

**COST MANAGEMENT IN SUGAR INDUSTRY****“A Study with reference to Co-operative Sugar Factories of Bidar District in Karnataka State”****Prof.B.Vijaya****Dept.of Commerce, Gulbarga University Gulbarga.****Sangashetty Shetkar****Research scholar, Gulbarga University Gulbarga****ABSTRACT:**

*Sugar industry plays a leading role in Indian economy and especially it is connected with agriculture sector. India and Thailand is a major producer of sugar in Asian region. Sugar is the most essential and necessary food product and India is leading producer of sugar so correct management of cost of production is must. This paper concentrate on how to reduce cost per unit (Ton) of sugar manufacturing in co-operative sugar factories of Bidar district in Karnataka state. Using the best practices of Cost Management Techniques to reduce cost per ton of sugar manufactured.*

**Key Words:** Sugar Industries, Co-operative factories, Best Practice in cost management, Cost Management Techniques,

**INTRODUCTION**

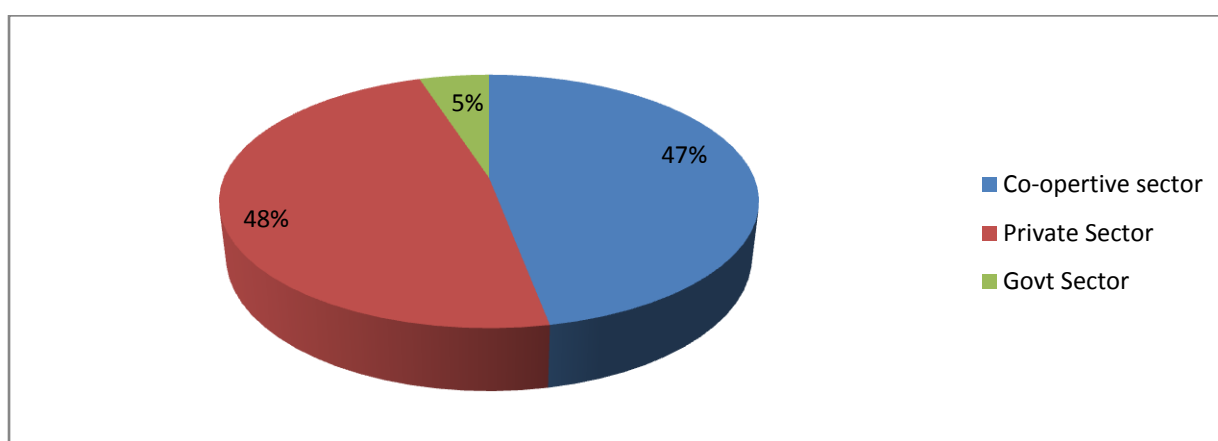
India is the second largest producer of Sugar in the world. The industry given life to 3.5 Crores farmers .and it is bread earning for more than 5 lakh people directly or indirectly related to Indian sugar industry. 231.5 lakh tons of sugar has been produced up to 15<sup>th</sup> April, 2014 in the 2013-14 sugar seasons. This is about 10 lakh tons less than the sugar produced up to the same corresponding period last year when 241.5 lakh tons of sugar was produced.

Karnataka has produced the highest ever sugar production in its history and as on 15th April, 2014, it has produced 40.5 lakh tons of sugar. In the previous season, Karnataka had produced 33.5 lakh tons, but it has closed its crushing operation by now. As compared to that, 19 sugar mills continue to crush sugarcane this year.

**Table No: 1****Basic information of Indian Sugar Industry**

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
No of factories in operation	488	490	507	529	526	509
Cane acreage(000 hectares)	4415	4175	4885	5100	5279	5341
Sugar cane production(lakha Tons)	2850	2923	3424	3538	3544	3456
Molasses Production(000 Tons)	6542	8400	10970	11824	11744	10881

\*source CRISIL Research Report

**Fig No: 01****Sugar crushing capacity in percentage**

It is clear from above figure that, 48% of sugar cane crushed by private sector, 47% by co-operative sector and remaining 5% by the Government sector.

