CHAPTER VII

SOCIO-ECONOMIC IMPACT OF SUGAR INDUSTRY:
A CASE STUDY

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CHAPTER VII

SICIO-ECONOMIC IMPACT OF SUGAR INDUSTRY: A CASE STUDY

7.1 INTRODUCTION:

Co-operation is the king-pin of agricultural development in rural India. Development of co-operative efforts and growth of sugar co-operative in Maharashtra State has been phenomenal in last two decades. Besides processing of sugarcane and greater contribution in sugar production sugar co-operatives implemented many agricultural and socio-economic development activities. So also Maharashtra’s sugar co-operative influenced the politics in the State. The present study reports the agricultural, economic, social and political activities of the sugar co-operative in the light of their impact on the farmers. The study covered 150 grower-members of Yeshwant Sugar co-operative Complex at Aklj in Malshiras taluka of spolapur district (Maharashtra). They vary in their farm size and distance from the sugar co-operative. The impact is also analysed in relation to their agro-economic and socio-psychological characteristics.

It was found that farmer joined the sugar co-operatives mainly for the agricultural and socio-economic benefits. The sugar co-operative has enlightened and developed agricultural consciousness among the farmers by
introducing and integrating different farm technologies. Soil testing laboratory run by the sugar co-operative was being widely used. Sugarcane nursery run by the sugar co-operative has also been useful to the majority of the farmers though the big farmers and the nearer villages benefited more from it. Pilot project provided input packages in time Similarly large number of farmers participated in co-operative irrigation schemes. Most of the farmers also undertook land development activities and intensified their cropping patterns. Farm diversifications were notably observed mainly in terms of dairy farming. Cross breeding centres and co-operative milk producers union have been found to be beneficial and were popular with the farmers. On the contrary co-operative poultry farm did not produce worth while impact. Auxiliary activities of the sugar co-operative helped most of the farmers. It is revealed that most of these farm technologies and activities have benefited farmers of all sizes. In general, big farmers and the villages nearer to the sugar co-operative received more benefits. On the whole, farmers, livestock holding, sugar co-operative membership status and their credit behaviour have governed the prediction of farm technological impact of the sugar co-operative.
Sugar co-operative had blazed a trail in initiating and accelerating economic improvement of the farmers. There has been increase in levels of their income, savings, investments mostly in productive assets, possession of farm machinery, credit worthiness and employment opportunities. The farmers co-operative Bank has yet to make notable impact. Farm records are reasonably maintained by the farmers. Economic impact of all these dimensions has been proportionately uniform on all the farmers in the area. Farmer's livestock holding, sugar co-operative membership status and scientific orientation were the positively significant governors in the economic impact.

Social impact of the sugar co-operative on the community and farm families has been noteworthy. The growth of round infrastructure is evident. Quality of people's life has remarkably improved. Changes in family systems, housing patterns, food habits, clothings, educational opportunities, health practices, leadership behaviour, etc. have paved the ways to phenomenal social change since inception, operation and multi-dimensional approach of the sugar co-operative. Social impact has been homogenous and proportionately uniform on all the farmers. Farmer's livestock holding, sugar co-operative membership status, economic motivation and scientific orientation significantly explained a degree of change in social dimensions.
Political impact of the sugar co-operative under study is both the cause and the consequence of agricultural and socio-economic advancements of the people in the area. Improvement in rural economy has led to political transformation. As such general awakening of the people has widened their outlook which has instilled in the people a sense of participation in development activities, Sugar co-operative complex and development of political consciousness were the supplementary and complementary to each other. Sugar co-operative acted as near centre of politics in the area. Political impact was proportionately uniform on the farmers. Farmers educational level was the significant predictor of political impact.

Overall farm technological economic social and political impact of sugar co-operative were interrelated and interwoven in such a manner that they governed each other to influence individually or in combination the behaviour of farmers. Farmers perceived the sugar co-operative complex as an agency of multipronged development because of its participatory co-operative network in the area. The twin problem encountered by the farmers was higher costs of farm inputs and lesser remunerative prices to their farm produce.

An understanding of these findings of sugar co-operative's impact on the farmers would help in initiating
and strengthening and multiplying the co-operative efforts for the agricultural development and enhancing the welfare of rural community at large.

The socio-economic basis like population, cultivators, size of holding, irrigation, sugarcane and sugar production are also equally important in determining the nature and extent of cane cultivation and all these factors impact on sugar industry in region.

7.2 **PATTERN OF POPULATION DENSITY**

According to 1991 censes the total population of solapur district stands at 32,31,057 with 16,70,516 males and 15,60,541 females. The district constitutes 4.09 percent of stages. Man himself an important resource and plays decisive role in agriculture sector and industrial sector. The physical attributes of an area became recourse only when the people are able to use them (singh 1970) The nature and extent of sugarcane cultivation are also largely determined by this factor. Although the use of machinery is made in some sugarcane area of the region. Human resources have been used on a large scale to perform various farm activities. Cane cultivation is laborious activity and various farm operations like land preparation, cane plantation, intercultural, frequent watering, fertilizer
application, harvesting of crops and transporting it to factory site and operating sugar factory, etc. all these activities require a large quantity of man power.

In the case of the Malshiras taluka, the eastern part has flat topography, northern part of the taluka is covered by Nira basin, as well as there is heavy concentration of the agro-based industries. These are the dominant factors for positive concentration of the population.

Remaining talukas of the study region show the negative concentration of population. because Barshi, Karmala and Madha talukas of the study region are located in the northern part of the Solapur district, have rugged topography. North-east part of Barshi taluka, central part of Madha and Karmala taluka have rugged topography, Balaghat range (Ramling hill) covers the north and eastern part of Barshi, Waghoba and Bodaki hill cover the central part of the Karmala and Madha talukas respectively. Phaltan range runs from southern side of the Sangola taluka. Rainfall is low in Sangola (537 mm), Karmala (540 mm) and Akluj (48 mm) as compared to district average (548 mm).

Soil is one of the basic factors of the identification of the population concentration of the particular region. The light soil, locally known as "Malran", is shallow, coarse and
contain partially decomposed parent material. It occurs in hill-slope of Malshiras, Sangola and central part of Madha and Karmala taluka. Therefore, there is low concentration of population (Fig.No. 7.1)

From the discussion, it is concluded that the concentration of population in the study region is influenced by geographical factors viz., relief feature, rainfall and the soils. In general, the relief feature is not much variable in the study region, eventhen, the hillocks and small ranges are invludenced the concentration of population. The positive concentration is in the eastern part whereas the negative concentration is in the western and northen part of the study region. In connection with rainfall, the rainfall increases from west to east. The proportion of light soil is high in the western and northen part of the study region while the proportion of deep-back soil is high in the eastern part of the district.

The study of spatial distribution of population remains incomplete without the identification of its density. Infact, the concept of density of population provides a quantititative measure of a degree of populatopn concentration in an area. A study of distribution of population, therefore is to be supplemented by discussion o n pattern of the population density. The term density of
population refers to a ratio between population and is area. Thus, it is a measure of degree of population concentration and senertally, expressed in terms of number of persons per unit of area.

a) **POPULATION DENSITY AREA:**
(201-250 Persons per esq.)

The region, under study, has 92 village (8.13%) falling in this category. This area has 10 village (28.51/5) of north-Solapur, 14 village (13.08%) of Malshiras, 12 village (12.63%) of Pandharpur 09 village (.115) of South Solapur. 10 villages (9.61%) of Mohol, 8 villages (6.77%) of Madha, 06 village (5.88%) of Sangola, 07 villages (5.14%) of Barshi, 06 villages (5.08%) of Karmala 04 village (4.93%) of Mangalwedha and 06 villages (4.60%) of Akkalkot taluka.

These village are spread in the form of small patches in the study region. Especially in central part of the dirstrict, Bhima, Sina and Nira River Basins, along with the Nira right bank canal and Bhima right and left bank canals and nearing the urban areas of the study region.

The following factors are responsible for the high density of population.
Good transportation facility is one of the factor that influence the population density. Due to road and railway communication, there have been socio-economic changes. National High way No.9 runs through this region. Especially, Darphal, Wadala, Haglur, Jeur, Mohol, Tembhurni, Modnimb, Shetaphal are located along High way No 9 and south central railway.

Urbanization is an important factor influencing the population density. The villages located in the vicinity of urban places have comparatively high density of population. The workers who are unable to pay greater house rent in urban area, decide to live few miles away from the urban satellite centres. For example, the fringe area villages.

Better irrigation facilities is an important factor responsible for greater population density. Paniv, Tirwandi, Kondbavi, Vizori, Mahalung, Borgaon of Malshiras, Bhose, Ropale, Vakhari villages of Pandharpur taluka have adequate irrigation facilities. This reflects the better cropping pattern and improved the economic status of region.

Cottage industry is one of the important factors effecting the population density. Tanning and Handlooms are important industries in this district. Cottage industries occupy an important place in the economy of the district.
They provide a source of livelihood to numerous artisans and craftsman who are well-known for their skill and workmanship. The development of handloom weaving industry in Solapur seems to have commenced in the regime of the Peshwas. For example, Valasang, Karkamb, Jawala, Wagdari, Tolnur and Karjagi are the important locations of handloom weaving industry. Tanning is one of the well known cottage industry in the district Nagaj, Mohol, Upalai, Maindargi, Jawale and Modnimb are the important locations.

Agro-based industries also play a major role to boost the population density. The sugar industry and cotton textile mills have vital importance in rural area for generating jobs. Four sugar factories located in and around Akluk which have boosted population density. Farmer’s Co-operative cotton Textile Units Ltd., Sangola, Jagdamba Co-operative Cotton Textile Unit Ltd. Madha have also proved effective in increasing the rural population density. For example, Vizori, Malshiras, Malewadi, Phulchincholi, Bhatambre, Watambra, Vasud, Akole are the locations having high population density.

b) **HIGH POPULATIONN DENSITY AREA:**

(Above 251 persons per sq.km)

The region, under study has 19 villages (9.52%) fall in this category. This category shows the population density above 251 persons per sq.k. This region has 26 villages
(24.29%) of Malshiras, 8 villages (14.81%) of north Solapur, 10 villages (10.52%) of Pandharpur, 9 villages (10.11%) of South-Solapur, 13 village (9.55%) of Barshi, 11 village (9.32%) of Madha 10 village (7.69%) of Akkalkot, 6 villages (5.88%) of Sangola 6 villagers (5.76%) of Mohol, 6 villages (5.08%) of Karmala, and 3 villages (3.70%) of Mangalwedha taluka fall in this category.

