CHAPTER VI
CONCLUSION

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CONCLUSION

Summary of finding conclusions and suggestions

The following findings and conclusions have emerged from the preceeding analysis. A few suggestions have also been made for further improvement.

Summary and Findings:

6.1 Sugar industry is an agro based industry with byproducts such as molasses, bagase, pressmud. Sugar cane is cultivated between latitudes from 35°. 0' N and 35°. 5' under varying soil and climatic conditions. Important sugarcane producing countries in the world are Australia, Britain, West Indies, Cuba, India, Indonesia, Mauritius, South Africa and USA.

6.2 Sugarcane is known in India since early times during Atharva Veda (5000 BC). Sugar is mentioned in Pratimoksha a record of Buddhist role of life in Maha Bhashya of Patanjal (350 BC) and in Lalita Vistara and Jatakas. The Law Book of Manu “Dharma Shastra (200 BC-200 AD) contains references to sugar. The Chinese
Buddhist pilgrim Fattin (399AD) and Huen-Tsang (629 AD) have mentioned about sugarcane in India. Ibn Batuta (1325-54) Abul Fazal and Ibn-i-Akbar I have mentioned about sugar in India.

6.3 First sugar factory was started 1788 in Bihar by a civilian. India was exporting sugar in 18th and 19th centuries.

There are 17 sugar factories in Belgaum district. Majority of them in co-operative sector. Hiranyakesi co-operative sugar factory was the first to be started in co-operative sector in 1955 followed by Malaprabha Co-operative Sugar Factory in 1968, Ghataprabha Co-operative Sugar Factory at Gokak in 1970 and others at Chikkodi, Raibag, Nippani, etc.

The crushing capacity of these factories was 14,260 MT

6.4 Belgaum district is situated in the tropical belt with reasonably good irrigation facilities provided by Krishna, Ghataprabha, Malaprabha and their tributaries. This has mainly helped in the district to emerge as the sugar district in Karnataka.

6.5 The average membership of sugar factories in Belgaum district varied between 3,500 to 12,000 the average area of
operation of an individual sugar unit ranges between 50 to 600 villages each sugar factory crushes 25,000 to 50,000 tonnes of sugarcane annually during the season counting about 6 months. The employment generated by an individual sugar unit in the district ranges between 800 to 10,000 persons directly and 3,000 persons indirectly. The annual turnover of each factory in the district is more than Rs. 10 crores.

6.6 The sugar factories at M.K Hubli (Malaprabha), Gokak (Ghataprabha) Sankeshwar (Hirannyakeshi), (Chikkodi) (Dudhaganga) Raybag( Raya Sugar) and others in Belgaum district are located between 45 kms. To 110 kms from Belgaum city.

The RBI has recommended that the distance between two sugar mills should be 60 km implying a radius of 35 kms from each mill.

6.7 The operational area of Malaprabha sugar mills covers Bailhongal, Khanapur Belgaum, Gokak, Sundatti, Dharwad and Haliyal Talukas. The sugar mill at Chikkodi covers area in Chikkodi, Athani and Raibag. The sugar mill at Rayabag covers areas in Raiabag and Chikkodi talukas.
The sugar mill in Gokak covers areas in Gakak, Chikkodi, Soundatti and Ramadurg. The sugar mill in Sankeshwar covers areas in Hukkeri, Chikkodi, Belgaum Gokak and Gadginglaz. The number of villages covered by these factories range between 49 and 585.

6.8 Malaprabha Sugar Factory the study unit—covers largest number of villages in Khanapur taluka (203) and minimum number of villages (10) in Haliyal taluka

The talukas covered by this factory have their own geographical characteristics. The region receives heavy rainfall the eastern part of the area covers fertile black soil of the plains. The southern part of the area has typical soil suitable for non-sugarcane crops.

