48	29,974.26	32,690.96	35,398.37	38,097.16	40,787.91	43,471.07	46,147.02	48,816.11	51,478.55	53,042.24

Projected Profit & Loss

PARTICULARS		1-Apr-24	1-Apr-25	1-Apr-26	1-Apr-27	1-Apr-28	1-Apr-29	1-Apr-30	1-Apr-31	1-Apr-32	1-Apr-33	1-Apr-34	1-Apr-35	1-Apr-36
		31-Mar-25	31-Mar-26	31-Mar-27	31-Mar-28	31-Mar-29	31-Mar-30	31-Mar-31	31-Mar-32	31-Mar-33	31-Mar-34	31-Mar-35	31-Mar-36	31-Mar-37
		0.00%	41.37%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
NET SALES REALISATION		-	842.84	2,345.99	2,600.66	2,600.66	2,600.66	2,600.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66
TOTAL COSTS		-	301.88	853.73	932.89	932.00	931.22	930.55	964.28	963.98	964.56	965.26	966.09	969.86
GROSS PROFIT		-	540.96	1,492.26	1,667.77	1,668.66	1,669.44	1,670.11	3,922.37	3,922.67	3,922.10	3,921.40	3,920.57	3,916.80
DEPRECIATION		-	-	383.14	926.14	926.14	926.14	926.14	899.57	749.68	749.68	749.68	188.16	186.02
INTEREST		-	-	241.13	557.07	498.43	439.79	381.15	322.51	263.87	205.23	146.60	87.96	29.32
PRELIMINARY EXP.W/O		-	-	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	-
PROFIT BEFORE TAX		-	540.96	900.60	242.12	301.77	361.33	420.78	2,758.49	2,967.95	3,026.19	3,084.32	3,705.56	3,763.99
TAXES		-	162.29	205.85	0.48	63.94	121.04	172.67	895.13	938.00	977.17	1,013.34	1,046.94	1,077.83
PROFIT AFTER TAX		-	378.67	694.75	241.64	237.83	240.29	248.11	1,863.36	2,029.95	2,049.02	2,070.98	2,658.62	2,686.16
DIVIDEND		-	-	-	-	-	-	-	-	-	-	-	-	-
DIVIDEND TAX		-	-	-	-	-	-	-	-	-	-	-	-	-
RETAINED PROFIT		-	378.67	694.75	241.64	237.83	240.29	248.11	1,863.36	2,029.95	2,049.02	2,070.98	2,658.62	2,686.16
NET CASH ACCURALS		-	378.67	1,061.67	1,126.85	1,123.04	1,125.50	1,133.32	2,721.92	2,738.16	2,757.24	2,779.19	2,803.60	2,827.78
PROFIT & LOSS ACCOUNT														
OPENING BALANCE		-	-	378.67	694.75	936.39	1,174.22	1,414.51	1,662.63	3,525.99	5,555.94	7,604.96	9,675.95	12,334.57
CLOSING BALANCE		-	378.67	694.75	936.39	1,174.22	1,414.51	1,662.63	3,525.99	5,555.94	7,604.96	9,675.95	12,334.57	15,020.73

