CHAPTER NO. II
INTRODUCTORY ASPECTS OF COST OF CONVERSION

2.1 Introduction:

This Chapter is concerned with cane cost, cash conversion cost, maintenance of sugar factories, Techniques of cost control. This study is very important because sugar prices have always been a bone of contention between the farmers, sugar factories and the consumers, with the Government as the referee.

Sugar Prices are not conducive to payment of remunerative sugarcane price. From this study deals the factors affected on cost of conversion.

2.2 Cane Cost

In 1964 Agricultural price commission (APC) had been appointed to fixation of cane price. The APC latterly renamed as CACP (Commission on Agricultural costs and prices) had fixed some norms in determining the agricultural prices in 1978. They were i) Cost of production ii) Risk factor iii) Input prices iv) Market prices v) Demand and supply. vi) Effects on industrial structure vii) Expenses on standard of living viii) Effects on general prices ix) parity approach and x) Motivators etc.¹

In 1979 special Expert Committee (sen committee) had been appointed to study. Some important views were expressed by the sen committee for cost concepts.

The cost concepts used in as cost A1, A2, B and C are as under.

Cost A1:

1) Value of hired human labour,
2) Value of hired bullock labour.
3) Value of owned bullock labour.
4) Hired Machinery charges.
5) Value of owned machine labour.
6) Value of seed (both farm produced and purchased.
7) Value of insecticides and pesticides.
8) Value of manure. (Owned and purchased)
9) Value of fertilizers,
10) Depreciation on implements and farm buildings.
11) Irrigation Charges,
12) Land revenue, cesses, and other taxes,
13) Interest on working capital
14) Miscellaneous expenses (artisans etc.)

Cost B - Cost A2 + imputed rental Value of owned land (less land revenue paid thereon) + imputed interest on owned fixed capital (excluding land) cost C - Cost B + imputed Value of family labour.

Input prices and output prices have been correlated and considered by CACP while determining the agricultural prices. Generally agricultural Prices are fixed following norms for eg. i) cost of cultivation ii) Food policy. iii) General price level iv) Demand and supply forecasting v) Earning of Foreign money vi) Alternative crops vii) Effects of agricultural labourers viii) wage structure of industrial workers and changes in standard of living etc.

Now the state Government appointed a cane price Committee headed by of chief minister. The committee consists of several cabinet Ministers, Director of sugar, Chairman of 'Sakhar Sangh', the federation of co-operative sugar factories. This committee inspect the accounts of each sugar factory and renders decision about the cane price, such prices are termed as State Administered Price (SAP). The SAPs are fixed the price of sugarcane on the basis of some norms.

2.3 Elements Of Cane Cost:

The CANE COST includes cane price, Harvesting and Transportation (H & T), expenses and cane purchase Tax (PT).

i) Cane Price

India's sugar cycle is well known. Three years of surplus sugarcane and sugar production is normally followed by two years of deficit production. While deciding the sugarcane pricing policy it has to be taken into account that because of such high sugarcane price this year, there is bound to be a mass-scale shift of farmers to sugarcane cultivation.

From Scenario of sugar industry. It is essential that sugar prices are remunerative enough to enable the sugar factories to continue paying the sugarcane farmers remunerative cane price as well as encouraged to farmers to go for sugarcane varieties with higher yield recovery.

The Sugar factories are required to pay an additional cane price to the growers computed in accordance with the 'Bhargav Formula'. The second commission on sugar Inquiry was set-up in 1974, under the Chuirmanship of Ex-supreme court
Judge, Justice V. Bhargav.¹ The Commission has submitted its Report in 1974. Bhargave formula is as follows.

\[ X = \frac{(R-L+2A+B)}{2C} \]

X= is the additional price in rupees per quintal of sugarcane payable by the producer of sugar to sugarcane grower. R = is the amount in rupees of sugar produced during the sugar year excluding the excise duty paid or payable to the factory by the purchaser. 

L = is the value in rupees of sugar produced during the sugar year as calculated on the basis of the unit cost per quintal, ex-factory exclusive of excise duty determined with reference to the minimum sugarcane price fixed under clause 3, the final working results of the year and the cost schedule and return recommended by such authority as the central Government may specify from time to time. A = is the amount found payable for the previous year but not actually paid. B = is the excess or shortfall in realization from actual sales of the unsold stocks of sugar produced during the sugar year as on 30\(^{th}\) days of September, which is carried forward and adjusted in the sale realization of the following year.

C= is the quantity in quintals of sugarcane purchased by the producer of sugar during the sugar year.

Under this formula farmers and the mills share the excess realisation broadly in the ratio 50:50. The Government of India determine the zonewise. ‘L’ factor and factorywise ADP is determined by the state Governments. Time taken in notification of ‘L’ factor by the Department of Food for different Sugar Seasons is given below.¹

Table No. : 2.1

Season wise 'L' Factor

<table>
<thead>
<tr>
<th>Sugar Season.</th>
<th>Date on Which 'L' factor was communicated</th>
<th>Time taken after end of the season.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990-91</td>
<td>17-11-1992</td>
<td>14 months</td>
</tr>
<tr>
<td>1991-92</td>
<td>04-02-1994</td>
<td>17 months</td>
</tr>
<tr>
<td>1992-93</td>
<td>15-12-1994</td>
<td>14 months</td>
</tr>
<tr>
<td>1993-94</td>
<td>19-09-1995</td>
<td>12 months</td>
</tr>
<tr>
<td>1994-95</td>
<td>18-11-1996</td>
<td>14 months</td>
</tr>
<tr>
<td>1995-96</td>
<td>06-10-1997</td>
<td>13 months</td>
</tr>
</tbody>
</table>

Source : Sugarcane pricing (Co-op sugar Nov. 1997)
The high Power Committee (Mahajan Committee) recommended the cane price in each zone by the following formula.\(^1\)

\[
\text{Cane Price per tonne} = \frac{\text{Average price of sugar per quintal in zone. during the year}}{\text{Growers percentage share}} \times \frac{\text{Average recovery in the zone during the year}}{\text{All India average recovery during the year}}
\]

The Government of India has accepted the formula from 1974-75 for fixdom of 50 ne./FRP.

Now the sugar industry has been suffering on account of the widening difference between statutory Minimum Price (SMP) and state Advised Price (SAP) of sugarcane and very low levy sugar prices fixed by the central Government on the basis of SMP. Although the Supreme court had in 2004 upheld the rights of the state Governments to fix SAPs, the SAPs were not taken into account for calculating the levy Sugar Price. As the sugar factories suffered heavy financial loss because of this, the Supreme Court in its judgment dated March 31, 2008, in the matter of Mahalakshmi Mills Company Ltd. and another versus Union of India and others, had ordered computation of levy sugar Price on the basis of SAP or actual cane price paid. Further, most of the times the sugar factories were not able to settle their cane price dues as the realization on sale of free sale sugar were also very low because of various controls and excessive sugar releases. In fact most of the times the realization did not even meet the cost of producing sugar. Consequently the sugar factories have been in dire strait and at the mercy of the Government relief packages.\(^1\)

The recently promulgasted ordinance providing for a "fair and Remunerative price" (FRP) for sugarcane for 2009-10.\(^2\)

**ii) Harvesting and Transportation Expenses**

In Maharashtra cane harvesting and Transporting is the work to be operated by the co-operative sugar factories as per their, bye-laws. However, now a days the industrial relations have changed due to the judicial confirmation, that the cane harvest and transport workers are the employees of the sugar industry. A few sugar factories in Maharashtra have established the trusts, labour societies and other institutions to undertake the work of cane harvesting and transport of cane through them.
2.4 Cost Analysis

The production of sugar cane requires a number of inputs (land, equipment, labour, fertilizers, Capital etc.) Each input has a cost for eg. the cost of tonne of fertilizer is represented by its purchase price. The cost of hiring a man's labour for a day is represented by the daily wage. There are inputs which the farm does not purchase or hire for current use. Examples of such inputs are equipment which is already owned by the farm and owners capital. These inputs too carry a cost. The justification for cost analysis is that it assists management in its planning and control functions.\(^3\)

Cost may be classified by type of input. This is illustrated in Figur 2.1

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Input Type</th>
<th>Input Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Fixed assets</td>
<td>Depreciation</td>
</tr>
<tr>
<td>2)</td>
<td>Labour</td>
<td>Wages &amp; Salaries</td>
</tr>
<tr>
<td>3)</td>
<td>Supplies and Services</td>
<td>Fertilizers, Herbicides, Fungicides, Electricity, Hire of Equipments etc.</td>
</tr>
<tr>
<td>4)</td>
<td>Capital</td>
<td>Interest</td>
</tr>
</tbody>
</table>

Figure 2.1 Input types of costs.

