



**Preparation Of Food Processing Plant Proposal (Skill Based) Report  
On,**

**Cashew Nut Processing Unit**

*Submitted By,*

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**ROLL/REG. NUMBER. 03**

*Submitted To,*

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**Arts, Science, Commerce College, Uttam Nagar CIDCO, Nashik 08**

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*Under The Guidance Of*

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Year

2021-22



**M.V.P. Samaj's**

**Arts, Science, Commerce College, Uttam Nagar CIDCO, Nashik 08**

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**CERTIFICATE**

This is to certify that,

**Mr. Gavali Jayesh Chunilal Reg. No.03** of VI semester, of B.Voc. (**Food Processing Technology**) has completed the necessary work for the requirement of course No. **BVFP 365S** course Title: **Preparation Of Food Processing Plant Proposal (Skill Based)** in the year 2021-22. He has undergone fair exposure to start new industry on food processing and agro based included present market position and expected future demand, market size, statistics, trends, SWOT analysis and forecast.

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**BVFP365S**

**Preparation of Food Processing Plant Proposal (Skilled Based)**

**Cashew Nut Processing Unit**



## **Declaration**

I'm hereby declare that this report is authentic work carried out by us during **VI<sup>th</sup>** semester and has not been submitted to any other university or institute.

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## **Acknowledgment**

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### **3. Project of Glance**

1	Name of project	
2	Name of the entrepreneur/FPO/SHG/Cooperative	
3	Nature of proposed project	Proprietorship/Company/ Partnership
4	Registered office	
5	Project site/location	
6	Names of Partner (if partnership)	
7	No of shareholders (if company/FPC)	
8	Technical advisor	
9	Marketing advisor/partners	
10	Proposed project capacity	150 MT/annum (55, 65, 75,90 & 100% capacity utilization in the 2nd, 3rd , 4 th ,5th & 6 th years' onwards respectively
11	Raw materials	Cashew Fruit
12	Major product outputs	Cashew Nut
13	Total project cost (Lakhs)	43.66
	• Land development, building & civil construction	5.18
	• Machinery and equipment	7.75
	• Utilities (Power & water facilities)	0.8
	• Miscellaneous fixed assets	0.9
	• Pre-operative expenses	0.90

	• Contingencies	1.20
	• Working capital margin	26.98
14	Working capital Management (In Lakhs)	
	• Second year	80.78
	• Third year	95.46
	• Fourth year	130.18
15	Means of Finance	
	• Subsidy grant by MoFPI (max 10 lakhs)	9.60
	• Promoter's contribution (min 20%)	10.91
	• Term loan (45%)	23.13
16	Debt-equity ratio	2.35:1
17	Profit after Depreciation, Interest & Tax	
	• 2 <sup>nd</sup> year	246.31
	• 3 <sup>rd</sup> year	288.83
	• 4 <sup>th</sup> year	334.83
18	Average DSCR	2.16
	• Benefit Cost Ratio	2.59
	• Term Loan Payment	7 years with 1 year grace period
	• Pay Back Period for investment	2 years

TABLE NO - 1

## **4. INTRODUCTION**

Cashew (*Anacardium occidentale*.) is an important tropical perennial tree crop, originally grown in coastal areas, but now extending also far inland. Cashew is known by many names. In Mozambique, the Maconde tribe refer to it as the "Devil's Nut". It is offered at wedding ceremonies as a token of fertility and is considered by many to have aphrodisiac properties. The cashew tree, native to Brazil, was introduced to Mozambique and then India in the sixteenth century by the Portuguese, as a means of controlling coastal erosion. It was spread within these countries with the aid of elephants that ate the bright cashew fruit along with the attached nut. The nut was too hard to digest and was later expelled with the droppings. It was not until the nineteenth century that plantations were developed and the tree then spread to a number of other countries in Africa, Asia and Latin America. Cashew processing, using manual techniques, was started in India in the first half of the twentieth century. It was exported from there to the wealthy western markets, particularly the United States. It is a major export crop in terms of foreign exchange earnings in countries like Brazil, Vietnam, India, Nigeria, Tanzania, Indonesia, Guinea-Bissau, Cote D'Ivoire, Mozambique and Benin. Cashew nuts are common appetizers, like peanuts and pistachio nuts. They are also used in the food industry, and as an ingredient in various confectionery products.

The cashew nut kernels have good nutritional values to human beings. They are a rich source of vitamins (A, D and E), fats (46.5 %) and proteins (17.8 %). Besides, they contain relatively important amounts of minerals like calcium (504.0 mg/kg), iron 90.8 mg/kg), zinc (31.3 mg/kg), copper (16.4 mg/kg), potassium (5600 mg/kg), phosphorus (4600 mg/kg), magnesium (2400 mg/kg) and sodium (22.8 mg/kg) all measured in dry weight. However, the nutrient composition in cashew nut kernels varies with cultivar and environment. Due to its high nutritional value, even small and broken pieces of cashew nut kernels find a market in confectionery products. Almost all varieties of *A. occidentale* produce sweet juicy

apples, with high soluble sugar (fructose and sucrose) content, which are consumed as fresh fruits; or used to make various apples products, such as juice and wine.

## **5. ORIGIN, DISTRIBUTION AND PRODUCTION OF CASHEW**

Cashew (*A. occidentale* L.) is native to Latin America and has a primary center of diversity in Amazonia, and a secondary one in the Planalto of Brazil. Natural occurrence of cashew has been reported from Mexico to Peru, and in the West Indies. It was one of the first fruit trees from the New World to be widely distributed throughout the tropics by the early Portuguese and Spanish adventurers. The name cashew is from the Portuguese *caju*, which in turn comes from the Tupi-Indian word *acaju*. The incoming colonists in what is now Brazil found that the native Indians valued both the cashew nut and the so-called apple, the fleshy pedicel or stalk of the fruit (Deckers et al., 2001).

Cashew was discovered by Portuguese traders and explorers in Brazil in 1578. It was introduced into West and East Africa and India by the Portuguese travelers in the 16th century. By then, cashew was considered a suitable crop for soil conservation, forestation, and also wasteland development. Therefore, the initial aim of cashew introduction to those areas was not to produce nuts and apples (pseudo-fruits), but to help control soil erosion on the coast (Bradtke, 2007). Use of cashew nuts and apples developed much later, and the international nut trade did not start until the 1920s (Rieger, 2006). Thereafter, cashew gradually gained commercial importance and spread in other places. It is now naturalized in many tropical countries, particularly in coastal areas of East Africa (Tanzania, Kenya, Mozambique, Madagascar and Uganda), West and Central Africa (Ivory Coast, Nigeria and Angola), Florida, Peru, Hawaii, Tahiti, Mauritius, Seychelles, Panama, India, Sri Lanka, Thailand, Malay Peninsula and Philippine. The cashew industry ranks third in the world production of edible nuts with world production in 2000 at about 2 million tons of nuts-in-shell and an estimated value in excess of US\$2 billion. India and Brazil are the major cashew exporters, with 60 percent and 31

percent respectively of world market share. The major importers are the United States (55 percent), the Netherlands (ten percent), Germany (seven percent), Japan (five percent) and the United Kingdom (five percent). Cashew kernels are ranked as either the second or third most expensive nut traded in the United States. Macadamia nuts are priced higher and pecan nuts can be more costly, if the harvest is poor. The extensive market connections of exporters from Brazil and India make it difficult for the smaller exporters to make gains in the United States market. Importers may appreciate the low prices offered by small suppliers, but the lack of reliability in quality tends to make them favors the larger, more reputable suppliers.

