CHAPTER NO. VII

CONCLUSION AND SUGGESTIONS OF THE STUDY

7.1 Conclusions :

1) Sugar Production :

Maharashtra is one of the major sugar producing state in the country, that contributes 30-35 % of total nations sugar production. It is observed from the table No. 1.2 Sugar production with minimum of 45.79 lakh tonnes (2008-09) and maximum of 91.00 lakh tonnes (2006-07) and in 2008-09 - 70.67 Lakh tonnes respectively.

2) Sugar Price :

It is overlooked that the employees of the sugar factories and the sugarcane farmers are also consumers. As the sugar factories are not getting reasonable, returns on their produce ; they will not be able to pay remunerative cane price to farmers. In India cost of sugar production is higher and the sugar prices are lower. The sugar prices are not conductive to payment of remunerative cane price to cane cultivator.

3) Sugar Recovery :

Higher sugar recovery percentage is found in Maharashtra as Compared to that in other states. Table No. 6.39 shows that Recovery % of selected samples sugar factory. Maximum average of recovery % is in Kumbhi sugar factory, (12.57). Second number is of Datta Sugar factory. Avg. of Recovery % of Datta sugar factory is (12.37).

4) Crushing Capacity utilization :

The crushing capacity utilization is the most important factor in reducing the production cost. Optimum crushing capacity utilization results in reducing the total cost of sugar production. Further with uniform and continuous operation, the higher capacity utilization can be achieved which ultimately results in reducing sugar losses. Consumption of bagasse and steam. Table No. 6.25 shows capacity utilization of High TCD sugar factories. Table No. 6.26 shows capacity utilization of Low TCD sugar factories. Capacity utilization of Warana sugar factory from high TCD and Kumbhi Sugar factory from low TCD is maximum. Warana and Kumbhi sugar factory has successful to achieve the aim of 100 % capacity utilization.
5) **Cost of Production**

Cost of production of sugar is the sum total of all expenses incurred in the production of sugar. Table No. 5.8 shows the average of total cost of production of Warana sugar factory is maximum (2408.30) as compared to other sugar factories.

6) **Cost of Conversion**

Second part of cost of production of sugar factories is cost of conversion. In conversion cost incurred power exp, chemicals and consumables, salary and wages, packing, repairs and maintenance, overheads, Depreciation and Interest etc. Table No. 5.25 shows the average of cost of conversion of Datta sugar factory is minimum (546.39) and maximum is Jawahar (652.73) but C.V. of Warana Sugar factory is minimum (14.89) so Warana sugar factory is more consistent than Datta and Jawahar.

7) **Depreciation**

Depreciation depends upon the age of the factory. It means that age and TCD capacity of sugar factories increases depreciation. But it is found that, some time positive and some time negative correlation between age and depreciation of sugar factories. In study period there is variation in percentage of Depreciation, It is shown in table No. (5.2 to 5.7)

8) **Interest**

It is observed that in study period interest expenses are more in the Sharad sugar factory. The percentage of interest per M.T. has some time increased and some time decreased. All sugar factories are overburdened by interest. It indicates that theses factories have been taking more amounts of loans from the banks. It cause to increase the cost of conversion.

Table No. 5.2 to 5.7 indicates, the position of interest of sugar factories. Minimum average of interest has paid by Chh. Rajaram sugar factory (152.75), shown in table No. (5.9), Sharad and Jawahar have borrowed more amount of loan as compared to other sample sugar factories.

9) **Cash Conversion Cost**

In cash conversion includes power cost, chemicals and consumables, salary, expenses, packing expenses, Repairs maintenances, factory overheads; Depreciation and interest are not includes in cash conversion cost.

1. **Cash Conversion cost of Datta**

Table No. 5.10 shows, there are more variability in power cost and repairs and maintenance. as compared to other expenses in study period. Average of chemicals and consumables and salary expenses is high.
2. **Cash conversion cost of Jawahar:**

   Table No. 5.11 shows, Average of salary expenses, pack. exp, factory over heads are more than other expenses. It is found that percentage of factory over heads and salary expenses are more than other expenses.

3. **Cash conversion cost of Warana:**

   Table No. 5.12 shows, there are percentage of power cost is high.