PROJECTED PROFIT AND LOSS ACCOUNT

PARTICULARS		1-Apr-37	1-Apr-38	1-Apr-39	1-Apr-40	1-Apr-41	1-Apr-42	1-Apr-43	1-Apr-44	1-Apr-45	1-Apr-46	1-Apr-47	1-Apr-48	1-Apr-49
		31-Mar-38	31-Mar-39	31-Mar-40	31-Mar-41	31-Mar-42	31-Mar-43	31-Mar-44	31-Mar-45	31-Mar-46	31-Mar-47	31-Mar-48	31-Mar-49	31-Mar-50
		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	58.63%
NET SALES REALISATION		4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	2,865.05
TOTAL COSTS		955.43	959.58	963.91	968.38	972.99	977.75	982.67	987.74	992.97	998.37	1,003.95	1,009.70	596.03
GROSS PROFIT		3,931.23	3,927.07	3,922.74	3,918.27	3,913.66	3,908.90	3,903.99	3,898.92	3,893.68	3,888.28	3,882.71	3,876.95	2,269.02
DEPRECIATION		78.28	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	41.18
INTEREST		0.00	-	-	-	-	-	-	-	-	-	-	-	-
PRELIMINARY EXP.W/O		-	-	-	-	-	-	-	-	-	-	-	-	-
PROFIT BEFORE TAX		3,852.94	3,856.83	3,852.50	3,848.03	3,843.42	3,838.66	3,833.74	3,828.67	3,823.44	3,818.04	3,812.46	3,806.71	2,227.84
TAXES		1,097.64	1,106.90	1,114.70	1,121.25	1,126.72	1,131.25	1,134.95	1,137.93	1,140.28	1,142.08	1,143.38	1,144.26	664.15
PROFIT AFTER TAX		2,755.30	2,749.93	2,737.80	2,726.78	2,716.70	2,707.41	2,698.79	2,690.74	2,683.16	2,675.96	2,669.08	2,662.45	1,563.69
DIVIDEND		-	-	-	-	-	-	-	-	-	-	-	-	-
DIVIDEND TAX		-	-	-	-	-	-	-	-	-	-	-	-	-
RETAINED PROFIT		2,755.30	2,749.93	2,737.80	2,726.78	2,716.70	2,707.41	2,698.79	2,690.74	2,683.16	2,675.96	2,669.08	2,662.45	1,563.69
NET CASH ACCURALS		2,833.59	2,820.17	2,808.04	2,797.02	2,786.94	2,777.65	2,769.04	2,760.99	2,753.40	2,746.20	2,739.33	2,732.69	1,604.87
PROFIT & LOSS ACCOUNT														
OPENING BALANCE		15,020.73	17,776.04	20,525.96	23,263.76	25,990.54	28,707.24	31,414.65	34,113.44	36,804.19	39,487.34	42,163.30	44,832.38	47,494.83
CLOSING BALANCE		17,776.04	20,525.96	23,263.76	25,990.54	28,707.24	31,414.65	34,113.44	36,804.19	39,487.34	42,163.30	44,832.38	47,494.83	49,058.52

Cash Flow Statement

CASH FLOW STATEMENT

PARTICULARS		(RS IN LACS)												
		1-Apr-24	1-Apr-25	1-Apr-26	1-Apr-27	1-Apr-28	1-Apr-29	1-Apr-30	1-Apr-31	1-Apr-32	1-Apr-33	1-Apr-34	1-Apr-35	1-Apr-36
		31-Mar-25	31-Mar-26	31-Mar-27	31-Mar-28	31-Mar-29	31-Mar-30	31-Mar-31	31-Mar-32	31-Mar-33	31-Mar-34	31-Mar-35	31-Mar-36	31-Mar-37
SOURCES														
INCREASE IN SHARE CAPITAL		3,007.10	-	-	-	-	-	-	-	-	-	-	-	-
NET PROFIT		-	381.74	935.88	798.70	736.26	680.08	629.26	2,185.87	2,293.82	2,254.26	2,217.58	2,746.58	2,715.48
(INTEREST ADDED BACK)		-	-	-	-	-	-	-	-	-	-	-	-	-
SUBSIDY		-	-	594.88	-	-	-	-	-	-	-	-	-	-
DEPRECIATION		-	-	365.71	884.01	884.01	884.01	884.01	857.36	707.01	707.01	707.01	143.77	141.62
PRELIMINARY EXP.W/O		-	-	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	-
INCREASE IN UNSECURED LOAN		-	-	-	-	-	-	-	-	-	-	-	-	-
INCREASE IN TERM LOAN		69.38	5,493.71	3,458.22	-	-	-	-	-	-	-	-	-	-
INCREASE IN WC		-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		3,076.48	5,875.45	5,355.90	1,683.91	1,621.47	1,565.29	1,514.48	3,044.44	3,002.03	2,962.47	2,925.79	2,891.56	2,857.10
DEPLOYMENT														
INCREASE IN FIXED ASSETS		2,632.96	6,557.41	4,115.77	-	-	2,421.15	-	-	-	-	-	-	-
PRELIMINARY EXPENSES		-	-	12.04	-	-	-	-	-	-	-	-	-	-
DECREASE IN TERM LOAN		-	-	-	902.13	902.13	902.13	902.13	902.13	902.13	902.13	902.13	902.13	902.13
DECREASE IN UNSECURED LOAN		-	-	-	-	-	-	-	-	-	-	-	-	-
INCREASE IN CURRENT ASSETS		-	116.00	205.00	36.00	-	-	-	379.00	-	-	(1.00)	-	-
INTEREST PAYMENT (TL&WC)		-	-	241.13	557.07	498.43	439.79	381.15	322.51	263.87	205.23	146.60	87.96	29.32
DIVIDEND & DIVIDEND TAX		-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		2,632.96	6,673.41	4,573.94	1,495.20	1,400.56	3,763.07	1,283.28	1,603.64	1,166.00	1,107.37	1,047.73	990.09	931.45
OPENING BALANCE		-	443.52	(354.44)	427.51	616.23	837.14	(1,360.64)	(1,129.45)	311.35	2,147.38	4,002.48	5,880.55	7,782.02
SURPLUS/DEFICIT		443.52	(797.96)	781.95	188.72	220.91	(2,197.78)	231.19	1,440.79	1,836.03	1,855.10	1,878.06	1,901.47	1,925.65
CLOSING BALANCE		443.52	(354.44)	427.51	616.23	837.14	(1,360.64)	(1,129.45)	311.35	2,147.38	4,002.48	5,880.55	7,782.02	9,707.67