*Varieties of Cashew grown across India*

SR. No	State	Salient features
1	Andhra Pradesh	BPP 4, BPP 6,BPP 8
2	Karnataka	Chintamani 1, Chintamani 2, Dhana ( H – 1608), NRCC Selection 2, Bhaskara, Ullal 1, Ullal 3, Ullal 4, UN 50, Vengurla 4 & Vengurla 7
3	Kerala	Dhana, K 22-1, Madakkathara 1, Madakkathara 2, Kanaka, Amrutha and Priyanka
4	Madhya Pradesh	T No. 40 & Vengurla - 4
5	Maharashtra	Vengurla 1, Vengurla 4, Vengurla 6 & Vengurla 7
6	Goa	Goa 1, Goa 2, Vengurla 1, Vengurla 4, Vengurla 6 & Vengurla 7
7	Odisha	Bhubaneswar 1, BPP 8 & Dhana

8	Tamil Nadu	VRI 1 & VRI 5
9	West Bengal	Jhargram 1 & BPP 8

TABLE NO - 2

State wise production

State	Area	Production ( In 000MT )
Maharashtra	191.45	269.44
Andhra Pradesh	186.78	116.92
Odisha	193.99	98.59
Karnataka	129.07	89.45
Kerala	92.81	88.18
Tamil Nadu	142.28	71.03
Goa		34.26
West Bengal	11.36	12.96
Chhattisgarh	13.7	9.83
Gujarat	7.25	6.5

**Top Ten Cashew Nut Producing States (2017-18)**

TABLE NO - 3

## **6. NUTRITIONAL INFORMATION**

Cashews are rich in a range of nutrients. One ounce (28 grams) of unroasted, unsalted cashew provides you with around:

☐ Calories: 157

☐ Protein: 5 grams

☐ Fat: 12 grams

☐ Carbs: 9 grams

☐ Fiber: 1 gram

☐ Copper: 67% of the Daily Value (DV)

☐ Magnesium: 20% of the DV

☐ Manganese: 20% of the DV

☐ Zinc: 15% of the DV

☐ Phosphorus: 13% of the DV

☐ Iron: 11% of the DV

☐ Selenium: 10% of the DV

☐ Thiamine: 10% of the DV

☐ Vitamin K: 8% of the DV

☐ Vitamin B6: 7% of the DV

Cashews are especially rich in unsaturated fats (a category of fats linked to a lower risk of premature death and heart disease. They're also low in sugar, a source of fiber, and contain almost the same amount of protein as an equivalent quantity of cooked meat. In addition, cashews contain a significant amount of copper, a



mineral essential for energy production, healthy brain development, and a strong immune system. They're also a great source of magnesium and manganese, nutrients important for bone health.

## **7. CONSTITUENTS AND HEALTH BENEFITS OF CASHEW**

### **a. Health benefits:**

The cashew tree (*Anacardium occidentale* L.) is a tropical tree native of Brazil and is being extensively grown in India, East Africa and Vietnam (Muniz et al., 2006). A main product from cashew tree is cashew nut (true fruit), which is rich in fat and protein. After picking the nut from the peduncle (cashew apple-pseudo fruit) (Garruti et al., 2006) cashew apple become bio waste. Cashew apple is used as a remedy for chronic dysentery and for sore throat in Cuba and in Brazil (Morton, 1987). Most of the fruit byproducts could be used as functional ingredients when designing health foods (functional foods), especially non-digestible carbohydrates (dietary fiber) and bioactive compounds (ascorbic acid and flavonoids) (Laufenberg et al., 2003). Cashew apples are available in India in huge quantities but they find little commercial application at present except the manufacture of fenny (a type of brandy) and pectin (Maini and Anand, 1993; Ward and Ray, 2006).

Cashew apple juice is rich in sugars (Azevedo and Rodrigues, 2000), antioxidants (Trevisan et al., 2006; Kubo et al., 2006) and vitamin C (Azevedo and Rodrigues, 2000) and is widely consumed in Brazil (Nagaraja, 2007). Cashew apple juice has the potential to be a natural source of vitamin C and sugar in processed foods (De Carvalho et al., 2007). Cashew nut has a fine taste and a market potential but cashew apple even though rich in nutritive values like vitamin C and minerals, i.e., Ca, P, Fe it is not accepted as food because it contains high tannin content and astringent taste however, the bioactive compounds, vitamins and minerals present in it, should be explored for other value addition. The cashew apple juice was found to contain a total of nine minerals in different level. Minerals like magnesium, sodium, iron, calcium, copper, sodium and zinc were also present at significant level

of 279.70, 204, 133.9, 80.42, 1.17, 204.0 and 16.48 ppm, respectively in cashew apple juice (Table 1). Among the various minerals potassium was observed in high level (3337 ppm) followed by phosphorous (440.20 ppm). Potassium (K) is very essential element to prevent bone demineralization which is by controlling of calcium loss in urine (Tucker et al., 1999; He and MacGregor, 2001)

Copper is an essential and beneficial element in human metabolism and the average daily dietary requirement for copper in the adult human has been estimated as 2 mg and for infants and children at 0.05 mg kg<sup>-1</sup> b.wt. (Browning, 1969; WHO, 2004). The NRC (1980) reported that safe and adequate daily dietary intakes of copper ranging from 0.5-0.7 mg day<sup>-1</sup> for infants of 6 months age or less up to 2-3 mg day<sup>-1</sup> for adults. The copper content of 1.07 ppm observed in the cashew apple juice is within the safe prescribed limits of infants.

Sodium is the principle extracellular cation and is used for osmoregulation in inter modular fluid of human body. The recommended daily allowance of sodium is 115-75000 ppm for infants, 324-975 mg kg<sup>-1</sup> for children and 1100-3300 ppm for adults (Crook, 2006). Enzymes are involved in macronutrient metabolism and cell replications are mainly Zn dependent (Hays and Swenson, 1985; Arinola, 2008). Zinc is widely distributed in plant and animal tissues and present in all living cells. In cashew apple juice 16.48 ppm of Zinc was observed.

Magnesium is an active element in several enzyme systems in which thymine pyrophosphate is a cofactor. Oxidative phosphorylation is greatly reduced in the absence of magnesium. It also activates pyruvic acid carboxylase, pyruvic acid oxidase and the condensing enzyme for the reactions in the citric acid cycle (Murray et al., 2000). Even though the value obtained in the cashew apple juice is low as compared to the standard value, it can be used as natural sources of minerals with other food and beverages to rectify the child malnutrition

The cashew apple color varied from bright red, orange, or yellow with a soft and fibrous fleshy. As variations in minerals and other nutrient content of apples are observed, in the present study, cashew apple available in southern part of India are analyzed for minerals and bioactive compounds.

1. Keeps the Brain Healthy and enhances its functionality

2. Improve Heart Functioning
3. Good for Preventing Cancer
4. Prevent Gallstones in the body
5. Treats Obesity and Helps in Weight Loss
6. Helps blood flow
7. Enhances Eye Health and Vision Clarity
8. Keeps the Blood Healthy
9. Helps treatment of Diabetes
10. Catalyst for Digestion
11. Keeps the Skin fresh and healthy
12. Strengthen and tones Bones
13. Keeps the Hair Shiny
14. Keeps the Teeth and Gums healthy
15. Good for Preventing Headaches

## **8. Storage**

Technical requirements for storage are dependent on weather conditions. As cashew nuts are usually produced in climates with a long dry season, simple buildings with concrete floors and walls and roofs of corrugated metal, should provide adequate storage.

