

# Cost Appraisal: - A Case of Cooperative Sugar Factories (CSFs) in Maharashtra

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## I. INTRODUCTION

The sugar industry is becoming cut-throat day-by-day as the demand for sugar consumption is increasing as well as supply too! But many times there is marketing disequilibrium for one or other reason. (VSI-Pune, 2015).

In present sugar Factory scenario of Maharashtra, the researcher aims to focus on various costs which may be controllable Therefore, total cost is sub-classified into different identifiable segments.

The total cost of sugar production cost is summation of (i) prime/cane cost(ii) Cane/cash conversion cost, (iii) Depreciation of plant and machinery and (iv) Interest paid on borrowed working funds(C. Govardanam, 2014)

- The prime/cane cost is the summation of cost of cane price, H&T expenses and Purchase Tax
- Cash conversion cost Cane Processing cost is the summation of Cost of power, chemicals and consumables, salary and wages, Packing, Repairs and maintenance and overheads.

- Deprecation concerns to plant and machinery uses.
- Interest cost concerns to working funds borrowed through bank, financial Institutions as term loans and deposits kept suppliers, cane growers, members and such others

The financial/cost data pertaining to these CSFs was collected from the office of Vasantdada Sugar Institute, Pune-412307 and the same is delineated ahead under the premised explained in introduction

Abbreviation Used:

Case of Cooperative Sugar Factories (CSFs), Per Tonne of Cane Crushed (PTCC), Average Total Cost (ATC).

### A. ATC Per Tonne Of Cane Crushed

The total sugar production is produced by incurring the above different types of costs .In order to analysis, all the above mentioned costs (i to iv) are articulated as against Per Tonne Of Cane Crushed (PTCC). The following table unveils the Average Total Cost (ATC) of sugar production of CSFs in Maharashtra.

Table No. 1 Cost of Sugar production against PTCC by CSFs in Maharashtra (Rs /Tonne) (2009-14)

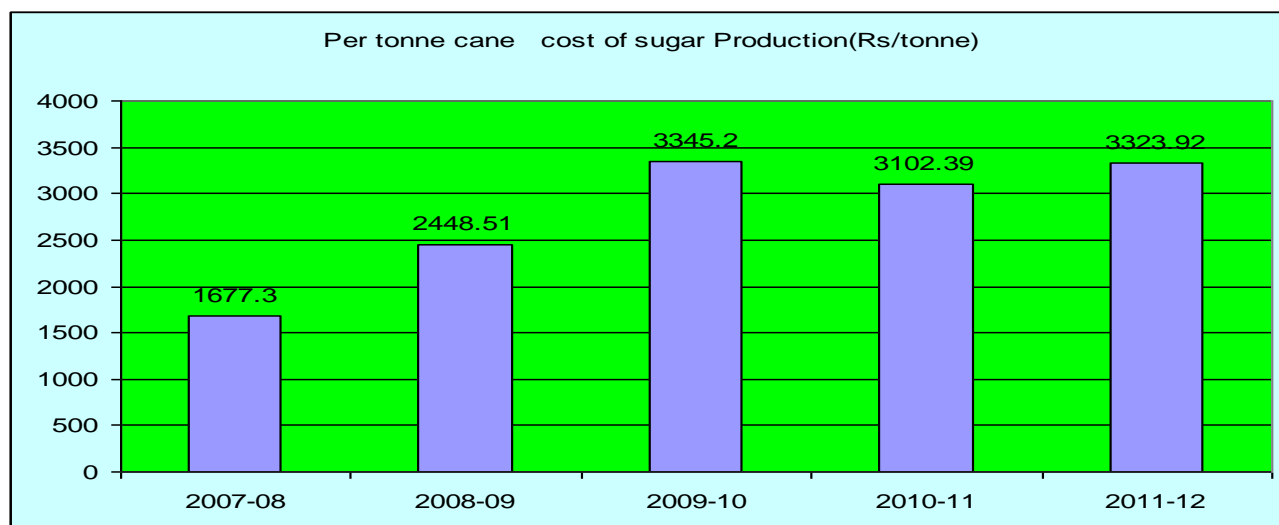
Sr. No	Particulars	2009-10	2010-11	2011-12	2012-13	2013-14	5-yearly Mean	SD
1	Sugar cost of production against PTCC production (Rs/tonne)	1677.30	2448.51	3345.20	3102.39	3323.92	2779.46	715.03