**Table No: 02****Basic information about sugar production in Karnataka**

Particulars	Rs/kg
Sugarcane price payable for SS 2013-14 (Rs/quintal)	290 (Per Quintal)
Recovery Rate	11
Sugarcane price per kg of sugar produced (Rs/kg)	26.40
Conversion cost from Sugarcane to raw sugar (Rs/kg)	3.50
Total cost of raw sugar production (Rs/kg)	29.90.
Conversion cost from raw to white sugar (In Rs/kg)	2.50.
Total cost of production for white sugar (Rs/kg)	32.40
Domestic ex-mill sugar price (Rs/kg)	26.10-26.60

\*source CRISIL Research Report

Sweetness of sugar is not to the former or growers of sugar cane in Karnataka expected rate at which they are producing cost are not paid by the factories in time. This study is concerned here how to minimize sugar manufacturing cost from factory point of view. The success of any industry or sugar manufacturing organization depends on to enhance the selling price do not decrease cost per unit manufacturing cost. But long run increasing in selling price not hold good in competitive environment so we need to survive in cut-throat competition just control the cost. The next step is to reduce per unit cost without reducing quality. Here quality should be maintained but unit or single output cost per unit (marginal cost per unit) should be reduced to the possible extent using best and latest cost management techniques applied in production process.

#### **A Brief Profile of Selected Sugar Factories of Bidar District in Karnataka State:**

##### **1. Bidar Sahakar Sakkare Karkhane Limited. (BSSK)**

The Bidar co-operative sugar factory Hallikhed was established in the year 1961-62 under the dynamic leadership of Mr. Gurupadappa and M. Kheny. The factory started on the basis of Co-operative society system. Its estimated cost of project was 3 cores and this occupies the area around 168 acres and its crushing capacity was 1250 TCD in 1969, in the year 1991-92 it was increased to 2000 TCD. Now it is 3500 TCD. This factory is located near Karanja River and it is 30 km away from Bidar and just 4 km away from the Hallikhed. The Factory has more than 1000 employees including administrator and technical experts, human resources being the most important asset of the factory.

##### **2. Naranja Sahakar Sakkare Karkhane Limited,. (NSSK).**

This factory was started in the year 2000 at Imampur, village near Janwada, Bidar district with a record period of 18 months. The people of Bidar District particularly the Agriculturists and Sugarcane growers are fully supporting, as their dream has become true reality. From the Co-generation unit of the sugar factory it is producing 8 MW of power per day since six years and planning to extend it to 14 MW power generation per day, to ease the power situation in the State the company utilizing the 4 MW power and selling about 4 MW power to state Electricity Board. Capacity Tonne cane Crushed per day 2500 TCD

##### **3. Mahatma Gandhi Sahakar Sakkare Karkhane Limited,. (MGSSK)**

This factory was started in the year 2003 at Donagapur, village near Bhalki taluka of Bidar district. Raw Materials: Sugarcane Installed Capacity: 2,500 Tonnes Crushing Daily (TCD) of Sugarcane.

#### **REVIEW OF THE LITERATURE**

A review of the existing studies on sugar industries in general regarding the available literature on sugar industry in India are to be related to production, procurement, pricing policies and marketing aspects of sugarcane.

**The Sugar Enquiry Commission:** Appointed by Government of India it studies the trends in the sugar production, sugar policy, problems of sugar cane development, pricing and distribution policy of sugar and sugarcane and licensing policy. However the report of the sugar enquiry Commission did not touch the cost management factors in sugar industry in general and specifically co-operative sugar industries

**G.S.Kamat:** Reviewed the management aspect of the co-operative enterprises. And studied the co-operative sugar factories in Maharashtra state in 1965. it covers the problems relating to finance, raw materials and personnel. The conclusion of the study is that the co-operative sugar factories could play an important role in rural development if they managed properly.

**V L Dutt:** conducted a study on problems and prospects of sugar industry and urged state Government to earmark the entire purchase tax for intensive cane development

**Sri. L. Kumar:** studied the cost structure of sugar industry and recommended for the policy of partial decontrol restoration in 1980.

#### **NEED FOR THE STUDY**

The study is very helpful and gives needed suggestion to improve in the existing cost management philosophy. There is suitable cost management policies are needed in co-operative sugar industries. There is a need for effective cost management Concept development and co-operative sugar industries yet to develop systematic and objective oriented cost management policies and practices. The present study which attempts to analyze the cost management policies and practices in co-operative sugar industry of Bidar district in Karnataka state.