Certain prerequisites must be satisfied to ensure safe storage:

1. A waterproof, dry floor,
2. A firm and secure roof,

3. Openings in the wall must be protected in order prevent water from entering the room.
4. Headroom must be adequate to allow the bags in a stack to be moved around if large quantities are to be stored.
5. The store should be easily inspected: there must be sufficient clearance between the wall and the bags, to allow individuals to walk around and check the condition of the stack.
6. The stack must be placed on a raised wooden platform, in order to prevent moisture from being drawn from the floor to the nuts.



➤ **Figure No 1**  
**Raw Cashew**  
**Storage**



➤ **Figure No 2**  
**Cashew nut Storage**

## 9. Cashew Nut Products

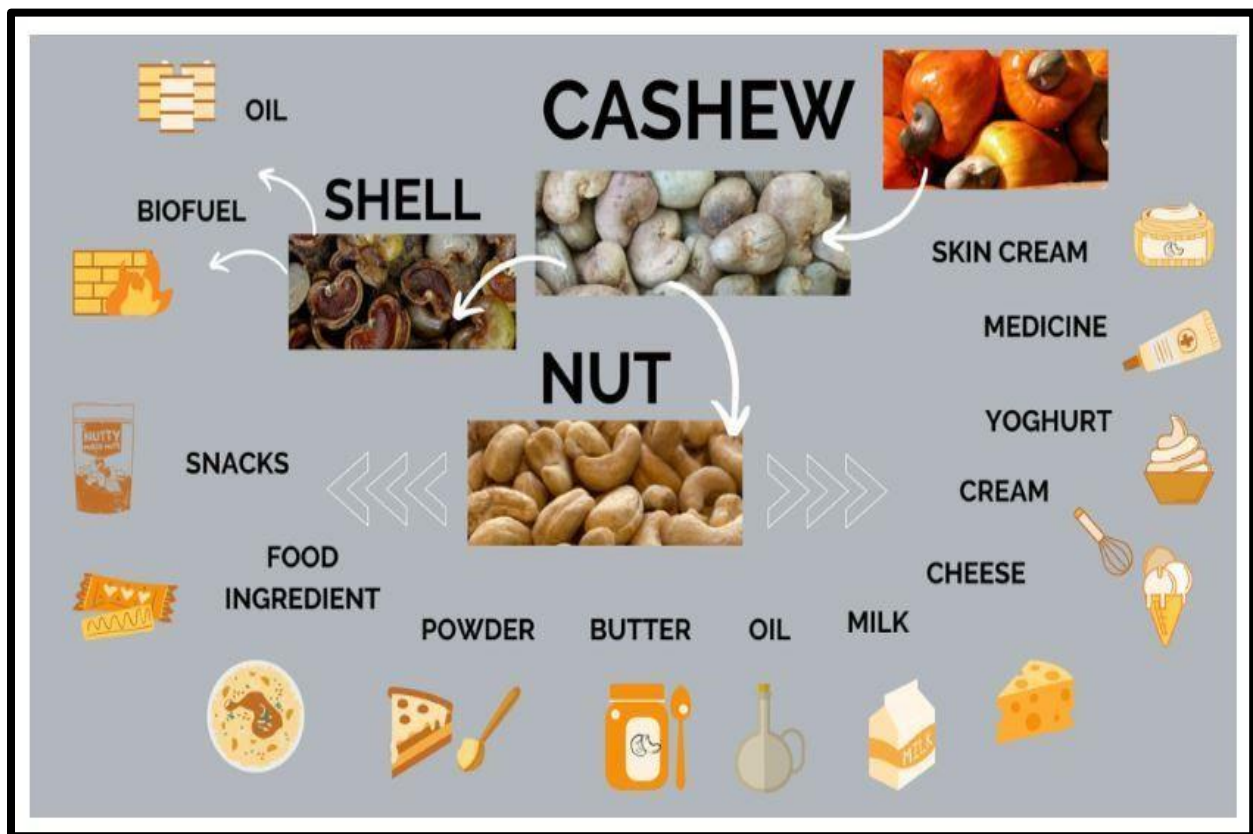


Figure no - 3

### 1. Snacks

Cashew nuts are considered a healthier alternative to other savory snacks, such as crisps and extruded snacks, and more beneficial to health than peanuts in most major consuming countries. It is possible to purchase raw roasted, or cashews that have been seasoned with various savory or sweet flavorings (chili, paprika, honey, spicy and sweet and etc.).

### 2. Food ingredients

Moreover, Cashew nuts are also an ingredient in various foods and functional food products, such as breakfast cereals, fruit and nut bars, and chocolate products with cashew nuts. In addition, they go well as an addition to salads, smoothies, stirfries, and other dishes used to enrich the meals.

### **3. Cashew Milk**

In the age where dairy consumption causes more and more allergies, is not suitable for vegans and other types of common diets – cashew nut products are a good dairy replacement. One of them is Cashew milk. It is a dairy-free product perfect for coffee, cereals, smoothies, soups, sauces, and more.

### **4. Cashew Butter**

Similar to peanut butter, cashew butter contains a lot of healthy fats. It has a little high concentration of monounsaturated fat compared to peanut butter. Cashew butter contains high concentrations of iron, magnesium, vitamin B6, and calcium. The butter is usually made from raw or baked cashews, and it has a rich creamy flavor. Raw cashew butter seems to be better at retaining all the nutritional properties of the cashews after processing, so it is advisable to opt for that variant.

### **5. Cashew Cheese**

Cashew cheese can be in various forms: soft cheese to use as a bread spread or hard cheese as well. It remains purely vegan and can meet many diet requirements eaten as a healthy snack with olives and grapes or topping for sandwiches, toasts, and pizzas.

### **6. Cashew Cream**

Cashew cream has a usual consistency of regular cream and can be added to a variety of sweet or savory dishes as a healthy vegan substitute for heavy whipping cream. Foods that use cream are ice cream, many sauces, soups, stews, puddings, and some custard bases, and is also used for cakes.

### **7. Cashew Yoghurt**

The benefits of cashew yoghurt come from friendly probiotic bacteria and the cashews themselves. It is made from unsalted raw cashew, has lower sugar, and many health benefits.

### **8. Medicine**

People also use the nut to make medicine. Cashew is used for stomach and intestinal (gastrointestinal) disorders. Some people apply cashew directly to the skin as a skin stimulant and to seal (cauterize) ulcers, warts, & corns

### **9. Cashew powder**

Cashew powder is popular in gluten-free cooking and baking. It can easily replace almond flour and be used in cookies, muffins, and quick bread. Cashew flour is already sweet by nature and it doesn't have the bitterness that almonds can have.

### **10. Cashew oil**

Cashew oil is recognized as extremely top-quality cooking oil, and it is also frequently regarded as healthier than other types of cooking oil. These types of exotic nuts are very first shelled and dried. The skins are then taken out, and the nuts are pressed to produce the oil (source).