CASH FLOW STATEMENT

PARTICULARS		1-Apr-37	1-Apr-38	1-Apr-39	1-Apr-40	1-Apr-41	1-Apr-42	1-Apr-43	1-Apr-44	1-Apr-45	1-Apr-46	1-Apr-47	1-Apr-48	1-Apr-49
		31-Mar-38	31-Mar-39	31-Mar-40	31-Mar-41	31-Mar-42	31-Mar-43	31-Mar-44	31-Mar-45	31-Mar-46	31-Mar-47	31-Mar-48	31-Mar-49	31-Mar-50
SOURCES														
INCREASE IN SHARE CAPITAL		-	-	-	-	-	-	-	-	-	-	-	-	-
NET PROFIT		2,755.30	2,749.93	2,737.80	2,726.78	2,716.70	2,707.41	2,698.79	2,690.74	2,683.16	2,675.96	2,669.08	2,662.45	1,563.69
(INTEREST ADDED BACK)		-	-	-	-	-	-	-	-	-	-	-	-	-
SUBSIDY		-	-	-	-	-	-	-	-	-	-	-	-	-
DEPRECIATION		78.28	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	41.18
PRELIMINARY EXP.W/O		-	-	-	-	-	-	-	-	-	-	-	-	-
INCREASE IN UNSECURED LOAN		-	-	-	-	-	-	-	-	-	-	-	-	-
INCREASE IN TERM LOAN		-	-	-	-	-	-	-	-	-	-	-	-	-
INCREASE IN WC		-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		2,833.59	2,820.17	2,808.04	2,797.02	2,786.94	2,777.65	2,769.04	2,760.99	2,753.40	2,746.20	2,739.33	2,732.69	1,604.87
DEPLOYMENT														
INCREASE IN FIXED ASSETS		-	-	-	-	-	-	-	-	-	-	-	-	-
PRELIMINARY EXPENSES		-	-	-	-	-	-	-	-	-	-	-	-	-
DECREASE IN TERM LOAN		-	-	-	-	-	-	-	-	-	-	-	-	-
DECREASE IN UNSECURED LOAN		-	-	-	-	-	-	-	-	-	-	-	-	-
INCREASE IN CURRENT ASSETS		-	(1.00)	-	-	(1.00)	-	-	(1.00)	-	(1.00)	-	(1.00)	(302.00)
INTEREST PAYMENT (TL&WC)		0.00	-	-	-	-	-	-	(1.00)	-	(1.00)	-	(1.00)	(302.00)
DIVIDEND & DIVIDEND TAX		-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		0.00	(1.00)	-	-	(1.00)	-	-	(1.00)	-	(1.00)	-	(1.00)	(302.00)
OPENING BALANCE		9,707.67	12,541.26	15,362.43	18,170.47	20,967.50	23,755.44	26,533.09	29,302.13	32,064.12	34,817.52	37,564.73	40,304.05	43,037.74
SURPLUS/DEFICIT		2,833.59	2,821.17	2,808.04	2,797.02	2,787.94	2,777.65	2,769.04	2,761.99	2,753.40	2,747.20	2,739.33	2,733.69	1,906.87
CLOSING BALANCE		12,541.26	15,362.43	18,170.47	20,967.50	23,755.44	26,533.09	29,302.13	32,064.12	34,817.52	37,564.73	40,304.05	43,037.74	44,944.61

