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A COST ANALYSIS OF CASHEW PROCESSING UNITS IN INDIA: FINANCIAL VIABILITY AND STRATEGIC INSIGHTS

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ABSTRACT
This study explores the cost and financial viability of developing and maintaining a cashew processing facility in India. The research, conducted during a 30-day internship at Alliance Food Engineering Consultant Pvt. Ltd., focuses on analysing critical financial indicators such as the Debt Service Coverage Ratio (DSCR), Break-Even Point (BEP), Internal Rate of Return (IRR), and Net Present Value (NPV). To build complete financial models, the methodology uses both primary data (supplier quotations) and secondary data (industry reports and financial statements). Key findings show good profitability metrics, including a high DSCR and large revenue increase over four years, despite constraints such as negative net working capital. The analysis emphasizes the need of meticulous cost management and smart resource allocation in sustaining financial stability. This research offers valuable insights for stakeholders in the cashew processing industry, contributing to informed decision-making in capital investment, vendor selection, and operational optimization. Furthermore, the study highlights the critical role of government policies and technological advancements in bolstering the growth of this sector.

Keywords Cost Analysis, Cashew Processing, Financial Viability, Debt Service Coverage Ratio, Break-Even Point, Profitability

INTRODUCTION
The cashew industry plays an important role in India's agricultural and food processing sectors. Cashews, which were originally native to Eastern Brazil, were brought to India by Portuguese explorers and are now widely grown in the coastal regions of Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, and West Bengal. This industry employs nearly two million people, with women accounting for more than 90% of the workforce, demonstrating its socioeconomic relevance. India produces 7.80 lakh metric tons of cashews per year from 10.41 lakh hectares, accounting for 18.75% of global production.
A SWOT analysis points out India's strengths as the world's largest producer and processor of cashews, bolstered by trained labour, significant domestic consumption, and a diverse production base. Opportunities include increased global demand, the availability of cultivation resources, and the possibility to build a strong "Indian Brand" on a global scale. However, the industry confronts concerns from increased competition, high production costs, and demanding international standards, as well as shortcomings such as limited mechanization, reliance on imports, and insufficient value addition.
From cleaning to packaging, the cashew manufacturing cycle entails careful stages that guarantee high-quality results. The sector has been strengthened by government assistance through export promotion, modernization

measures, and subsidies, led by programs such as the Directorate of Cashew and Cocoa Development and the Cashew Export Promotion Council of India (CEPCI). These steps are intended to maintain the expansion of the cashew sector and increase India's competitiveness in international markets.

LITERATURE REVIEW

The Indian cashew industry, contributing 18.75% of global production, is a vital sector for employment and foreign exchange. However, studies highlight challenges like low productivity, dependency on imports, and rising competition from countries such as Vietnam and Brazil. Nayak and Paled (2018) emphasize the need for improved cultivation practices, while Dhivya and Kalaiselvi (2022) identify raw material and labour as major cost components, suggesting modernization to reduce processing costs.

Research by Verma et al. (2014) shows machine-assisted processing enhances recovery rates and cuts costs by 30%, demonstrating the potential of mechanization. Additionally, Gupta et al. (2021) and Mohod et al. (2011) underline environmental concerns and the importance of adopting sustainable practices to address pollution issues.

Government initiatives, such as subsidies and training programs from CEPCI, have supported the industry, but stronger policy measures are needed to improve value addition and branding (D'Silva & Bhat, 2021). Technological advancements like solar-biomass hybrid dryers (Dhanushkodi et al., 2018) and automation (Pai et al., 2019) promise cost efficiency and sustainability.

The literature underscores the need for innovation, mechanization, and policy interventions to enhance productivity, reduce costs, and ensure the industry's long-term competitiveness and growth.

RESEARCH METHODOLOGY

This study employs a **descriptive research design** to systematically analyse the financial viability and cost structure of cashew processing units in India. The methodology integrates both primary and secondary data sources to ensure a comprehensive understanding of the subject matter.

1. Research Objectives

- To assess the financial viability of vendor selection based on detailed financial analysis.
- To evaluate cost components and their impact on operational efficiency and profitability.
- To explore parameters influencing financial decisions in cashew processing units.

2. Data Collection

- **Primary Data**:
  - Supplier quotations for machinery, raw materials, and equipment.
  - Observations and insights gained during a 30-day internship at Alliance Food Engineering Consultant Pvt. Ltd.
- **Secondary Data**:
  - Industry reports and publications to identify market trends and benchmarks.
  - Financial documents, including CMA reports, working capital analysis, and profit and loss statements.