These villages are spread in the form of small patches. Especially, in South-West corner of the district i.e. Aklu, periphery, central part of the district i.e. along the Nira right bank canal and Bhima left and right bank canals, fluke of the Bhima, Sina and Nira rivers and in proximity of urban centres.

These villages have very high population density due to advance agricultural practices, vicinity of urban centres, good transportation net work and other causes discussed in section 4.3.3 (v) For example, Bale, Shelgi, Kumate and Degaon are the locations in the vicinity of Solapur city. Aklu, Gadegaon, Arajunsond, Yeliv are the location in the proximity of sugar factory. Jeur Velapur, Bhosare, Madha are the locations located in the network of railway and roads.

Spatial density of population on the basis of village level data has therefore been attempted further to ascertain
the impact of geographical factors, i.e. soil, topography and rainfall. On the basis of the details of the description of these factors, further analysis is done.

The higher density of population in Malshiras is due to the industrial centre, Akluj. Otherwise rest of the area of the taluka contains sparse population. It will be seen from the maps of rainfall and soil distribution that the low rainfall, rugged topography and shallow soils are major characteristics of taluka and hence majority of the villages (i.e. 47 out of 107 i.e. 43.92%) fall in low density category (below 150 persons per sq. km.) while comparatively high rainfall, flat topography and deep black soil are major characteristics of the Akkalkot taluka, Only 22 out of 130 i.e. 16.92% villages fall in low population density category (below 150 parsons per esq.)

Western part of the study region has low rainfall, rugged topography and shallow as major characteristics. Hence majority of villages, 212 out of 315 i.e. 67.30% fall in low population density while eastern part of the study region has comparatively high rainfall, flat topography and deep black soil as major characteristics, hence less number of villages (87 out of 409 i.e. 21.27%) fall in low population density category (viz., 150 persons per esq.) On the other hand, western part has less number of the villages i.e. 54 out
315 i.e. 17.14% that in high density category while the eastern part has comparatively more number of villages,

c) WORKERS REQUIRED FOR SUGARCANE HARVESTING AND SUGAR INDUSTRY:

From the harvest of 1995-2000 the following arrangement has been made for the transport of the available cane. Since total number of sugar factories in Solapur district is increasing day by day, it is very essential to manage the proper number of sugarcane harvesters in the same area.

Table No. 7.1:

<table>
<thead>
<tr>
<th>Harvesting year</th>
<th>Workers</th>
<th>Bullock carts</th>
<th>Number of trucks</th>
<th>No.of Tractors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-1996</td>
<td>workers</td>
<td>394</td>
<td>118</td>
<td>487</td>
</tr>
<tr>
<td>1999-2000</td>
<td></td>
<td>716</td>
<td>206</td>
<td>240</td>
</tr>
</tbody>
</table>


The cutting of the cane depends on the date of plantation. The nature of cane, type of land, type of water, amount of fertilizers, month of plantation, total rainy and temperature are also important factors which affect the cutting of cane. Hence by checking the amount of sugar content in the laboratory of the factory the cutting of cane is preplanned.
Sugar factory requires two types of labour. One is skilled and the other is unskilled. The major part of unskilled labour is seasonal and not permanent. Skilled labour is useful for technical work in the sugar factory and unskilled is used for sugarcane harvesting, transportation of raw material and non technical work. The total labour force in permanent employment of the factory is 625 and the rest is seasonal. For cutting and transporting sugarcane labourers are coming from other districts mainly estern part of the Ahmednagar district. Where the drought prone conditions are much more severe. After the crushing season they go back to their home so the seasonal migration of labour is important and the seasonal migration of these labourers is responsible for improving the business in the consumers sector in the district.

To investigate socio economic status of the labour the questions regarding family size, land holding and moveable property have been asked to the randomly selected families. It is observed that these migrated labourers come from the severely drought prone areas of Ahmednagar, Beed and Osmanabad district. These labourers are mainly from the weaker section of the society. It is also found that majority of such labourers are from joint families and mostly from Vamjari caste most of them migrate from there native places because of lack of work there in winter and summer seasons.
Some families do cultivate jower in rabi season but they are not required to stay there as the crop is totally dependent on rain. Harvesting of poor yielding crops may be done by some other person sharing the forth part of the income. Thus, it is clear that with these limited resources.

7.3 SIZE OF LAND HOLDINGS.

The size of holdings has become a serious problems in the region under study. It district the adoption of new technology and power to be used. The size of holdings is associated with the pressure of population, economic requirements, the fertility of land and historical traditions (Sign) and Dhillon, 1984). The size of the farms decides the degree of risk that a farm operator may bear.

The size of holding is an important aspect to argument agricultural production by applying modern form implements. In theory the size of Standard operational holding is fixed by socioeconomic conditions in accordance with the type of farming practiced (Singh 1976). The spatial distribution of marginal, small medium and large sized holdings is shown in (fig 7.2 A. B. C. D) respectively in the district under study.
SOLAPUR DISTRICT
SMALL SIZE OPERATIONAL
HOLDING ONE TO THREE
HECTARE. 1999-2000

INDEX
Percentage

above 40
30 To 40
Less than 20

Fig. No. 7-2 B.
SOLAPUR DISTRICT
MEDIUM SIZE OPERATIONAL
HOLDING THREE TO FIVE

INDEX
Percentage

above 15
10 To 1.5
Less than 5

Fig.No. 7.2 C.
SOLAPUR DISTRICT
LARGE SIZE OPERATIONAL
HOLDING OVER FIVE HECTARE
1999-2000

INDEX
- 10% To 15%
- 5% To 10%
- 0% To 5%

Fig. No. 7.2 D.
Table NO. 7.2

|| Sr. No. | Taluka      | Cultivators  |
|---------|------------|--------------|
|         |            | Below 1 Hectores | 1 to 3 Hectors | 3 to 5 Hectors | above 5 Hectore |
|         |            | (No.)         | (Hect.)       | (Hect.)        | (Hect.)         |
| 1       | N Solapur  | 12900         | 5050 (39.15)  | 4050 (31.40)   | 2900 (22.48)    | 900 (6.97)      |
| 2       | Barshi     | 40800         | 26450 (64.83) | 6350 (15.56)   | 5445 (13.3)     | 2555 (6.26)     |
| 3       | Akkalkot   | 31200         | 21200 (67.95) | 5145 (16.49)   | 3155 (10.11)    | 1700 (5.45)     |
| 4       | S. Solapur | 23900         | 12900 (53.52) | 8146 (33.80)   | 1355 (5.62)     | 1700 (7.06)     |
| 5       | Mohol      | 35900         | 22145 (61.69) | 6900 (19.22)   | 4155 (11.57)    | 2700 (7.5)      |
| 6       | Mangalwedha| 29800         | 12195 (40.92) | 9805 (32.90)   | 4902 (16.45)    | 2898 (9.73)     |
| 7       | Pandharapur| 47700         | 27700 (58.07) | 10105 (21.18)  | 6195 (12.99)    | 3700 (7.76)     |
| 8       | Sangola    | 46600         | 25195 (55.75) | 10105 (22.36)  | 6195 (13.70)    | 3700 (8.19)     |
| 9       | Malshiras  | 53100         | 35095 (63.69) | 10005 (18.16)  | 4855 (8.81)     | 5145 (9.34)     |
| 10      | Karmala    | 48000         | 24000 (50.00) | 10000 (20.83)  | 9000 (18.75)    | 5000 (10.42)    |
| 11      | Madha      | 51200         | 31195 (59.76) | 10005 (19.17)  | 6000 (11.49)    | 5000 (9.58)     |
| Total   |            | 58.07         | 21.11         | 12.50          | 8.32            |


Above table No. 7.2 Shows that the solapur district has the preponderance of marginal and small sized holdings. About 58.07% cultivated area is copied by marginal sized holdings (below 1 hectare) The small sized holding (1 to 3 hectares) account 21.11 %. Where as medium sized holdings (3 to 5 hectare) and large sized holdings (over 5 hectare) contribute about 12.50 % and 8.32% respectively. Thus more than one third of the total holdings (58.07%) have the
Fig. No. 7.3
Talukawise Size of Landholding
Solapur District (1999-2000)
since less than 3 hectare which is the common phenomenon of the district.

Comparing the fig 7.2 A.B.C.D. it is clear that size of holding is small or marginal where the sugarcane cultivation is concentrated to a large scale. The irrigated area in the Bhima and Nira basin have small sized holdings. The density of population is high here which has laid further fragmentation of holding particularly income area. The small size of holdings has become an abstract for the introduction of mechanization. Along the river plains, small strips having considerable length of cane farms is the common picture in the district. The talukas of Barshi, Malshiras, Mohol, Akkalkot have marginal and small sized holding. These talukas have an extensive areas under cane cultivation. Interesting to the above talukas the size of holding is large in the Karmala, Malshiras and Mangalwedha talukas. The scarcity of water has limited the scope of cane cultivation and consequently subsistence agriculture is characterised by large sized holdings. (Fig.No. 7.3)

7.4 IRRIGATION: A DECISIVE FACTOR:

Irrigation is one of the important inputs and socio-economic basis of agriculture. It is since quanon for intensive and more economic agricultural operation. The success of agriculture depends to a large extent on how
successfully water requirement of various crops can be net. (Arora 1976)

Availability of personal water encourages farmers to adopt more scientific techniques and intensive cultivation. Farming without irrigation is very limited and if annual rainfall received is less than 300 mm, agriculture is impossible without irrigation.