### **11. Cashew skin cream**

Cashews are known as acne-fighting nutrients. These nuts are high in selenium, which acts as an antioxidant with vitamin E, leaving hydrated skin and reduced inflammation. Moisturizing cream brings condition and protection to skin and hair

## **7.1 CASHEW SHELL PRODUCTS**

Cashew shell are also processed to ensure that no part of the raw cashew is wasted –

### **1. Oil**

The oil is used for industrial and medical purposes. Further, the oil is useful for surface coatings, paints, varnishes, wood coating.

### **2. Biofuel**

Cashew nut shells can provide energy in different ways and can be in solid and liquid form. When raw – it can be produced into bio-crude, known as cashew nut



shell liquid and a solid cake. Cashew nut shell liquid is an important and powerful bio-oil whose calorific value is comparable to that of petroleum oils. Furthermore, when extracted, the oil can be used to produce a cake that has less energy than the raw shells but can be used as a solid fuel for energy generation as well.

## **10. MODEL OF CASHEW NUT PROCESSING**

### **a. LOCATION OF THE PROPOSED PROJECT AND LAND**

The entrepreneur must provide description of the proposed location, site of the project, distance from the targeted local and distant markets; and the reasons/advantages thereof i.e. in terms of raw materials availability, market accessibility, logistics support, basic infrastructure availability etc. The major cashew producing states where cashew is grown on commercial scale are Maharashtra, Kerala, Andhra Pradesh, Orissa, Karnataka, Tamil Nadu, Goa and West Bengal.

### **b. INSTALLED CAPACITY OF THE CASHEW NUT PROCESSING UNIT**

The maximum installed capacity of the Cashew nut manufacturing unit in the present model project is proposed as 150 tons/annum or 500 kg/day Cashew nut. The unit is assumed to operate 300 days/annum @ 8-10 hours /day the 1<sup>st</sup> year is assumed to be construction/expansion period of the project; and in the 2<sup>nd</sup> year 55 percent capacity, 3<sup>rd</sup> year 65 percent capacity, 4<sup>th</sup> year 75 percent capacity, 5<sup>th</sup> year 90 percent capacity & 6<sup>th</sup> year onwards 100 percent capacity utilization is assumed in this model project

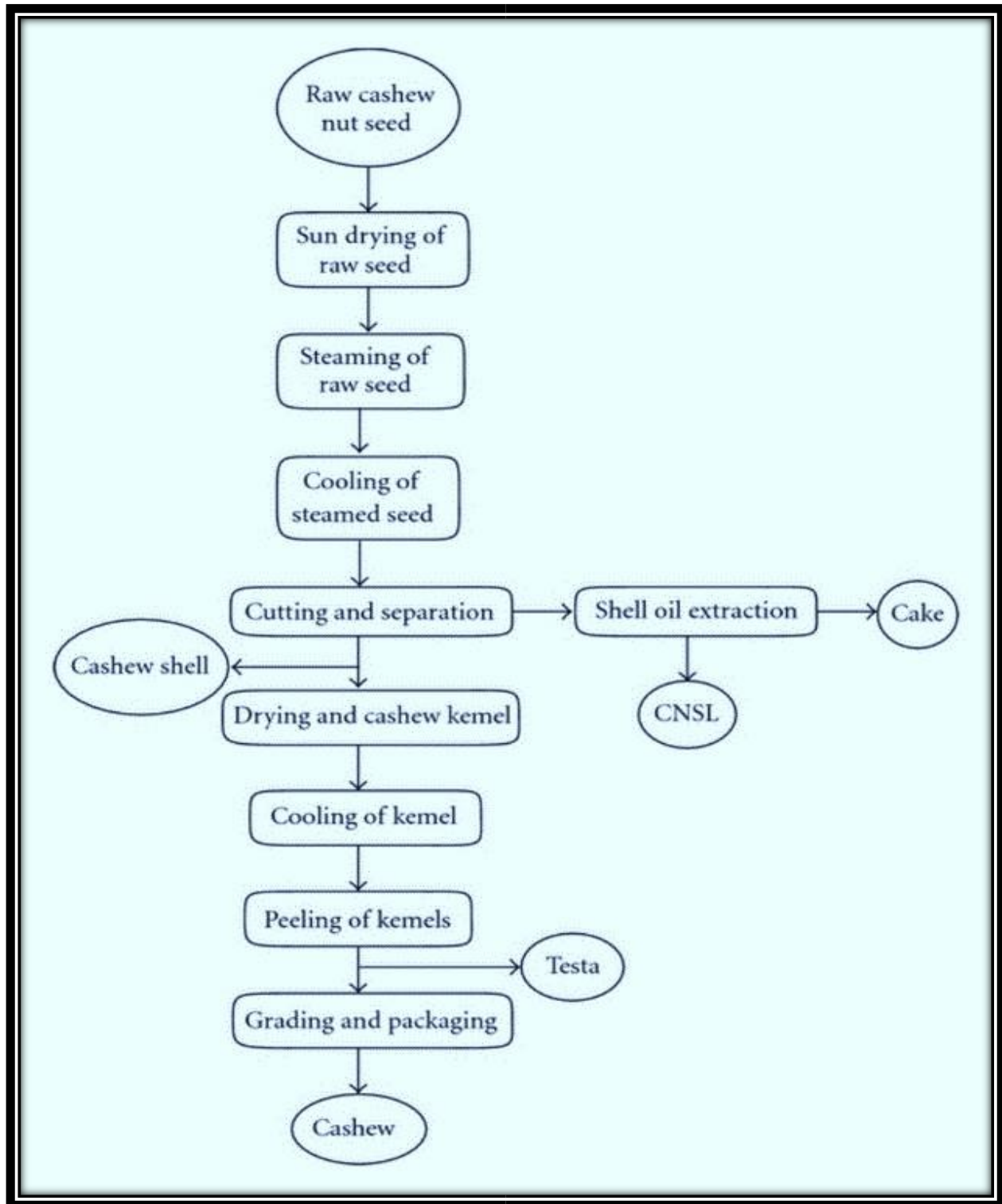
### **C. RAW MATERIAL REQUIREMENTS FOR THE UNIT**

A sustainable food processing unit must ensure maximum capacity utilization and thus requires an operation of minimum 280-300 days per year to get reasonable profit. Therefore, ensuring uninterrupted raw materials supply requires maintenance of adequate raw material inventory. The processor must have linkage with producer organizations preferably FPCs through legal contract to get adequate quantity and quality of raw materials which otherwise get spoiled. In the Cashew nut manufacturing project, the unit requires 467.5 kg/day, 552.5 kg/day, 637.5 kg/day, 765 Kg/day & 850 kg/day Cashew fruit at 55, 65, 75, 90 & 100 percent capacity utilization, respectively

## **11. MANUFACTURING PROCESS OF THE CASHEW NUT**

The raw cashew nuts are procured from the local farmers and local market. These cashew nuts are dried in the sun for a period of two days and are then stored in the gunny bags for processing throughout the year.