Source: Vasantdada Sugar Institute, Pune-412307

The cost of sugar production against PTCC in 2009-10 was Rs. 1677.30, the same increased during the years under review and reached to Rs 3323.92, experiencing 198.17%

increase over the base year (2009-14) Five yearly mean of total cost of production against PTCC was Rs 2779.46 with

715.03 SD unveiling much fluctuation towards increasing direction (Nikam G. A.,1991)



The total cost of sugar, may be reduced by using the following measure

- Reducing the cost of sugar price with the help of Govt subsidies
- Increasing sugar recovery rates with the help of using higher varieties of cane seeds

- Speedy mechanised transport of cane from the farms to factory
- Using Modern methods of production with modernized machinery obtained with the help of Govt assistance

Use of effective MIS aligned with IT devices (G. Malyadri and Sudheer Kumar, 2013)

*B. Five Yearly Average Total Cost Trend*

Table No. 2 Summary statement of component wise total cost of sugar against PTCC (2009-14)

Sr. No	Cost component	2009-10	2010-11	2011-12	2012-13	2013-14	Mean	SD
1	Cane Price	934.17	1580.46	2359.34	2065.80	2165.33	1821.02	572.85
2	H & T Exp.	238.14	248.77	302.84	341.69	418.75	310.04	73.82
3	Purchase Tax	23.70	45.26	69.52	59.29	58.98	51.35	17.70
(A)	<b>Cane Cost</b>	<b>1196.01</b>	<b>1874.49</b>	<b>2731.70</b>	<b>2466.78</b>	<b>2643.06</b>	<b>2182.41</b>	<b>644.71</b>
1	Power	6.77	7.52	9.12	8.02	10.39	8.36	1.42
2	Chemicals & Consumables	22.46	27.81	22.56	25.21	28.88	25.38	2.94
3	Salaries & Wages	118.56	155.06	176.78	177.08	192.65	164.03	28.72
4	Packing	42.94	48.97	56.43	59.94	55.99	52.85	6.82
5	Repairs & Maintenance	62.82	83.00	84.53	85.69	91.22	81.45	10.87
6	Overheads	55.70	76.93	84.86	88.86	88.08	78.89	13.79
(B)	<b>Cane conversion cost</b>	<b>309.25</b>	<b>399.29</b>	<b>434.28</b>	<b>444.80</b>	<b>467.21</b>	<b>410.97</b>	<b>61.92</b>
(C)	<b>Depreciation</b>	<b>40.16</b>	<b>45.75</b>	<b>59.94</b>	<b>47.42</b>	<b>50.62</b>	<b>48.78</b>	<b>7.30</b>
1	Working Capita!	86.56	81.92	65.53	102.75	120.93	91.54	21.11
2	Term Loan	29.72	26.93	32.00	24.95	27.97	28.31	2.69
3	Deposits	15.60	20.13	21.75	15.69	14.13	17.46	3.29
(D)	<b>Total Interest</b>	<b>131.88</b>	<b>128.98</b>	<b>119.28</b>	<b>143.39</b>	<b>163.03</b>	<b>137.31</b>	<b>16.75</b>
(E)	<b>Conversion Cost (B+C+D)</b>	<b>481.29</b>	<b>574.02</b>	<b>613.50</b>	<b>635.61</b>	<b>680.86</b>	<b>597.06</b>	<b>75.35</b>
	<b>Total Cost Of Production (1+5)</b>	<b>1677.30</b>	<b>2448.51</b>	<b>3345.20</b>	<b>3102.39</b>	<b>3323.92</b>	<b>2779.46</b>	<b>715.03</b>

Source: Vasantdada Sugar Institute, Pune-412307

Five yearly total cost (ATC) trends given Table No:- 2 bring out the following significant facts:

The five yearly ATC of sugar production against PTCC is Rs 2779.46 with 715.03 SD unveiling much fluctuation from

average cost; the same is due to fluctuating average cost of cane price of 1821.02 with 572.85 SD .The of other cost-components are having the varying deviations in terms of SD value in between 1.42 SD (Power) and 73.82 SD (H&T cost) (B. Vijay, 2013)

C. % Share Of Cost Components In ATC (Table No-1)

Table No. 3 Component wise % of total sugar cost (in Rs/Tonne) against PTCC (2009-14)