   Average of salary expenses, factory overheads, repairs and maintenance is high. Percentage of salary is more.

4. **Cash conversion cost of Chh. Rajaram:**

   Table No. 5.13 shows packing expenses and salary expenses and factory overheads are more than other expenses.

5. **Cash Conversion cost of Kumbhi:**

   Table No. 5.14 shows salary expenses is very high as compared to other expenses.

6. **Cash Conversion cost of Sharad:**

   Table No. 5.15 shows percentage of factory overheads is more as compared to other expenses.

   It is found that about all sugar factories salary expenses is very high as compared to other expenses. Percentage of salary of Kumbhi sugar factory is more as compared to all sugar factories.

10) **Comparison of cost of conversion to cost of production:**

   Table No. 5.17 to 5.19 show, comparison of cost of conversion to cost of production of high TCD sugar factories. It is found that, percentage of cost of conversion to cost of production of Jawahar Sugar factory is high (28.89), and percentage of Warana sugar factory is low (25.40). So Warana sugar factory has succeeded in keeping minimum cost of conversion.

   Table No. 5.20 to 5.22 show, comparison of cost of conversion to cost of production of low TCD sugar factories. It is found that, percentage of cost of conversion to cost of production of Kumbhi Sugar factory is high (28.06) and percentage of Sharad Sugar factory is low (24.83) so Sharad sugar factory has successful to keep minimum cost of conversion.
11) Relation between capacity utilization and cost of conversion

Table No. 6.27 shows, capacity utilization doesn't use completely so, cost of conversion is high. Cost of conversion depends on variable cost and fixed cost. Fixed cost is not controllable cost. So more capacity utilization is always profitable.

Table No. 6.30 shows that cost of conversion depends on capacity utilization. Full capacity utilization is essential. This is very important fact in sugar factory. "Maximum capacity utilization reduce the cost of conversion.

12) Technical Efficiencies:

Table No. 6.30 to 6.36 shows technical characteristics for the season 2003-04 to 2009-10 of sample sugar factory. In technical parameter includes, Pol % cane, Fibre %, Recovery %, Reduced Mill Extraction, Reduced Boiling House Extraction, Reduced overall Extraction, Sugar lost %, Lost hours % etc.

Table No. 6.37 shows Average of Pol % of 'Datta' sugar factories is high from High TCD and Average of 'Kumbhi' sugar factory is high from Low TCD sugar factory.

Minimum Average of Pol % is of 'Jawahar' sugar factory from high TCD and 'Chh. Rajaram' sugar factory from Low TCD. High Pol % is good indicator and quality of cane good.

Table No. 6.39 shows Recovery % of samples sugar factories. Maximum average of recovery % is of 'Kumbhi' sugar factory and minimum average of recovery % is of 'Chh. Rajaram' Sugar factory.

Table No. 6.40 shows Reduced Mill Extraction of samples sugar factories. Maximum average of R.M.E. is of 'Sharad' sugar factory and Minimum average is of 'Jawahar' sugar factory Maximum average of R.M.E. is good indicator. So technical efficiency of 'Sharad' sugar factory is good.

Table No. 6.41 shows reduced Boiling House Extraction of samples sugar factories. Maximum average of R.B.H.E. is of 'Sharad' sugar factory and minimum average is of 'Warana' sugar factory.

Table No. 6.42 shows average Reduced overall Extraction of samples sugar factories. Maximum average of R.O.E. is of 'Sharad' sugar factory and Minimum average is of 'Warana' sugar factory. So technical efficiency of 'Sharad' sugar factory is good.

Table No. 6.43 shows sugar lost % of samples sugar factories. Maximum average of sugar lost % is of 'Jawahar' sugar factory and minimum average is of
'Sharad' sugar factory. So, about sugar lost % 'Sharad' sugar factory is good because high sugar lost % is not good indicator.

Table No. 6.44 shows Average of Lost Hrs. % of samples sugar factories. Maximum average of lost Hrs. % is of 'Chh. Rajaram' Sugar factory and 'Minimum average is of 'Datta' sugar factory. Maximum average of lost hours % is not good indicator.

We have selected two good sugar factories. These are 'Datta' and 'Sharad'. Datta is selected from High TCD and 'Sharad' is selected from Low TCD. Table No. 6.45 shows, Average, C.V. and S.D. of technical parameters of 'Datta' and 'Sharad' sugar factories.