Steam Roasting → Shell Cutting → Peeling → Grading → Packing → Dispatch



**Flow Chart of Cashew Nut Processing.**

**FIGURE NO - 4**

## **12.**

## **MARKET**

### **10.1 MARKET DEMAND AND SUPPLY FOR CASHEW NUT**

Cashew processing is a very competitive but also a potentially lucrative activity that can and should be exploited by more small-scale processors. African countries that are in the process of re-building their local cashew processing industry would be well advised to follow the Indian example of small scale, mainly manual processing operations. There are several good reasons why small-scale producers and processors should get involved in cashew processing, including the following:

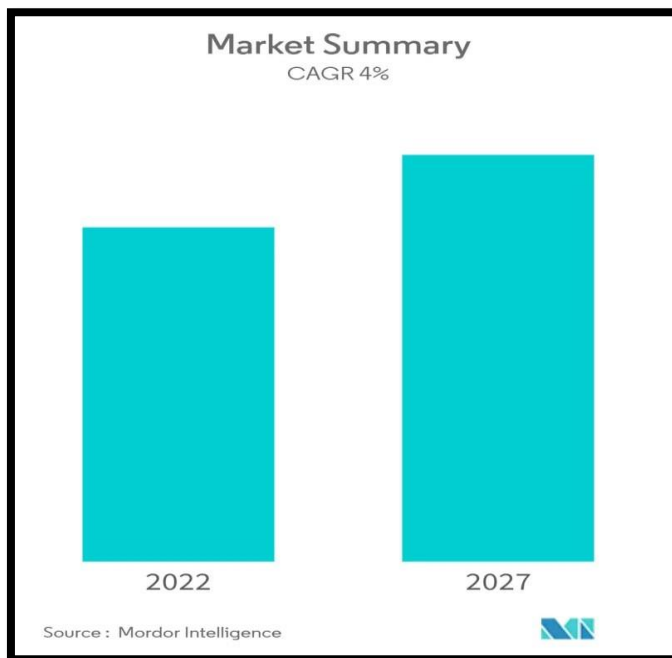
- Cashew kernels are a high value luxury commodity with sales growing steadily at an annual rate of seven percent, with every expectation that the market will remain strong.
- There is substantial potential to exploit cashew by-products, such as cashew butter, from broken nuts, CNSL for industrial and medicinal purposes and the juice of the cashew apple that can be processed further.
- Cashew is a good crop for smallholder farmers. In Mozambique cashew is considered by smallholder farmers to be one of their most lucrative crops. It requires few inputs and harvesting does not coincide with peak labour demands for other food crops. Thus cashew has the potential to increase the incomes of poor producers, to create employment opportunities during harvesting and processing and to increase exports. However, as with all small-scale processing operations, cashew processing is not without risk or problems. In order for the small-scale processor to succeed, there are certain constraints, which also need to be considered:
  - Cashew production is very weather dependent so supply is variable. World prices, although stable on average, are highly volatile in the short term.
  - Luxury goods must be of high quality. In order to compete directly in the world market, a high level of standards branding and marketing are required.

- Exploitation of by-products requires new technology, which may be expensive or difficult to obtain.

## **10.2 MARKETING STRATEGY FOR CASHEW NUT**

The increasing urbanization and income offers huge scope for marketing of fruit based products. Urban organized platforms such as departmental stores, malls, super markets can be attractive platforms to sell well packaged and branded cashew products.

## **10.3 Market Snapshot**



Study Period – 2017-  
2027

Base Year –  
2021

CAGR – 4%

FIGURE NO – 5

## **10.4 Market Overview**

The Indian Cashew market is projected to register a CAGR of 4.0% during the forecast period (2022-2027).

Globally, India witnesses the largest consumption of cashew. However, due to COVID-19, the price of cashew fell to the lowest it has been in the last 10-12 years. The value addition activities were affected negatively as a disrupted distribution channel tends to lower the value of end-products of cashew nuts in the market. The extended lockdown has hit consumption in India as well as demand. The Cashew Export Promotion Council of India (CEPCI) has urged the Union Government to allocate sufficient funds and put forward a few schemes to increase the production of cashews in the country; this initiative is projected to drive the cashew market.

India is the major cashew growing country in Asia-Pacific, positioned as the largest producer of raw cashew nut (RCN) globally, with 550,000 metric tons of cashew production per annum, which covers an area of 1.02 million hectares. In India, cashew is grown in the peninsular areas of Kerala, Karnataka, Goa and Maharashtra, Tamil Nadu, Andhra Pradesh, Orissa, and West Bengal. Among these, Kerala is the largest producing state

### **13. Key Market Trends**

#### **Increasing Exports of Shelled Cashew**

India has been the top exporter in the global shelled cashew trade, accounting for more than 15% of the global cashew export in the last four years. India exports cashew kernels to over 60 countries. Its major markets are the United States, the Netherlands, Japan, Spain, France, Germany, the United Kingdom, as well as the Middle Eastern countries such as the United Arab Emirates and Saudi Arabia. With the increasing demand for cashew globally, exports are increasing from India. The Cashew Export Promotion Council of India (CEPCI), which serves as an intermediary between importers of cashew kernels and exporters, has urged the Union government to allocate sufficient funds and put forward a few schemes to increase the production of cashews. This factor is helping to enhance the production

capacity of cashew in India. As the cashew market in India is export-oriented, there is an immense opportunity for growth of the market

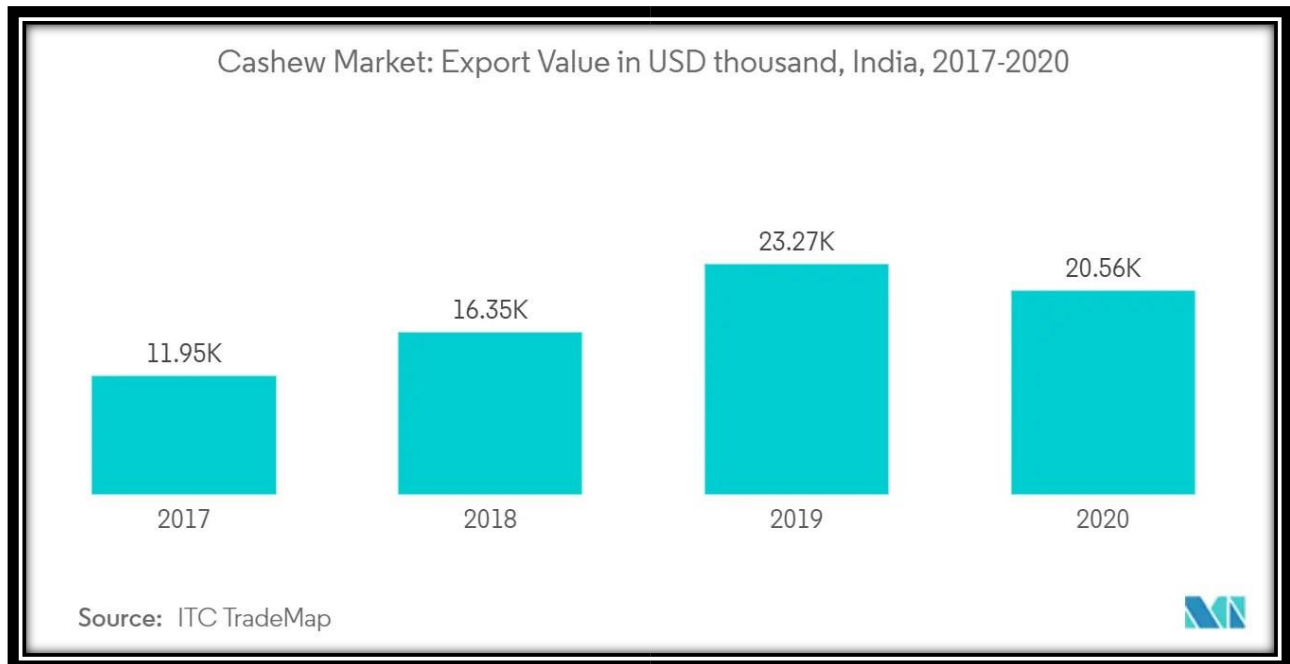


FIGURE NO - 6

## **12. DETAILED PROJECT ASSUMPTIONS**

This model DPR for Cashew nut unit is basically prepared as a template based on certain assumptions that may vary with capacity, location, raw materials availability etc. An entrepreneur can use this model DPR format and modify as per requirement and suitability. The assumptions made in preparation of this particular DPR are given in This DPR assumes expansion of existing fruit processing unit by adding new nut processing line. Therefore, land and civil infrastructures are assumed as already available with the entrepreneurs.