ANALYTICAL TOOLS AND TECHNIQUES

- **Cost Analysis**:
  - Initial setup costs, including machinery procurement and installation.
  - Operational costs, such as labour, utilities, and raw materials.
- **Financial Projections**:
  - Profit and Loss Statement: To estimate revenue and expenditure.
  - Cash Flow Statement: To track cash inflow and outflow, ensuring liquidity.
  - Balance Sheet: To present a snapshot of financial health at specific intervals.
- **Key Ratios**:
  - Debt Service Coverage Ratio (DSCR): To evaluate the unit’s ability to service debt.
  - Break-Even Point (BEP): To determine the minimum production level for profitability.
  - Net Present Value (NPV) and Internal Rate of Return (IRR): To assess long-term financial sustainability.

SCOPE OF THE STUDY

The study focuses on financial and operational aspects of a cashew processing unit, offering insights into cost management, vendor selection, and financial decision-making. It aims to provide actionable recommendations for improving efficiency and achieving sustainable growth in the industry.

LIMITATIONS

- The study relies on data from a single organization, which may limit generalizability.
- Changes in market conditions and government policies may influence future outcomes.

RESULT AND DISCUSSION

The researcher calculated three major ratios (DSCR, NPR, BEP) to assess the financial viability of Cashew processing unit.

PARTICULAR	2021	2022	2023	2024
1 PROFIT AFTER TAX	387526.32	456434.37	505616.86	558701.74
2 DEPRECIATIONS	131.31	113.55	98.27	85.09
3 INTERESTS ON TERM LOAN	33.08	41.24	26.47	29.54
A TOTAL (1+2+3)	387690.71	456589.17	505751.60	558816.38
	3287264.45			
1 INTEREST ON TERM LOAN	33.08	41.24	36.47	29.54
2 INSTALLMENT OF TERM LOAN	22.50	42.00	66.00	90.00
B TOTAL (1+2)	55.58	83.24	102.47	119.54
	679.97			
C DSCR	6975.99	5485.05	4935.49	4674.63
D OVERALL DSCR	4834.41			
E AVERAGE DSCR	44995.01			

Calculation of DSCR (debt service coverage ratio)

The company's Debt Service Coverage Ratio (DSCR) has been unusually high during the last four years, indicating solid financial health and the ability to meet debt commitments.
Total debt service (including interest and term loan instalments) climbed dramatically between years one and four as loan payments rose. Despite this, consistent cash flow growth has helped to maintain high DSCR levels, suggesting effective financial management.
With a total DSCR of 4,834.41 and an average DSCR of 44,995.01, the company has a strong financial position and a consistent ability to satisfy its debt commitments. However, monitoring the escalating debt service is critical for long-term sustainability.

Calculation of NPR (Net profit ratio)

PARTICULAR	2021	2022	2023	2024
NET PROFIT (A)	521920.97	614726.42	480965.47	752460.26
SALES (B)	690058.26	813447.74	900936.22	995506.31
NPV=A/B*100	75.63	75.57	53.38	75.58

Year 3 experienced substantial profitability issues, however Years 1, 2, and 4 maintained constant profit margins, resulting in a net present value (NPV) of around 75%. Despite consistent sales growth, net profit fluctuated, with a significant drop in Year 3, decreasing the total NPV.
The rebound in Year 4 suggests that the issues that plagued Year 3, such as higher expenses, market conditions, inefficiencies, or one-time charges, were overcome, restoring profit margins to pre-crisis levels. To avoid similar oscillations, cost control and profit-driven sales methods must be prioritized. Long-term financial stability depends on maintaining constant profit margins while increasing sales growth.

PARTICULAR	2021	2022	2023	2024
Sales (A)	690058.26	813447.74	900936.22	995506.31
Variable cost (B)	167956.87	198549.36	219817.73	242912.01
Contribution (C)	522101.39	614898.38	681118.49	752594.31
Fixed cost (D)	180.43	171.96	153.02	134.05
PBT (A-B-D)	521920.97	614726.42	680965.47	752460.26
PV Ratio (C/A)	0.76	0.76	0.76	0.76
BEP Sales (D/ PV ratio)	238.47	227.48	202.41	177.31
BEP% (BEP sales/ A)	0.03%	0.03%	0.02%	0.02%
Average BEP%	0.03%			