A) NEED OF IRRIGATION:

Solapur district has acute need of irrigation due to precarious and uncertain rainfall causing water scarcity. The rainfall is also unequally distributed being as high average 678 mm in Solapur district. (Table No.2.1) As variability in excess of 70 percent a implies grant risk in farming, the absence of irrigation has been socially identified as the crowning constraint in agriculture (willamaon 1925). The shift from agriculturalisation to commercialization of agriculture and the introduction of "Modern innovation" in place of traditional ones have introduced crops like cotton, Sugarcane, hybrid Maize, wheat which require more water and can not flourish without irrigation (singh, 1974), In view of the recent emergence of sugarcane cultivation and the serasonal and erratic nature of South-west monsoon, the main source of water, Solapur district has acute need of water for irrigation.
B) DEVELOPMENT OF IRRIGATION:

With the advent of planning in 1951, many attempts were made to tap water for irrigation through the minor and major schemes. The government policies encouraged farmers to utilize surface as well as ground water resources by giving them financial assistance and subsidies through banks.

Moreover, the role of co-operative sector is note worthy in regared to development of irrigation. The sugar factories have made sustained achievement in irrigation in order to get more sugarcane for crushing. Apart from these facts repaid rate of rural electrification, the awareness of farmers and eduction have stimulated irrigation development.

C) SOURCES OF IRRIGATION:

The river Bhima and its tributaries offer surface water resources which have been trapped for irrigation during the last fifty years. The water regime of these rivers is however, irregular throughout the year.

The rugged terrain in the west and presence of ridges and dissected plateaus in the east seem to have hindered the development of irrigation. But the lift irrigation has overcome these limitations through the supply of water to
either sides of river and flood plains across the slope. The region has also favourables ground water supply which is utilized through wells.

The feasibility of irrigation, however, varies from one type of soil to the other. It is therefore, necessary to adopt proper strategy for irrigation schemes according to the moisture deficiency, the texture saline and alkaline nature of soil etc.

The major sources of irrigation in surveyed villages are wells, river water, bore wells etc. The well irrigation is extremely sensitive to rainfall conditions, being essentially rained. Even within one type of irrigation there are wide differences in quality, wells can very in depth, in construction. The efficiency of irrigation thus depends upon the quantum, regularity and controllability of water supply.

Irrigation by dug wells is important source. The creation of well irrigation facilities involves smaller outlay and shorter gestation period. Low level of water has been reported to be a wide spread problem, continuous pumping from closely spaced wells causes significant decline in water level. Inadequate repairs and maintenance of wells have further aggravated this problem. A possible solution lies in deepening of wells. In majority of cases water investment on this item. The close irrigation source has been partly
SOLAPUR DISTRICT
SHARE OF SUGARCANE CROPPED AREA IN NET IRRIGATED AREA

Fig. No. 7.5
responsible for letting the water table go down, especially during lean years because of insufficient natural replenishment.

Table No. 7.3:

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<td>1</td>
<td>Well</td>
<td>103080</td>
<td>147450</td>
<td>-14.29</td>
<td>67.99</td>
<td>53.70</td>
<td>+44370</td>
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<td></td>
<td></td>
<td>(244.79)</td>
<td>(193.33)</td>
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<td>+4.87</td>
<td>10.51</td>
<td>15.38</td>
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<td>(55.38)</td>
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<tr>
<td>3</td>
<td>Tanks</td>
<td>5297</td>
<td>2864</td>
<td>-2.45</td>
<td>3.51</td>
<td>1.06</td>
<td>-2433</td>
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<td></td>
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<td>(12.57)</td>
<td>(3.75)</td>
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<td>27278</td>
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<td>17.99</td>
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<td></td>
<td></td>
<td>(64.78)</td>
<td>(107.54)</td>
<td></td>
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<td></td>
<td>151591</td>
<td>274555</td>
<td>+16.74</td>
<td>100%</td>
<td>100%</td>
<td>+125397</td>
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<tr>
<td></td>
<td></td>
<td>(360)</td>
<td>(360)</td>
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</table>

Source: Socio-Economic Review of Solapur district.
N.B. Figures in brackets indicate the percentage of irrigated area under different sources of irrigation.

Above table No. 7.3 shows that during the 1975-80, the area under irrigation from all sources was 1,51,591 hectares which rose to 2,74,555 hectares in 1999-2000 amounting from absolute increase of 1,22,964 hectares within twenty five years of the cultivated area.(Fig.No.7.4 & 7.5)

The Solapur district has four sources of irrigation. Well, Lift, Canal and Tank. Talukewise proportion of different sources of irrigation is show in table No. 7.3.
SOLAPUR DISTRICT

AREA UNDER WELLS
PER 1000 HECTARES
OF CULTIVATED AREA

Fig. No. 7-6
a) **WELL IRRIGATION:**

Well irrigation accounts for the 53.70 of the total irrigated area in 1999-2000. Although area under well irrigation increased from 103080 (67.99%) hectares in 1975-76 to 147450 hectares in 1999-2000. (Fig.No.7.6) During 1975-76 to 1999-2000 -14.29 % actual change in well irrigation sources, but absolutely + 44370 hectares increased area in well irrigation.

Well irrigation is not advisable wherever the depth of the sub-soil water is over 15 meters, for beyond that depth the Cost of lifting water is excessively high as compared to the value of the crops raised (Singh 1976). From this point of view especially well irrigation is uneconomic during dry period in the western and eastern parts.

b) **PATTERN OF WELL IRRIGATION:**

Over 51.84 percent of total irrigated area is watered by wells in the western of talukas The high percentage of well irrigation in Akalkot, Mangalwedha and pandharpur taluka is due to favourable ground water. The other talukas have Moderate area (25 to 45 percent) irrigated by wells. The low percentages (below 20 percent) are observed in the mohol, Madha, and Malshiras Talukas.

This can be attributed to physiographic handicap and relatively proportion of canol irrigation there.
SOLAPUR DISTRICT
AREA UNDER WELLS
PER 1000 HECTARES
OF CULTIVATED AREA

Fig. No. 7-6
c) **DENSITY OF WELLS:**

The development of well irrigation is largely influenced by topography and behaviour of ground water. Takukawise distribution of wells varies remarkably. the district of high density includes the talukas in the central, western part of talukas. The physical constraints in the Mohol, Madha and Malshiras have limited scope for the development of well irrigation but in the Malshiras, Madha, Mohol and S. Solapur barring the river food plans, well irrigation is relatively not developed. Canal irrigation is developed. (Fig.No.7.6)

d) **SCOPE FOR DEVELOPMENT:**

Well irrigation accounts for about 1/2 (53.70 percent) of the total irrigated area in the district and still it has large potential to develop. According to their study the western parts district greater Potentiality (2000 to over 4000 wells) The highest feasibility is (More than 6000 wells) Confined to Akkalkot, Sangola, Pandharpur and Mangalwevdha, Talukas (Fig 7.7)The below 3000 wells is observed in the districts, Madha, Malshiras and Mohol talukas.

ii) **LIFT IRRIGATION:**

Co-operative sugar factories in the district have also tried to increase the irrigation facilities in their operational area by promoting the lift irrigation scheme. Water is lifted
from rivers and tanks for the purpose of irrigation. Solapur Zilha Parishad has promoted twenty three lift irrigation schemes. With the two big rivers viz. Bhima and Sina, small rivers like Man, Bori and Harna are used for irrigating the land for the purpose of sugarcane plantation.

Bhima river traverse about 180 miles in solapur district and has a minimum discharge of fifty cusecs of water. Besides Bhima, the Sina and Bori are also suitable rivers for lift irrigation schemes. Few lift irrigation schemes have been taken up in the co-operative sector. A major lift irrigation scheme is in operation at Tanulwadi in South Solapur taluka, which irrigate about 400 acres of land. Co-operative sugar factories like Sahakar Maharshi Shankarrao Mohite/Patil Sahakari Sakhar Karkhana Lt. Akluj, have financed the lift irrigation schemes for increasing the area under sugarcane. Sugarcane is becoming major cash crop in the district due to the increased irrigation facilities and opening of new co-operative sugar factories after 1970.

The emergence of lift irrigation may be ascribed to co-operative movement and development of sugar industry in the district. The obstacle of slope is eliminated here as the water is supplied to the fields for a distance ranging from 3 km to 15 km from the river banks. As is one of the costly enter prise s, the individual farmers cannot afford to invest large capital in it. The development of lift irrigation is closely
related to the development of sugarcane cultivation. The area under lift irrigation has increased from 27,278 hectares (17.99%) in 1976-80 to 82,000 hectares (29.86%) in 1999-2000 i.e. absolute increase of 54,722 hectares.

The spatial spread of lift irrigation in the district in far from even. High intensity (5 to over 10 percent) in confined to Malshiras, Pandharpur, S.Solapur and Akkalkot talukas. A moderate proportion (2.5 to 5%) is observed in Madha, Karmala and Snagola talukas and low proportion i.e. under 2.5 percent, in district is the Mohol M. Solapur, Barshi and Mangalwedha talukas (Fig. No. 7.8)

iii) CANAL IRRIGATION:

The problem of irrigation has been an important one as far as Solapur district since long. Following are the irrigation projects in the district.

a) NIRA RIGHT BANK-CANAL:

This canal a length of 95 miles passing through Solapur and Satara district. This cannal system provides irrigation facilities to Malshiras taluka of the district and about 50,000 acres of land of this taluka is irrigated by this canal. Therefore, sugarcane has been the main crop in this taluka since long due to which sugar industry in private sector developed before independence and before the
SOLAPUR DISTRICT
CANAL IRRIGATION IN NET SOWN
AREA. 1996-2000

Fig. No. 7.9
emergence of "Prawara Co-operative Sugar Factory" in Ahmednagar district adjoining to Solapur district.

b) **BHIMA UJANI PROJECT**

It is another important major irrigation project in the district, which consists of two parts viz. "Pawana" in Pune district and Ujani" in Solapur district.

This project has created irrigation facilities for 1,66,750 hectares of land in the district. This project facilitated to increase the area under sugarcane and other crops.