6.9 The Malaprabha sugar mill has infrastructural facilities such as the factory building housing machinery for crushing sugarcane, storage building for final products i.e. sugar, storage for chemicals, spare parts etc. a fleet of trucks, tractors and other vehicles for movement of raw materials and finished products. The premises have banking facilities and a laboratory for chemical analysis. Transport facilities, electricity, housing and other facilities
for workers like hospitals, ambulance, canteen and shopping facilities etc are available on the factory premises.

6.10 The farmer members of the sugar factory have the problems of

- Restricted quantity of purchase of sugarcane from the members by the factory and

- Un remunerative price paid to the member farmers for their sugar cans.

There is need for addressing these problems by the management of the factory since the surplus cane has to be directed to other places like Maharashtra where restrictions are imposed on buying sugar cane from areas outside Maharashtra.

The Sugarcane price offered by the factory is quite un remunerative taking into account the input cost and labour and transport cost.

6.11 Location of sugar factories on a larger scale in Belgaum district compared to other district in the state is due to some favorable factors such as:

i. Suitable agro-climatic conditions
ii. Availability of irrigation facilities
iii. Liberal Government policy
iv. Local leadership
v. Adequate transport facilities.

6.12 The sugarcane growing area is suitable for the crop. Its hot climate and humid atmosphere are highly favorable for the growth of sugarcane. The sugarcane grown is much superior with more sucrose contents as compared to subtropical belt consisting Uttar Pradesh and Bihar the soil.

The state government has given incentives for the growth of sugar cooperatives price incentives need to be provided further to safeguard the interests of sugarcane growers.

The role played by local leaders in initiating and encouraging cane growers for establishing their own cooperative sugar factories in their own areas has contributed to the development of sugar industry.

Transport facilities have also been adequate in the region and have helped the movement of raw materials and output from the sugar factories. This factor too has been contributory for the growth of sugar industry in the region.
6.13 India is one among the top ten industrial nations in the world. Industrial economy is highly diversified with both traditional and nontraditional industries thriving at the macro level. However employment of manpower is proportionately high in small scale and village industries compared to large units.

6.14 Industrial organization comprises of public, private and co-operative sectors. Heavy and basic industries are mainly in public sector while consumer goods and high engineering units are in the private sector. There is a regional disparity in terms of industrialization.

6.15 Location of industries is largely determined by the proximity to the source of raw materials in case of units related to minerals, fisheries, agricultural based units. However economic needs and political considerations do influence the location of industrial units. Service units are located at places which are important centers of trade and commerce and manufacturing units.

6.16 Optimum location for industrial units has been explained by some celebrated theories. The theories are based on revenue and cost considerations.
Least Cost Theory came from A. Weber in 1909 who explained it with the well known locational triangle. Weber first sought the least transport cost location which he consider as most important influencing factor Weber considered effect of labour cost on location Weber examined subsequently the effect of industries tendency to agglomerate Weber's theory is pioneering contribution in the field of location of industry.

Transport labour, water, marketing and capital have always exerted their influence in determing the location of industrial units.

6.17 Spatial distribution of Sugar Cane cultivation is controlled by geographical factors operating in the study area. The study unit – the M.S.S.K Ltd., is located in the north western part of Karnataka State. Belgaum district ranks fifth in terms of population in the State. The district is surrounded by Maharashtra in the North, Bijapur district in the east Dharwad and Uttar Kannada districts in the West.
6.18 The Study area has a network of roads, railway lines and airways which connect the State Capital (Bangalore) and other important cities in the State and the Country.

6.19 The district is divided into three broad physical divisions (i) Malnad region (ii) Semi Malnad region and (iii) Maidan region.

6.20 The climate of the study area is healthy and agreeable and characterized by general dryness except during monsoon season. Rainy season lasts from June to September. Rains are continuous and occasionally heavy. Summer season lasts from March to May. April happens to be the hottest month of the year. Retreating season of monsoon is from October to November, winter season sets in from December and lasts till February.

The mean annual temperature varies between 38.9°C and 41.5°C. The Malnad region has a mean annual temperature varying between 37°C and 41.5°C in the months of April and May. The maidan region has mean temperature from 38.9°C to 41.5°C in the same months.