The cost of using fixed assets during a given period is known as depreciation. Labour attracts wage and salary costs. The cost of using borrowed Money is known as interest.

In the case of sugar industry, Two major parameters which contribute to the economic viability of sugar factories are higher Capacity utilization and achieving the higher efficiency figures in sugar factories. Capacity utilization is possible for a sugar factory, if it can pay an attractive cane price.\(^4\)

It therefore follows that there are two major components of costing in sugar factories.

a) Cane cost

b) Conversion cost.
The network expenditure incidental to production administration and other expenses involved in the process of manufacture of sugar from sugar can broadly can be analyzed as below. 

A. Cane cost (70-75 %)

i) Cane Price 63.5-66.5 %
ii) Cane Purchase 5.5-7.0 %
iii) Cane development expenses 1.0-1.5 %

B. Conversion cost (25-30 %)

Process conversion cost
i) Maintenance & Repari 3.3 to 4.4 %
ii) Salary & Wages 7 to 7.5 %
iii) Mfg. Material & Chemicals 1.2 to 1.4 %
iv) Utilities (Poser & Fuel) 1.7 to 3.0 %

C. Miscellaneous Conversion cost.

i) Interest 3.5 to 3.7
ii) Packing Expenses 2.2 to 2.4
iii) Administration 1.5 to 2.0
iv) Depreciation 3.2 to 4.0

From the above table, cane cost constitutes the major components of cost of production.

2.5 Element Of Cost:

In view of the sugar pricing policy cost of sugar production is very important. Hence the importance of cost control and cost reduction in this sugar factory, cost accountant and auditor's play an important role as regards to cost control and increasing technical and financial utilization of sugar factory. Elements of cost are as follows.

There are only three elements of total cost:

Materials :
Labours :
Expenses :

If one takes any product such as sugar factory it will be seen to consist of various inputs. Cane and chemicals are examples of material inputs and a labour input is necessary to make these materials into the final products. Such inputs, are termed direct costs of the product because they are readily traceable to specific units of the
product. But there are many more costs involved in making and marketing goods that are not so readily identifiable as being direct. For example, a sales representative’s salary is indirect with regard to the various products that he sells, but it is a direct cost if one is interested in the total cost of his sales territory.\(^5\) Figure of Elements of cost is as follows.

\[
\text{Direct} \Rightarrow \begin{cases} 
\text{Material} \\
\text{Labour} \\
\text{Expenses} \\
\text{Manufacturing Expenses} \\
\text{Research & Development Expenses} \\
\text{Distribution Expenses} \\
\text{Marketing Expenses} \\
\text{Administration Expenses} \\
\end{cases} \\
\Rightarrow \text{Prime Cost} \Rightarrow \text{Works Cost} \Rightarrow \text{Cost of sales or total cost} \Rightarrow \text{Selling Price}
\]

\[
\text{Indirect} \Rightarrow \begin{cases} 
\text{Research & Development Expenses} \\
\text{Distribution Expenses} \\
\text{Marketing Expenses} \\
\text{Administration Expenses} \\
\end{cases} \\
\Rightarrow \text{Difference between total cost and sales revenue} = \text{net Profit}
\]

Figure No. 2.2 Elements of cost

As shown in Figure 2.2, expenses can be classified by function within a broad framework composed of all three elements of cost: material, labour and expenses.

Direct product costs are collectively termed prime cost and with the addition of manufacturing overheads, this becomes works cost. When the other overhead expenses are added we arrive at total cost (or cost of sale) and the difference between this and sales revenue is net profit. Gross profit, in contrast, is the difference between works cost and sales revenue.
1) **Variable Costs**:

Prime product costs (Direct material and direct labour) tend to vary in direct proportion to the level of activity (i.e., rate of production or sales) within a business.

![Variable Costs Diagram](image)

Figure 2.3: Variable cost behavior.

2) **Fixed Cost**:

In contrast to variable costs, some costs do not vary in relation to the level of output during a given period of time. For example, Depreciation and Interest of Sugar factory. Depreciation mainly depends on the age of the factory. Such costs are termed fixed costs.

![Fixed Cost Diagram](image)

Figure 2.4: Fixed cost behavior.
3) Separating Fixed And Variable Costs:

The total cost at any level of operations is the sum of a fixed cost component and a variable cost component. If the variable cost per unit of particular item is Rs. 1.25, fixed cost for the period are Rs. 10,000 and the output of the period is 12000 units, then the total cost will be:

\[
\text{Total cost} = \text{Fixed cost} + \text{Variable cost}
\]

\[
Rs. 25000 = Rs. 10000 + Rs. (12000 \times 1.25)
\]

In sugar factory variable costs includes cane development cost, power cost, chemicals consumables, salary, packing expenses, repairs & maintenance, overheads, etc. The fixed costs includes Depreciation and Interest.

4) Usefulness Of The Fixed Variable Costs:

The importance of separating variable from fixed costs stems from the different behavior patterns of each, which have a significant bearing on their control; Variable costs must be controlled in relation to the level of activity, whilst fixed costs must be controlled in relation to time. From a decision-making point of view, it is also important to know whether or not a particular cost will vary as a result of a given decision.

If a revenue curve is superimposed on the same graph as the cost curves, the result is the break-even chart (Figure 2.5) which depicts the profit/loss picture for several possible cost-revenue situations at different levels of activity. Various assumptions underlying break-even analysis. Such as constant prices, a constant sales mix, and a greater degree of independence amongst costs, revenue, and profit that can be found in most real-life situations. Make the break even chart a basic tool. Nevertheless, Provided its user appreciates the static nature of this technique he should be able to employ it effectively.

In particular, break-even analysis is useful as a background information device for reviewing overall cost and profit levels, but it can also be used in connection with special decisions such as selecting a channel of distribution or make or buy decisions.\(^5\)
Cost is synonymous with sacrifice, but its precise definition will depend on the situation in which a measure of sacrifice is required—different cost concepts are relevant to different sets of circumstances.

### 2.6 Cost Control

Cost control is defined as "The guidance and regulation by executive action, of costs of operating an undertaking." Cost control can be ensured through -

1) Setting up standard targets for expenses and production performance.
2) Comparing the actuals with the standards to find out variations, if any;
3) Analyzing reasons for such variations; and
4) Taking up corrective action to eliminate the variation and thus bringing up actual performance to the pre-set standards.

### 2.7 Cost Control Accounts

When to present the total position of each of the subsidiary ledgers in the cost books the total accounts generally referred to as "Control accounts" are also maintained. Therefore this method is also called as "Cost Control Accounts".

These are the total accounts, opened in the cost Ledger representing the various subsidiary Ledgers. Individual debits and credits in all accounts of a subsidiary ledger are totaled and posted to the concerned control Account. Therefore the balance on a control account at any time is equal to the aggregate of balances of all the accounts in the concerned Ledger.
Following are the important control Accounts.

1. **General Ledger Adjustment Account.**
   
   This account is also known as "Cost Ledger Control Account." All transactions affecting fixed assets, Cash or Personal accounts are entered in it. The main purpose of this account is to make the cost ledger self balancing by completing double entry.

2. **Stores Ledger Control Accounts -**
   
   It is a total account representing the stores Ledger. It presents the summary of receipts and issues of raw-materials and the value of stock on hand at any time. Total value of materials received is debited and the value of materials issued or returned to supplier is credited to this account.

3. **Wages control Account -**
   
   This account is debited with wages and salaries and credited with labour cost absorbed into production. Direct wages are transferred from this account to work-in-progress control account and indirect labour cost to works overhead account. The balance if any, indicates the cost of idle time.

4. **Factory/ Works /Production Overhead Account**
   
   The factory or production expenses incurred are debited to this account and the amount of overhead recovered from the production is credited by debiting the same to work-in-progress account.

5. **Administrative Overhead Account.**
   
   This account is debited with the office and administration expenses and credited with the amount of overheads recovered. The portion of overheads applicable to unfinished jobs is transferred to the debit of "Administration Overhead Suspense Account" or Carried forward as the balance. The final difference on this account is the sum of overheads over/under recovered which is taken to "Overhead Adjustment Account".

6. **Selling and Distribution Overhead Account**
   
   This account is debited with the total amount of selling and distribution expenses incurred and credited with overheads charged to sales. The balance on this account indicates under / over absorbed overhead which will have to be transferred to "Overhead Adjustment Account."
7. **Work in - Progress Ledger Control Account**

   It is a control account for work-in-progress or job ledger. This account shows on its debit side the opening balance of work - in - progress, direct material, direct wages, direct expenses and the works overhead recovered. The value of finished goods is credited to this account to carry the same to "Finished Stock Ledger Control Account". The debit balance in this account represents the value of incomplete jobs on hand and is equal to the total of all the balances in the job ledger.