Although area under canal irrigation has increased 15936 (10.51% percent) in 1976-80 to 42241 (15.38 percent) in 1996-2000. i.e. absolute increase of 26305 hectares. Its contribution to total irrigated area as compared other sources has declined to about 38.67 precent. Topographic unsuitability seen to be responsible for canal irrigation is not develop in the district. The Nira canal & Bhima canals an extensive canal system in the district irrigating alluvial tract on the Bhima and Nira river (Fig,7.9) In addition, the western an central parts of talukas is canal irrigated is high of 10 to 15 percent these are Malshiras, Sangola, Pandharpur and 5 to 10 percent respectively under canal irrigation is the Madha, Barshi and Mangalwedha and the below 5 percent canal irrigation is the North, South, Solapur and Karmala in this talukas are low canal irrigation.
iv) **TANK IRRIGATION**:

Table No. 7.4

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of Talua</th>
<th>No. of completed percolation Tank.</th>
<th>Area under Irrigation (in Hect.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N. Solapur</td>
<td>32</td>
<td>873</td>
</tr>
<tr>
<td>2</td>
<td>Barshi</td>
<td>69</td>
<td>782</td>
</tr>
<tr>
<td>3</td>
<td>Akkalkot</td>
<td>33</td>
<td>552</td>
</tr>
<tr>
<td>4</td>
<td>S. Solapur</td>
<td>37</td>
<td>602</td>
</tr>
<tr>
<td>5</td>
<td>Mohol</td>
<td>48</td>
<td>767</td>
</tr>
<tr>
<td>6</td>
<td>Mangalwedha</td>
<td>48</td>
<td>1275</td>
</tr>
<tr>
<td>7</td>
<td>Sangola</td>
<td>110</td>
<td>1127</td>
</tr>
<tr>
<td>8</td>
<td>Malshiras</td>
<td>72</td>
<td>1233</td>
</tr>
<tr>
<td>9</td>
<td>Karmala</td>
<td>152</td>
<td>1204</td>
</tr>
<tr>
<td>10</td>
<td>Pandharpur</td>
<td>47</td>
<td>668</td>
</tr>
<tr>
<td>11</td>
<td>Madha</td>
<td>83</td>
<td>1111</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>736</td>
<td>10194</td>
</tr>
</tbody>
</table>

*Source: Socio-economic Review of Solapur District.*

Above table No. 7.4 shows that area under tank irrigation in 1975-76 was 5297 (3.51%) hectare and 2864 (1.06) hectare in 1999-2000. Although the area under tank irrigation has absolutely decreased -2433. During 1975-76 to 1999-2000 actual change in tank irrigation was -2.45%. It is mainly found on favourable sites in the western talukas which is a drought prone area. In the absence of other sources of irrigation 736 precolating tanks have been constructed which would bring 10194 hectares of land under cultivation (Fig.No. 7.10A) Infact, percolating tanks have raised the water table particularly in the lower reaches and the same can be tapped for well irrigation. Thus percolating tanks are supplementary to well irrigation.
Table No. 7.5


**Area in Hectares**

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Taluka</th>
<th>Canal</th>
<th>Well</th>
<th>Tank</th>
<th>Lift</th>
<th>Total</th>
<th>Percentag e</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N.Solapur</td>
<td>642.84</td>
<td>3474.29</td>
<td>262.00</td>
<td>270.13</td>
<td>4649.26</td>
<td>2.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.82)</td>
<td>(3.30)</td>
<td>(16.67)</td>
<td>(1.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Barshi</td>
<td>222.00</td>
<td>10159.92</td>
<td>51.00</td>
<td>66.00</td>
<td>10498.72</td>
<td>5.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.28)</td>
<td>(9.64)</td>
<td>(3.25)</td>
<td>(0.37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Akkalkot</td>
<td>--</td>
<td>4445.74</td>
<td>3.95</td>
<td>1119.90</td>
<td>5568.98</td>
<td>2.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(4.22)</td>
<td>(0.25)</td>
<td>(6.30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>S.Solapur</td>
<td>75.00</td>
<td>4405.84</td>
<td>--</td>
<td>2492.78</td>
<td>6972.32</td>
<td>3.42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.10)</td>
<td>(4.18)</td>
<td></td>
<td>(14.03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Mohol</td>
<td>2616.00</td>
<td>11916.08</td>
<td>--</td>
<td>110.00</td>
<td>14642.08</td>
<td>7.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.33)</td>
<td>(11.30)</td>
<td></td>
<td>(0.62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Mangalwedha</td>
<td>--</td>
<td>7061.05</td>
<td>--</td>
<td>287.00</td>
<td>7348.05</td>
<td>3.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(6.70)</td>
<td></td>
<td>(1.62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pandharpur</td>
<td>29506.00</td>
<td>14748.38</td>
<td>--</td>
<td>8320.00</td>
<td>52574.38</td>
<td>25.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(37.52)</td>
<td>913.99</td>
<td></td>
<td>(46.83)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sangola</td>
<td>2645.00</td>
<td>12469.00</td>
<td>--</td>
<td>500.00</td>
<td>15614.00</td>
<td>7.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.36)</td>
<td>(11.83)</td>
<td></td>
<td>(2.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Malshiras</td>
<td>34181.80</td>
<td>23388.92</td>
<td>46.34</td>
<td>3415.66</td>
<td>61032.72</td>
<td>30.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(43.47)</td>
<td>(22.19)</td>
<td>(2.95)</td>
<td>(19.23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Karmala</td>
<td>4087.47</td>
<td>4567.72</td>
<td>--</td>
<td>588.64</td>
<td>9213.83</td>
<td>4.53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5.20)</td>
<td>(4.33)</td>
<td></td>
<td>(3.31)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Madha</td>
<td>4656.00</td>
<td>8774.21</td>
<td>1208.00</td>
<td>595.00</td>
<td>15223.21</td>
<td>4.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5.92)</td>
<td>(8.32)</td>
<td>(76.88)</td>
<td>(3.35)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>78632.1</td>
<td>105410.5</td>
<td>1591.2</td>
<td>17734.5</td>
<td>203348.8</td>
<td>107.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(38.67)</td>
<td>4 (51.84)</td>
<td>9 (0.77)</td>
<td>1 (8.72)</td>
<td>6 (100)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Socio-Economic Profile of Solapur district 1999-2000

Above table No. 7.5 shows that Malshiras taluka occupied the largest irrigated area of 61032.72 hectares (30.01%) in 1999-2000. Out of total irrigated area in this taluka under canal 34181.80 hectare(43.47%), under well 23388.92 hectares(22.19%), under lift irrigation 3415.66 hectares(19.23) and under Tank 46.34 hectares(2.95%). In
Fig. No. 7.11A
Taluka wise Proportion of Different Source wise Irrigated Area
Solapur District (1999-2000)
SOLAPUR DISTRICT

AREA UNDER DIFFERENT SOURCES OF IRRIGATION (Area in Hectare)

1976-80

INDEX

- WELL
- CANAL
- TANK
- LIFT

1996-2000

Fig. No. 7.11 B
Fig. No. 7.11C
Change of Area Under Different Sources of Irrigation
Pandharpur taluka are total irrigated area 52574.38 hectares (25.85%) irrigated area in the district during the same period. In Pandharpur taluka has under canal irrigation 29506 hect(37.52%), under well 14748.38 hect.(13.99), under lift irrigation 83.20 hect.(46.83%) Malshiras and Pandharpur taluka are having mainum irrigated area other talukas of the district have depend upon well irrigation, but it entirely depend upon monsoon.North Solapur and Akkalkot these talukas has very lowest irrigated area like 2.28% and 2.73% .South Solapur, Magalwedha, Karmala, Barshi, Mohol, Madha and Sangola all these talukas are 3 to 7.5% irrigated area under different sources during the 1999-2000.(Fig.No. 7.11.A)

Impact of well lift canal and all irrigation scheme is examined by the change in quantity and quality of agricultural inputs used in the sugar factory command area. While analysing the impact and agriculturists the farmers who are share holders of the irrigated scheme. After the establishment of irrigation scheme may be compared cropwise and talukewise and sourcewise the area under sugarcane it has increased in the district.(Fig.7.11.B & C)

7.5 **FERTILIZER APPLICATION:**

The use of fertilizer seem to be always high in respect of irrigated crops like sugarcane in the district under study.
CHEMICAL FERTILIZERS & INTERCULTIVATION

Fertilizer Application

Cover Fertilizers with Soil
An increased area under sugarcane has always demanded considerable quantity of fertilizers which is reflected in the higher yields of sugarcane also. The increase in production of cash crops like sugarcane, leads to increase in farm incomes and also encourages farmers, for higher savings and consequently leads to increased output of each crops, resulting in a cumulative development process (winfraid, 1976). As such the proportion of sugarcane output which is marketed in the region is an important indictor of the district distribution of fertilizers consumption. Fig. Exhibits the trend of distribution of sugarcane area along with the fertilizer consumption from 1986-2000. In 1986 the district had 22,544 hectares of sugarcane area which rose to 58,279 hectares in 2000, i.e. 158.51 Precent increase such overwhelming increase in cane area correspondingly prompted fertilizer consumption in the study area. The fertilizer consumption has, for instance, increased from more 1030 metric tonnes in 1986 to 10,114 metric tonnes in 2000. Good response of sugarcane to fertilizers with assured water supply seems to be responsible for this upward trend.

7.6 **SOCIO-ECONOMIC IMPACT OF SUGAR CO-OPERATIVE:**

The experience of the sugar co-operatives in Solapur district selected for the present study, as well as of many of the successful sugar co-operatives from Ahmednagar,
Kolhapur, Sangli, Pune and Nashik districts, shows how the sugar co-operatives act as an important instrument of economic and social change. They not only enable the sugarcane growers to benefit, but also generate employment, both permanent and seasonal, in the process of manufacturing sugar as well as trade, industry, transport and service occupations indirectly. The sugar co-operatives produce social and economic impact on a large scale in the region where they are situated. Hence the need to promote the sugar co-operatives in the rural areas, hereever and economically viable.