The break-even analysis shows a downward trend in BEP revenues, necessitating fewer sales to meet fixed expenses. The BEP percentage has decreased from 0.03% to 0.02%, highlighting the company's profitability as it breaks even with a small percentage of total revenues. This demonstrates the company's strong financial health and ability to meet fixed expenses while making a profit even at low sales volumes.
The company's financial health is still good, with sustained year-over-year revenue increase. Despite rising variable costs, a strong contribution margin, along with decreasing variable expenses, results in a considerable annual gain in contribution.
Low fixed expenses, which are expected to fall further, boost profitability. Profit before tax (PBT) is steadily improving due to effective cost control and increased sales. A constant price-volume (PV) ratio of 0.76 demonstrates a consistent relationship between sales and contribution.
Key metrics, such as rising sales and PBT, reducing BEP sales and fixed expenses, and a constant PV ratio, indicate a robust and successful financial situation. Profitability is generated by a high contribution margin and effective cost control, resulting in strong overall performance.

In summary, the company's financial health is strong, as evidenced by constant revenue growth, increasing profitability, effective cost control, and a favourable break-even analysis. These factors highlight the company's great financial success and bright future.

CONCLUSION

This study emphasizes how important cost control and financial planning are to the long-term viability of cashew processing facilities. Strong financial viability is revealed by the research, as evidenced by solid measures such a high DSCR, positive NPV, and consistent revenue growth. However, issues like dependency on manual processes and negative working capital point to areas that need development.
The industry needs to improve liquidity, automate inventory control, and embrace mechanization in order to secure long-term growth. In order to overcome these obstacles and increase competitiveness, government assistance in the form of export incentives, infrastructure development, and subsidies is still essential.
All things considered, the cashew processing sector has enormous potential for long-term expansion and financial success. Stakeholders can improve operational efficiency and establish a stronger presence in international marketplaces by utilizing financial data and adopting technological innovations.

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ANNEXTURE

The researcher first calculated financial statement for the Cashew processing unit upon which the three ratios (DSCR, NPR, BEP) were calculated.

Calculation of BALANCE SHEET

PARTICULAR	2021	2022	2023	2024
A CURRENT LIABILITY	134919.32	158863.65	175968.66	194404.61
Short-term borrowing from bank	250.00	250.00	250.00	250.00
From applicant bank	250.00	250.00	250.00	250.00
Trade creditors	200.67	223.60	248.05	274.09
Provision for taxes	134394.65	158292.05	175348.61	193758.52
Deposits / Installment due within one year	42.00	66.00	90.00	90.00
Deposits / Instalments due within one year (from family/ relatives of promoters)	32.00	32.00	32.00	32.00
B TERM LIABILITIES	531.50	433.50	311.50	189.50
Terms loans (excluding installment payable within one year)	425.50	369.50	279.50	189.50
Deposits from family members / family of promotors	96.00	64.00	32.00	00.00
C TOTAL OUTSIDE LIABILITIES (A+B)	135450.82	1559297.15	176280.16	194594.11
D NETWORTH	388226.23	844660.60	1350277.46	1908979.20
Promotor fund	199.91	199.91	199.11	199.91
Capital subsidy	500.00	500.00	500.00	500.00
Surplus / deficit from profit and loss amount	387526.32	843960.69	1349577.55	1908279.29
E TOTAL LIABILITY (C+D)	523677.04	1003957.75	1526557.61	2103573.31
F TOTAL CURRENT ASSETS	96485.92	111594.59	123678.67	136735.33
Cash and bank balance	70.46	134.47	231.27	328.05
Investment	83.33	83.33	83.33	83.33
Any other type of investment	83.33	83.33	83.33	83.33
Receivables	69005.83	81344.77	90093.62	99550.63
Domestic	69005.83	81344.77	90093.62	99550.63
Inventory	27296.30	29973.01	33200.45	36683.32
Raw material	112	157.30	174.50	192.82
Indigenous	112	157.30	174.50	192.82
Packing material	14821.42	16233.89	17982.30	19868.91
Finished goods	12351.18	13569.53	15030.91	16608.04
Consumables and spares	11.71	12.29	12.91	13.55
Any other current assets	30.00	50.00	70.00	90.00
G FIXED ASSETS				
Opening balance	1544.58	1544.58	1544.2558	1544.58
Gross block at the end of year	1544.58	1544.58	1544.58	15.488
Depreciation up to the date	131.31	244.87	344.13	428.23
Net block at the end of year	1413.26	1299.71	1201.44	1116.35