Sr. No.	Cost component	2009-10	2010-11	2011-12	2012-13	2013-14	5-Yearly Mean	SD
1	Cane Price	55.69	64.55	70.53	66.59	65.14	64.5	5.4
2	H & T Exp.	14.20	10.16	9.05	11.01	12.60	11.4	2.0
3	Purchase Tax	1.41	1.85	2.08	1.91	1.77	1.8	0.2
(A)	<b>Cane Cost</b>	<b>71.31</b>	<b>76.56</b>	<b>81.66</b>	<b>79.51</b>	<b>79.52</b>	77.7	4.0
1	Power	0.40	0.31	0.27	0.26	0.31	0.30	0.1
2	Chemicals & Consumables	1.34	1.14	0.67	0.81	0.87	1.0	0.3
3	Salaries & Wages	7.07	6.33	5.28	5.71	5.80	6.0	0.7
4	Packing	2.56	2.00	1.69	1.93	1.68	2.0	0.4
5	Repairs & Maintenance	3.75	3.39	2.53	2.76	2.74	3.0	0.5
6	Overheads	3.32	3.14	2.54	2.86	2.65	2.9	0.3
(B)	<b>Cane conversion cost</b>	<b>18.44</b>	<b>16.31</b>	<b>12.98</b>	<b>14.33</b>	<b>14.05</b>	15.2	2.2
(C)	<b>Depreciation</b>	<b>2.39</b>	<b>1.87</b>	<b>1.79</b>	<b>1.53</b>	<b>1.52</b>	2.4	1.7
1	Working Capital	5.16	3.35	1.96	3.31	3.64	3.5	1.1
2	Term Loan	1.77	1.10	0.96	0.80	0.84	1.1	0.4
3	Deposits	0.93	0.82	0.65	0.51	0.43	0.6	0.2
(D)	<b>Total Interest</b>	<b>7.86</b>	<b>5.27</b>	<b>3.57</b>	<b>4.62</b>	<b>4.91</b>	5.2	1.6
(E)	<b>Conversion Cost (B+C+D)</b>	<b>28.69</b>	<b>23.44</b>	<b>18.34</b>	<b>20.49</b>	<b>20.48</b>	22.3	4.0
1	<b>Total Cost Of Production (A+E)</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	100.0	0.0

Source: Vasantdada Sugar Institute, Pune-412307

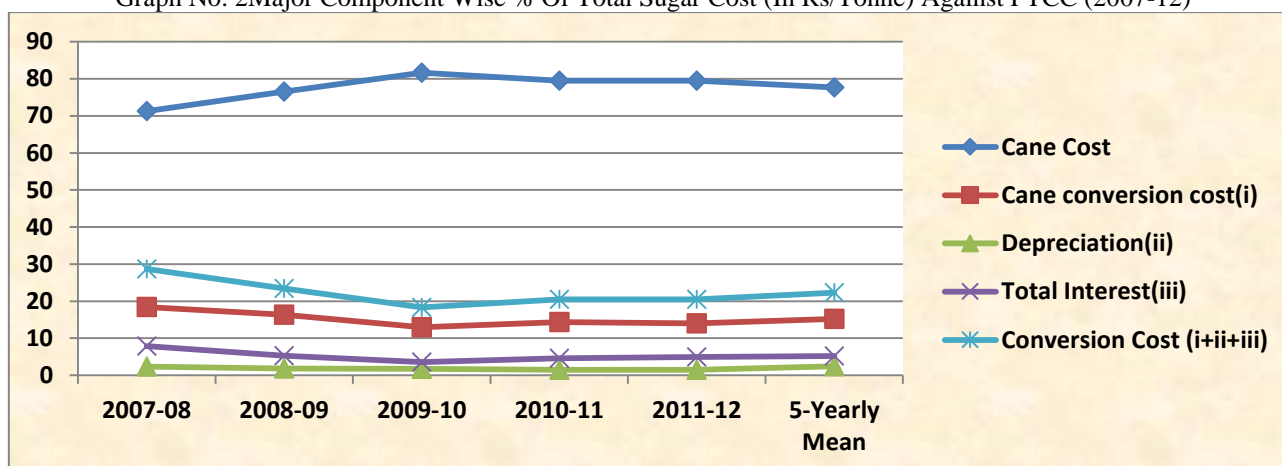
D. Component Wise % Of Total Sugar Cost (In Rs) Against PTCC (2009-14) (Table No-2)