6.21 Belgaum district is drained by 3 principal rivers namely Krishna in the north, Ghataprabha in the centre and
Malaprabha in the South. Although their courses are perennial their volume of flow decreases and even ceases during summer. The tributaries of these rivers are Dudaganaga, Vedaganga, Aqrani, Markaendera and Hiranyakeshi.

6.22 Two types of vegetation are found in Belgaum district namely the moist type and the dry type. The moist type is found mainly in Western Ghats ie in Khanapur Taluka whereas the dry type of vegetation is confined to the eastern and northern parts of the district.

6.23 Belgaum district stand 8th in the State with 14.32% of its geographical area under forests. The distribution of forests is very uneven. Thick forests are found in the areas of Nagargali, Kanakubi, Nesaragi and other areas whereas no forests are found in Athani and Bailhongal talukas.

6.24 The soils of Belgaum district are classified by physical studies and by survey of Karnataka State department of Agriculture. The soils have been classified into five broad categories viz.,

Deep black soil

Mixed red and black soils
Red Loamy soil and

Literate soils

6.25 The total population of the district was 4207200 as per 2001 census. There has been a decennial growth rate of 17.40% over 1991. Belgaum taluka had the highest population followed by Chikkodi, Gokak, Athani, Raibag, Saundatti, Khanapur and Ramdurg.

The density of population in the district rose from 267 per 5q km in 1991 to 314 persons in per 5q km in 2001.

6.26 The literacy rate in Belgaum district was 53% with male literacy at 66.65% and female literacy at 38.69%.

6.27 Belgaum district has well developed transport and communication system. The district has network of roads, railways and airline. There is good network of post and telegraph offices telecommunication system. The district has broad gauge railway line of 220 kms with 25 railway stations. The district has 201 kms of national highways, 732 kms of State highways, 2340 kms of main district roads 53 kms of other district roads 2543 kms of village roads, 2558 kms of TDB roads.
6.28 With rich agricultural resource and with well knit transport system Belgaum district has made good progress in the field of industrial development. Adequate skilled and unskilled labour, financial institutions and the support of DIC etc have given a stimulus for the industrial growth.

6.29 The district has a diversified industrial sector comprising of mineral based industries, forest based units, agricultural based units, engineering and textiles, services industries aluminum industries etc.

There are a few industrial areas/estates for the development of industrial Units in the study area.

6.30 Trade and commerce have been fast growing in the study area due to adequate infrastructural facilities. This has led to rapid urbanization of the city of Belgaum and other adjoining areas.

6.31 A well developed cooperative banking sector is another feature of the Belgaum district. Large number credit cooperative societies, urban cooperative banks, DCC Bank, have been providing a stimulus to the economic activities of the people in the area.
6.32 Agriculture is the mainstay of the rural population in the district. With adequate irrigation facilities from the 3 main rivers there have come up a few large cooperative sugar mills including the study unit at MK Hubli. Major crops grown in the district include Jower, sugarcane, oil seeds, cotton, wheat and pulses. There is a thriving horticultural sector in the study area.

The livestock provide some additional income to the form community large number of buffalos, goats and sheep are maintained by the rural people.

6.33 Belgaum district is rich in natural mineral resources. Some of the important economic minerals in the district are iron are, manganese bauxite, clay, limestone, sand, building stones etc, Gold is noticed in much of the grained grower or local drift in many parts of the district, Gold deposit is found in the valley of the Malaprabha.

6.34 Irrigation is an essential input for sugarcane productivity. Sugarcane requires relatively more water since it is a long standing crop. For every ten day sugarcane produced in the filed nearly 60–70 tonnes water is to be applied under controlled conditions.
Sugarcane is a member of grass family and its modern origin was Papua Guinea and now it is grown in tropical regions throughout the world. Sugarcane will grow in 12 months and cut-sugarcane will re-grow in another 12 months.