Break Even Analysis

	1-Apr-37	1-Apr-38	1-Apr-39	1-Apr-40	1-Apr-41	1-Apr-42	1-Apr-43	1-Apr-44	1-Apr-45	1-Apr-46	1-Apr-47	1-Apr-48	1-Apr-49
PARTICULARS	31-Mar-38	31-Mar-39	31-Mar-40	31-Mar-41	31-Mar-42	31-Mar-43	31-Mar-44	31-Mar-45	31-Mar-46	31-Mar-47	31-Mar-48	31-Mar-49	31-Mar-50
GROSS SALES	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	4,886.66	2,865.05
FIXED COST(INCL DEP.& INT.)	569.09	614.11	618.76	623.56	628.51	633.63	638.92	644.38	650.02	655.85	661.86	668.08	396.59
VARIABLE COST	464.63	464.63	464.63	464.63	464.63	464.63	464.63	464.63	464.63	464.63	464.63	464.63	272.41
CONTRIBUTION	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	4,422.03	2,592.64
BREAK EVEN POINT (%)	12.87	13.89	13.99	14.10	14.21	14.33	14.45	14.57	14.70	14.83	14.97	15.11	15.30
CASH BEP (%)	11.10	11.61	11.72	11.83	11.94	12.06	12.18	12.30	12.43	12.56	12.69	12.84	13.02

DSCR

DSCR													
	1-Apr-24	1-Apr-25	1-Apr-26	1-Apr-27	1-Apr-28	1-Apr-29	1-Apr-30	1-Apr-31	1-Apr-32	1-Apr-33	1-Apr-34	1-Apr-35	1-Apr-36
PARTICULARS	31-Mar-25	31-Mar-26	31-Mar-27	31-Mar-28	31-Mar-29	31-Mar-30	31-Mar-31	31-Mar-32	31-Mar-33	31-Mar-34	31-Mar-35	31-Mar-36	31-Mar-37
Net profit			694.75	241.64	237.83	240.28	248.11	1,863.36	2,029.95	2,049.02	2,070.98	2,658.62	2,686.16
Depreciation			365.71	884.01	884.01	884.01	884.01	857.36	707.01	707.01	707.01	143.77	141.62
PRELIMINARY EXP.W/O		-	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	-
Interest			241.13	557.07	498.43	439.79	381.15	322.51	263.87	205.23	146.60	87.96	29.32
			1,302.80	1,683.91	1,621.47	1,565.29	1,514.48	3,044.44	3,002.03	2,962.47	2,925.79	2,891.56	2,857.10
Term Loan Interest			241.13	557.07	498.43	439.79	381.15	322.51	263.87	205.23	146.60	87.96	29.32
Principle Repayment				902.13	902.13	902.13	902.13	902.13	902.13	902.13	902.13	902.13	902.13
			241.13	1,459.20	1,400.56	1,341.92	1,283.28	1,224.64	1,166.00	1,107.37	1,048.73	990.09	931.45
DSCR			5.40	1.15	1.16	1.17	1.18	2.49	2.57	2.68	2.79	2.92	3.07
Average DSCR			5.40	1.76	1.49	1.39	1.34	1.54	1.69	1.81	1.91	2.00	2.08

DSCR													
	1-Apr-37	1-Apr-38	1-Apr-39	1-Apr-40	1-Apr-41	1-Apr-42	1-Apr-43	1-Apr-44	1-Apr-45	1-Apr-46	1-Apr-47	1-Apr-48	1-Apr-49
PARTICULARS	31-Mar-38	31-Mar-39	31-Mar-40	31-Mar-41	31-Mar-42	31-Mar-43	31-Mar-44	31-Mar-45	31-Mar-46	31-Mar-47	31-Mar-48	31-Mar-49	31-Mar-50
Net profit	2,755.30	2,749.93	2,737.80	2,726.78	2,716.70	2,707.41	2,698.79	2,690.74	2,683.16	2,675.96	2,669.08	2,662.45	1,563.69
Depreciation	78.28	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	41.18
PRELIMINARY EXP.W/O	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest	0.00	-	-	-	-	-	-	-	-	-	-	-	-
	2,833.59	2,820.17	2,808.04	2,797.02	2,786.94	2,777.65	2,769.04	2,760.99	2,753.40	2,746.20	2,739.33	2,732.69	1,604.87
Term Loan Interest	0.00	-	-	-	-	-	-	-	-	-	-	-	-
Principle Repayment	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.00	-	-	-	-	-	-	-	-	-	-	-	-
DSCR													
Average DSCR	2.31												