8. **Finished stock Ledger Control Account.**

   It is debited with the administration overhead recovered and the value of job completed transferred from work-in-progress account. The cost of goods sold is credited to this account. The balance represents the cost of finished stock unsold.

9. **Service Work -**

   Whenever repair and service work is to be done, a service order is issued, and expenditure is separately accumulated and debited to a "Special Repairs and maintenance Account". At the end of the period, the balance of this account is apportioned to different overhead accounts in the ratio of benefits received.

2.8 **A Cost Control System**

   Costs are incurred in acquiring and converting inputs into outputs, and control is necessary to keep costs within limits of efficiency. The Industry itself acts as the converter (or conversion unit) that transforms inputs into outputs.

   This idea of an input - conversion - output system is applied to control we have a basis for the design of a cost control system. This is illustrated in Figure 2:6 and can be seen to consist of three major inputs : objectives (or desired ends); policies (or prescribed constraints); and plans (or means to ends within constraints). The planning phase tasks the various resources that are available to the company (Sales force, plant and equipment, materials, and so on) and allocates these in the best available way in line with requirements for the attainment of objectives. Detailed workloads must be established and standards must be set for comparative purposes. This is followed by the execution stage: the plan is put into effect. The major output in this simple framework is an observed level of performance.
<table>
<thead>
<tr>
<th>Inputs</th>
<th>Conversion Unit</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Objectives</td>
<td>⇒ Execution ⇒</td>
<td>Level of performance</td>
</tr>
<tr>
<td>2) Policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Plans</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) Set Standards  
b) Allocate resources  
c) Determine work loads  

Figure 2.6: A simple control system.

Measures of performance are fed back to the decision maker and compared with the desired levels of performance. In measuring output it must be realized that performance measurement has more than one dimension. Consequently in relation to inputs and the efficiency of their conversion into outputs, it is appropriate to ask:

1) How much was achieved?  
2) How good was this achievement?  
3) How much did it cost?  

The need for quantitative, qualitative, and financial evaluations of performance becomes clear if one imagines a production unit that operates an incentive scheme related only to the number of items manufactured.

Control is the major managerial function and is concerned with such tasks as setting objectives, formulating policies, drawing up plans, deciding amongst alternative courses of action, and monitoring performance in order to achieve objectives.

Control and planning are complementary and necessary to each other, cost control exists to ensure that actual costs correspond to planned costs. Information and action are central to effective cost control. Cost control is quite a different activity to cost reduction and the two must not be confused.
2.9 **Cost Components & Control Of Sugar Factory**

In the case of sugar industry both the input and output costs should be helpful in exercising of controls. Following are the components with potential economies that could be attempted to be realized. 

**Components costs - Inputs to the Plant.**

1) Cane  
2) Manpower and skills  
3) Fuel & Energy  
4) Engineering stores (Maintenance)  
5) Consumable Stores / Chemicals  
6) Time  
7) Packing Material  
8) Water and treatment inputs  
9) Air  
10) Lubricants

**Output (Realisation)**

- Sugar  
- Bagasse  
- Molasses  
- Pressmud  
- Power  
- Effluent  
- Stackgases  
- Ash  
- Lime Grit, etc.  

The nature of cost reduction and economics of sugar factory deals from following some items is given as below.

1. **Manpower**  
   Conventional Productivity potential reduction 50 % potential savings.  
   5-10 mandays / ton sugar. Rs. 20/- Per bag of sugar.

2. **Water**  
   Conventional requirement possible reduction to savings upto  
   220 M3/hr. 10m3/hr. Rs. 0.5 per bag of sugar.
3. **Effluent**
   Conventional Reduction to savings
   30M3/hr 1200 BOD 5M3/hr 500 BOD Rs. 1.0 per bag of sugar.

4. **Lubricants**
   Conventional Recycle to save savings
   upto
   8 litres/ 100 tone cane. 70 % Rs. 1.0 per bag of Sugar.

5. **Lime for condenser Water**
   Conventional Reduction to zero by recycling grist wash. saving upto
   PH make up 400 Kg/day.
   Rs. 0.5 per bag of sugar.

6. **Energy**
   Conventional Reduction to savings upto
   250 units/ton sugar. 160 units Rs. 13.5 per bag of sugar.

7. **Fuel**
   Conventional Reduction to savings upto
   27 % 20 % Rs. 17.5/- per bag of sugar.

### 2.10 Cost Of Conversion

The aim and objective of this study is to create awareness to reduce the cash conversion cost to comparison of cost Analysis and Technical efficiencies. Sugar recover, Duration of crushing and capacity utilisation of suagr factories are important parameters for determining are important parameters for determining conversion cost. In October 1996 the BICP recommended the following norms to determine the conversion cost of sugar.¹

1) The pol percentage bagasse at 2.3 percent for mills with machineries as per the 1987 specification (2000 TCD and above) and 2.6 percent for mills with the 1973 specifications (1250-2000 TCD). Normative loss in bagasse can be calculated on pol percentage bagasse and fibre percentage cane.

2) The purity of final molasses at 30 percent.

3) Loss in press mud at 0.07 percent cane and undermined loss at 0.10 percent.

4) Total normative loss is the sum of loss of bagasse, molasses, loss in press mud and undermined loss.

5) Normative sugar recovery calculated on actual pol percentage cane and normative total loss of sugar.

6) Quality and quantity of cane.

7) Norms can be applied mill-wise or agregated at zonal level.

8) 100 percent capacity utilization.

9) Total downtime at the rate of 10 percent.
10) Duration of crushing (based on cane availability, capacity utilization and
downtime)
11) Stem Consumption based on fuel/bagasse consumption at 25 percent cane for
mills with 1987 specification and 27.5 percent for mills with 1973
specification.
12) No norms have been suggested for mills with capacity below 1250 TCD. Their
performance is generally termed as poor.

2.11 Elements Of Cost Of Conversion
In the case of industry which manufactures salable products from purchased
raw materials or piece parts the activities that give rise to the profit earned are usually
reflected in what is known as conversion cost in other words the cost of direct labour,
direct expenses and the relevant overheads. 

Conversion cost is a measure of input. It is the total of the production costs of
converting purchased materials into finished products.

A) Cost of conversion :- Elements of cost of conversion are as follows.

1) Power Generation -

Power generation costs will be apportioned either on the basis of metred
consumption or failing that on the installed capacity of machines to use the power or
more simply on the number machines installed in each area. A refinement on this
method would be to make standing charge based on installed capacity or on peak
demand, and a unit charge related to power units consumed.

2) Maintenance -

The Maintenance department has the task of keeping all physical property in
as good condition as can reasonably be expected at all times. This involves the
protection and care of manufacturing machinery and equipment, service equipment,
factory buildings, yards and all other facilities that form part of the Physical property
of the organization.

3) Chemicals and consumables Expenses-

The objects of chemical control are to guide the operations of the sugar factory
in such a manner so as to ensure the best possible results, i.e. minimum losses with
high stage efficiencies chemical control also includes maintenance of the process
parameters at prescribed levels. Optimization of process parameters helps in
increasing not only through put but in minimizing losses and improving the quality of
the final product. so chemicals expenses are most important.
Under present system of control and reporting all consummables are expressed in terms of percent cane which does not bear a direct relationship to the conversion cost per unit of sugar. This system needs to be changed to an expression of all these in relation to unit sugar, i.e. per QL of sugar.

**4) Packing Expenses :-**

Every year during the month of August/September sugar factories finalize their contracts with the Jute Mills for the Supply of Jute Bags for the season. The average cost for packing per quintal of sugar was Rs. 35.91 during 2007-08 while as it is Rs. 41.66 during 2008-09. This is increased by Rs. 5.75 per quintal as compared to previous years cost.

**5) Salary & Wages Expenses :-**

Salary & wages is the important part of the sugar factory. The state average for salary and wages expenses during 2008-09 is Rs. 131.91 per quintal. As compared to previous year it is increased by Rs. 32.75 per quintal.

**Factories with minimum salary & wages expenses (Rs./Qt.)**

<table>
<thead>
<tr>
<th>South Zone</th>
<th>Central Zone</th>
<th>North Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarvodaya</td>
<td>32.93</td>
<td></td>
</tr>
<tr>
<td>Rajaram bapu Patil</td>
<td>44.30</td>
<td>Rena</td>
</tr>
<tr>
<td>S.M. Kagal Taluka</td>
<td>58.48</td>
<td>56.96</td>
</tr>
<tr>
<td>Lok Baburao Patil</td>
<td>48.14</td>
<td></td>
</tr>
<tr>
<td>Nira Bhima</td>
<td>59.01</td>
<td>Vitthalsai</td>
</tr>
<tr>
<td>Kukadi</td>
<td>60.58</td>
<td>Vikas</td>
</tr>
</tbody>
</table>

Source: Financial performance of VSI 2009

**6) Overheads :**

The various expenses of sugar factories incurred in the overheads.