Raw sugar is made where the sugarcane grows, white sugar is made from the raw sugar it is as a health product and for making confectionary.

Sugar units produce some by products such as Bagase, Paper, Molases, Fuel and Power, Ethanol etc.

There are 3 main groups of sugarcane verities viz., (i) early maturing (ii) Mid late maturing and (iii) Late maturing

Early maturing varieties are CoC 671 – Co 6907, CoC 92061, Co 7291, etc. Mid late maturing varieties are Co 6304 Co 8021, Co 948 Co 8011. Late maturing varieties are Co 740. Important short duration varieties of sugarcane are Co 8371, Co 8341, CoC 85061, Co 7704, and Co 8341.

The sugarcane cultivation is faced with the following types of problems.
- Environmental problems
- Biological problems
- Edific problems
- Technical problems
- Managerial problems
- Infrastructural problems
- Higher cost of production
- Non-remunerative sugarcane prizes
- Government policies
- Labor problems
- Post harvest deterioration problems and
- Mono cropping problems etc

Inadequate rains and water shortage relate to the environmental problem while crop diseases relate to biological problems. Deterioration of soil fertility and productivity relate to edific problems. Lack of information about the new varieties of sugarcane seeds is problem related to technical aspect. Inadequate availability of inputs such as seeds, power, implements fertilizers electricity, etc, relate to managerial problem. Inadequate infrastructural facilities, like transport is another problem faced by sugarcane cultivators. High cost of production is another problem faced by sugar cane Cultivators. Non
remunerative sugarcane price and uncertain policies of the
government are the other problems. Inadequate number of
trained labourers poses problem for the sugarcane
cultivators. Delay in transporting and crushing causes post
- harvest deterioration of sugarcane. Monocropping may
lead to diseases. This is a problem faced by the sugarcane
cultivation.

6.38 Shri Malaprabha Sahakari Sakkare Karkhane Ltd M.K
Hubli was registered in 1961 but it started production of
sugar in 1971. The factory has been making profits since
1982 – 83 when its production reached 3500 MT per year.

- The factory has the facilities of transport, water, labour,
electricity etc. The factory has a total number of 17637
members.

The total investment of capital of the factory is Rs
219 lakhs

- The factory covers 6 sugarcane producing talukas of
Bailhongal, Belgaum, Khanapur, Dharwad, Haliyal and
Saundatti.
• The factory has raised its funds from members' fees, issue of shares, receiving of deposits, rising of loans accepting of donations and grants.

• The factory is managed by the Board of Directors with a chairman, Vice chairman, Secretary, Accounts Officer. There are 18 departments to look after the organizational work of the factory.

   The production of sugar by the factory has gone up considerably.

6.39 The factory has 211 technical workers 738 nontechnical workers and 170 administrative workers.

• The seasonal labour is recruited from rural areas as they are free during off-season from their agricultural work.

• The required labor for technical and administrative purposes is recruited through the Recruitment Board.

• The factory is well staffed with Labor Welfare Section and provides good facilities for the workers. The facilities include, uniform, shoes medical facility, canteen facility at subsidized rates, residential buildings for staff, restroom
facility, bonus incentives, productivity incentives, promotions, leave facility etc.

- The factory has the Selection Committee leaded by the Chairman, Vice Chairman Members of the Board of Directors, Social welfare Dept and an expert.

Selections are made through advertisement and interviews.

6.40 The problems relating to labour pertain to

- Attention is not given for the use of modern technology in recruitment and selection procedure.

- The organization is not consulting specialized agencies in matters of employment of skilled workers.

- The factory is not making use of media in this direction.

- Campus recruitment is not adopted by the management.

6.41 Crushing of sugar by the factory has indicated a trend of fluctuations between 1970–71 and 2007–08. A steep rise in the crushing of cane between 1970–71 to 1974–75 and the maximum level of crushing in 1982–83 are indicated during the 70s and 80s.
- Maximum level of sugarcane crushed is observed in 1995–96. However there is a steep decline in the subsequent period and a trend of fluctuations subsequently.