The concept of sugarcane complexes aimed at making full utilization of all parts of sugarcane has already caught the imagination of sugar industry. As a result its interests are no longer restricted to producing sugar from sugarcane but have become multifarious such as cogeneration, paper production, alcohol fermentation, conversion of alcohol into value added chemicals and other biological transformation in addition to sugar manufacture. A case in point is the Pravara Sahakari Sakhar Karkhana. The Pravara Sahakari Sakhar Karkhana now known as Dr. Vithalrao Vikhe Patil S.S.K. Ltd was founded by late Shri. Padmshri Dr. Vithalrao Vikhe Patil with active support of Shri. Vaikunthbhai Mehta and Dr. Dhanjayrao Gadgil in 1950 with a 500 T.C.D. sugar plant. Now, It has grown into a 4000 TCD sugar factory
having by product units like 60,000 liters per day distillery, 30 TPD bagasse-based paper plant, a chemical plant and, a chemical plant and a host of social and educational institutions. For treating distillery effluents for pollution abatement, they have installed a bio-gas plant with Sulzer technology. The distillery boiler is now running on biogas only. This is the first plant in the co-operative Sector in India.

a) **Socio Economic Development**

The trust has successfully launched comprehensive community health care programmes with a radius of 40 km by providing expert services to its primary health centres in their activities. The society has made pioneer efforts in the development of rural infrastructure by making regular contributions every year for the maintenance of around 800 km work of rural roads around Pravaranagar, Besides, nearly 400 km of non-metal approach roads have also been constructed through society's own resources. A lot of change have been found in the standard of living of the society members as well as in the life of rural community. The framing community is now having nutritive diet, own pucca houses or even bungalows fully furnished with modern amenities, educational facilities for their children available in Loni, transport facilities, protected drinking water facilities etc. Thus, the most welcome outcome of the co-operative sugarcane complexes is the all road development of the area.
through provision of medical, educational and recreational facilities provided by hospitals, schools, colleges, sports centres etc. Super markets like Warna Bazar catering to the consumer needs of rural people by purveyance of goods at reasonable prices through most modern shopping centres have also brought a change in the life style of rural population. The thrust area for the coming decade are improvement in agricultural productivities, assuring equitable distribution of the gains thus obtained.

7.7 A CASE STUDY:

1) BHOGAWATI SAHAKARI SAKHAR KARKHANA LTD., TULSHIDASNAGAR, VAIRAG TAL-BARSHI.

♦ INTRODUCTION:

The Bhogavati S.S.K.Ltd., registered on 20.12.1975 and established by freedom fighter and former M.L.A & Congress leader Shri. Tulshidasjee Jadhav and Small Sugarcane growers from Barshi taluka. Sugarcane, in most of the area of this factory, is cultivated on well water, Bhogawati river and Higani tank. Therefore there is no assured sugarcane supply to the factory due to uncertainty of monsoon upon which well water is dependent. The factory covers considerably wide area of 287 villages from Barshi, Madha, Mohol, North Solapur, Bhum, Paranda and Kalamb Talukas. Therefore, the factory has to bring sugarcane from a long distance of 50 to 75 kms away from its location.
HISTORICAL PERSPECTIVE:

Bhogawati S.S.K.Ltd. Virag Tal-Barshi was registered in year 1975, but actual start from 1980. In this sugar factory 17 directors out which one is Chairman, one is voice chairman, and two are labour representative and one is Managing Director. The Election of sugar factory is held every five years.

The Bhogawati sugar factory has total 287 villages in command area. The few number of villages are supplying of sugarcane to the factory decrease day by day because less of irrigation facilities and decrease water table level. Infact Solapur district is a drought prone area, which is economically backward and there are so many problems in the district. Agriculture in district is mainly depend upon rainfall 75% of cultivated area of solapur district is characterised dry farming therefore, major area of the district comes under scarcity zone, which is characterised by low average rainfall. There are no other irrigation project except Higani tank its depend upon average rainfall in the district. The rainfall all over the district is uncertain and scanty and an annual average of 625 mm. The problem of irrigation has been an important one as far as solapur district since long. In the year 1980-81 the factory had in trail crushing season total sugarcane crushed 111543 tonnes and net sugar production 10437 and sugar recovery 9.36%.
BHOGAWATI SAHAKARI SAKHAR KARKHANA LTD;
TULSHIDAS NAGAR, VIRAG, TAL-BARSHI.
DIST-SOLAPUR
During the 1995-2000 total cane crushed 230561 M.T. and sugar production 23607 tonnes and sugar recovery 10.33%. During this 20 years mostly change in sugarcane production, sugar production and sugar recovery because the Higani project start from 1987-90.

♦ WORKING RESULT OF BHOGAVATI S.S.K LTD. VAIRAG:

The factory had its trial crushing season in November 1980. There seems to be no stability in crushing period of the factory since its inception. In 1983-84, there was a dispute between management & employees due to Table No. 7.6:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sugarcane crushed M.T.</td>
<td>137250</td>
<td>278128</td>
<td>297024</td>
<td>233102</td>
<td>67588</td>
</tr>
<tr>
<td>2</td>
<td>Sugar produced M.T.</td>
<td>14163</td>
<td>28012</td>
<td>30084</td>
<td>24297</td>
<td>6767</td>
</tr>
<tr>
<td>3</td>
<td>Sugar recovery percent</td>
<td>10.32</td>
<td>10.07</td>
<td>10.13</td>
<td>10.43</td>
<td>10.28</td>
</tr>
<tr>
<td>4</td>
<td>Net crushing days</td>
<td>100</td>
<td>221</td>
<td>219</td>
<td>158</td>
<td>51</td>
</tr>
<tr>
<td>5</td>
<td>Net crushing hours</td>
<td>2203</td>
<td>4865</td>
<td>4815</td>
<td>3465</td>
<td>1126</td>
</tr>
<tr>
<td>6</td>
<td>Crushing hour lost.</td>
<td>852</td>
<td>675</td>
<td>720</td>
<td>350</td>
<td>1062</td>
</tr>
<tr>
<td>7</td>
<td>Installed capacity TCD</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>8</td>
<td>Capacity utilization percentage</td>
<td>94.78</td>
<td>100</td>
<td>108</td>
<td>118</td>
<td>103</td>
</tr>
<tr>
<td>9</td>
<td>final cane price per tonne.</td>
<td>252</td>
<td>277</td>
<td>312</td>
<td>307</td>
<td>310</td>
</tr>
</tbody>
</table>

Sources: Annual report of factory 1962.63 to 1999-2000

which workers went on strike from 6.12.83 to 12.1.84, therefore the factory could run for 97 days only and crushed
only 44935 tonnes of sugarcane. Due to such uneconomic crushing period the factory suffered a heavy loss of Rs 209.22 lakhs.

In 1987-88 there was no adequate sugarcane in the area of the factory to start the crushing season, therefore the factory remained closed in 1987-88.

As per the production statistic given in table No. 7.4 for the period from 1987-89 to 1992-93 season, there seems wide fluctuations in sugarcane supply, sugar production and crushing period. The factory made a crushing of 137250 tonnes of sugar and produced 14163 tonnes of sugar by achieving a sugar recovery of 10.34% in 1987-89 season of 100 days only. Subsequent seasons viz. 1989-90, 1990-91, 1991-92 seem to be the most favourable to the factory due to sufficient sugarcane supply from the operational area of the factory. Sugar production increased from 14163 tonnes in 1987-89 to 28012 tonnes in 1989-90.

In 1992-93 the factory faced an acute shortage of sugarcane due to which the factory could crush only 65788 tonnes of sugarcane & produced 6767 tonnes of sugar during a very short crushing period of 51 days only.

There seems to be wide variations in crushing period from season to season. The period of 100 days in 1988-89
and 51 days in 1992-93 seasons seem to be lowest of all other factories in the district. The seasons occurring in 1989-90 and 1991-92 are the only seasons with satisfactory longer period of 221 days and 219 days respectively.

It can be seen from table No. 7.4 that sugar recovery percentage declined from 10.32 in 1988-89 to 10.13 in 1990-91 and increased in 1991-92 up to 10.43. It seems to be coming down up to 10.07 in 1989-90. It seems to be independent of volume of sugarcane crushed and crushing period.

Most of the working hours seem to have been lost due to sugarcane shortage and mechanical faults in plant and machinery. Highest number of working hours seem to have been lost in Season i.e. 1062 hours, due to sugarcane shortage.

The factory has not made any expansion in crushing capacity since its inception. It has utilized its available crushing capacity (1250 T.C.D.) to the fullest possible extent during the period covered by this study. Percentage of capacity utilization ranges between 90 to 120 during the period from 1987-89 to 1992-93.
Sugarcane price per tonne paid during the period of five seasons ranges between Rs. 250 to Rs 315, which seems to be lowest of all other factories. It can be seen from the financial accounts of the factory that it has accumulated heavy loss of Rs. 11.82 crores by the end of 31st March 2000, including a loss of Rs. 1.53 crores for 1999-2000 season.

Thus from the working results of five seasons given in the table No. 7.4, it can be said that the factory shows unsatisfactory performance in three out of five season. This is mainly due to shortage of sugarcane.

\* SUGARCANE DEVELOPMENT PROGRAMME:

Supply of new and improved Sugarcane Seedling, green manures and chemical fertilizers to sugarcane growers are essential for development of sugarcane in the area of the factory. It seems from annual reports of the factory that it has supplied the following sugarcane varieties to the farmers.

co-419, co-740, co-7219, co-8014,
co-671, co-7127, co-62175 etc.

The factory is not having its own seedling farm and soil testing laboratory which puts limitation on developing new varieties of sugarcane and on keeping fertility of land intact.
The factory has not been able to implement sugarcane development plans due to inadequate irrigation facilities in its operational area.

♦ RAW MATERIAL:

Sugarcane is basic raw material for sugar factory. In this case the distance is very important. The distance between sugar factory and sugarcane area is required to be low to reduce the loss of recovery due to evaporation after the harvesting cane. It must be used for crushing with in 24 hours, otherwise the weight as well as loss and recovery is decreases though the factory is located within the sugarcane zone or sugarcane belt. In this sugar factory zone is not sufficient sugarcane for the sugar factory. therefore gatecane from other places like Madha, Magalwedha, Karmala, Osmanabad etc. being produced.

The production of sugarcane is increasing year by year in the catchment of sugar factory. However the factory has been facing of problem raw material since its installation. Sugarcane is main raw material which is collected from the command area and also from outside of the command area because in this factory area irrigation facilities decreased day by day and thus sugarcane production is less. In Solapur district from 1996 -2000 the average rainfall very
less since decrease in harvested area under sugarcane is observed in 1999-2000 due to drought prone condition in the district.

♦ SUGARCANE TRANSPORT SYSTEM:

The factory has organised sugarcane transport system which is quick effective and timely to make a members the owners of vehicles. The factory gives them financial assistance of the value of the vehicle like tractors, trucks and bullock cart etc. were provided to all owners. The factory provided through owners of all vehicles as such total trucks 100, total tractors 40 and total bullock carts 500 and therefore, the sugarcane transportation system of the factory has become easier, systematic and satisfactory too.