□ Herewith in this DPR, we have considered the assumptions as listed below in the tables of different costs, which may vary as per region, seasons and machinery designs and supplier.

1. Cashew cost considered @ Rs.160/-per kg.
2. 1 kg Cashew will produce 60% recovery.

3. 1 Batch size is approximately 100 kg.
4. No. of hours per day are approximately 8-10 hours.
5. Batch yield is 95%.

<b>Detailed Project Assumptions</b>		
Parameter	Assumption	
Capacity of the Cashew nuts Unit	150	MT/annum
Utilization of capacity	1st Year Implementation, 55% in second, 65% in third, 75% in fourth year, 90% in fifth years, & 100% in sixth years onwards respectively.	
Working days per year	300	Days
Working hours per day	10	hours
Interest on term and working capital loan	12%	
Repayment period	Seven year with one year grace period is considered.	
Average prices of raw material	160	
Average sale prices per Kg	690	Rs/Kg
Seed extraction	60	
CASHEW NUT	1.7 Kg Cashew fruit for 1 kg Cashew nut	

TABLE NO - 4



## **13. FIXED CAPITAL INVESTMENT**

### **13.1. MACHINERY AND EQUIPMENT**

Sr. No	Equipment	Capacity	Quantity	Price ( Rs in Lakhs)
1.	Size screen	3	Suitable	0.15
2.	Soaking drum	5	200 liter	0.09
3.	Open pan roaster	1	150 kg/hr	0.4
4.	Automatic shelling machine	2	60 kg/hr	2.4
5.	Solar dryer	1	600 kg	2
6.	Humidification fan	1	Suitable	0.15
7.	Vacuum sealing machine	1	20 PPM	2
8.	Weighing balance	1	Suitable	0.06
9.	Accessories	1	Suitable	0.5
			Total	7.75

TABLE NO - 5

### **13.2 . OTHER COSTS:-**

#### **13.2.1. Utilities and Fittings**

Utilities and Fittings	
1.Water 2.Power	Rs. 0.8Lacs total

TABLE NO - 6

#### **13.2.2. Other Fixed Assets:**

Other Fixed Asset	

1. Furniture & Fixtures 2. Plastic tray capacity 3. Electrical fittings	Rs. 0.9 lac total
-------------------------------------------------------------------------------	-------------------

TABLE NO - 7

### 13.2.3. Pre-operative expenses

Pre-operative Expenses	
Legal expenses, Start-up expenses, Establishment cost, consultancy fees, trials and others.	0.9 LAC
Total preoperative expenses	0.9 LAC

TABLE NO - 8

Contingency cost to be added as approx.1.2 Lac.

So total startup cost at own land & Premise may be somewhat similar to 43.66 lacs. This is according to survey done at X location India. This may vary on location, situation and design change over.

## 14. TOTAL PROJECT COST AND MEANS OF FINANCES

Particulars	Amount In Lakhs
i. Land and building (20 x 32 x 12 ft –( L x B x H )	5.18
ii. Plant and machinery	7.75
iii. Utilities & Fittings	0.8
iv. Other Fixed assets	0.9
v. Pre-operative expenses	0.90
vi. Contingencies	1.20
vii. Working capital margin	26.93
Total project cost (i to vii)	43.66

Means Of finance	
i. Subsidy	9.60
ii. Promoters Contribution	10.91
iii. Term Loan (@10%)	23.14

TABLE NO - 9

### 14.1. Means of Finance

Financing to food processing falls under priority sector lending. The loans to units meeting the criteria of MSME are classified under MSME sector. Such units can be financed by any scheduled commercial banks, Regional Rural Banks and Cooperative Banks. Important terms and conditions of financing such units are discussed in this section

### 14.2. Margin Money

The promoters of the units need to bring margin as per the requirement of financing banks and also as per RBI guideline issued from time to time. The margin money varies from minimum 10 per cent to 25 per cent of project cost. We have assumed margin money of 25 per cent in this model scheme.

### 14.3. Bank Loan

The promoters of the units can approach any financing bank for finance. It is compulsory to take bank loan to avail various subsidy schemes of government. Therefore, the promoters should be careful in deciding means of finance.

### 14.4. Grant & Subsidy

There are numbers of incentives from State Government for promotion of food industry. Some of the states have formulated Agro Industry Policy. The new comers should go through these guidelines. Various incentives are available from District Industry Centre (DIC) depending upon location of unit. Therefore, to take maximum

advantage of these incentives, entrepreneurs may contact the DIC in respective states

Ministry of Food Processing Industry, Govt is implementing a centrally sponsored scheme known as National Mission on Food Processing (NMFP) jointly with State Governments. The scheme will be operational during 12th Five Year Plan. Subsidy is available under this scheme for various food processing industries. The details of the scheme are available at <http://www.mofpi.nic.in/SchemeViewPage.aspx?OPsNrN8PJA9sTrxLD7BvfB2hBlJg+pfldJPrxZAjVpDNZlidsLVU2Gbcbo6343MQnfLHw3hYt7Q> the entrepreneurs may contact State Nodal Agencies in respective states to avail this scheme. The details of the State Nodal Officers is given at link [http://www.mofpi.nic.in/H\\_Dwld.aspx?KYEwmOL+HGqHeLIRhVIZUABVfKtILFmuPNWgdGOC70PqfSu+Dkvx1A](http://www.mofpi.nic.in/H_Dwld.aspx?KYEwmOL+HGqHeLIRhVIZUABVfKtILFmuPNWgdGOC70PqfSu+Dkvx1A)

#### **14.5. Interest Rate**

The banks are free to charge any rate of interest above its base rate within overall RBI guideline issued from time to time. It generally varies from customer to customer based on credit appraisal of borrower. Base rate of a bank is a minimum lending rate below which bank is not allowed to lend. However, we have considered an interest rate of 12 per cent for term loan and 12.5 per cent for working capital to assess the bankability of the model project.

#### **14.6. Security**

As per RBI guidelines, the banks are required to take adequate security for loans extended by them. The borrowers should plan projects in such a manner that they have enough fixed assets to offer as security against bank loan. Various types of securities considered by banks are given here:

##### **14.6.1. Primary Security**

The land and buildings acquired by bank loan are mortgaged to financing banks. The mortgage can be registered or equitable in nature. The plant, machinery and other miscellaneous fixed assets acquired by bank loan shall have to be

hypothecated to bank. The value of all these assets is known as primary security for a bank.