H OTHER NON-CURRENT ASSETS	80.00	100.00	120.00	140.00
I INTENAGIBLE ASSETS	1.71	1.43	1.14	0.86
Opening balance	2.00	1.71	1.43	1.14
Less return during the year	0.29	0.29	0.29	0.29
J TOTAL ASSETS(F+G+H+I)	97980.90	112995.75	125001.26	137992.53
K TANGIBLE NET WORTH (D-I)	388224.51	844659.17	1350276.31	1908978.34
L NET WORKING CAPITAL (F-A)	-38433.39	-47269.07	-52289.98	-57669.28
M TOL/TNW (E/K)	0.35	0.19	0.13	0.10
N CURRENT RATIO (F/A)	0.72	0.70	0.70	0.70
O TOL/ TNW (QUASI CAPITAL)	0.35	0.1	0.13	0.10
P DEBT EQUITY RATIO (TL+USL)/ (PRO. CONTRIBUTION + GRANT)	2.02			
Q DEBT EQUITY RATIO (TL+USL)/ (PRO. CONTRIBUTION)	4.55			

Calculation of CASH-FLOW STATEMENT

PARTICULAR	2021	2022	2023	2024
A SOURCES OF FUND				
Cash accruals	521920.97	614726.42	680965.47	752460.26
Depreciation	1313.31	113.55	98.27	85.79
Increase in long term borrowing	(42.00)	(66.00)	(90.00)	(90.00)
Increase in bank borrowing (WC)	250.00	00	00	00
Increase in unsecured loans / public deposits	(32.00)	(32.00)	(32.00)	(32.00)
Increase in other current liabilities	134614.82	23944.34	698046.74	770859.31
TOTAL SOURCES (A)	656843.10	638686.32	698046.74	770859.31
B APPLICATION OF FUNDS				
Increase in preliminary and pre operative expenses	0.29	0.29	0.29	0.29
Increase in current assets				
Inventory	27296.30	3227.43	3482.54	3708.38
Receivables	69005.83	12338.95	9457.01	10071.56
Other current assets	30.00	20.00	20.00	20.00
Taxation	134394.65	158292.05	175348.61	193758.52
Increase in other non-current assets	80.00	20.00	20.00	20.00
TOTAL APPLICATION OF FUNDS (B)	230806.49	173347.42	187364.60	206729.11

C OPENING BALANCE OF CASH AND BANK	(270.00)	425766.60	891105.50	1401787.63
D NET SURPLUS (A-B)	426036.60	465338.89	510682.13	564121.20
E CLOSING BALANCE OF CASH AND BANK	425766.60	891105.50	1401787.63	1965908.82

Calculation of PROFIT AND LOSS STATEMENT

PARTICULAR	2021	2022	2023	2024
A TOTAL SALES INCOME	690058.26	813447.74	900936.22	995506.31
	168363.35	185645.93	205610.99	227152.86
B COST OF PRODUCTION	6020.00	6708.00	7441.41	8222.76
Raw material consumption				
Direct labour and wages	116.27	130.39	139.40	148.15
Power and fuel cost				
Packing cost	64.68	36.30	73.92	78.54
Water cost				
Depreciation	149214.17	162338.86	179821.27	198689.07
Other direct manufacturing cost like transportation	15.75	16.88	18.00	19.13
	131.31	113.55	98.27	85.09
	13801.17	16268.95	18018.72	199910.13
	156012.17	184429.58	20149.61	225575.74
C COST OF SALES	0.00	12351.18	13569.53	15030.91
Add: opening stock of finished goods				
Less: closing stock of finished goods	12351.18	13569.53	15030.91	16608.04
D GROSS PROFIT	**534046.10**	**629020.16**	**696786.611**	**769930.57**
E OFFICE ADMINISTRATIVE AND SALES AND MARKETING EXPENSES	12076.02	14235.34	15766.38	17421.36
	48.83	58.12	54.47	48.67
F INTEREST COST	33.08	41.24	36.47	29.54
Interest on term loan				
Interest on working capital	15.75	16.88	18.00	19.13
	0.29			
G OTHER NON-OPERATING EXPENSES		0.29	0.29	0.29
Written off expenses		0.29	0.29	0.29
	0.29			
H PROFIT BEFORE TAX	521920.97	614726.42	480965.47	752460.26
I PROVISION FOR TAXATION	134394.65	158292.05	175348.61	193758.52

J PROFIT AFTER TAX	387526.32	456434.37	505616.86	225401.74
K PBT IN PERCENT	75.63%	75.57%	75.58%	75.59%
L PAT IN PERCENT	56.16%	56.11%	56.12%	56.12%
EBITD	522101.11	614898.10	681118.21	752594.02
EBTD	52252.28	614839.98	681063.73	752545.35
EBIT	521969.79	614784.54	681019.94	752501.93