#### **OBJECTIVE OF THE STUDY**

Basically sugar manufacturing industry not have any controlover the sugar cane manufacturing cost and as well as sugar selling price but the sugar industry need to focus on the cost incurred during the time of production of sugar from sugar cane here effective and efficient cost control should be adopted to improve the recovery of sugar from sugar cane. It will enhance the performance of sugar mills.

- To Detail study of cost elements in Co-operative sugar mills.
- To study the factors affecting the increasing cost of production.
- To find out the areas of cost reduction.
- To study the effective cost planning for sugar mills.
- To give suitable and effective suggestions for cost reduction for survival.

#### **SCOPE OF THE STUDY**

To evaluate the cost management practice adopted by the Co-operative sugar factories of Bidar District in Karnataka, the following factories are taken in to consideration.

1. Bidar Sahakar SakkareKarkhane Limited Hallikhed (B), Bidar. (BSSK) Ltd
2. NaranjaSahakarSakkareKarkhane Limited, Imampur, Janwada, Bidar. (NSSK) Ltd
3. Mahatma Gandhi Sahakar SakkareKarkhane Limited, Donagapur, Bhalki. (MGSSK) Ltd

#### **LIMITATION OF THE STUDY**

Following are the major limitation of the study

1. The above results are based on the selected co-operative sugar mills only.
2. There is a practice of maintaining different costing methods to different organization.
3. Cost of sugar cane and the conversion cost also change depending on the location of the sugar mill and the availability of sugar cane in the surrounding area.
4. Fixed cost may be different from one place to other place.
5. The study is based on past 10 year cost records of the selected sugar mills only.

**The following specific key areas of cost management to know their impact on Co-operative Sugar Factories of Bidar District.**

- Cost control techniques
- Cost management planning
- Cost reduction techniques
  - Production over head
  - Administration over head
  - Selling over head
  - Distribution over head

Main observation of the study is only cost control and cost reduction a detail study was under taken in this paper using last 10 years data, from 2005-06 to 2014-15.

#### **RESEARCH METHODOLOGY**

The present paper is based on secondary data which is collected from selected Co-operative sugar factories of Bidar district in Karnataka state.

Following reports are collected for study.

1. MIS Reports
2. Daily Manufacturing Reports.
3. Annual Technical Reports.
4. Cane Manufacturing.
5. Audit Reports.
6. Cost and Management accountant Journal.
7. Cost Accounting Standard which are issued by ICWAI

8. Records of Co-operative Sugar Factories
9. Manufacturing account, Cost sheet.
10. Unstructured interviews conducted with special officer, Cane Inspector, Field Officer, Executives, workers, Farmers and Leader of farmer association.
11. It is an empirical research in which the researcher has analyzed the cost of production. The percentage method has been used to analyze the cost elements. The secondary data which was compiled from three selected co-operative sugar mills for the period 2005-06 to 2014-15 has been used for analysis.

## AREAS OF COST REDUCTION

### 1. Physical parameters

1. Cane planning
2. Good sugar cane varietal mix
3. High sugar variety and high yield variety
4. Cultivation of sugar cane near factory building avoids transportation cost.
5. Raw material supply time should not cross 24 hours.

### 2. Crushing

1. Crushing should be arranged in such way that 80% sugar cane crushed in peak period i.e. (December to March) crushing should be achieved at least its installed capacity.

### 3. Down time.

Down time stoppage will occur in following reason

1. Want cane
2. Engineering problems.
3. General periodical cleaning
4. Other reasons.

The deduction of down time will enhance the productivity generally permitted down time in Karnataka is 8%

### 4. Total losses the permitted norm for the total loss of sugar is 1.80%

1. Loss in Bagasse:	0.60
2. Loss in Pressumud:	0.05
3. Loss in Molasses:	1.10
4. Unknown Loss:	0.05
<b>Total:</b>	<b>1.80 .</b>

### 5. Cane cost

Increasing in the recovery % by reducing the total loss will ensure reduction of unit cost of production. Here the Purchase tax and Cane Cess will not be avoidable. But we can control the

transport charges which could be reduced by the area of production of sugarcane near to factory.