Statistical test of Hypothesis No. 5 is tested from this table and concluded that "low TCD sugar factories are more efficient than High TCD sugar factories." From this thesis other conclusions are as follows.

1) Salary & Wages of workers are more comparatively to other expenses.
2) Cost of conversion of sugar factories varied due to not only efficiency and size of sugar factories.
3) High TCD sugar factories are more consistent than Low TCD sugar factories.
4) Maximum capacity utilization reduce the cost of conversion.
5) Low TCD sugar factories are more efficient than high TCD sugar factories.
6) Maximum average of Reduced overall Extraction (R.O.E.) reduce the sugar Lost %.
7) Maximum capacity utilization is essential.
8) Maximum R.O.E. and minimum sugar lost % is good indicators.
9) Maximum capacity utilization and minimum sugar lost % reduces the cost of conversion.
10) Technical Efficiency of 'Sharad' sugar factory is fine as compare to all sugar factories. Second number is 'Datta' sugar factory.
11) In study period Higher capacity utilization is of 'Warana' sugar factory.
12) Const of conversion depends on 'Capacity utilization'. (Chapter No. VI, Table No. 6.30)
13) Average recovery % of cane in 'Kolhapur' District is Higher as compare to other district.
14) No. of sugar factories in Kolhapur District is higher as compare to other District.
15) Warana sugar factory is more consistent. (Table No. 5.33)
16) Average of TCD capacity is higher (7000) of Datta sugar factory in study period. (Table No. 5.1)
17) Average of cost of production of 'Warana' sugar factory is higher (2408.30 Lakhs) as compared to other sugar factories in study period. (Table No. 5.8)
18) Average of interest of 'Jawahar' Sugar factory is higher (211.29) as compared to other sugar factory in study period. (Table No. 5.8)
19) Average of cash conversion cost 'Warana' Sugar factory is higher (435.06) as compared to other sugar factories in study period. (Table No. 5.8)
20) Average of cane cost of 'Warana' sugar factory is higher as compared to other sugar factories. (Table No. 5.8)
21) Average of power cost of 'Warana' sugar factory is higher (27.06) (Table No. 5.27).
22) Average of chemicals and consumables of 'Jawahar' is higher (23.22) shows in Table No. 5.27)
23) Avg. of salary exp. of 'Kumbhi' sugar factory is higher (231.98) Table No. 5.27.
24) Avg. of repairs and maintenance of 'Datta' sugar factory is higher. (Table No. 5.27).
25) Average of factory over heads of 'Warana' sugar factory is higher (135.43) (Table No. 5.27).
26) Average of packing expenses 'Kumbhi' sugar factory is higher (54.32).
27) Average of depreciation of 'Jawahar' sugar factory is higher (105.58).
28) In Kolhapur District big sugar factories are 'T.Kore Warana', 'Datta' and 'Jawahar' sugar factories.
29) End of the study period maximum age is of 'Warana' Sugar factory about High TCD sugar factories (50 years) and 'Kumbhi' sugar factory about Low TCD sugar factories. (46 years)
30) Table No. 4.9 shows, average of working days, cane crushed and sugar production are dependent on each other. When working days increase, the cane crushing also increase at the same time total sugar production also increases.
31) Table No. 4.5 shows, relation between cane cost and total cost of production is positive. When cane cost increases, the total cost of production also increases.
32) Table No. 6.23 shows cane crushed, sugar production, Recovery % cane for the season 2009-10. 'Jawahar' and 'Warana' has highest TCD capacity. But 'Jawahar' has less sugar bags production with compare to 'Warana' and 'Datta' It means TCD
capacity was affected on sugar bags production. For minimization of cost of production, maximization of sugar bags production is required. Each sugar factory should try to maximize the crushing efficiency for minimization of cost of production.

33) Table No. 5.10 to 5.15 shows elements of cash conversion cost and age of the samples sugar factories by referring statistical data it shows, age of the factory increase, repairs and maintenance also increases. At the end of study period, Age of 'Datta' sugar factory is 39 years and average of repairs and maintenance is Rs. 75.97 Lakhs. Age of 'Jawahar' sugar factory is 17 years and average of Rep. & main is Rs. 50.60 Lakhs. Age of 'Warana' sugar factory is 50 years and average of rep main. is 66.86 Lakhs.