♦ LABOUR:

The sugar factory requires two types of labourers. one is skilled and other is unskilled. the major part of unskilled labour is season and not permanent. Skilled labour is useful for technical work in sugar factory and unskilled used for sugarcane harvesting, transportation of raw material and non-technically work. For cutting and transporting sugarcane labourers are coming from other district mainly Nagar, Beed and Osmanabad district. Where the drought
prone conditions are much more severe. After the crushing season they go back to their home so the seasonal migration of labour is important and the seasonal migration of these labourers is responsible for improving the business in the consumers sector in the district. The drought prone zone of the district shows significantly low agricultural productivity and very poor status small and marginal farmers in the the area.

Labour is an important factor of sugar production. In this factory total strength of workers was very less in the year 1980-81. In this period there are only 150 workers in this factory.But during 1999-2000 the total strength of workers is 227 out of which 100 workers were regular and 127 workers are temporary or season.

♦ CAPITAL:

Initial finance for the factory was raised through share holders in command area of the factory. At the time of 1980 the value of share was Rs.1000 then 1985 the government of Maharashtra and industrial finance co-operation of India also subscribed to the share capital to the factory. The number of members and share capital have been increased from 1992-93.

The share capital of the Govt. of Maharashtra was Rs.112.90 lakh in 1987-88. It has increased to 137.02 lakh in 1992-93. The share capital fluctuation is seen in the year 1987-88 and 1992-93.
Table No 7.7:

**Sugarcane Crushed And Production Of Sugar And Recovery**

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Year</th>
<th>Sugarcane crushed in M.T.</th>
<th>Net Sugar production in tonne</th>
<th>Sugar cane recovery %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1980-81</td>
<td>111543(111.54)</td>
<td>10437(10.44)</td>
<td>9.36</td>
</tr>
<tr>
<td>2</td>
<td>1981-82</td>
<td>288832(288.83)</td>
<td>26162(26.16)</td>
<td>9.6</td>
</tr>
<tr>
<td>3</td>
<td>1982-83</td>
<td>253600(253.60)</td>
<td>25122(25.12)</td>
<td>9.91</td>
</tr>
<tr>
<td>4</td>
<td>1983-84</td>
<td>50357(50.36)</td>
<td>4249(4.25)</td>
<td>8.44</td>
</tr>
<tr>
<td>5</td>
<td>1984-85</td>
<td>132149(132.15)</td>
<td>12212(12.21)</td>
<td>9.24</td>
</tr>
<tr>
<td>6</td>
<td>1985-86</td>
<td>155679(155.68)</td>
<td>14333(14.33)</td>
<td>9.21</td>
</tr>
<tr>
<td>7</td>
<td>1986-87</td>
<td>18755(18.76)</td>
<td>9324(9.32)</td>
<td>9.18</td>
</tr>
<tr>
<td>8</td>
<td>1988-89</td>
<td>118481(118.48)</td>
<td>12259(12.26)</td>
<td>10.07</td>
</tr>
<tr>
<td>9</td>
<td>1989-90</td>
<td>278129(278.13)</td>
<td>28013(28.01)</td>
<td>10.13</td>
</tr>
<tr>
<td>10</td>
<td>1990-91</td>
<td>297024(297.02)</td>
<td>30095(30.10)</td>
<td>10.13</td>
</tr>
<tr>
<td>11</td>
<td>1991-92</td>
<td>233103(233.10)</td>
<td>24524(24.52)</td>
<td>10.43</td>
</tr>
<tr>
<td>12</td>
<td>1992-93</td>
<td>65788(65.79)</td>
<td>6763(6.76)</td>
<td>10.28</td>
</tr>
<tr>
<td>13</td>
<td>1994-95</td>
<td>252356(252.36)</td>
<td>24474(24.47)</td>
<td>9.70</td>
</tr>
<tr>
<td>14</td>
<td>1995-96</td>
<td>267740(267.74)</td>
<td>25003(25.00)</td>
<td>9.34</td>
</tr>
<tr>
<td>15</td>
<td>1996-97</td>
<td>195057(195.06)</td>
<td>19301(19.30)</td>
<td>9.90</td>
</tr>
<tr>
<td>16</td>
<td>1997-98</td>
<td>208966(208.97)</td>
<td>20678(20.68)</td>
<td>9.90</td>
</tr>
<tr>
<td>17</td>
<td>1998-99</td>
<td>23458(23.46)</td>
<td>25788(25.79)</td>
<td>11.00</td>
</tr>
<tr>
<td>18</td>
<td>1999-2000</td>
<td>340986(340.99)</td>
<td>377104(377.10)</td>
<td>11.08</td>
</tr>
</tbody>
</table>


Above table No. 7.7 show that working result of Bhogawati sugar factory from 1980-81 to 1999-2000.
Fig. No. 7.12
Change in Sugarcane Crushed, Sugar Production and Sugarcane Recovery
Bhogawati Sugar Factory Ltd., Virag-Barshi, District Solapur

Values in '000 tonnes

Sugarcane crushed in '000 tonnes  Net Sugar Production in '000 tonnes  Sugarcane Recovery (%)
Sugarcane crushed sugar production and sugarcane recovery

The crushing capacity of sugar factory was 1250 tonne per day at the beginning as the crushing season of the factory depend upon the supply of sugarcane there are fluctuations in the crushing season recovery and production of sugarcane and sugar. It has been observed the table No. 7.7 that there has been considerable improvement in the performance of the factory over the last season 1999-2000. During the 1980-81 the sugarcane crushed 111543 M.T. sugar production 10437 tonnes and sugar recovery 9.3% and during the 1999-2000 the sugarcane crushed 340986M.T, Sugar production 377104 and recovery of sugarcane 11.08%. These two period compared the sugarcane crushed, sugar production and recovery increased because the irrigation facilities, fertilizer consumption increased during this period. (Fig.No. 7.12)

BY PRODUCTS:

In this factory bagasses and mollases are the by product of the factory. The entire bagasses is used as fuel in the factory. So there is minimum use of electricity. Mollasses is being sold to an outside company but now factory is running distillarly for the production of industrial alcohol and E.N.A from mollasses near sugar factory.
PROBLEM OF SUGAR FACTORY:

In solapur district the problem faced by sugar industry are increasing day by day along with their development in most of areas including Solapur and Osmanabad district the production of sugarcane per hectare has been observed to be decreasing in this last decade. The rate of sugar production per unit weight of cane is decreasing. There are several factors which badly affected sugar industry in last few year These factors are like uncertain natural crisis, unrealible of irrigation, corruption in cane supply insufficient capital, very uncertain prices of cane, insufficient management of sugar factory, lack of advance techniques, no fixed strategy a long period by the govt. etc.

2) SAHAKAR MAHARSHI- SHANKARRAO MOHITE-PATIL
S.S.K. LTD. AKLUJ :

INTRODUCTION:

The Sahakar Maharshi Shankarrao Mohite Patil S.S.K. Ltd, Akluj Registered on 22/04/1960 and established by the co-operative leader and M.L.A. took over this sugar factory co-operative basis in 1960. The factory covered considerably vide area of 167 villages in command area of the factory out of these villagres as like Indapur-46, Malshiras-77, Madha-
SAHAKAR MAHARSHI SHANKARRAO
MOHITE PATIL S.S.K. Ltd., AKLUJ,
MALSHIRAS, DIST. SOLAPUR.

Area of Operation:
1. Malshiras Taluka
2. Sangola Taluka
3. Paudharper Taluka
4. Mohol Taluka
5. Karmala Taluka
6. Madha Taluka
7. Indapur Taluka
8. Man Taluka

Fig. No. 7-16
25, Sangola-19, therefore the factory has to bring sugarcane from a long distance 50 to 60 km away from its location. The initial crushing capacity of the factory was only 1,000 T.C.D. The factory worked in very critical situation in the 1st 10 years due to in inadequate working capital and sugarcane shortage. Shankarrao Mohite Patil supported this factory and made it an efficient unit as result of which it increased its crushing capacity from 1000 T.C.D. to 4500 T.C.D. in 1995. The sugar recovery of the factory remained above 12% which is better than other factories in the district. The factory is supported by 3000 sugarcane producer member spread over 95 villages in the operational area of the factory. The crushing capacity and sugar recovery and sugar production all these items the factory is 1st ranked in Maharashtra and highest in Solapur District. The Central Govt. and State Govt. have appreciated. The performance of the factory by awarding Gold medel and eight star dimond studed medal to it, for operating the plant at above 100% capacity and for high sugar recovery. The factory is successful in keeping its crushing period fairly above ideal crushing period of 180 days as well as keeping the loss of crushing hours at lowest level.

The main by-products of sugar industry are Bagasse, Molasses, Press-mud, ethanol, distillery etc. these are major by-products in this sugar factory.
This sugar factory established their own distilleries of 30000 liters per day capacity and this factory leading in by-product industry. It has received licence from the Govt. for establishing E.N.A. Plant of 60 to 70 lakhs liter per year capacity. It has established Mithel Gas plant for producing mithel gas by processing the spent wash water, and gas been utilised for boiler to save steam. It has also setup acetic Acid plant of 6000 tonnes per year capacity for which 75 lakh liters of alcohol is expected to be consumed. All the above three plant have been started in 1992-93.

♦ HISTORICAL PERSPECTIVE :

The name of the factory is Sahakar Maharshi Shankarrao Mohite/Patil S.S.K.Ltd., and it is located in Malshiras talukas at Akluj of solapur district. The Malshiras taluka is one of the drought prone affected areas of the Maharashtra state. It has a scanty rainfall and its economy is based entirely on agriculture.

The sahakar Maharshi Shankarrao MohitePatil S.S.K. Ltd. was registered as agro-processing co-operative society under the Maharashta co-operative societies Registration Act in the year 1960 and commenced its crushing operations during the crushing season 1962-63. With an installed capacity of 1000 tonnes crushing per day
(T.C.D.) and with the Share capital of Rs. 3.9 Million. Consisting of members share capital of 2.5 illion., and State Govt. share contribution of Rs. 1.5 Million. During the last three decade this co-operative venture has gone from strength to strength and has not only recorded phenomenal growth in its main business of manufactureing sugar but has also acted as catalyst of growth in other sectors.