**6. Conversion cost.**

Fuel, oil, lubricants and power can be reduced by preventive majors, basically now days all sugar mills produce power for their consumption. Still need to use most appropriate use of power it should be put off when machine is not in use all the department of the factory should use LED lighting in factory premises which is required that much power should be consumed and remaining power should be sold.

**7. Repairs and maintenance:**

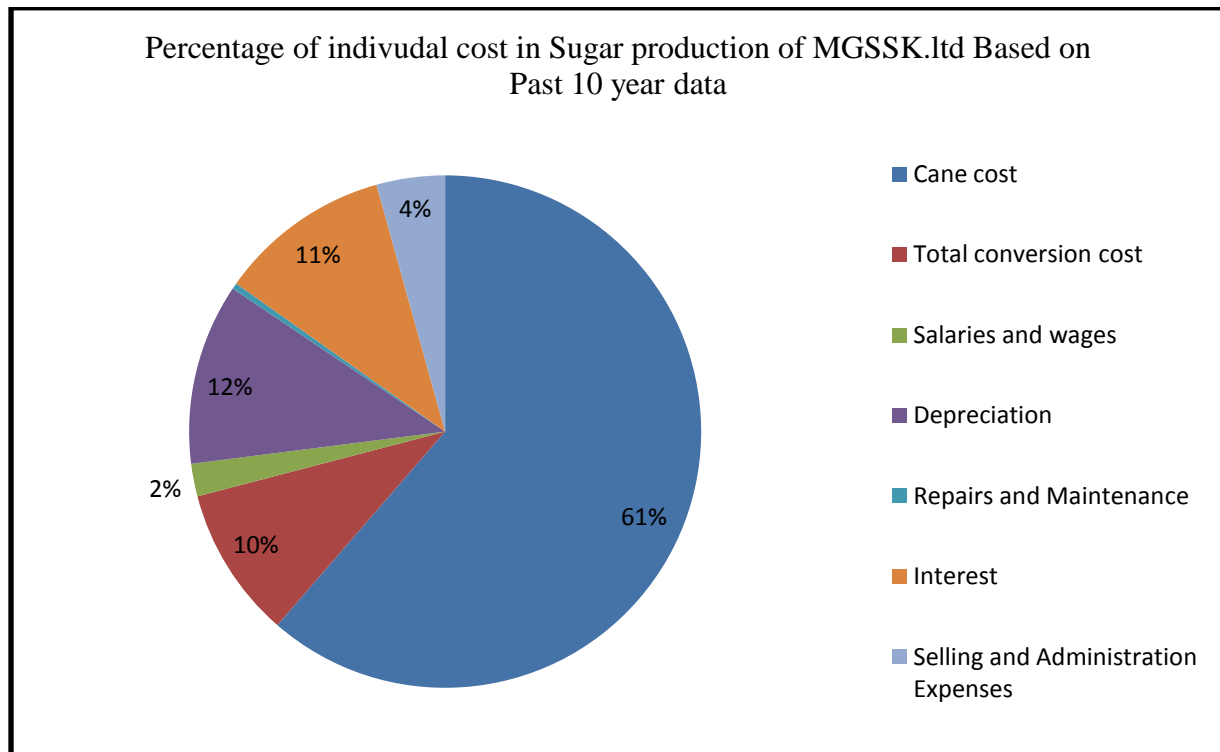
1. Quality spare parts should be installed
2. Necessary technical up gradation of machinery should be done in time.
3. Opinion of Expert should be taken about machinery life, and quality of work.

**8. Administration Cost reduction.**

1. Overtime should be avoided to possible extent
2. Salary and wages should be paid on scientific basis neither more nor less.
3. Free medical facilities should be provided.
4. Rent should be fixed according to Rent Control Act wherever possible.
5. Staff is the back bone of any organization enough care should be taken providing all amenities to staff.
6. Avoid unnecessary expenses each and every paisa outgoing or incoming should be accounted and most of the payment should be made account pay crossed cheque only

Chart.1

Cost Components of Co-operative Sugar mill (MGSSK) See Table -1



\*Source annual reports of Co-operative sugar factory

It is clear from above figure 61% is cane cost, 12% is Depreciation cost, 11% is interest cost, 10% is total conversion cost, 4% is selling, administration cost, 2% is salaries, wages, repairs and maintenance cost in total cost.