Table No.2 Major Component wise cost % in the total sugar cost of production (against PTCC (2009-14) (Rs/Tonne)

Sr. No.	Cost component	2009-10	2010-11	2011-12	2012-13	2013-14	5-Yearly Mean	S D
(A)	Cane Cost	71.31	76.56	81.66	79.51	79.52	77.7	4.0
(i)	Cane/cash conversion cost	18.44	16.31	12.98	14.33	14.05	15.2	2.2
(ii)	Depreciation	2.39	1.87	1.79	1.53	1.52	2.4	1.7
(iii)	Total Interest	7.86	5.27	3.57	4.62	4.91	5.2	1.6
(B)	Conversion Cost (i+ii+iii)	28.69	23.44	18.34	20.49	20.48	22.3	4.0
	<b>Total Cost Of Production (A+B)</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.0</b>	<b>0.0</b>

Source: Vasantdada Sugar Institute, Pune-4123

Graph No. 2 Major Component Wise % Of Total Sugar Cost (In Rs/Tonne) Against PTCC (2007-12)



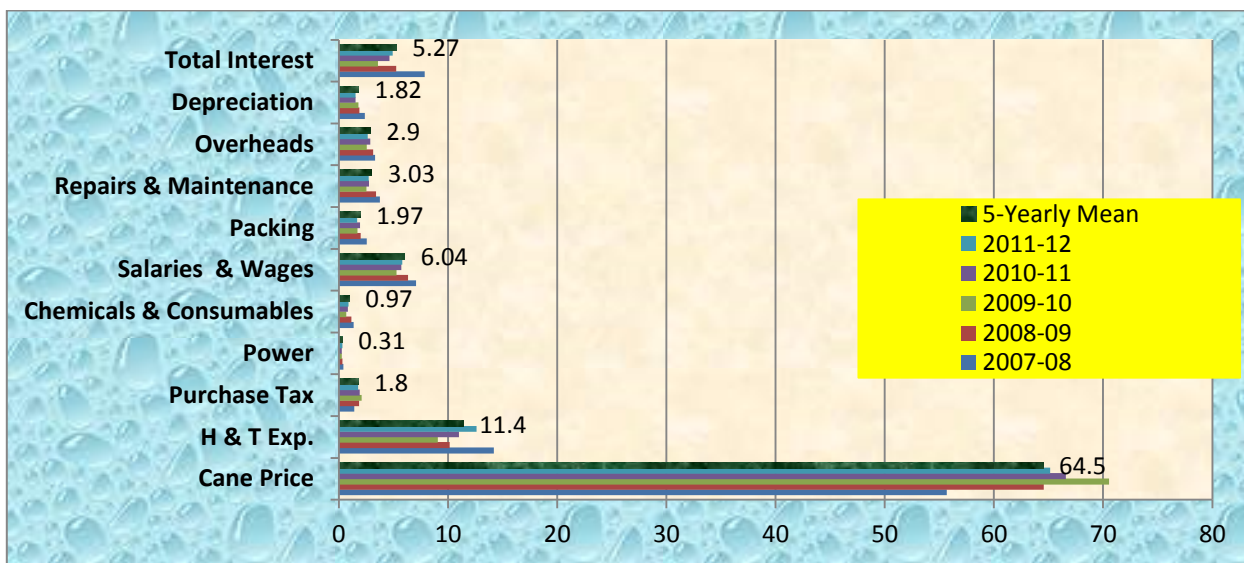
The five yearly cane price % in the total cost of sugar production against PTCC is as large as 64.5% with 5.4 SD while rest of the cost variables SD are registered below 5.4 SD. It means while planning the CSF has to accord more weight age to cane price management (Jugale V B, 2006)

- The 5 yearly mean cane cost occupies the maximum i.e. 77% with 4.0 SD in the total cost of sugar production;
- After (A) stands the 5yearly mean of conversion/factory cost i.e. 22.3 with 4

Table No:-3 Component wise % distribution of total cost of sugar production against PTCC (2009-14)