IRR

	1-Apr-24	1-Apr-25	1-Apr-26	1-Apr-27	1-Apr-28	1-Apr-29	1-Apr-30	1-Apr-31	1-Apr-32	1-Apr-33	1-Apr-34	1-Apr-35	1-Apr-36
PARTICULARS	31-Mar-25	31-Mar-26	31-Mar-27	31-Mar-28	31-Mar-29	31-Mar-30	31-Mar-31	31-Mar-32	31-Mar-33	31-Mar-34	31-Mar-35	31-Mar-36	31-Mar-37
CAPITAL COST	(2,632.96)	(6,557.41)	(3,520.90)	-	-	(2,421.15)	-	-	-	-	-	-	-
Net Profit	-	381.74	694.75	241.64	237.83	240.29	248.11	1,863.36	2,029.95	2,049.02	2,070.98	2,658.62	2,686.16
Depreciation	-	-	365.71	884.01	884.01	884.01	884.01	857.36	707.01	707.01	707.01	143.77	141.62
Interest	-	-	241.13	557.07	498.43	439.79	381.15	322.51	263.87	205.23	146.60	87.96	29.32
P&P written OFF	-	-	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	-
Terminal Cash Flow													
Project Cash Flow	(2,632.96)	(6,175.67)	(2,218.10)	1,683.91	1,621.47	(855.86)	1,514.48	3,044.44	3,002.03	2,962.47	2,925.79	2,890.36	2,857.10
TAXES	-	163.61	205.85	0.48	63.94	121.04	172.67	895.13	938.00	977.17	1,013.34	1,046.94	1,077.83
Project Cash Flow(pre-tax)	(2,632.96)	(6,012.06)	(2,012.25)	1,684.39	1,685.41	(734.82)	1,687.15	3,939.57	3,940.03	3,939.64	3,939.13	3,937.30	3,934.93
Equity Cash Flow	(2,563.58)	(681.96)	999.00	224.72	220.91	(2,197.78)	231.19	1,819.79	1,836.03	1,855.10	1,877.06	1,900.27	1,925.65
	Pre-tax	Post-Tax											
Project IRR	19.03%	15.39%											
Equity IRR		21.57%											

	1-Apr-37	1-Apr-38	1-Apr-39	1-Apr-40	1-Apr-41	1-Apr-42	1-Apr-43	1-Apr-44	1-Apr-45	1-Apr-46	1-Apr-47	1-Apr-48	1-Apr-49
PARTICULARS	31-Mar-38	31-Mar-39	31-Mar-40	31-Mar-41	31-Mar-42	31-Mar-43	31-Mar-44	31-Mar-45	31-Mar-46	31-Mar-47	31-Mar-48	31-Mar-49	31-Mar-50
CAPITAL COST	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Profit	2,755.30	2,749.93	2,737.80	2,726.78	2,716.70	2,707.41	2,698.79	2,690.74	2,683.16	2,675.96	2,669.08	2,662.45	1,563.69
Depreciation	78.28	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	41.18
Interest	0.00	-	-	-	-	-	-	-	-	-	-	-	-
P&P written OFF	-	-	-	-	-	-	-	-	-	-	-	-	-
Terminal Cash Flow													
Project Cash Flow	2,833.59	2,820.17	2,808.04	2,797.02	2,786.94	2,777.65	2,769.04	2,760.99	2,753.40	2,746.20	2,739.33	2,732.69	1,604.87
TAXES	1,097.64	1,106.90	1,114.70	1,121.25	1,126.72	1,131.25	1,134.95	1,137.93	1,140.28	1,142.08	1,143.38	1,144.26	664.15
Project Cash Flow(pre-tax)	3,931.23	3,927.07	3,922.74	3,918.27	3,913.66	3,908.90	3,903.99	3,898.92	3,893.68	3,888.28	3,882.71	3,876.95	2,269.02
Equity Cash Flow	2,833.59	2,820.17	2,808.04	2,797.02	2,786.94	2,777.65	2,769.04	2,760.99	2,753.40	2,746.20	2,739.33	2,732.69	1,604.87

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