Compared between age and repairs and maintenance of three sugar factories and we found that repairs and maintenance of 'Datta' and 'Jawahar' are higher as compared to 'Warana' sugar factory about high TCD sugar factories.

Age of 'Chh. Rajaram' sugar factory is 25 years and average of Rep. main. is Rs. 37.68 Lakhs. Age of 'Kumbhi' sugar factory is 46 years and average of rep. main. is 48.36 Lakhs.

Age of 'Sharad' sugar factory is 10 years, and average of rep. main. is Rs. 52.51 Lakhs. Compared between age and repairs and maintenance of three sugar factories we found that age of 'Sharad' sugar factory is only 10 years but repairs and maintenance is Rs. 52.51. Lakhs. This amount is high as compared to 'Chh. Rajaram' and 'Kumbhi' sugar factory.

It is found that correlation between age and repairs and maintenance is positive except Kumbhi and 'Jawahar' sugar factory. Cost of repairs and maintenance is maximized about 'Datta', 'Jawahar' and 'Sharad' sugar factories. This is significant point of these factories. Cost of repairs & maintenance should be minimized.

34) Table No. 6.23 shows, 'Warana' sugar factory is higher cane crusher sugar factory is higher cane crusher sugar factory as compared to high TCD sugar factories, and 'Kumbhi' is higher cane crusher sugar factory as compared to Low TCD sugar factories.

35) Table No. 6.25 shows average of % of capacity utilization of 'Warana' sugar factory is high (117.47) as compared to average of present capacity TCD. (6428.517)
7.2 Problems and prospects of sugar industry

1) Sugar Production (From table No. 1.2)

In Maharashtra sugar production is increased. In 2009-10 sugar production in Maharashtra was 70.66 Lakh tonnes as compared to previous year there was sharp rise in sugar production. In 2010-11, sugar production is increased (90.54 Lakh tonnes). Consequently, 2011-12 will be an year of surplus sugarcane and sugar production and as a corollary the sugar prices will fall. So Government has ensured that both, sugarcane and levy sugar get fair and remunerative price. The 'Sugarcane price should be linked to not only sugar price. in the domestic and world market, but also to sugar recovery so that farmers are encouraged to go for sugarcane varieties with higher yield and recovery. This will establish a close bound between the sugarcane farmers and sugar factories and help the industry to grow.

2) Sugar Prices:

The domestic retail prices for white refined sugar in other countries like Japan, U.S.A., Brazil, Philippines etc. were higher as comparison to India. Indian retail prices were lower.

The cost of sugar cane in India is the highest in the world. This could be because of low productivity in India, giving lower returns to the farmers per hectar of land. Further, because of no correlation between the sugarcane price, and sugar and by products prices, the cost of cane fluctuates quite substantially. So some state Governments are fixed different prices. In India dual pricing policy of sugar cane under the central Government and some state governments. So with no linkage to sugar price is detrimental to the financial health of sugar mills.

Unreasonably high cane prices without any linkage with either cost of production of cane or sugar price. realisation to mills, causes have by putting the finances of mills under tremendous stress, there by adversely affecting capacity of mills to pay adequate and timely payment to farmers.

The repercussion will be mounting cane price arrears, especially from the latter part of the crushing season, and farmers will shift out of sugarcane to other competing crops. Shortage of Sugarcane thus, in following seasons, will result in shortage of sugar forcing sugar imports at high prices. The Indian consumers will then pay high price, Which would benefit the farmers of another country. at the cost of Indian farmers and 'Indian Consumers'.

Source : Sugar India P. P. 65/ (Indian sugar Nov. 2011)
3) **Levy Sugar**:

The sugar factories will not only have to bear the loss of increased cost of production of later year but also the difference in the levy price of the two season. Sugar is the only commodity which is supplied as levy sugar by the industry for distribution to Below Poverty Line (BPL) population through public Distribution system (PDS). The price of levy sugar is fixed on the basis of fair and remunerative price (earlier statutory minimum price) of sugarcane fixed by the Government and not actual cane price paid. The levy sugar price fixed by the Government is at much below the cost of production.