#### 14.6.2. Collateral Security

As the value of primary assets, especially buildings and plant and machinery is not enough to cover the bank loan, the banks insists for mortgage of any other property or asset of the company or promoters. This is known as collateral security. The higher the value of collateral softer will be the terms for financing. Therefore, entrepreneurs may offer reasonable amount of collateral security to reduce interest cost

#### 14.6.3. Hypothecation of Stocks

All stocks, inventories and debtors are hypothecated to financing banks as security against the bank loan extended by them.

## 15. MANPOWER REQUIREMENTS

Total Monthly Salary (Rs.)	No	Wages	Total Monthly	Total Annually
Supervisor (can be the owner)	1	18000	18000	216000
Technician	1	14000	14000	168000
Semi-skilled	2	7600	15200	182400
Helper	1	5500	5500	66000
Sales man	1	8000	8000	96000
			60700	728400

TABLE NO - 10

## 16. TYPICAL CASHEW NUT MANUFACTURING UNIT LAYOUT

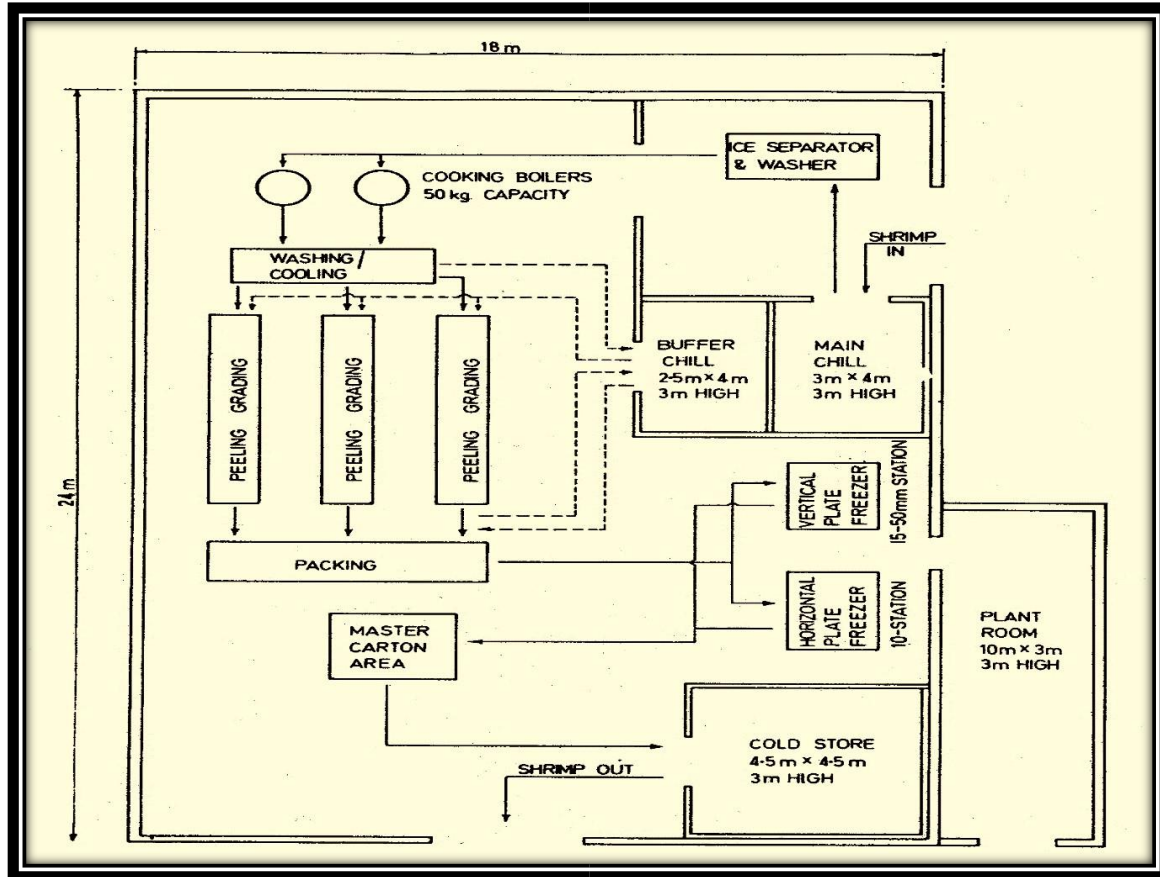


FIG - 7

## 17. MACHINERY SUPPLIERS

There are many machinery suppliers available within India for fruits based beverage processing machineries and equipment. Some of the suppliers are:

1. Bajaj Process pack Limited, Noida, India
2. Shriyan Enterprises. Mumbai, India



FIGURE NO - 8

## **18. Govt. Approvals/ Clearance Required**

### **18.1. Prior to establishment**

- i. Registration of concern with Registrar of Companies (ROC)
- ii. NOC from Local Bodies like Gram Sabha/ MC etc. – mandatory
- iii. Consent

to establish from State Pollution Control Board – mandatory **iv.** Approval  
of Layout plan for construction – mandatory

**v.** Permission to dug bore well from Ground Water Survey and Development Authority (GSDA) **vi.**

Registration with District Industry Centre (DIC) for as Small and Medium Enterprise **vii.**

Application to State Electricity Board/ Authority for sanction of requisite power load

## 18.2. After establishment

- i. License from FSSAI
- ii. Permission to commence production from State Pollution Control Board
- iii. License from boiler inspector

The list is only illustrative. The entrepreneurs should undertake an exhaustive study of all rules and regulations prior to establishment of any such unit. The new entrepreneurs may take help of suitable consultant to avoid unnecessary expenditure for compliance later on.

## 19. Implementation Schedule

The time for implementation of project is an important factor to decide the viability of a project. A cashew processing unit is simple to construct. However, keeping in view preliminary activities and processes involved in project approvals etc. An implementation period of 1 year has been considered. The estimated time period required for each activity is given below in Table no - 11

SR NO	Activity	Periods (Months)
1.	Feasibility Study	0.5
2.	DPR preparation	0.5
3.	Preliminary activities	1
4.	Construction period (Civil work and placement of orders for plant and machinery	8
5.	Installation of plant and machinery and trial run	2



## 20. Financial Analysis

In order to test the financial soundness of business, key financial indicators are assessed. Based on historical data on cost and prices, techno-economic assumptions are made for preparation of this model. The key techno-economic assumptions are presented in **Annexure I**. The assumptions made might vary from place to place; hence need to be considered on case-by-case basis.

### 20.1. Financial Indicators

Based on the assumptions on input and output parameters, an Income Expenditure statement (Cash Flow Statement) prepared is presented at **Annexure II**. The financial indicators like Net Present Worth (NPW), Benefit Cost Ratio (BCR), Internal Rate of Return (IRR) etc. analyzed by discounting cash flow @15% discounting rate are given and summary is presented in Table no - 12

Estimated Financial Indicators

Financial Indicators	Estimated	Requirement
NPW @ 15 % DF`	124.18	Should be +ve
IRR	34.27%	> 15%
BCR	1.057	Should be >1.0
DSCR	1.604	Should be >1.5

### 20.2. Repayment Period and Debt Service Coverage Ratio (DSCR)

The repayment period has been drawn by considering net surplus available for repayment. The bank loan with interest is repayable within 10 years with a grace period of one year. The details are presented in **Annexure III**. The debt service coverage ratio based on assumed techno economic parameters is found satisfactory.