S.no	Year	Cane cost	Total conversion cost	Salaries and wages	Depreciation	Repairs and Maintenance	Interest	Selling and Administration expenses	Total cost of production	Cane cost % total cost	Total conversion cost % total cost	Salaries and wages % to total cost	Depreciation% to total cost	Repairs and Maintenance % to total cost	Interest % to total cost	Selling and Administration expenses % to total cost	percentage
1	2004-05	247.05	110.99	1.68	838.30	0.77	405.14	83.53	1687.47	14.64	6.58	0.10	49.68	0.05	24.01	4.95	100.00
2	2005-06	1719.25	95.26	45.07	436.57	2.53	389.13	135.47	2823.28	60.90	3.37	1.60	15.46	0.09	13.78	4.80	100.00
3	2006-07	2269.12	131.28	68.44	387.50	32.86	339.03	311.48	3539.71	64.10	3.71	1.93	10.95	0.93	9.58	8.80	100.00
4	2007-08	2437.96	337.81	101.94	648.27	0.85	466.03	520.97	4513.83	54.01	7.48	2.26	14.36	0.02	10.32	11.54	100.00
5	2008-09	2518.70	168.32	141.41	282.27	4.12	436.77	33.33	3584.92	70.26	4.70	3.94	7.87	0.11	12.18	0.93	100.00
6	2009-10	7835.45	1268.60	153.06	267.52	33.33	280.82	75.81	9914.59	79.03	12.80	1.54	2.70	0.34	2.83	0.76	100.00
7	2010-11	6114.45	2312.67	293.28	307.51	31.69	701.04	347.45	10108.09	60.49	22.88	2.90	3.04	0.31	6.94	3.44	100.00
8	2011-12	8625.49	1659.81	276.49	376.10	137.44	1089.24	319.16	12483.73	69.09	13.30	2.21	3.01	1.10	8.73	2.56	100.00
9	2012-13	11878.85	1485.31	277.51	544.88	19.37	1257.09	389.27	15852.28	74.93	9.37	1.75	3.44	0.12	7.93	2.46	100.00
10	2013-14	8540.63	1469.68	305.76	497.39	96.94	1602.34	378.45	12891.19	66.25	11.40	2.37	3.86	0.75	12.43	2.94	100.00
									<b>Avg</b>	<b>61.37</b>	<b>9.56</b>	<b>2.06</b>	<b>11.44</b>	<b>0.38</b>	<b>10.87</b>	<b>4.32</b>	<b>100.00</b>

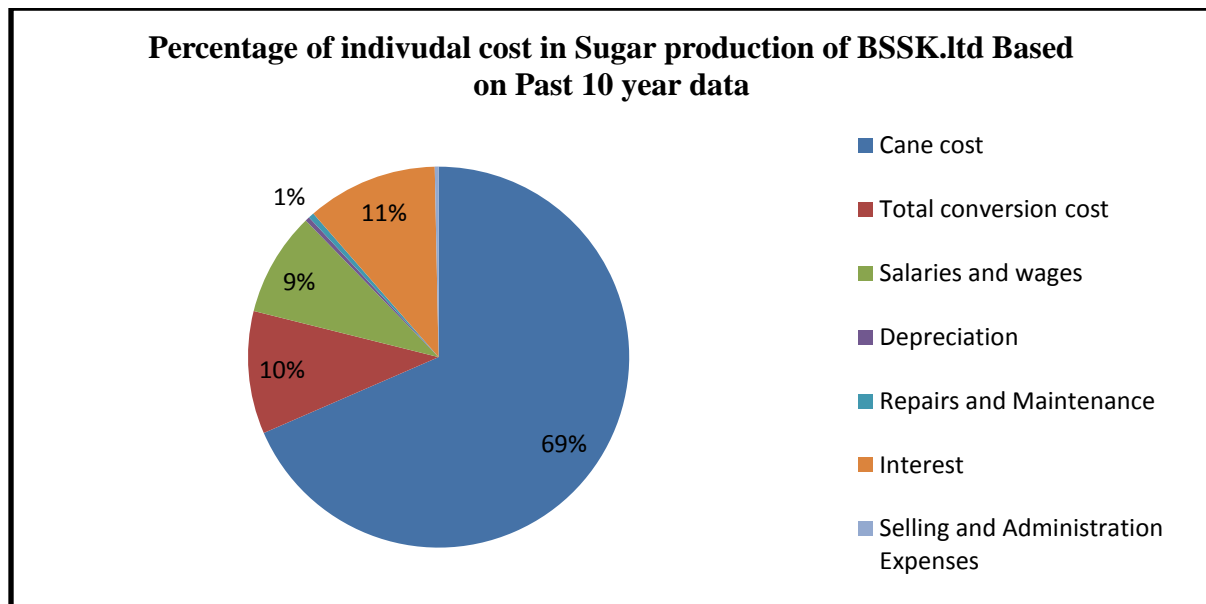
Table1. Cost Components of Co-operative Sugar mill (MGSSK.LTD)(Rs.In Lakhs)