The main groups of overheads are as follows:

i) Manufacturing overhead;

ii) Administrative overhead,

iii) Selling overhead; and

iv) Distribution Overhead,

i) **Manufacturing overhead (Production overhead)**

This group covers all indirect expenditure of the manufacturing division of a concern from the receipt of the raw material until the production is completed and the product is kept ready for despatch.

This is also known as factory oncost or works on cost. For eg. Fuel and power, lighting and heating etc.
ii) Administrative Overhead

This consists of all expense incurred in the direction, control and administration of an undertaking which is not directly related to research and development and distribution and selling activity of financial controller and chief cost accountant.

iii) Selling Overhead

It is the expenditure incurred in promoting sales and retaining customers. The examples are advertising and publicity, Window display, training of salesmen and their remuneration and allowances, after-sales services etc.

iv) Distribution Overhead :-

This consists of all expenditure incurred from the time the product is completed in the factory until it reaches its destination, eg. Warehouse and storage expenses, packing and shipping, carriage outwards, maintenance of delivery vans.

The state average of cost of overheads during 2008-09 is Rs. 65.45 per quintal. As compared to previous year, the average cost of overheads is increased by Rs. 18.86 per quintal.

3) Fixed Cost :-

It is also called Non-Variable cost, Fixed cost remains constant, whether the activity increase or decreases within a relevant range. Rent of the Factory/ Office Premises or Insurance of the property, senior Executives' Salary, Depreciation and so on remains unchanged. This nature of the fixed cost is illustrated by the following Table

Table No. : 2.2

Fixed Cost

<table>
<thead>
<tr>
<th>Fixed Cost (Rs.)</th>
<th>Production (Unit)</th>
<th>Fixed Cost per unit (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80,000</td>
<td>4,000</td>
<td>20</td>
</tr>
<tr>
<td>80,000</td>
<td>5,000</td>
<td>16</td>
</tr>
<tr>
<td>80,000</td>
<td>10,000</td>
<td>8</td>
</tr>
<tr>
<td>80,000</td>
<td>20,000</td>
<td>4</td>
</tr>
<tr>
<td>80,000</td>
<td>40,000</td>
<td>2</td>
</tr>
</tbody>
</table>

It is observed that the total fixed cost remains constant at Rs. 80,000 but fixed cost per unit decreases as the volume of output/activity increases
a) **Depreciation :-**

When factory buys a tractor, the account treats this transaction as creating a fixed asset, namely travelling equipment. When ends of useful life of a tractor starts at that time factory suffers a loss. Accountants refer to this loss in value as depreciation. Every year some amount transferred to the depreciation.

b) **Interest :**

The total interest includes interest on working capital, Term Loan and Deposits. The total interest per quintal during 2007-08 and 2008-09 is Rs. 110.17 and Rs. 109.72 respectively. Hence there is a decrease of Rs. 0.45 per quintal of sugar only.

4) **Conversion Cost :**

**Table No. : 2.3**

**The State Average Conversion Cost (per quintal)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. conversion cost (Rs./Qtl)</td>
<td>480.90</td>
<td>422.35</td>
<td>398.37</td>
<td>402.44</td>
<td>488.33</td>
</tr>
<tr>
<td>% to total cost of production.</td>
<td>27.51</td>
<td>23.09</td>
<td>28.12</td>
<td>28.69</td>
<td>23.44</td>
</tr>
</tbody>
</table>


Table No. 2.3 shows there is an increase in average conversion cost per quintal during 2008-09 of Rs. 85.89 as compared to previous year. Mainly due to higher cane price.

2.12 **Cost Control**

Any sugar factory or a business enterprise must survive, grow and prosper. Cost control and cost reduction are activities necessary for ensuring that theses objectives are achieved. In the modern times cost accounting is not only concerned with ascertainment of cost, but a means to improve the performance by managing the costs. Cost control and cost reduction are two important tools to manage the costs.

**Essential Features of cost control :**

1) **Cost Accounting :**

Cost control is feasible only when an organization has an effective cost accounting system to provide relevant information. Costs should be categorized into controllable and non-controllable. The organization is divided into responsibility centers. Every executive is made responsible for the performance of the centre directly under his control.
2) Cost Planning:
   Cost control aims at achieving the cost targets. So an organization should have proper planning or budgeting system. The targets should be set after taking into consideration all relevant factors. The targets need to be feasible and capable of being achieved.

3) Cost Reporting:
   Proper Management reporting system is necessary for perfect Monitoring.
   It must be in built in the organization to have a continuous basis of information about the actual and pre-determined costs of different products or services to the concerned levels of management.

4) Connective Action:
   On observing the variances, the management must identify the causes of variance and take appropriate remedial measures.

Process of cost control:
   Cost control is a dynamic process. It involves the following cycle.
   i) Establishment of Budget:
      The first stage of the cost control process is the establishment of budget or standards to serve as norms, it clearly defines attainable objectives in quantitative and monetary terms for the whole firm and for each sub-unit for a defined period of time.
   ii) Appraisal of performance:
      The actual performance is continuously compared with the budget or standards and deviations ascertained Management investigates these deviations or variances to ascertain the causes. The causes are analyzed by responsibility centers and are categorized into controllable and uncontrollable ones.
   iii) Remedial Measures:
      The variances are reviewed at appropriate levels of management. Steps are taken to ensure that controllable variances do not secure in the future.
   iv) Planning:
      There may be cases where variances of non-controllable nature keep on recurring from period to period. Further there may have been changes in the business environment during the budget period. Based on critical review of the feedback received, the budget/ or standards may be revised.

2.13 Techniques Of Cost Control:
   Cost control is exercised through the techniques of Budgeting and Standard costing.
Budgetary Control: It involves the following steps
1) Establishment of budgets relating to responsibilities of executives to the requirements of a policy.
2) Comparison of actual values with the budgeted values on continuous basis.
3) Ascertaining variances along with their causes.
4) Devising and taking suitable corrective measures.

Budgets may be prepared for various activities like production, marketing, capital expenditure and cash etc.

Standard Costing: It involves the following steps:
1) Techniques of evolution and fixation of standards for the elements of cost.
2) Comparison of actual costs with standard costs.
3) Ascertaining variances along with their causes and points of incidence.
4) Devising and taking suitable corrective measures.
5) Evaluation of Standards of different elements of cost, if necessary.

Standard costing is basically concerned with cost aspects of a business and so it is intensive. While the budgetary control is concerned with the operation of the business as a whole and hence, it is extensive. Further Budgetary control is a pre-requisite for successful operation of the standard costing system in the organization. Thus, both the techniques are necessary for cost control purposes.

The cost control is the function of keeping costs within prescribed limits. It is based on the principle of pre-determination of costs and achieving these cost levels so that inefficiencies and wastages may be reduced. Budgetary control and standard costing are the two most used techniques of cost control. The other techniques of cost control are the followings:
1) Ratio analysis.
2) Intra-firm and Inter-firm comparisons.
3) Material control: Control on purchase, handling and investment in materials.
4) Labour Control: Control on labour cost including labour time, productivity and remuneration.
5) Overhead control: Control on production, administrative and selling and distribution overheads.
6) Control on capital expenditure.
7) Control ratios.
8) Efficient reporting.
**Importance of cost control**: cost control is important because of the following reasons.

1) It enables the firm to achieve its defined objectives.
2) It leads to proper utilization of firm's resources.
3) It ensures the survival and growth of a firm by preserving its competitive capability.
4) It makes sure that the organization remains efficient.

### 2.14 Cost Reduction

Cost reduction is a systematic effort to improve profit margins by eliminating all forms of waste and unnecessary expenses without, at the same time, impairing the generation of revenue. Profit improvement, cost effectiveness, and methods of improvement, cost effectiveness, and methods of improvement are the other names of cost reduction. The aim of cost reduction is to offset the impact of squeeze on profits by getting the maximum return for every rupee of the funds spent by the factory. It is "the achievement of real and permanent reduction in the unit cost of goods manufactured or services provided without impairing their suitability for use intended." C.I.M.A. London.

**Salient Features of cost Reduction**:

1) Reduction should be real: It must be real and not fictitious. It must be through increase in productivity. This can be achieved through research or eliminating wasteful expenditure. Cost reduction obtained as a result of lower material prices or reduction in duties or taxes or windfall is not to be taken real.

2) Reduction Should be permanent - Temporary reductions in cost due to fluctuations in market prices or change in fiscal policy do not come in the purview of cost reduction. Cost reduction has to be permanent.

3) Quality/Utility to be maintained - Cost reduction should not be at the cost of essential characteristics of the product or service. It should not affect the quality or utility of the goods or services. The goods or services should continue to be suitable for the intended use even after cost reduction.