♦ WORKING RESULTS OF S. M. S. M.P. S.S. K. LTD.AKLUJ :

Table No. 7.8 :

**Working Results Of Sahakar Maharshi Shankarrao Mohite/Patil**

**S.S.K.Ltd., For The period from 1962-63 to 1999-2000 seasons.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sugarcane crushed M.T.(lakh)</td>
<td>12.57</td>
<td>12.84</td>
<td>14.63</td>
<td>77.91</td>
<td>33.52</td>
<td>59.56</td>
</tr>
<tr>
<td>3</td>
<td>Sugar recovery percent</td>
<td>11.12</td>
<td>10.83</td>
<td>10.88</td>
<td>10.35</td>
<td>10.38</td>
<td>10.91</td>
</tr>
<tr>
<td>4</td>
<td>Net crushing days</td>
<td>170</td>
<td>182</td>
<td>192</td>
<td>175</td>
<td>183</td>
<td>205</td>
</tr>
<tr>
<td>5</td>
<td>Net crushing hours</td>
<td>4080</td>
<td>4368</td>
<td>4608</td>
<td>4200</td>
<td>4392</td>
<td>4920</td>
</tr>
<tr>
<td>6</td>
<td>Crushing hour lost.</td>
<td>459</td>
<td>474</td>
<td>495</td>
<td>589</td>
<td>522</td>
<td>363</td>
</tr>
<tr>
<td>7</td>
<td>Installed capacity TCD</td>
<td>1000</td>
<td>1250</td>
<td>1700</td>
<td>3000</td>
<td>4500</td>
<td>4500</td>
</tr>
<tr>
<td>8</td>
<td>Capacity utilization percentage</td>
<td>124.18</td>
<td>128.59</td>
<td>111.92</td>
<td>100.52</td>
<td>98.37</td>
<td>99.13</td>
</tr>
<tr>
<td>9</td>
<td>final cane price per tonne</td>
<td>85.50</td>
<td>138.50</td>
<td>147.50</td>
<td>350.00</td>
<td>650.00</td>
<td>848.00</td>
</tr>
</tbody>
</table>

Sources: Annual report of factory 1962-63 to 1999-2000
Above table No. 7.8 shows that Sahakar Maharshi Shankarrao Mohite/Patil S.S.K.Ltd had its 1st crushing season in 1962-63. With the crushing capacity of 1000 T.C.D. The factory expanded its crushing capacity 5 times within a period of 40 years. Which is a sign of a good performance crushing capacity increased from 1000 T.C.D to 1250 in 1962-63 to 1972-74 and from 1250 T.C.D. to 1750 T.C.D. in 1977-78, (Table No. 7.6) shows very good and satisfactory performance during this period. The crushing capacity increased from 3000 to 4500 T.C.D. in 1978-79 to 1992-93 and from 4500 T.C.D. up to 1999-2000. In 1962-63 to 1968-69 season a factory produced 12.57 lakh M.T. sugar cane crushed and sugar production was 13.99 lakh M.T. in same period and it ranked 1st in Maharashtra. He achieved average sugar recovery of 11.12 % in 1962-63 to 1968-69 season. Which was highest in Solapur district. The state Govt. and central Govt. have appreciated the performance of the factory by awarding Gold Medel and 8 Star diamond studed medal to it for operating the plant at above 1000% capacity and for high sugar recovery. During the 1969-70 to 1973-74 sugarcane crushed 14.63 Lakh M.T. sugar production 14.85 lakh M.T., and sugar recovery 10.88 %. In 1978-79 to 1991-92 the sugarcane crushed 77.91 lakh M.T., sugar production 81.66 lakh M.T., and average sugar recovery 10.35 %. and the during 1992-93 to 1995-96
sugarcane crushed 33.52 lakh M.T., sugar production 21.01 lakh M.T. and sugar recovery 0.8 % and last 5 years 1996-97 to 199-2000 sugarcane crushed 59.56 Lakh M.T. sugar production 39.83 Lakh M.T. and average sugar recovery 10.91 %. In this period very high sugarcane crushed sugar production and sugar recovery in Maharashtra. Shri Sahakar Maharshi Shankarrao Mohite/Patil S.S.K. Ltd., stood 1st in district for maximum crushing sugar production and recovery as compared with other sugar factories. During the 1983 the Central Govt. have appricated the performance of factory by awarding national productivities of India New Delhi has give a merit certificate to the factory. and during 1985 awarded of national sefty award for industrial sefty . In 1987 national efficiency award for steam economy and technical efficiency. In 1988 award of national srfty warard for industrial sefty and other awarding as such indoor plant, indoor mossttich chainmpain of the show season pot out door follower pot, out door plant all these award of state Govt. Central Govt. and V.S.I. Institute Pune. The factory paid satisfactory cane prices to the farmer over all performance of factory to be very satisfactory.

♦ SUGARCANE DEVELOPMENT PROGRAMME :

Sugarcane development programme is must for each factory to increase area under sugarcane in its jurisdiction, to increase per hectar sugarcane yield, to provide new and
improved sugarcane varieties and to make perennial water supply available to cane growers. The factory carried out following activities in this respect.

♦ **LIFT IRRIGATION SCHEMES**:

The factory has worked out 5 lift irrigation schemes on right canal of Nira dam at western side of Malshiras Taluka with the financial assistance from Maharashtra co-operative Agriultural and Rural Development Bank. 27 lift irrigation schemes are sanctioned by the Govt. the work of which has been undertaken in 1992-93 season. The factory has tried to irrigate maximum land in its area of operation by implementing joint lift irrigation scheme for the members concerned.

♦ **SUPPLY OF CHEMICAL FERTILIZERS**:

The factory provides chemical fertilizers to members on credit and collect the bill through the sugarcane bill in the season. It supplied chemical fertilizers of Rs. 29.27 lakhs to 2637 members in 1991-92 season, but in 1992-93 season it supplied chemical fertilisers of Rs. 24.29 lakhs to only 790 members.
SUPPLY OF GREEN MANURE:

Green manure like jute is must for maintaining fertility of land. Therefore factory had supplied jute seeds to the members at subsidized price. In 1991-92, 47 members have used such manure for 115 acres of land and in 1992-93 season 21 members have used the jute for 35 acres of land.

SUPPLY OF NEW & IMPROVED SEEDLINGS:

Sugarcane seedling is one of the most important factors that governs both the cane yield per acre and sugar recovery. This factory is operating three tier seedling producing system through which seedling of different tyes of varieties are supplied to members. In 1991-92 season factory had financed 288 members for plantation of new varities of cane on 245 acres of land. An incentive scheme for increasing the plantation of Co.c. 671, Co, 7704, Co 8014, and Co 419 cane varities, is being operated since 1990 -92 season.

The factory has created competitive spirit among the members for increasing per hectar yield of cane. Names of sugarcane growers producing highest per acre sugarcane are circulated among other members. The farmers getting highest per acre yield are given special freognition, cash prizes are awarded to them in a common function. Following
is the per acre yield of different varieties of cane grown in the operating area of the factory. (Fig. No. 7.13)

<table>
<thead>
<tr>
<th>cane variety</th>
<th>Yield per acre.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO. 740 Adsali</td>
<td>90.15 tonnes</td>
</tr>
<tr>
<td>CO. 740 Plant.</td>
<td>80.0 tonnes</td>
</tr>
<tr>
<td>CO. 740 Retoon</td>
<td>69.87 tonnes</td>
</tr>
<tr>
<td>CO. 7219 Adsali</td>
<td>79.0 tonnes</td>
</tr>
<tr>
<td>CO. 7219 Plant</td>
<td>79.0 tonnes</td>
</tr>
<tr>
<td>CO. 671 Plant</td>
<td>82.58 tonnes</td>
</tr>
</tbody>
</table>

**BONUS AND INCENTIVES SCHEMES:**

Sugar industry is a labour intensive industry and therefore it is essential to satisfy the personnel and all other categories of workers by paying them bonus and incentives in addition of salaries and wages. The factory has been paying bonus equal to 20 days salary since last 10 years. An incentive equal to 15 days's salary is also taken being paid to the employees. The factory have also taken due care of harvesting and transportation labourers and contractors by awarding them cash prizes for good performance in the season. This has resulted in full support and co-operation from workers to the factory for making the crushing season successful.

The factory earned profits in all the seasons with the exception of 1991-92 in which it suffered a loss of Rs. 152.09
lakhs due to heavy incidence of interest on loans taken for expansion of crushing capacity.

♦ RAW MATERIAL:

Sugarcane is basic raw material for sugar factory. In this case the distance is very important. The distance between sugar factory and sugarcane area is required to be low to reduce the loss of recovery due to evaporation after the harvesting cane. It must be used for crushing with in 24 hours, otherwise the weight as well as loss and recovery is decreases though the factory is located within the sugarcane zone or sugarcane belt. In this sugar factory zone is sufficient sugarcane for the sugar factory.

The production of sugarcane is increasing year by year in the catchment of sugar factory. Sugarcane is main raw material which is collected from the command area and also from outside of the command area because in this factory area irrigation facilities increased day by day and thus sugarcane production is high.

co-operative sugar factories cannot neglect sugarcane research as it facilitates to improve sugarcane quality and per hectare sugarcane yield. The objective of sugarcane research are as follows.
1. To breed sugarcane varieties with high per hectare yield and sugar content for different agro climatic regions.

ii. To evolve efficient sugarcane cultivation practices.

iii. To work out suitable schedule for irrigation and fertilizer application in different areas of the zone.

Co-operative sugar factories in Solapur district are getting the benefits of research activities carried out at 'sugarcane Research Sub-station' at Akluj, taluka Malshiras, and 'Sugarcane Research Station at Padegoan, taluka Haveli Dist- Pune. New and improved sugarcane seedling are made available by these research centres. Generally following sugarcane varieties are planted in the district.

CO. 740, CO- 8014, CO 671 CO. 7219, CO. 429, CO. 72175.