Thus, the further loss increased by the factories on cost of storage and interest and enhanced cost of sugar production in replacing new seasons production when allottees delay lifting their quota is one of the reasons for liquidity crisis in sugar factories. There is no justification in penalizing the factories for the fault of the allottees.

India is perhaps the only country in the world where the onus supplying sugar to BPL families through PDS is thrust on the industry. It also has no relevance under the liberalized economy adopted by India. Since, supply of levy sugar comes under the ambit of the Governments Welfare programme it should be appropriate if the sugar industry is decontrolled and sugar for PDS purchased by the Government at market price.

4) **Ethanol**:

One very important point highlighted by the sugar industry in the report is that the study conducted by Indian oils corporation R&D Centre on Indian cars has concluded that fuel mileage will only improve with 5% ethanol blended petrol in Comparison to pure petrol.

Utilization of molasses for the production of ethanol in India will not only provide value addition to the by product but it can also ensure better price stability and price realization for the sugar mills, which will in turn will benefit millions of sugarcane farmers.

Therefore there is a need to fix the price of ethanol rationally taking into consideration various positive environmental impacts of ethanol, its advantages as oxygenate, the long term interest of the program for ethanol blending with petrol and the financial benefits which will accrue to the farmers.
Ethanol is a by product from sugarcane, and hence renewable. It is an environment friendly fuel used now almost all over the world by all the developed and developing countries in some proportion. Further, ethanol is a very good oxygenate and because its extra oxygen molecules it helps the petrol portion of the blend to burn much cleaner, reducing carbon monoxide in the exhaust and hence the overall environmental pollution from fossil fuel.

5) **Sugar Development Fund**

The sugar development fund was started in 1982 by way of collection of cess on all sugar produced by the sugar mills. The rate of cess is Rs. 24 per quintal of sugar at present.

Several sugar mills in the country have made major expansions in the capacity, modernized their technology and machinery and set up facilities for better utilization of their by products, namely, bagasse and molasses; to generate power and produce ethanol respectively. SDF are hopeful that all the pending SDF loan cases, some of them at an advanced stage, Would get early approval of the Government so that the projects can be completed on time and without any major cost overrun. This will not only improve our viabilities but also produce enough of sugar, ethanol and power which the country requires in larger and larger quantities in the years to come.

6) **The mandatory Jute packing at the cost of the sugar industry.**

The Sugar industry has persistently highlighted that production of jute in the country is not enough to meet the demand for packaging material of both foodgrain and sugar sectors, which continue to be required to use only jute bags compulsory. Food grain and sugar production has been increasing substantially over the last couple of years and therefore, the demand for gunny bags has also gone up. At the same time, production of raw jute has not increased. The jute industry is not capable in meeting this increased demand.

Centralization by jute mills have resulted in arbitrary high prices of jute bags especially during the cane crushing season. The mandatory jute packaging requirement on sugar mills is preventing the industry to march forward to a more efficient and competitive industry.

7) **De-Control**

The industry has been continuously requesting the Government to allow a phase wise reform of the sugarcane and sugar sector.
In the first phase sugar industry have requested for removal of the sugar industry obligation to supply 10% of our production as levy sugar at a discounted price to the Government for the public distribution system (PDS) and also the abolition of monthly regulated release mechanism by which each Mill is told how much to sell every month. None of these controls are being exercised by the Government on any other agri-business sectors in the country. Similarly none of these controls are applicable to the sugar industry in any of the major producing countries. Sugar industry are not sure why controls continue to be imposed only on the Indian Sugar industry.

8) Release Mechanism

The archaic control that the Central Government exercises on the monthly sales of sugar by each mill through the regulated release mechanism is again applicable only to the sugar industry in India. As per food ministry is own note to the cabinet in the past, the regulated release mechanism has not served its purpose of controlling the sugar price and twice in the recent past has recommended for abolition of the same. Due to this control, sugar industry can not plan our cash flows and our member mills are unnecessarily over-burdended with high stocks and consequent high cost of production. Here the weaker factories with less financial capacity are being excessively stretched and get into financial distress especially towards the end of the season.