4) Cost reduction is a positive term and it is applied for planned and positive aspects of the improvement of efficiency. It can be for increasing productivity, elimination of waste, improvement in the design of product, incentive schemes, new layouts etc.
Techniques of cost Reduction

The various techniques used for cost reduction are as under:

1) Material, Labour and Overhead control.
2) Production, Planning and control.
3) Value analysis.
4) Cost-Benefit analysis
5) Improvement in design.
6) Budgetary control.
7) Standard costing.

Cost control and cost reduction are two different concepts. Both are effective tools of cost management to improve efficiency.

2.15 Control Ratios:

Control ratios are tools of evaluating operating performance in relative terms for facilitating control on the relevant area of operations. Such ratios give an overall view of the operating efficiency relating to a product, department or an organization and can be used for inter-product, inter-department and inter-firm comparisons. They can also be used for making comparisons over a period of time. Control ratios are expressed in percentages and 'Standard Hour' is used as a common measure of output. The ratio is taken as favorable if it exceeds 100%. In case it is less than 100%, the ratio is considered as unfavorable. Control ratios are as under:

1) Activity Ratio:

   It relates to actual level of activity in relation to budgeted level of activity. It studies the relationship between what has actually been produced and what was expected to be produced, both these outputs measured in terms of standard hours. It is used to measure the level of activity achieved over a period.

   It is a ratio between standard Hours for actual production and Budgeted Hours. It is also known as production volume ratio symbolically. Activity Ratio = (Standard Hours for actual production / Budgeted Hours) X 100

2) (a) Capacity Ratio -

   This is also known as Actual Usage of Budgeted capacity ratio or Actual Usage of rated capacity ratio. It makes it clear how much of the budgeted capacity has been utilized. The focus is on the utilization of the budgeted capacity. It expresses the relationship between Actual Hours Worked and the Budgeted Hours for the Budget Period. Symbolically, capacity Ratio = (Actual Hours Worked / Budgeted Hours) X 100
(b) **Standard or Normal Capacity Usage Ratio**: Normal Capacity usage is usually less than the installed capacity or the maximum possible capacity. Provision for certain manufacturing factors such as normal idle time, normal cooling/heating of the plant maintenance has to be made. Thus, Standard capacity usage refers to the relationship between budgeted hours and the maximum possible hours in a budget period. Symbolically,

\[
\text{Standard or Normal capacity Usage Ratio} = \left( \frac{\text{Budgeted hours}}{\text{Maximum Possible hours in the budget period}} \right) \times 100.
\]

3) **Efficiency Ratio** -

It expresses the degree of efficiency achieved in production. It is a relationship between the standard hours for actual production and the actual hours worked. It reveals the relationship between input and output in terms of standard hours. It studies "How many hours should have been taken to produce the actual output and how many hours have actually been utilised for the actual output?" Symbolically,

\[
\text{Efficiency Ratio} = \left( \frac{\text{Standard Hours for actual production}}{\text{Actual Hours Worked}} \right) \times 100
\]

4) **Calendar Ratio**:

It refers to the relationship between actual number of days worked during the budget period and the budgeted number of working days in the budget period. Symbolically,

\[
\text{Calendar Ratio} = \left( \frac{\text{Actual number of days worked during the budget period}}{\text{number of working days budgeted for the Budget period}} \right) \times 100.
\]

5) **Verification**:

\[
\text{Activity ratio} = \text{Efficiency Ratio} \times \text{Capacity Ratio}.
\]

**Budgetary Control**

A budget is a plan for future action. It is prepared for a defined period of time and approved prior to the commencement of the specified period. According to Brown and Howard, "A budget is pre-determined statement of policy of the management during a given period. Which provides a standard of comparison with the results actually achieved."

Budgetary control is a system of controlling costs which includes the preparation of budgets, co-coordinating the departments and establishing responsibilities, comparing actual performance with the budgeted; and acting upon results to achieve maximum profitability. Budgetary control helps the management to find out variances on comparison of actual performance with the budgeted performance and locate possible reasons for the deviations. On the analysis of the causes of variances, suggestions may be discussed to take remedial measures.
2.16 Functional Budgets:

A functional budget is one that relates to a specific function of the business enterprise eg. sales budget, production budget, purchase budget, etc. Thus, functional budgets relate to various functional activities of the business. In a manufacturing concern following functional budgets are usually prepared.

A) Operating and Functional Budgets

1) Sales budget
2) Production budget
3) Production cost budget.
   a) Direct materials budget.
   b) Direct labour budget.
   c) Factory overhead Budget
4) Selling and distribution Budget.
5) Sales overhead Budget.
6) Administrative overhead Budget.
7) Ending Inventory Budget.
8) Budgeted Income Statement.

B) Financial Budgets

1) Research and Development Budget
2) Capital Expenditure budget.
3) Master Budget

A) Operating and functional Budgets

1) Sales Budget:

   In sugar factory or other enterprises sales is the principal budget factor. Volumes of the production, Capacity Utilization, Purchase, Workforce etc. are dependent on correct forecast of sales volume and value for different products. The Marketing manager is directly responsible for the preparation and execution of sales budget. It states what the company can sell during the budget period.

2) Production Budget:

   The objective of production is to produce the right type of product at the right time in right quantity and at the right cost. Production budget provides for the planned volume of each product and with detailed schedule of production together with a forecast inventory of finished goods. It is usually prepared in Physical units, Though it can be prepared in monetary terms also. It may be
3) Production cost Budget:
It summarizes the materials budget, labour budget, the factory overhead budget and may be analysed and expressed on the basis of department or product.

a) Direct materials Budget:
It is the sum of Direct Materials usage Budget and direct materials purchase Budgets.

b) Labour cost Budget
The main purpose of such a budget is to a) Assess the direct and indirect labour force required. b) Assist the personnel department to plan in advance the recruitment and training of employees so that labour turnover can be reduced to the minimum. c) Assist in finding out the labour cost to be incurred in the manufacture, to facilitate preparation of manufacturing cost budgets and cash budgets for financing the wage bill.

c) Factory Overhead Budget
It consists of all items such as indirect materials, indirect labor and indirect expenses. Indirect expenses include power, fuel, depreciation, perquisites. The factory overhead Budget helps in estimating pre-determined overhead recovery rates. All the expenses are categorized as fixed and variable expenses.

4) Selling and distribution cost Budget
Selling cost is the cost to be incurred for creating and stimulating demand and procuring orders. Such costs are incurred to maintain and increase the level of sales. All expenses such as advertising, sales promotion, sales office, sales personnel, credit collection, market research. After sales service etc. are usually grouped together to form part of the responsibility of the sales manager. These expenses constitute the selling and Distribution cost budget. Warehouse charges, Packing and Loading charges, Carriage outwards etc. are the examples of distribution expenses.

5) Sales overhead Budget
It shows the budgeted costs of promoting sales for the budget period. It is made up of a number of cost items, some of which are fixed and some are variable. The fixed expenses in most of the cases are Salaries and depreciation; the variable expenses are commission, travelling expenses, advertising expenses and bad debts.

6) Administrative, Overhead Budget
It consists of non-manufacturing activities of the business. This budget contains expenses like Director's remuneration, legal charges audit fees, office
expenses, interest, property taxes, postage and courier services, telephone, telegraph etc. These expenses can be categorized into different heads such as company administration, general accounting, general office etc.

7) **Ending Inventory Budget**

This budget represents the cost of closing stock of raw materials and finished goods, etc. This information is used for the preparation of cost of Goods sold Budget and Budgeted Financial statement and budgeted balance-sheet.

8) **Budgeted Income Statement**

The budgeted income statement summarizes all the individual budgets, i.e. Sales Budget, cost of Goods sold Budget, and Administrative Expense Budget. This budget determines income before taxes. If the tax rate is available, net income after taxes can also be computed.

d) **Financial Budgets**

1) **Research and Development Budget**

Continuous research is necessary to develop and improve product. On the success of research, development function starts. After development, formal production can commence on commercial scale and the production function starts. The scope of research and development cannot be precisely defined, therefore the costs incurred under both the functions are put together as research and development costs.

2) **Capital Expenditure Budget**

Capital expenditure represents long term commitments. The benefits of capital expenditure are spread over a long period of time. The budget represents the planned out lay on fixed assets, like Building, Plant and Machinery etc. during the budget period. It involves huge amount of expenditure. The budget is prepared to cover the long period of time and it expresses the capital costs over the period in which expenditure is to be incurred and the expected earnings in terms of cash flows.