- Largely identical picture of production of sugar is observed during the corresponding period. Maximum production of sugar during 70s, 80s, 90s and in the new millennium was in 1977–78, 1988–89, 1995–96 and in 2000–01 respectively.

- Recovery of sugar at the highest level during 70s, 80s, 90s and during new millennium was in 1974–75, 1988–89, 1992–93 and in 2000–01 respectively.

6.42 The total cost of sugarcane and allied cost were minimum in 2003–04 and the maximum total cost was in 1996–97. Total cost of per bag of sugarcane and allied expenses was minimum in 2002–03 while maximum cost was in 2001–02.

- The total manufacturing expenses of the factory were maximum in 2003–04 and were minimum in 1996–97. Manufacturing cost per bag of sugar was minimum in 1994–95.
• Total administrative expenses of the factory were minimum in 2001–02 while they were maximum in 2002–03. The administrative cost per bag was minimum in 2000–01 and it was maximum in 2003–04.

• Total cost of salary and wage bill of the factory was maximum in 1999–2000 and minimum in 1994–95.

• Total depreciation cost was maximum in 1998–99 and minimum in 1995–96.

• Total interest cost on key loan was maximum in 2002–03 while it was minimum in 1994–95.

• Total cost of factory per bag of sugar was Rs 1711


The cost of administration varied from Rs 31 to Rs 100 per bag and the cost of salary and work bill varied between 8.19% to 12.4%.

Depreciation account influenced 1 to 3 % in total cost structure.
6.43 The sugarcane growing areas covered by the factory have black soil in Bailhongal and Savadatti talukas. The soil in Gokak Belgaum and Khanapur have red and black soil. The factory has large areas of supplying sugarcane in Bailhongal, Belgaum, Savadatti, Gokak, Kanapur, Dharwad and Haliyal, some villages supplying sugarcane to the factory are at a distance of 1 to 15 miles and other villages are at a distance of 16 to 25 miles in different talukas.

6.44 There has been a steep rise in the number of working days of the factory from 134 in 2005-06 to 205 in 2006-07. However a decline in the number of working days to 151 in 2007 – 08 is noticed.


The total quantity of sugar produced by the factory rose from 10335 M.T in 2005–06 to 645640 in 2006–07 but declined to 607425 M.T in 2007–08.
The total area reserved for the supply of sugarcane is 16,600 areas. The installed capacity for crushing sugar cane is 3,500 TCD.

The price of sugarcane per metric tonne (MT) rose from Rs 600 in 2002-03 to Rs 1,200.00 in 2005-06, an increase of hundred percent. The price of sugarcane offered declined to Rs 800 per MT in 2006-07. However, price reached an all time high of Rs 1300.00 in 2008-09.

Chemical raw materials used in the production of sugar include Bruntlime, Rock sulfur, phosperic acid, Caustic soda, Deformer oil, Maganflog and Alcohol, in addition to Gunny bags and Jute bags.

Industrial location is influenced largely by availability of transport facilities. The cost of transport is an important component in the total cost of production and marketing of a product.

Selection of mode of transport is determined by cost of transport, distance to be covered, risks attached with travel, materials handling cost, facilities of loading and unloading time of delivery, availability of mode of transport,
nature of community or product, value of the product, and size and nature of the product.

The Malaprabha Sahakari Sakkare Karkahne Ltd., M.K Hubli has the needed transportation facility such as national highway No 4, village roads linking sugarcane growing areas nearness to railway station of Belgaum and airport at Belgaum.

The factory has a fleet of vehicles for the transportation of raw materials and the finished product (sugar) the factory has a separate vehicle section staffed with transport superintendent, clerks foreman, mechanics and drivers.

The vehicles owned by the factory consist of trucks (16) Tractors (25), Light vehicles (5) Compost machines (92) Motorcycles (17) Bull dozers (2), Dumper (1), JCB (1) Loader (1), 407 (1) The total number of vehicles is 61.