S.no	Year	Cane cost	Total conversion cost	Salaries and wages	Depreciation	Repairs and Maintenance	Interest	Selling and Administration expenses	Total cost of production	Cane cost % total cost	Total conversion cost % total cost	Salaries and wages % to total cost	Depreciation % to total cost	Maintenance % to total cost	Interest % to total cost	Administration expenses % to total cost	percentage
1	2004-05	1984.68	354.80	391.43	44.37	29.55	1358.70	12.95	4176.48	47.52	8.50	9.37	1.06	0.71	32.53	0.31	100.00
2	2005-06	3479.15	457.51	375.69	38.60	11.81	263.27	10.23	4636.26	75.04	9.87	8.10	0.83	0.25	5.68	0.22	100.00
3	2006-07	3479.15	459.17	528.91	21.00	32.10	411.80	11.33	4943.46	70.38	9.29	10.70	0.42	0.65	8.33	0.23	100.00
4	2007-08	2542.15	726.15	727.76	24.10	32.71	448.85	27.15	4528.87	56.13	16.03	16.07	0.53	0.72	9.91	0.60	100.00
5	2008-09	2170.69	594.56	718.37	25.63	38.57	559.14	23.44	4130.40	52.55	14.39	17.39	0.62	0.93	13.54	0.57	100.00
6	2009-10	6794.74	469.10	428.02	0.82	30.04	583.30	17.42	8323.44	81.63	5.64	5.14	0.01	0.36	7.01	0.21	100.00
7	2010-11	5536.39	705.14	310.38	1.02	22.17	930.13	25.80	7531.03	73.51	9.36	4.12	0.01	0.29	12.35	0.34	100.00
8	2011-12	4589.29	654.25	356.12	9.85	21.36	452.18	16.89	6099.94	75.24	10.73	5.84	0.16	0.35	7.41	0.28	100.00
9	2012-13	9123.14	1271.37	783.08	8.42	42.50	1154.15	15.18	12397.84	73.59	10.25	6.32	0.07	0.34	9.31	0.12	100.00
10	2013-14	7172.34	905.71	475.53	3.41	15.10	448.85	25.10	9046.04	79.29	10.01	5.26	0.04	0.17	4.96	0.28	100.00
									<b>Avg</b>	<b>68.49</b>	<b>10.41</b>	<b>8.83</b>	<b>0.38</b>	<b>0.48</b>	<b>11.10</b>	<b>0.32</b>	<b>100.00</b>

Table2. Cost Components of Co-operative Sugar mill (BSSK.LTD)Rs.In Lakhs)