Capital expenditure budgets are prepared for both short and long range projects depending on the requirements of the business. Short range projects are executed during the current accounting year. Long range projects are not executed in the current period they are expressed only in general terms. They become budget commitments only when their time of implementation approaches near.
3) **Master Budget**

It is the end product of the entire budget making process. It is a consolidated summary of various functional budgets. This is why it is also called consolidated budget. It gives profit and loss account of the budget period and budgeted balance sheet at the end of the budget period. As per the Terminology of CIMA, "It is the summary budget incorporating its component functional budgets and which is finally approved, adopted and employed."[^9]

It reveals managerial goals of revenues, operating expenses, net income, growth cash flows and financial position of the business enterprise. Thus, it takes the macro view of the business unit; it coordinates sales with production, purchase, manpower planning and creating and utilizing fixed facilities/capacities. It is thus aggregative and all pervasive. It provides plans for the entire system while operating budgets provide plans for sub-systems of the organization.

[^9]: 9
2.17  Historical Background

I) Organization

Shree Datta Shetkari Sahakari  
Sakhar Karkhana Ltd Shirol  
Post - Dattanagar, Taluka - Shirol  
Dist - Kolhapur (M.S.) 

REGISTERED NO. OF  
Factory : KPR/PRG/(A) - 1  
Dated 9th June 1969

Factory Capacity - 7000 TCD

1) Historical Aspect :-

Shree Datta Shetkari Sahakari Sakhar Karkhana was registered under co-operative act of sugar factories on 9th June 1969 and was established by pioneer persons as Late. Shrimant V.S. Ghorpade Sarkar, Late Shri A.S. Kulkarni Dattajirao Kadam, Late Shri Anantrao Bhinde (the formar chairman) and present chairman Mr. S.R. Patil.

2) Location :-

The factory is situated at Dattanagar, Taluca - Shirol, Nearest cities are Jayshigpur, Sangli, Miraj and Kolhapur. Shirol Taluka of Kolhapur district is gifted by the presence of natural irrigation potential on account of five rivers viz. KRISHNA, PANCH GAGNGA, WARANA, DOODHGANGA And VEDGANGA. The name of the factory was given from influence of nearest religion place of god. "Datta" in Narshinhawadi, Which is about 8 K.M. away from factory site.  

3) Project Implementation :-

Shree Datta Shetkari Sahakari Sakhar Karkhana, Shirol was licensed in 1969 and trial crushing season has been taken on the auspicious day of VARSH PRATIPADA the 16th March 1972 at that time the crushing capacity of the sugar factory was 1250 T.C.D.

Considering availability of sugarcane factory undertaken expansion up to 2500 TCD under the liberalized licensing policy of the Government of India in the year 1980.

Considering the continuous increase in the area under sugarcane, the management of the factory had decided to increase the crushing capacity from 2500 TCD to 5000 TCD during the season 1989 - 1990. The management again expanded crushing capacity up to 7000 TCD from 2001/2002 season.
The factory covers 115 villages from Shirol, Hatkanangle, Karveer Kagal Taluka of Kolhapur District in Maharashtra and Chikodi Athani Taluka of Belgaum District in Karnataka State.

4) Main Administrative Building -

The factory had constructed Main Administrative Building, Which has facilitated to accommodate various wings of the factory in one modern building.

5) Horticulture -

In the year 1982 management of Karkhana Started Horticulture development scheme due of increase in the number of trees it had help in Environmental Balancing and also Created a source of income to the Karkhana. There are 5200 coconut trees 173 Mango trees 11081 Forest trees. Sum of all types of total trees are 17040. There is big garden and nursery also.

6) Medical Center -

As a part of its social obligation the factory has started medical center to provide various facilities to workers and to the population residing in the surrounding of this complex. The prime object of this venture is to extend the medical facilities to the weaker section at nominal change in "Datta Arogya Kendra". Medical Center has X-ray machine, physiotherapy Section, well equipped operation theater. Karkhana has Heart Specialist, Orthro Specialist, E.N.T. Specialist, Dentist on honorary basis. Eye checkup and operations all type of body checkup, family planning programs are conducted by the medical Center, The total investment for the medical Center is RS. 263.92 Lakhs.

7) Industrial Training Centre -

The factory has started Government recognized Industrial Training center, incorporation six trades viz.

1) Fitter 2) Mechanic Motor vehicle (MMV) 3) Electrician 4) Mechanic Agriculture Machinery 5) Information Technology and Electronic System Maintenance and 6) Computer Operating and Programming Assistant Which will facilitate the participant trainees the job surety as also they can have individual work shop of the subject matter.

8) Socio Economic Activities -

Employee's Co - Operative Credit Society

Employees of the cooperative Industrial complex has started a worker's co-operative credit society - which renders short term loans to its members to the extent of RS1.00 Lakh each.
9) Late Dattajirao Kadam Kamgar Kalyan Mandal And Labour Welfare.

Late Dattajirao Kadam Kamgar Kalyan Mandal Dattanagar implements various schemes for workers family's workers and family members can receive upto Rs. 10,000 medical Aid, if major operation has taken place. Mandal has Gymnasium Akhada, Liabrary, Balwadi also Recreation Hall is constructed for various, functions. Some of Players of Mandal are rating at the top of District, State and National level.

10) Transport Facility -

The factory has implemented DATTA VAHATUK YOJANA. Through this scheme the sugar factory has distributed 34 trucks, 84 tractors, 156 trailers and bullock carts fitted with Rubber Type amongst the cane producer member.

11) Petrol Pump -

A Diesel and petrol pump has been installed at karkhana site. This has facilitated the factory to have continuous supply of sugarcane without any hindrance in respect of transportation of sugar cane and also fuel is provided to the vehicles owned by the members of the factory.

12) Consumer Co-operative Store -

The management established a consumer Co-operative Stores viz. Shree Datta Shetkari Sahakari Grahak Sanstha Ltd. Dattanagar with a view to have a big consumer departmental stores to make available required fundamental Consumable items such as cloths, ready-made cloths, food-grains, electrical items, sewing machines bicycles etc. at reasonable prices.

13) By Products -

The main by-products are Distillery, Ethanol plant, and co-Generation.

14) Sugarcane Development Activities -

Factory appointed one Agri. Assistant for every 400 cane growers. Factory implemented various cane development activities thinking with a view to increase per hectare yield by reducing cost of cultivation and keeping soil in good fertile condition.

The various cane development activities implemented by factory are as under
Table No. : 2.4


<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Year</th>
<th>Installed Capacity TCD</th>
<th>Sugar cane Crushed Lac MT</th>
<th>Sugar Bagged Lac Bags</th>
<th>Average Recovery %</th>
<th>Capacity Utilization %</th>
<th>Red. Mill Extraction</th>
<th>Total losses %</th>
<th>Final Cane Price paid Rs./MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2003-2004</td>
<td>7000</td>
<td>6.67</td>
<td>8.00</td>
<td>11.62</td>
<td>101.87</td>
<td>96.05</td>
<td>1.75</td>
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<td>2004-2005</td>
<td>7000</td>
<td>8.35</td>
<td>10.18</td>
<td>12.19</td>
<td>109.58</td>
<td>96.17</td>
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<td>3</td>
<td>2005-2006</td>
<td>7000</td>
<td>8.31</td>
<td>10.36</td>
<td>12.40</td>
<td>108.45</td>
<td>96.19</td>
<td>1.81</td>
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<td>4</td>
<td>2006-2007</td>
<td>7000</td>
<td>10.25</td>
<td>12.65</td>
<td>12.32</td>
<td>106.49</td>
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<td>5</td>
<td>2007-2008</td>
<td>7000</td>
<td>11.01</td>
<td>14.26</td>
<td>12.95</td>
<td>107.17</td>
<td>96.30</td>
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<td>6</td>
<td>2008-2009</td>
<td>7000</td>
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<td>11.16</td>
<td>12.73</td>
<td>109.40</td>
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<td>7000</td>
<td>12.65</td>
<td>15.66</td>
<td>12.37</td>
<td>106.84</td>
<td>95.74</td>
<td>1.81</td>
<td>2311.00</td>
</tr>
</tbody>
</table>

Source : R.T. 8(C) chart 2003-04 to 2009-10 and yearly Annual Reports.
II) Organization

Jawahar Shetkari Sahakari Sakhar Karkhana Ltd. Hupari
Shri Kallappanna Awadenagar Hupari - Yalgud
Tal - Hatkanangle
Dist - kolhapur (Maharastra)

REGISTERED NO OF FACTORY :
KPR/HLE/PRG (A) /30 (S) /90 Date 29/01/1990
CRUSHING CAPACITY OF FACTORY 7500 TCD

1) Historical Aspect :

Jawahar Shetkari Sahakari Sakhar Karkhana established under the leadership of Honorable Kallappanna Awade. Ex. M.P. However in spite of persistent follow up the licensing was dragged up for about a decade due to restrictions in the then licensing policy of Union Government. Later on Government of Maharashtra in the year 1990 proclaimed a pragmatic policy of rehabilitation of sugar factories in private sector closed down for want of sugar cane through co-operation. Accordingly, Jawahar was allowed to purchase the industrial License of M/S Godhavari sugar Mills Ltd., Sakarwadi along with its machinery of M/s. Godavari Sugar mills Ltd., Sakarwadi along with its machinery of 1016 TCD11.