Sr. No.	Cost component	2009-10	2010-11	2011-12	2012-13	2013-14	5-Yearly Mean
1	Cane Price	55.69	64.55	70.53	66.59	65.14	64.50
2	H & T Exp.	14.20	10.16	9.05	11.01	12.60	11.40
3	Purchase Tax	1.41	1.85	2.08	1.91	1.77	1.80
4	Power	0.40	0.31	0.27	0.26	0.31	0.31
5	Chemicals & Consumables	1.34	1.14	0.67	0.81	0.87	0.97
6	Salaries & Wages	7.07	6.33	5.28	5.71	5.80	6.04
7	Packing	2.56	2.00	1.69	1.93	1.68	1.97
8	Repairs & Maintenance	3.75	3.39	2.53	2.76	2.74	3.03
9	Overheads	3.32	3.14	2.54	2.86	2.65	2.90
10	Depreciation	2.39	1.87	1.79	1.53	1.52	1.82
11	Total Interest	7.87	5.26	3.57	4.63	4.92	5.27
	<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Vasantdada Sugar Institute, Pune-412307



a) It is seen from the graph and table that the following is the descending ranking of five yearly

averages Cost of major components of sugar cost of production against PTCC in Rs.

Total	100%
1. Cane Price	64.50%
2. H & T Exp.	11.40%
3. Salaries & Wages	6.04%
4. Total Interest	5.27%
5. Repairs & Maintenance	3.03%
6. Overheads	2.90%
7. Packing	1.97%
8. Depreciation	1.82%
9. Purchase Tax	1.80%
10. Chemicals & Consumables	0.97%
11. Power	0.31%

Source: Vasantdada Sugar Institute, Pune-412307

Cane Price is the largest cost ingredients in the total cost of sugar production which is difficult to modify or to reduce since the same is fixed or is mostly controlled by the Govt (Neeraj Kumar Gupta, 2012)

- H&T expenses may be minimized by using mechanized methods of cane cutting and transportation
- Salaries and wages may be reduced by deploying automation at maximum working places by replacing labour factor of production
- Total interest may be reduced by quick payment of interest arrears and requesting the Govt subsidies; an efficient control of inventories may be practised
- Repairs & Maintenance may be reduced by deploying

- modern techniques of production with more improved machineries
- Overheads may be reduced by tightening the internal control system
- Packing cost may be reduced by recycling of used packing materials through joint efforts of zone-wise groups of CSFs
- Purchase Tax may be abolished by the Govt (presently the same is abolished!)

Chemicals & Consumables and Power cost may be reduced by the use of modern methods of production and through tight internal control (P. Chellaswamy and S. V. Revathi,2009)

*The following conclusions are drawn from the forgoing discussion (S. R. S. Murthy, 2010)*

- Total cost of sugar production against PTCC increased from Rs 1677.30 in 2009 to Rs 3323.92 in 2011-14; while their respective % to total cost of sugar production against PTCC increased from 55.69% to 64.5% during the similar period
- % of Prime cost of sugar against PTCC in the total cost against PTCC was 77.7 % with SD 4.0 unveiling moderate deviations from the trend.
- %s of cane Purchase price, H&T expenses and Purchase tax against PTCC in the Prime cost are respectively 64.5% with SD 5.4%, 11.4% with SD 2.0 and 1.8% with SD .02 unveiling moderate deviations from the trend and the largeness of Cane price (64.5%) in the Prime cost.
- % of Factory cost of sugar against PTCC in the total cost is 15.2% with SD 2.2 unveiling elfin deviations from the trend.
- % of salaries in Factory cost against PTCC is 6% with elfin SD .07 while the similar percentages for R&M 3 % with SD 0.5, overheads 2.9% with SD 0.3, 2% Packing with 0.4 SD, 1.0% Chemicals & Consumables with SD 0.3 and 0.3% Power with 0.1 SD
- % of Depreciation against PTCC in the total sugar cost of production is 2.4% with 1.7 SD
- % of Total Interest cost in the total cost of production against PTCC 5.2 % with SD 1.6 .Amongst this (5.2 %), the % of interest on Borrowed working capital, Interest on term loans and interest of deposits were respectively 3.5% with 1.1 SD, 1.1% with SD 0.4 SD and 0.6% with 0.2 SD unveiling elfin deviation from trend
- % Cane conversion cost (cane processing cost) of sugar production against PTCC in the total cost is 28.69% with SD 4.0 .Conversion cost consists of 19.2% Factory cost with SD 2.2 , 2.4% Depreciation with SD 1.7 and 5.2% interest with SD 1.6; all mean values have elfin SD.

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