Chart.2

Cost components of Co-operative Sugar mill (BSSK). See Table -2

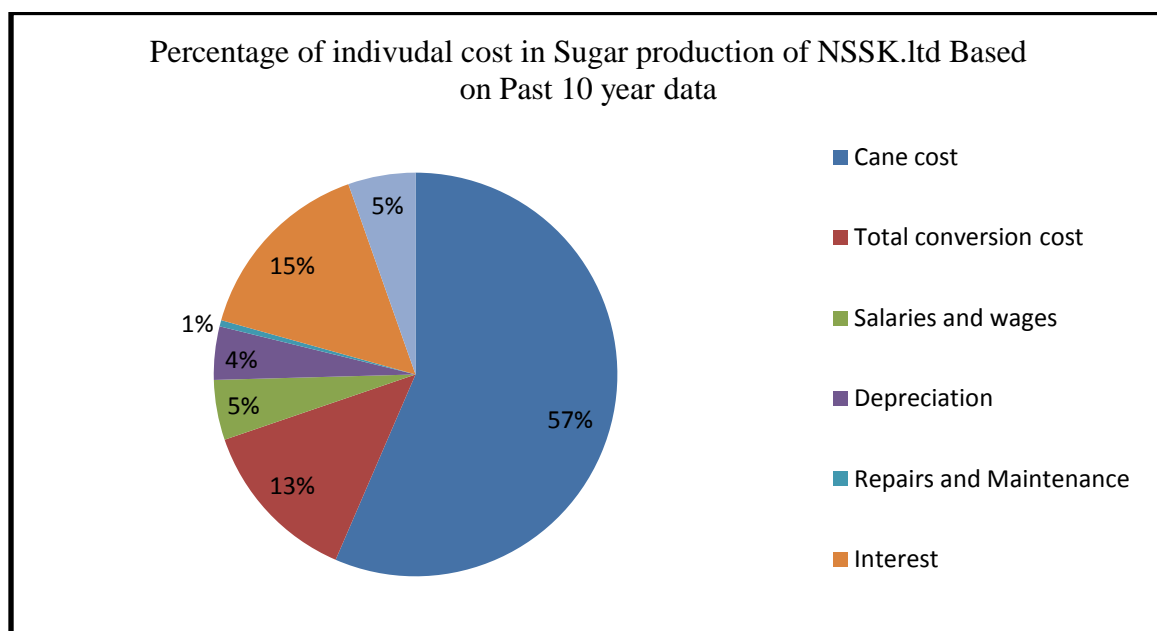


\*Source annual reports of Co-operative sugar factory

It is clear from above figure 69% is cane cost, 11% is interest cost, 10% is total conversion cost, 1% is selling, administration cost, 9% is salaries, wages, repairs and maintenance cost in total cost.

Chart.3

Cost Components of Co-operative Sugar mill (NSSK). See Table -3



\*Source annual reports of Co-operative sugar factory.

S.no	Year	Cane cost	Total conversion cost	Salaries and wages	Depreciation	Repairs and maintenance	Interest	Selling and Administration expenses	Total cost of production	Cane cost % total cost	Total conversion cost % total cost	Salaries and wages % to total cost	Depreciation% to total cost	Repairs and maintenance % to total cost	Interest % to total cost	Selling and Administration expenses % to total cost	percentage
1	2004-05	4125.23	589.25	350	458.25	45	1245.12	458.23	7271.08	56.73	8.10	4.81	6.30	0.62	17.12	6.30	100.00
2	2005-06	7814.26	580.12	375	489.25	42	1412.25	586.23	11299.11	69.16	5.13	3.32	4.33	0.37	12.50	5.19	100.00
3	2006-07	5139.1	593.32	400	576.81	50	1312.92	686.27	8758.42	58.68	6.77	4.57	6.59	0.57	14.99	7.84	100.00
4	2007-08	4974.56	826.61	450	542.13	45	1350.6	715.8	8904.70	55.86	9.28	5.05	6.09	0.51	15.17	8.04	100.00
5	2008-09	3802.9	799.83	500	442.4	40	1264.74	568.02	7417.89	51.27	10.78	6.74	5.96	0.54	17.05	7.66	100.00
6	2009-10	4852.12	9458	525	451.02	45	1645.23	478.25	17454.62	27.80	54.19	3.01	2.58	0.26	9.43	2.74	100.00
7	2010-11	6590.25	1044.7	550	368.5	50	1765.22	376.17	10744.84	61.33	9.72	5.12	3.43	0.47	16.43	3.50	100.00
8	2011-12	6489.12	1025.25	650	378.12	55	1845.21	489.23	10931.93	59.36	9.38	5.95	3.46	0.50	16.88	4.48	100.00
9	2012-13	12067.1	1533.13	800	321.42	100	2468.45	795.88	18085.98	66.72	8.48	4.42	1.78	0.55	13.65	4.40	100.00
10	2013-14	8214.23	1531.76	725	283.83	90	3688.45	537.54	15070.81	54.50	10.16	4.81	1.88	0.60	24.47	3.57	100.00
									<b>Avg</b>	<b>56.14</b>	<b>13.20</b>	<b>4.78</b>	<b>4.24</b>	<b>0.50</b>	<b>15.77</b>	<b>5.37</b>	<b>100.00</b>