In confrontation to the above decision of Governments of Maharashtra, Director of Sugar and Additional Registrar of Co-operative societies, Maharashtra state, registered Jawahar under Maharashtra Co-operative societies Act- 1960 on 29th January 1990.

2) Project Implementation -

100 hectares of land at Hupari Yalgud, formerly known as "Shrimati Indumati Rani Sarkar Park" was purchased for the project as approved by Government of Maharashtra. Revised Project 2500 TCD approved by the Government of Maharashtra. Additional Machinery was purchased and the project was successfully completed within seven and half month and the trial season was ceremoniously launched on 30th April 1993.

Considering the continuous increase in the area under sugarcane the management of the factory again expanded crushing capacity from 2500TCD to 7500 TCD. Jawarahar Karkhana had started 7500 Total crushing capacity from the year 2007 - 2008.
3) Location -

The factory is situated at Shri Kallappanna Awadenager, Hupari, Yalgud Taluka - Hatkanangle. Nearest cities are Kolhapur, Ichalkaranji, Hatkanagngle, Kagal and Shirol. Nearest rivers are PANCHGANGA and DOODHAGNAGA. Besides an additional land area comes under irrigation due to new irrigation projects such as Chandoli and Kalamamwadi.

The factory covers 232 Villages from Hatkanangle, Shirol, Kagal and Karweer of Kolhapur District in Maharashtra and Chikodi, in Athani Taluka of Belgaon District in Karnataka State.

4) Computerization -

A systematic comprehensive computerization has been done right from weightment up to boiler and pan automation. The administrative work at different levels such as shares, come Development Schemes, Harvesting and Transportation Bills, Deposits, Attendance Record and pay Bills of employees, Accounts, Stores and so also Accounting of petrol pump have been computerized. All the computer terminals have been inter-linked through LAN with the Central computer pool. This has brought about pace. Correctness and neatness in working of course the computerization is enabling the management to secure information without delay and to take quick decisions.

5) Co-Generation Project -

While augmenting the cane crushing capacity from 2500 TCD to 5000 TCD, Jawahar envisaged two ALSTOM power - Brazil make imported Back Pressure Turbines of 12 MW and commissioned the co -generation project and electricity is being exported to MSEB Continuously since 22nd November 2001.

The factory has Two turbo alternator sets, One of Triveni make 45 kg/cm² steam pressure and 1 kg/cm² back pressure with 3MW capacity and the other one of Brown Boveri make 19 kg/cm² steam pressure and 1.5 kg/cm² back pressure with 3 m.w. Capacity.

Now factory has completed cogeneration project for exportable surplus power of about 12 MW with back pressure route turbines.

6) Cane Development Programmes -

To ensure all these factors, Jawahar, from its inception itself is sincerely launching cane Development Programmes. Under these programmes, good quality seeds, senhemp seeds for green manure, basal doses for ratoons so also micro
nutrients, insecticides, pesticides and organic manures are provided to farmers at subsidized rates. Some of the services are rendered at concessional rate, interest. Free credit facility and by way of subsidy.

7) Employees Welfare -

The credit of efficient working of factory goes to the harmonious bi-lateral relations between employees and Management. Most of the employees hail from nearby villages. A few number of physically disabled and backward class employees have been recruited in the factory not only to adhere the Government Rules but to share the social and moral responsibility. An employee is deemed as an integral part in the modern agro-industrial development process. To ensure a happy life and social status to the employees, every effort it mode by providing all possible facilities to them about two hundred employees have been housed in the residential quarters at the factory site.

Table No. : 2.5


<table>
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<tr>
<th>Sr. No</th>
<th>Year</th>
<th>Installed Capacity TCD</th>
<th>Sugar cane Crushed Lac MT</th>
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<th>Capacity Utilization %</th>
<th>Red. Mill Extraction</th>
<th>Total Losses %</th>
<th>Final cane Paid Rs/MT</th>
<th>Crushing days</th>
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</table>

Source : R.T. 8 © chart, year 2003-04 to 2009-10
III) Organization

Shree Tatyasaheb Kore Warananagar
Sahakari Sakhar Karkhana Ltd.
Warananagar, Tal - Panhala
Dist - Kolhapur (Maharashtra)

Registered No Of Factory
G- 271 Of 1955
Factory Capacity 7500 TCD

1) Historical Aspect -

WARANA a successful name in the cooperative movement and sugar lobby. The name "WARANA" Sounds Suitable Wherever there is a mention of cooperative movement. One is amazed and astonished by the way this barren land was converted into a green valley. "Love at first Sight" can be rightly applied to this land of integrated rural development. There is no name parallel to WARANA expect that WARANA RIVER Which flows parallel to WARANA.

Late Tatyasaheb Kore who did a magnificent miracle in the land of Warana, born on 17th October 1914, as a son of a farmer in a small village Kodoli. Young Vishwanath Kore had to undergo severe acid tests due to the poverty of the family. Besides poverty the sad demise of his parents might have crunched him a great deal. Being the eldest in his family he took all the responsibilities on his shoulder and through his hard work he brought up the whole family through difficult times.

Today Warananagar is a place of many facets and fragrances and its success story started unfolding with every sunrise Warana making stupendous growth and is expected to make miracles in the days to come.

2) The Sugar Factory -

The successful establishment of a co-operative sugar factory in 1959, completely revolutionized the life of Warana. Today it is the backbone of this complex. The working efficiency of the factory has broken all the existing records in the long standing Indian history of sugar industries.

The sugar factory has also bagged many prizes from the National federation of co-operative sugar factories Ltd. New Delhi and Vasantdad Sugar Institute Pune. for its best technical efficiency. During the season 2006 - 07 the total crushing capacity reached up to 7500 tonnes/day.
Warana's total growth is dependent on this sugar factory. This is parent unit from which Warana is drawing inspiration and enthusiasm for its overall growth. Every effort is being put to make the sugar factory an ideal one.

3) **Warana Distillery** -

As a derivative of sugar factory a distillery was set up in 1989, which utilizes the molasses to convert it into valuable industrial alcohol, the capacity of the distillery being more than 30,000 litres/day. The distillery is now thinking to diversify into the production of "Absolute Alcohol". This will in turn fetch an increased revenue to the farmers.

4) **Warana Paper Factory** -

To save the forests from their fast depletion and to make the use of the waste product of sugar cane, viz. Bagasse A paper plant of capacity 20 TPD was set up in 1983. This factory is another example for Tayasaheb Kore's foresight. The factory utilizes the non-conventional material bagasse for the production of the paper and succeeded in producing the paper along with earning the appreciation from the Government.

5) **Electricity Generation** -

Regeneration of waste into electricity is now being taken up at Warana M/S. Western paques India Ltd, have started generating the electricity by using the waste water produced by paper mill and Distillery. This unit is producing around 20,000 units of electricity every day and is being utilized by the paper factory. Thus the efforts of turning waste into a useful energy is in progress.

6) **Worker's Welfare** -

In any organization, human resource is the most important for the development of the organization. Warana Complex really respects the human efforts existing behind its progress. The factory has provided quarters for the workers with all the essential facilities like sanitation, filtered water supply, cheaper electricity etc. Workers avail the credit facilities from the departmental store that is Warana Bazar. In case of emergency medical facilities are provided at free of cost. The worker's welfare runs a printing press. Other organizations in Warana Complex to provides such amenities for their workers.
Table No. : 2.6

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Year</th>
<th>Installed Capacity TCD</th>
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<th>Capacity Utilization %</th>
<th>Red. Mill Extraction</th>
<th>Total Losses %</th>
<th>Final cane Price Paid Rs/MT</th>
<th>Crushing days</th>
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Source : R.T. 8 (C) chart, year 2003-04 to 2009-10
IV) Organization

Shri Chh. Rajaram
Sahakari Sakhar Karkhana Ltd. Kasaba Bawada
Tal - Karvir,
Dist - Kolhapur

REGISTERED NO. OF FACTORY -
KPR/KVR/PRG(A) 2 (S)
Dated 11th April 1984

Crushing Capacity Of Factory : 2200 M.T.

1) Historical Aspects -

The Kolhapur sugar mills Ltd (Pvt- Ltd) was established in 1932 - 33 In 1973 the sugar Undertaking of the company was separated and renamed as "The Kolhapur Cane sugar Works Ltd". The Kolhapur Cane sugar Works Ltd. defaulted payment of cane price of the season 1982-83 to the tune of Rs. 2.51 Crores and deposit with interest from 1978 - 79. The total dues amounted to around Rs. 7.00 Crores. The Management of the Company was reluctant to pay the dues of cane Growers.