Karnataka Electricity Board (KEB) is the main source of power supply. There is a contract demand for the supply of 350 KV of electricity to the factory by the KEB. The factory has a Co-generation facility for generating electricity from her own byproduct i.e. bagasse.
The Malaprabha Sahakari Sakkare Karkhane Ltd., sells its sugar partly to Government and partly to the buyers in the open market sales of the sugar to the Government, which is also known as levy sugar constitutes only 10 percent of the total. The rest of the 90 percent is sold to the private buyers in the open market.

The buyers in the open market are from places like Belgaum, Hubli, Dharwad and from other places in the state. Buyers from other states too buy the sugar from the factory viz Kerala, Andra Pradesh and Maharashtra. The factory exports sugar to countries like Bangldesh and Ceylon. This year the export of sugar was valued of Rs. 4 lakh.

The factory sells free sugar to private buyers at Rs.1345.33 per quintal plus central excise duty at Rs.97.85.

The levy sugar is sold to the government at Rs. 52.37 per quintal.

The distribution channel for the sale of sugar consisted of

Sugar Brokers
Merchants
Buyers (Others)
The above buyers must be licensed persons. The market for the sugar of the factory few manufacturers contract by a large number of buyers.

The sale of sugar by the factory indicates a trend of fluctuation between 2000-01 to 2002-03. A declining trend is noticed subsequently and sales reached an all time low in 2005-06. The value of sales of the sugar by the factory indicates on identical trend.

The average sale price of the sugar during the period from 2000-01 to 2007-08 varied from Rs. 1042.89 per quintal to a maximum of Rs. 1416.28 per quintal.

**Research Findings and the Hypotheses:**

The first hypothesis that the study unit has adequate infrastructural facilities for its effective functioning is indicated by the research findings. Infrastructure facilities consisting of transport, electricity, water, laboratory for chemical testing, bank office, training of personnel, storage etc., are adequately available of the premises of the factory.

The second hypothesis that the study unit is faced with the problem of inadequate availability of raw materials is found invalid as the factory covers vast sugar and growing areas
around the factory in as many as 6 talukas. There is actually surplus supply of sugarcane from the former members of the factory.

**Suggestions:**

I. The Malaprabha Sahakari Sakkare Karakhane like other co-operative sugar mills in the region has stipulated that member farmers who grow and supply sugarcane to the factory can sell only 40 tonnes of sugarcane per member. This results in some amount of excess sugarcane seeking outlet for sale elsewhere. This has been a perennial problem for the former members of the sugar factory. The neighboring states like Maharashtra have imposed ban on purchasing sugarcane from outside their states. Hence there is need for enhancing the quota from 40 tonnes of sugarcane per member to 60 tonnes or even more so that the farmers are not put to hardassing. The factory management should take necessary steps to increase the crushing capacity of the factory and absorb all the sugar cane grown by the former members of the factory.

II. There is need for enhancing the price of sugarcane purchased from the members. In view of the increasing cost of inputs like fertilizers, irrigation pesticides etc. in
addition to these the cost of labour and transport too have increased substantially. There is need for upward revising of sugarcane price to protect the interests of the farmer-members of the factory.

III There is the problem of political affiliation of members to different political parties affecting the developmental and other activities of the factory. This is a problem which is inescapable in a democratic setup. There is therefore need for closing down their political affiliations in the interest of the cooperative venture of the sugar unit for the common benefit of all farmers—members of the factory.

IV Scientific training and retraining of the personnel of the factory should be arranged within the factory as a part of human resources development programme. Such training is bound to enhance the overall productivity of the manpower and would go a long way in reducing the wastage and promoting productivity and profitability of the factory.

V A better management of the use of byproducts is another area for the improvement of the overall profitability of the sugar unit. There is greater need for effective utilization of bagasse for cogeneration of electricity in view of the all-round shortage of electricity in the state.