9) Exports:

From a position of an importing country during the previous two years, the country was able to export substantial quantities during 2010-11 season. Important point here that even during the years of import it was the domestic sugar industry that was responsible for most of the imports. White small quantities of white sugar was imported by traders and bulk consumers, more than six million tonnes of raw sugar was imported and refined for domestic consumption over two sugar seasons by the sugar industry. There stand alone sugar refineries located at various ports have been commissioned in the country since 2008. In addition over 150 sugar mills across the country have capability to refine raw sugar either in combination with cane crushing or in the off season or both. The sugar industry has thus shown its ability to be a reliable supplier of sugar to the Indian consumer even in very adverse circumstances of low sugarcane availability.

Ideally, the sugar industry and indeed every other agro-industry should be allowed to freely export their produce or sell it in the domestic market based on
relative returns. This would allow market forces to balance demand and supply without the need for intervention from the Government. However, we recognise that in the recent past, this has not been possible for the Government due to political sensitivities.

7.3 Suggestions

The main object of the study is to find out the actual position of the conversion cost of the sample sugar factories, as well as co-operatives sugar factories in general. While studying the subject in detail it is found that there is a vast scope for reduction in conversion cost of the co-operative sugar factories. In this respect I would like to point out some suggestions which are mentioned below and which are for active consideration.

1) Capacity Utilization :-

This is the most important aspect which affects the conversion cost. Previously sugar factories were benefited by zoning system because of which there was 100 % guarantee of availability of cane according to their crushing capacity, But subsequently due to some legal constraint, that is order passed by the Hon. Supreme Court of the country, there is no any binding on the members of the sugar factories to supply their total produced cane to their respective sugar factories. They are only responsible to supply the cane to their sugar factory proportionate to their shares i.e. Fifteen Guntas to twenty Gunta, according to the bye-laws of the sugar factories. Hence there is no 100 %. guarantee of the cane availability within the area of operation of the sugar factories. There is the tendency of the cane cultivators to supply the cane to the sugar factories who are going to pay better cane price. Hence taking in to consideration these facts, every co-operative sugar factory has to pay maximum attention to reduce their cost of production and pay better cane price. For paying better cane price and reducing the cost of production, factory should struggle for achieving economy in all respects.

Cane development scheme should be implemented in the area of operation of the sugar factories, through which per hector yield of the sugar cane will be increased. This will reduce the cost of cane cultivation. This will attract the members of the sugar factories to supply the cane regularly to their factories.

2) Annual Planning :

While studying the co-operative sugar factory it is observed that there is no proper annual planning with the sugar factories. Every co-operative sugar factories
Every co-operative sugar factories should plan its activities before starting its work of the next crushing season. They should prepare annual work chart and accordingly they should carry out the work in time.

3) **Reduction in Wage Bill**

As for as Co-op. sugar factories are concerned, they are not giving proper attention towards this important cost item. There is not any proper staff selection system technically followed. They should fix up staffing pattern and recruit the staff accordingly and that too most be qualified and experienced. Time and motion study to be carried out and fix up the responsibilities of the concern staff. While studying it is observed that there is disguised unemployment finds in the co-op sugar factories. That means unnecessarily recruited staff is getting wages regularly, but they are idle without the responsibility and proper work. Especially there seems to be political touch to such a recrument, which needs to be avoided.

Wherever necessary voluntary retirement schemes should be announced and reduce the unnecessary recruited staff. By doing this sugar factories will succeed in reducing the wage bill.

4) **Necessity to reduce Over Heads**:

It is found that there is a overburden of unnecessary expenses of overheads which requires to be curtailed.

5) **Lack of budgetary Control**

Budgetary control is a system of controlling costs which includes the preparation of budgets according to the departments and establishing responsibilities comparing actual performance with the budgeted and a action upon results to achieve maximum profitability. This principle of budgetary control is totally neglected in co-op. sugar factories. They prepare only execution monetary budget to camply the accounting principles but the attention towards the execution of the budget is neglected. Hence if the proper attention towards the budgetary control is given the management of the co-op sugar factory will find out variances on comparison of actual performance with the budgeted performance and locate possible reasons for the deviations.

6) **Cost Audit System**:

It is found that, Co-op. sugar factories are not following the cost audit system because of which they are not getting the proper information about their expenses on
every item from time to time. In order to control their cost structure, sugar factories should follow cost Audit system like private sector companies.