Table3. Cost Components of Co-operative Sugar mill (NSSK.LTD)(Rs.In Lakhs)

It is clear from above figure 57% is cane cost, 15% is interest cost, 13% is total conversion cost, 5% is selling and administration cost, 5% is salaries, wages cost, 4% is depreciation cost, 1% is repairs and maintenance cost in total cost.

## RESULTS AND INTERPETATION

The above study highlights various aspects of cost elements.

1. Basically in sugar industry cane cost is the major component of cost of production i.e. 50% to 70%.
2. MGSSK Ltd, BSSK.Ltd and NSSSK.Ltd cane cost to total cost is 61%, 69% and 57% respectively.
3. Important cost item is conversion cost it constitute 10% to 15%.
4. MGSSK Ltd, BSSK.Ltd and NSSSK.Ltd conversion cost to total cost is 10%, 10% and 13% respectively
5. Another major cost item in sugar production is interest paid it constitute 10% to 15%.
6. MGSSK Ltd, BSSK.Ltd and NSSSK.Ltd. Interest cost to total cost is 11%, 11% and 15% respectively.
7. Salary and wages another important cost component 2% to 10%.
8. MGSSK Ltd, BSSK.Ltd and NSSSK.Ltd. Salary and wages cost to total cost is 2%, 9 % and 5% respectively.
9. Depreciation also play vital role in cost structure 12%, 1% and 4% in total cost of MGSSK Ltd, BSSK.Ltd and NSSSK.Ltd respectively
10. Selling and administration overhead also part of cost of production it constitute to total cost is 4%, 1% and 5% of MGSSK Ltd, BSSK LLtd and NSSSK.Ltd respectively.

## RECOMMENDATION

1. Supply of clean and good quality sugar cane should be taken in put.
2. Cost management should be culture need to concentrate on grass root level approach not top level approach.
3. Need tool for Comprehensive & Sustained Cost Management Approach.
4. TQM (Total Quality Management) should be adopted for reducing cost of manufacturing.
5. Benchmarking should be followed in process costing inter factory.

6. Avoid too distance cane from factory for reducing transport cost and cane cost all three factories cane cost to total cost is within set limit only but comparatively BSSK Ltd cane cost 69% it is high reason for same it is the old factory in the district and area of operation is whole district transport cost will be more
7. Conversion cost is in set limit but can be minimized using new machinery.
8. NSSK Ltd paid more interest i.e. 15% they can avoid interest minimizing the private debt.
9. Salary and wages in case of BSSK Ltd is more i.e. 9% of total cost comparatively try to reduce it for possible extent avoid overtime and bonus to employee.
10. Depreciation play vital role cost of production in case of MGSSK Ltd it is 12% more amt they should decrease to 10% and BSSK Ltd and NSSK Ltd actual depreciation in total cost is 1% and 4% respectively at least they should maintain 10%.
11. Selling and administration expenses of MGSSK Ltd and NSSK Ltd is 4% and % 5 respectively it should be decrease to possible extent because it is more compared to BSSK Ltd.(BSSK Ltd selling and administrative cost to total cost is i.e. 1%).
12. Reduction in down time and total loss it should not cross 1.80% as industry norms fixed.
13. Administrative cost should be minimized possible extent
14. Increase the recovery of sugar from sugar cane using new machinery or new technology
15. Better utilization of By Product and Joint Product more power should be generated and it should be sold
16. Install ABC inventory technique in material management department

## CONCLUSION

Performance of Co-operative sugar mills is very poor when compared to international sugar industry this is basically sugar mills do not have effective cost control techniques it is better to adopt ABC (Activity Based Costing) techniques to apportion of overhead and also need to install advance machinery to get high quality sugar in less time as well as less cost most of the sugar factories are not proper utilizing the By product and joint product like ethanol, molasses, and bagasse's ethanol can be used with petrol so sugar factories of Karnataka should adopt a long run plan to effective cost management.

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