## 21. SWOT Analysis

❖ Strengths
<input type="checkbox"/> Quality meals & product innovation
<input type="checkbox"/> Reliable suppliers
<input type="checkbox"/> Strong captured marketing & promotional advertisement
<input type="checkbox"/> Quick & fast delivery system
<input type="checkbox"/> Pricing range
<input type="checkbox"/> Internal dough manufacturing
<input type="checkbox"/> Customer services
<input type="checkbox"/> Strong brand equity
<input type="checkbox"/> Highly skilled employees
<input type="checkbox"/> Strong distribution network
<input type="checkbox"/> Proven business model
<input type="checkbox"/> Investment in technology & innovation
<input type="checkbox"/> Goods return on capital expenditure

❖ WEAKNESSES
<input type="checkbox"/> Low Number of Outlets
<input type="checkbox"/> Franchise Related Issue
<input type="checkbox"/> Operational Difficulties
<input type="checkbox"/> Need of High Technology
<input type="checkbox"/> Net Income

### ❖ OPPORTUNITIES

- New environment policies
- Low-calorie menu
- Note on the world cashew nut industry
- Demographic changes
- Population of Asian countries
- New preferences in note on the world cashew nut industry
- Changes in economic
- New trends in the consumer behavior's
- Lower inflation rate

### ❖ THREATS

- Direct and indirect competition
- Note on the world cashew nut industry main competitive advantage over note on the world cashew nut industry is dine-in facility
- Regulated pressures
- High cost
- Lack of long term contracts with suppliers

□ Health awareness and consciousness trends

## 22. GUIDELINES FOR THE ENTREPRENEURS

- The success of any prospective food processing project depends on how closer the assumptions made in the initial stage are with the reality of the targeted market/place/situation. Therefore, the entrepreneurs must do its homework as realistic as possible on the assumed parameters
- This model DPR must be made more comprehensive by the entrepreneur by including information on the entrepreneur, forms and structure (proprietorship/partnership/cooperative/ FPC/joint stock company) of entrepreneur's business, project location, raw material costing base/contract sourcing, detailed market research, comprehensive dehydrated product mix based on demand, rationale of the project for specific location, community advantage/benefit from the project, employment generation, production/availability of the raw materials/crops in the targeted area/clusters and many more relevant aspects for acceptance and approval of the competent authority.
- The entrepreneur must be efficient in managing the strategic, financial, operational, material and marketing aspects of a business. In spite of the assumed parameter being closely realistic, a project may become unsustainable if the entrepreneur does not possess the required efficiency in managing different aspects of the business and respond effectively in changing situations.
- The machineries should be purchased after thorough market research and satisfactory demonstration.
- The entrepreneur must ensure uninterrupted quality raw materials' supply and maintain optimum inventory levels for smooth operations management.

- The entrepreneur must possess a strategic look to steer the business in upward trajectory.
- The entrepreneur must maintain optimum (not more or less) inventory, current assets. Selecting optimum source of finance, not too high debt-equity ratio, proper capital budgeting and judicious utilization of surplus profit for expansion is must.
- The entrepreneur must explore prospective markets through extensive research, find innovative marketing strategy, and maintain quality, adjust product mix to demand.
- The entrepreneur must provide required documents on land, financial transaction, balance sheet, further project analysis as required by the competent authority for approval
- The entrepreneur must be hopeful and remain positive in attitude while all situations. The entrepreneur must maintain optimum (not more or less) inventory, current assets. Selecting optimum source of finance, not too high debt-equity ratio, proper capital budgeting and judicious utilization of surplus profit for expansion is must.



**DISCLAIMER**

The views expressed in this model project are advisory in Nature. Assume no financial liability to anyone using the report for any purpose. The actual cost and returns of projects will have to be taken on a case by case basis considering the specific requirement of projects

## **Annexure I**

### **Techno Economic Parameters**

Assumptions for working out economics of a 500 MT/ Annum capacity raw cashew processing plant

1. Total Installed Capacity 500 MT per annum of raw cashew.
2. The unit will operate in a single shift of 8 hours for 200 days.
3. Recovery of final products considered was 24% of raw cashew.
4. Capacity utilization: 1st year – Construction period, 2nd year – 70%, 3rd Year 80% and 4th year onwards – 90%.
5. Sales price will be Rs.550/Kg for whole cashew and Rs.425/Kg for splits
6. Cost of raw cashew including transportation Rs.103 / Kg
7. Labor charges are considered as Rs.160/- Kg for cutting, peeling and grading.
8. Insurance charges for the fixed assets considered as 0.5% of the depreciated cost of the assets.
9. Interest on working capital considered at 12.5% per annum and interest on term loan considered at 12% per annum.
10. Margin money considered at 25% of the financial outlay.
11. Depreciation rate of 5% and 10% has been considered for civil structures and plant & machineries, respectively.

12.Repayment period of ten years with one year grace period has been considered.

## Annexure II Profitability Statement

### Installed Capacity & Capacity utilization

<b>Installed Capacity</b>	<b>Yr1</b>	<b>Yr2</b>	<b>Yr3</b>	<b>Yr4</b>	<b>Yr5</b>	<b>Yr6</b>	<b>Yr7</b>	<b>Yr8</b>	<b>Yr9</b>	<b>Yr10</b>
Installed capacity - Raw cashew (tons)	500	500	500	500	500	500	500	500	500	500
Installed capacity – cashew nut (tons)	120	120	120	120	120	120	120	120	120	120
Capacity utilization (%)	0%	70%	80%	90%	90%	90%	90%	90%	90%	90%
Actual production (MT)	0	84	96	108	108	108	108	108	108	108
Whole cashew (MT)	0	67.20	76.80	86.40	86.40	86.40	86.40	86.40	86.40	86.40
Splits (MT)	0	16.80	19.20	21.60	21.60	21.60	21.60	21.60	21.60	21.60

### Sales Revenue



Project

Products	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
Whole cashew	0.00	369.60	422.40	475.20	475.20	475.20	475.20	475.20	475.20	475.20
Splits	0.00	71.40	81.60	91.80	91.80	91.80	91.80	91.80	91.80	91.80
Cashew shells	0.00	17.50	20.00	22.50	22.50	22.50	22.50	22.50	22.50	22.50
Income per annum (Rs. Lakh)	0.000	458.50	524.00	589.50	589.50	589.50	589.50	589.50	589.50	589.50

### Annexure III

#### Repayment Schedule

Year	O/S Bank Loan at Start of Year	Disb, During the year	Total loan outstanding	Surplus for Repayment	Interest Payment	Repayment of Principal	Total Outgo	O/S Bank Loan at End of Year	Balance left
i.	0	118.91	118.91	-7.09	14.27	0.00	14.27	118.91	-21.36
ii.	118.91		118.91	31.00	14.27	6.61	20.87	112.30	10.13
iii.	112.30		112.30	34.44	13.48	6.61	20.08	105.70	14.36
iv.	105.70		105.70	39.12	12.68	13.21	25.90	92.48	13.23
v.	92.48		92.48	38.37	11.10	13.21	24.31	79.27	14.06
vi.	79.27		79.27	37.64	9.51	13.21	22.72	66.06	14.92
vii.	66.06		66.06	36.92	7.93	14.53	22.46	51.53	14.46
viii.	51.53		51.53	36.92	6.18	15.85	22.04	35.67	14.13
ix.	35.67		35.67	35.36	4.28	16.51	20.80	19.16	14.56
x.	19.16		19.16	34.53	2.30	19.16	21.46	0.00	13.08