7) Preventive Maintenance Scheme:

In order to reduce total stoppages during the crushing seasons preventive maintenance schemes should be followed. By following this, sugar factories could reduce their total stoppages which will result in reduction in known and unknown losses.

8) Standard Norms:

It is observed that all the sugar factories in the study are attaining the Standard Technical forms by the Authorities. But these norms are fixed long ago which needs to be revised because various modern technologies have taken place. Hence the new norms require to be fixed.

9) Energy Audit:

There is a vast scope for saving in steam and power consumption in the Co-op sugar factories. Hence the energy audit system should be followed and required modifications are to be carried out to reduce the steam and power, consumption.

10) 'Zero' Water requirement Scheme:

If we take in to consideration the contents of the sugar cane, we will find that 70% portion water. There is a vast scope for re-using the said water in sugar factories for process. It is learnt that number of modern sugar factories are recalculating the water available in the cane for their process and avoiding the use of fresh river water. For this purpose there should be proper immediately treatment plant where B.O.D. and C.O.D. as well as all the chemical oil is separated from the water and this treated water can be recalculated to plant for process and also can be used for Irrigation purpose. This will result in reduction in power and water expenses as well as solving of water pollution problems. Hence the proper attention should be given to this aspect keeping in view the awareness in public in general about the pollution of the river water.

11) Sugar Packing:

This is the most obstacle standing before the sugar factories. Govt. of India is making compulsory to use Jute bags for packing the sugar which is very expensive and not easily available. If we take in to consideration, the cost of P.P. (Plastic) bag it costs Rs. 15 for every 50 Kg. bag, where as Jute bag costs 45 to 50. The volume of the quantity requires is more which affects the cost of production. In addition to this the
Jute industry is situated in Kolkatta, West Bengal only. Out of total material required for the manufacturing of Jute bag, 60 to 70% raw material is imported from Pakistan. This means we are unnecessarily wasting the foreign exchange in importing raw Jute. Hence it is not necessary of making compulsion for the use of Jute bags. Similarly the P.P. bags are easily available all over the country. Hence there is necessity of removing this unnecessary burden of using Jute bags for sugar packing.

At present Jute bags are purchased from private suppliers by the sugar industries where noticeable variations are found in the prices of these bags. If the supply of these bags is made through Government, undertaking there would not be any scope for mismanagement in purchase of the Jute bags.

12) Research and Development Department

This is lacking in Co-operative sugar factories. Every day there are new various innovations and inventions taking place in the sugar industry. Sugar factory should change this situation by establishing Research & Development Departments. By establishing this department, sugar factories could improve their efficiencies and ultimately reducing the conversion cost and total cost of production.

13) Financial Planning:

Proper financial Planning seems to be not followed in the sugar factories under study. For example the expenses on interest are more in 'Sharad' Sugar factory. Hence the factory should try to plan financial transactions carefully so as to enable them to reduce the expenses on interest charges as well as avoidance of 'Short margins’ problems.

14) Establishments of Bye-Products Units:

Every sugar factory should proceed to plan to establish bye product units i.e. Distillery, Ethanol plant, Co-generation project etc. By establishing these units additional income source will be made available to the sugar factories because of that they can pay remunerative cane price to the cane cultivators.

15) Mechanical Harvesting system:

At present major work of harvesting is dependant on manual work and many sugar factories are facing this problem for the last many years. The cane harvesting machines which are in use today are not suitable for the Indian Sugar cane crops because the land is divided into smaller pieces. Efforts must be taken by sugar industries to produce small machines taking into consideration the present sugar cane
farming in our country so that the factories will be relieved from the man power problem.

In short I would like to suggest the Co-operative sugar factory should try to implement "Professional Management" principles in their activities otherwise they will have to face the cut through competition from the private sugar factories newly established in Kolhapur District. Renuka Sugars, Dalmia Sugar, Gurudatta Sugars, Nalawade Sugar, Hemras sugar etc. have started their private sugar factories and managing professionally. Hence Co-operative sugar factories should also convert their traditional management practices in to professional. Otherwise the main aspect i.e. cane availability according to crushing capacity, can not be fulfilled which will definitely result in currying heavy losses.