The Uskari Shetkari Sangthna agitated with the Management of the Company for getting arrears of cane payment and deposits with the keen interest and help rendered by the Govt. of Maharashtra and the relentless efforts of the Sanghatana, the ownership of the sugar factory was hunded over to the Cooperative sugar factory "Shri Chh. Rajaram Sahakari Sakhar Karkhana Ltd." formed by the sanghatana, in lieu of the cane dues. Thus the Joint stock sugar factory was converted into a fall fledged co - operative sugar factory under the cooperative Management.

2) Location -

Shri Chhatrapati Rajaram Sahakari Sakar Karkhana Ltd. Kolhapur is located at kasaba Bavada, Taluka Karvir about 8 Kilometres from the main Kolhapur city. Nearest cities are Kolhapur, Kagal, Panhala, Hatkanangle, Karvir Taluka of Kolhapur District is gifted by the presence of natural irrigation potential on account of four Rivers viz Kumbhi Kasari, Doodhganga Vedganga and Parchganga.13

The Karkhana is located in the high recovery zone and due to ample supply of water for irrigation and the nature of soils available in the area of operation the recovery percentage is of the order of 11.5% to 12 % and yield of cane is around 75 to 80 tons/ hectare. Historically being the oldest factory in the Kolhapur region the cane
command area of the factory is spread over 120 villages in 7 adjoining talukas. Geographically Karkhana is on the banks of the Panchganga river. Cane is the principle crop in the Kolhapur region and due to fertile soil, good irrigation and river water, there is excellent cane availability in normal seasons.

Shri. Chhatrapati Rajaram Sahakari Sakhar Karkhana was initially registered as a sugar plant with a capacity of 400 T.C.D. The plant was progressively upgraded to 2200 T.C.D. With few modifications, the karkhana now achieves normal cane crushing of 3200 to 3300 TCD. The Karkhana has all infrastructure facility such as water, power, labour, transportation, disposal of effluent etc. to work at the capacity of 3500 TCD.

**Table No. : 2.7**

**Statement Showing Technical Performance of Chh. Rajaram for the season 2003 to 2010.**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Installed Capacity TCD</th>
<th>Sugar cane Crushed Lac MT</th>
<th>Sugar Bagged Lac Bags</th>
<th>Average Recovery %</th>
<th>Capacity Utilization %</th>
<th>Red. Mill Extraction</th>
<th>Total Losses %</th>
<th>Final cane Price Paid Rs/MT</th>
<th>Crushing days</th>
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Source : R.T. 8 © chart, year 2003-04 to 2009-10 and yearly Annual Reports.
V) Organization

Kumbhi Kasari Sahakar Sakhar Karkhana Ltd. Kuditre
Post - Kuditre
Tal - Karveer
Dist - Kolhapur (Maharashtra)

REGISTERED NO OF FACTORY : G/282 OF 1960
Factory Capacity : 3000 Tcd

1) Historical Aspects :

Kumbhi Kasari Sahakari Sakhar Karkhan was registered under co-operative act of sugar factories on 20th June 1960. Late D.C. Narke and Colleagues made a proposal for the cooperative sugar factory in the year 1954. The factory started production in 1962-63, at that time crushing capacity of the sugar factory was only 1000 M.T. cane crushing a day of standard.

Considering availability of sugar cane factory undertaken expansion up to 1750 M.T. a day in 1977 considering the continuous increase in the area under sugarcane, the management of the factory had decided to increase the crushing capacity from 1750 TCD to 3000 TCD. The permission was issued to 3000 M.T. a day in 1980

2) Location -

The factory is situated at Kuditre Tal - Karveer. Nearest cities are Kolhapur, Panhala and Gaganbawada. The name of the factory was given from the two rivers KUMBHI and KASARI.

The Factory covers 42 villages from karveer Taluka 58 Villages from Panhala Taluka, 7 Villages from Gaganbawade Taluka and one village from Shahuwadi and Radhanagari Taluka each.

3) Project Implementation -

Total No of Shareholders of sugar factories are 23,389 At presents the factory has A, B, and C class shareholders. Sugar cane growers are considered as 'A' Directors of the societies are considered as 'B' and Nominal Shareholders who are persons trading agencies etc are considered as 'C'
Authorized Share capital of the factory is Rs. 12 Corrod 90 Lakhs. The Sugar factory has started its own distillery of 30,000 liters per day capacity in 1993. The factory has also started "satardy composting project". The factory has own Shetkarl Sanscrutic Bhavan." A systematic computerization has been done in administrative work at different levels such as shares, cane development schemes, Harvesting and Transportation Bills, Deposits attendance records and pay bills, of employees, accounts and stores and so also.

4) **Cane Development Programmes** :

To develop the area under sugarcane factory has been taken cane development programmes under these programmes good quality seeds are provided to farmers at subsidized rates.

5) **Educational Institutions** : Factory has started Recedencial schools, and Shriram High school Junior college and Sinear college at factory site.

6) **Technical Efficiency Awards** : The Sugar Factory has been awarded following different awards.

1) National Level 1<sup>st</sup> Rank for higher sugar recovery from National Federation of cooperatives sugar factories New Delhi - 1991 - 1992

2) State level 3<sup>rd</sup> Rank for utilizing higher technical efficiency in south Maharashtra Zone from vasantdada Sugar Institute Pune 1992-1993 and in 2004-05.

3) State level 2<sup>nd</sup> Rank for utilizing higher technical efficiency in south Maharashtra Zone from vasuntdada sugar institute, Pune 1993-94 and in 2000-2001.
**Table No. : 2.8**

**Statement Showing Technical Performance of Kumbhi for the season 2003 to 2010.**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Installed Capacity TCD</th>
<th>Sugar cane Crushed Lac MT</th>
<th>Sugar Bagged Lacs Bags</th>
<th>Average Recovery %</th>
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<th>Total Losses %</th>
<th>Final cane Price Paid Rs/MT</th>
<th>Crushing days</th>
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Source : R.T. 8 (C) chart, year 2003-04 to 2009-10
VI) Organization

Sharad Sahakari Sakhar Karakhana Ltd, Narande
Shamravji Patil (Yadravkar) Nagar Narande
Tal - Hatkanangle Dist - Kolhapur

REGISTERED NO OF FACTORY :
KPR/HLE/PRG(A)/S-65/96
Dated : 01/08/1996

FACTORY CAPACITY -
2500 TCD

1) Historical Aspects -

Sharad Sahakari Sakhar Karkhana was registered under co-operative act of sugar factories on 1 August 1996 Late Shamraoji Patil (Yadravkar) made a proposal in 1994. Shree Sharad Sahakari Sakhar Karkhana Ltd. Narande was licensed in 1996 and trial crushing season has been taken on march 2002. Crushing Capacity of sugar factory is 2500 TCD.¹⁵

2) Location -

The factory is situated near Peth Vadgaon Tal. Hatkanangle. Nearest cities are Hatkanangle, Peth Vadgaon and Jaysingpur. The name of the factory was given from Hon'ble Minister for Agriculture and senior leader Shri Sharad Pawarji. Nearest river is Warana.

3) Project Implementation -

Share capital of the factory is Rs 19 corrod 40 Lakhs. The sugar factory has started its own cogeneration project 2 M.G. The factory has also started "Sham Samrudhi Sendry Compost project". A systematic computerization has been done in administrative work at different levels.

4) Cane Development Programmes -

To develop the area under sugarcane factory has been taken cane development programmes : Under these programmes, good quality seeds are provided to farmer's at subsidized rates.

5) Cane Cutters Transport Facility -

The factory has implemented cane cutters Transport union, Narende" A petrol pump has been installed at Karkhana site. This has facilitated to all transporters and workers of sugar factory.
6) Educational Institutions -

Factory has started "Sharad Technical Institute" and "Sakhar Shala at Karkhana site".

7) Technical Efficiency Award's -

The 'Sharad Sahakari Sakhar Karkhana' has been awarded following different awards.

1) State level 2\textsuperscript{nd} Rank for utilizing higher technical efficiency in south Maharashtra zone from Vasantdada Sugar Institute, Pened in 2003 - 04 and 2005 - 06

Table No. : 2.9


<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Installed Capacity TCD</th>
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</table>

Source : R.T. 8 (C) chart, year 2003-04 to 2009-10
References:

1) V.B. Jugale, "Sugarcane Pricing, Policy, Procedure and Operations" by Atlantic publishers and distributors, New Delhi, 2000 P.P. 14, 17, 75, 36, 38.

2) Sugar India (2011), Page No. 73


Annual Reports of the Samples Sugar Factories,


Others

R.T. (8) C of the following sugar factories