♦ SUGARCANE TRANSPORT SYSTEM:

The factory has organised sugarcane transport system which is quick effective and timely to make a members the owners of vehicales. The factory give them financial assistance of the value of the vehical like tactors, trucks and bullockcart etc. were provided to all owners. The factory provided through owners of all vehicales as such total trucks 82, total tactors 220 and total bullock carts 750 and
therefore, the sugarcane transportation system of the factory has become easier, systematic and satisfactory too.

- **LABOUR:**

  The sugar factory requires two types of labours. one is skilled and other is unskilled. the major part of unskilled labour is season and not permanent. Skilled labour is useful for technical work in sugar factory and unskilled used for sugarcane harvesting, transportation of raw material and non-technically work. For cutting and transporting sugarcane labourers are coming from other district mainly Nagar, Beed and Osmanabad district. Where the drought prone conditions are much more severe. After the crushing season they go back to their home so the seasonal migration of labour is important and the seasonal migration of these labourers is responsible for improving the business in the consumers sector in the district. The drought prone zone of the district shows significantly low agricultural productivity and very poor status small and marginal farmers in the the area.

  Labour is an important factor of sugar production. In this factory total strength of workers was very less in the year 1962-63. In this period there are only 150 workers in this factory. But during 1999-2000 the total strength of workers
is 350 out of which 200 workers were regular and 150 workers are temporary or season.

**CAPITAL:**

The capital for the Sahakar Maharshi Shankarrao Mohite/Patil S.S.K. Ltd., Sugar factory has been managed from various sources. The capital is not actual effective factor for the location of the sugar factory. The capital is necessary to the development of sugar industries. The factory has been made available from financial bodies run by the Govt. during the 1960-63 total share capital Rs. 31.05 lakhs. These capital collected by the farmer members in command area. However in the beginning the share capital Rs.1000 has been collected from which farmer members in the command area. During the 1970-71 to 1981-82 in this period average share capital 72.35 lakhs and 1982-83 to 1989-90 average share capital 85.47 lakhs, during 1994-95 to 1999-2000 the share capital 425.74 lakhs. Thus the share capital is increased day by day in this factory. This system of generation capital is essential for the development of rural areas of farmer. The state Government's share capital contribution of Rs 1.5 Million. This is an attempt to develop the rural area in this command area of sugar factory.
Table No. 7.9

**Sahakar Maharshi Shankarrao Mohite/Patil S.S.K.Ltd**

**Sugarcane Crushed/Sugar Production And Sugarcane Recovery.**

**1962-63 To 1999-2000.**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Year</th>
<th>Cane crushed in lakh M.T.</th>
<th>Sugar production in lakh M.T.</th>
<th>Average sugar cane recovery in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1969-70 to 1973-74</td>
<td>12.84</td>
<td>13.9</td>
<td>10.83</td>
</tr>
<tr>
<td>3</td>
<td>1974-75 to 1977-78</td>
<td>14.63</td>
<td>14.85</td>
<td>10.88</td>
</tr>
<tr>
<td>4</td>
<td>1978-79 to 1991-92</td>
<td>77.91</td>
<td>81.66</td>
<td>10.35</td>
</tr>
<tr>
<td>5</td>
<td>1992-93 to 1995-96</td>
<td>33.52</td>
<td>21.01</td>
<td>10.38</td>
</tr>
<tr>
<td>6</td>
<td>1996-97 to 1999-2000</td>
<td>59.56</td>
<td>39.83</td>
<td>10.91</td>
</tr>
</tbody>
</table>


Above table No. 7.9 shows that Sahakar Maharshi Shankarrao Mohite/Patil S.S.K.Ltd had its 1st crushing season in 1962-63. With the crushing capacity of 1000 T.C.D. The factory expanded its crushing capacity 5 times within a period of 40 years. Which is a sign of a good performance crushing capacity increased from 1000 T.C.D to 1250 in 1962-63 to 1972-74 and from 1250 T.C.D. to 1750 T.C.D. in 1977-78. (Table No. 7.6) shows very good and satisfactory performance during this period. The crushing capacity increased from 3000 to 4500 T.C.D. in 1978-79 to 1992-93 and from 4500 T.C.D. upto 1999-2000. In 1962-
Fig. No. 7.14
Change in Sugarcane Crushed, Sugar Production and Sugarcane Recovery
Sahakar Maharshi Shankarrao Mohite-Patil S.S.K.Ltd., Akluj-Malshiras, District Solapur

Values in Lac


Sugarcane crushed in Lac tonnes  Net Sugar Production in Lac tonnes  Sugarcane Recovery (%)
63 to 1968-69 season a factory produced 12.57 lakh M.T. sugar cane crushed and sugar production was 13.99 lakh M.T. in same period and it ranked 1st in Maharashtra. He achieved average sugar recovery of 11.12 % in 1962-63 to 1968-69 season. During the 1969-70 to 1973-74 sugarcane crushed 14.63 Lakh M.T. sugar production 14.85 lakh M.T., and sugar recovery 10.88 %. In 1978-79 to 1991-92 the sugarcane crushed 77.91 lakh M.T., sugar production 81.66 lakh M.T., and average sugar recovery 10.35 %. and the during 1992-93 to 1995-96 sugarcane crushed 33.52 lakh M.T., sugar production 21.01 lakh M.T. and sugar recovery 0.8 % and last 5 years 1996-97 to 1999-2000 sugarcane crushed 59.56 Lakh M.T. sugar production 39.83 Lakh M.T. and average sugar recovery 10.91 %. In this period very high sugarcane crushed. sugar production and sugar recovery in Maharashtra. (Fig.No. 7.14)

*BY PRODUCT:

A huge quantity of industrial by-products or wastes are generated. Their disposal has proved to be uneconomic and has been creating pollution. It is important to note that a good number of wastes or by-products can be profitably recycled and utilized for creating more wealth and generating more employment opportunities in rural areas. If the by-products of sugar industries are put to right use, they can
generate new hope of creating number of job opportunities for rural unemployed.

"Bagasse, Molasses and press cake form the three principal by-products of the sugar industry. These alone amount to about 40% of the total weight of cane or say about four times the weight of sugar produced from a certain quantity cane. Bagasse alone at times constitutes about one third of the total weight of cane crushed". Proper utilization of the by products of cane sugar can be of much help in solving the problems of sugar industry. It is worth while to not that sugar factories which are expoiting their products are economically better off than those factories which only produce sugar.

During from 1984-85 to 1993-94 Sahakar Maharshi Shankar Rao Mohite/Patil S.S.K. Ltd., has started the following by product unit.

The details in this regards are as follows :-

a) A distillery plant in the year 1984-85 with a capacity of 30,000 liters per day, expended in 1993-94 to 60,000 liters per day.

b) An Acetic Acid plant in the year 1992-93 with a capacity of 6000 Mtric Tonnes per annum.
c) A EnA plant in the year 1993-94 with a capacity of 20,000 liter per day.


ii) The Unit encouraged and assisted in the establishment of a Milk Processing plant in the year 1976-77 with annual procurement of 1.5 million liters of milk currently expanded to annual procurement of 60 million liters of milk with turnover of Rs. 950 million.

iii) The Unit encouraged and assisted in setting up of four Poultry projects which are currently procuring 0.3 million eggs per day with turnover of Rs. 25 million.

iv) The Unit encouraged and assisted in setting up of a Co-operative Spinning Mill which is currently producing 25.49 lakh kg. of yarn which has captured export markets in Hong Kong, Malaysia, Taiwan and Singapore with turnover of Rs 120 million.

v) The Unit encouraged and assisted in the setting up of 54 Educational Institutions which are currently providing educational facilities to 22,000 students in the primary, secondary and at the college level; and
vi) The unit encouraged and assisted various other activities in the areas of sports, culture, Health, Worker's Welfare, Farmer's Welfare, etc.

- PROBLEMS OF SUGAR INDUSTRY:

In Maharashtra, the problems faced by sugar industry are increasing day by day along with their development. It most of the area including Maharashtra the production of cane per hectares has been observed to be decreasing in last 40 years (yojana, 1982) though in this decade the production of cane has increasing. The rate of sugar production per unit weight of cane is decreasing. There are several factors which badly affected sugar industries in the last few years. These factors are lie uncertain natural crisis, unreliable of irrigation, corruption in cane supply, insufficient capital, very uncertain prices of cane, inefficient management of sugar factory, lack of advance techniques, no fied strategy for a long period by the government etc.

Sahakar Maharshi Shankarrao Mohite/Patil S.S.K.Ltd., has the following problems created as such.

1) Sugarcane shortage.
2) Uneconomic sugarcane prices and levy sugar porices decided by the Govt. of India from time to time.
3) Beglect of orifessionalism in almost all functional areas of management.
4) major part of soils are solty and logging.
5) Low level of autination comouterisation and Modernisation in plant and machinery.
6) Ever dependence on government for financial assistance and negligence in respect of creating own funds.
7) widespread shifting of area from sugarcane to horticulture resulting in decline in sugarcane production.
8) Lack of diversisfication and by-product industries.
9) Labour unrest and labour turnover due to seasonal nature of industry.
10) Excessive labour cost due to recruitment of employees in excess of staffing pattern specified by the government.

SUMMARY:

Overall farm technologial, Economic, Social and Political impact of sugar co-operative were interrelated and interwoven in such manner that they Governed each other to behaviour of farmers. Political impact of sugar co-operative under study is both the consequence of agricultural and socio-economic advance ments of the people of the area improvement in rural economic led to political transformation. Social impact of sugar co-operative
on the community and farm families has been not wothy. The growth of all round infrastructure is evident. Quality of people life has remarkably improved change in family system, housing pattern, food habits, clothings, educational opportunities, health practices, leadership behavaiour etc. have the ways to phenomenal social change since inception, operation, and multidimensional approach of the sugar co-operative.

In this chapter the population density, size of land holding, Irrigation-well-lift-canal and tank and fertilizer all these factors responsible for the development of sugar industries and its impact on social, economical, Political and all other activities changing due to sugar co-operatives. The present study reports the agricultural, economic, Social and Political activities of the sugar cooperative in the light of the impact on the farmer. The study covered 90 grower members of Bhogawati Sahakari sugar co-operative and 150 grower member of Sahakar Maharshi Shankarrao Mohite/Patil sugar cop-operative at Akluj in Malshiras taluka of solapur district. The impact is also analysed in relation to the agro economic and polical characteristics.
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