CHAPTER-V

ORIGIN AND DEVELOPMENT OF SUGAR INDUSTRY

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ORIGIN AND DEVELOPMENT OF SUGAR INDUSTRY:

5.1. INTRODUCTION:

Sugar is known to Indians since vedic times. There are references of Sarkara in Athervava veda when the only sweetening agent known to the rest of the world was honey, foreign travellers to India have written about honey in the wonder plant the honey reed their description of sugarcane.

Sugar framing and sugar industry hold special importance in the agricultural development and economy of India. Sugar industry is the largest among the processing industries having 338 factories spread all over the country. In the cropping pattern it occupies an area within 1.5 to 2 percent of the gross area cultivated. The various aspects of the special importance of sugar factory in India can be summarized as follows:

1) Next to textiles, sugar industry is one of the major agro-based industries, influencing the development of agriculture in India.

2) Sugarcane is a crop mainly of the tropical region, although in India it is grown on a much larger scale even outside this region.
3) It is estimated that about 20 million people are directly involved in the industry.

4) With the development of sugar industry there are a number of by products which are available for utilization in molasses for alcohol and bagasses for paper making.

5) The industry has a special advantage of having a very large market at home. And apart from the self sufficiency of sugar requirement in the country a part is exported to earn the foreign exchange so essential to build up other industries.

Besides above, there are several other ways. The sugar industry is likely to be a great boon for development of agricultural in the rural areas. About 2.5 million farmers supply sugarcane to sugar factory. The labour employment directly and indirectly in the sugar industry was estimated to be 3 million people in season.

In developing economy like that of India, it is not possible to progress towards prosperity. If one depends on and encourages agriculture only. But the development of agriculture has been given birth to the allied industries which are call as "agro-industries" conceptually the agro industries are the industries which are either the users of agricultural output or producers of agricultural inputs. The term agro-industries is of recent origin though such industries have been in existence for quite a long time in
our country. Rise and growth of agro-industries will it is expected contribute qualitatively to the economic development of agro-industries has played a crucial role in the economic progress and planning of Maharashtra state. In Maharashtra the industrial activity is concentrated in very small areas. Most of the rural part of Maharashtra lacks industrial and agricultural development. Sugar industry being agro-industry is an old industry in India. The development of such industries is a gift to out economy.

In the region of Akbar Badshah (1590) we get information about sugarcane plantation and various types of sugar. In Brazil Dutch started production of sugar in 1580. Portuguese banished dutch, people and the production of sugarcane and sugar in west indies in 1655.

Sugar industry started in California in 1750 from 1820 to 1917. British government banned on sugar production. So in the medieval period the sugar was costly. In this way sugarcane sugar industry gradually spread all over the world. Today India is recognized as one of the leading countries in sugar manufacturing.

The sugar industry is the second largest agrobased industry in India next to textile. The sugar was first produced in India as early as 400 B.C. when the process had become
generally known. The production of sugar and centuries before the christiansers and certainly by 400 A.D.

5.2 GROWTH OF SUGAR INDUSTRY IN SOLAPUR DISTRICT: INDIA-

The sugar as a sweetening agent was known to India since the time of Atharva-veda the sacred book of Hindus, which is said to be of the origin between 5000 and 1000 B.C. The references are also found regarding the sugarcane and sugar in the various other literature relating to the religion in this country.

The first sugar factory in India was established in the year 1784 at Sooksgar which was privately owned. This factory was started by a cultivator, croftes. This was followed by starting the second sugar factory in 1791 in Bihar by L.T. Patterson. There after the effort was made by Mr. Edward compbell to start the sugar factory at Trichinapalli in Madras province. The first attempt to start the sugar factory in Bombay province was made in 1919 at Haregaon (District-Ahmednagar) and the Belapur sugar factory was established. Subsequently various sugar factories were established in the country in private sector till the period of independence. The protection granted by the Government of India to sugar industry in 1932 gave impetus for starting large number of sugar factories in this country. Till 1938-39
there were 139 sugar factories in India and the number increased to 355 in 1985.

MAHARASHTRA -

The first sugar factory in Maharashtra was established in 1919 and started its crushing season in the year 1924-25. The second sugar factory was established in 1930 viz. the Walchand sugar factory. In 1930 Tariff commission was appointed to examine the need of protection to the sugar industry. The Tariff commission recommended protection for a period of fifteen years. The Govt. of India not only granted protection to the sugar industry but also adopted a favourable policy and provided incentive to the industry. Due to the new policy is sugar factories were established in Maharashtra by the end of the second world war.

Before Independence there was not a single co-operative sugar factory in Maharashtra. In 1948 the first co-operative sugar factory was established in Maharashtra in the Amednagar district, viz the pravara co-operative sugar factory. From this period onwards a large number of co-operative sugar factories have been established in India, especially in Maharashtra. Now sugar factories have become a dominant aspect of agro-industrial picture in Maharashtra. The number of sugar factories in India have increased rapidly after 1970. In 1963 there were only 187
sugar factories which increased to 223 in 1970 and this number reached to 297 in 1981. Thus Maharashtra was having one fourth of the total sugar factories in India. Total capital employed in sugar industry in 1963 was Rs. 126.01 crores which increased to Rs. 251.25 crores and to Rs. 790.35 crores in 1970 and 1981 respectively. In the case of Maharashtra the proportion of capital employed increased in all these years continuously. In 1981 it was Rs. 300.26 crores (38%) of the total capital employed in India. Besides. The harvesting labour engaged in sugar industry the full time workers engaged in sugar industry in India was 105862 in 1963 of which 14.35 percent was employed in Maharashtra with the increase in number of sugar factories total number of worker employed in sugar industry also increased both in India and Maharashtra. The production of sugar output also shows increasing trend in India as well as in Maharashtra.

About the location of sugar factories, sector in which they are established and the number of sugar factories established in every region of Maharashtra. In Marathwada region all sugar factories are established in the co-operative sector. They are 22 in number in Vidarb the number of sugar factories established is 7 and all of them are established in the co-operative sector, but there is only one sugar factory established in Kokan region. The highest number of sugar
factories i.e. 72 (70.59%) are established in western Maharashtra of which 10 are in the private sector while 62 are established in co-operative sector.

Establishment of such large number of sugar factories in Maharashtra has very great impact on the economic and social life of the people in the region. The remarkable thing is that the highest number of sugar factories was in the Ahmednagar district out of the total number in Maharashtra 18 sugar factories i.e. 17.65% were situated in the Ahmednagar district, and the highest number of sugar factories in the district was in the Kopargaon taluka. All the private sugar factories in the district are has completely closed.

Table No. 5.1

<table>
<thead>
<tr>
<th>Year</th>
<th>Co-operative</th>
<th>Private</th>
<th>Total</th>
<th>Co-operative</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>2</td>
<td>137</td>
<td>139</td>
<td>1</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>1960-61</td>
<td>30</td>
<td>144</td>
<td>174</td>
<td>14</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>1970-71</td>
<td>73</td>
<td>142</td>
<td>215</td>
<td>30</td>
<td>11</td>
<td>41</td>
</tr>
<tr>
<td>1980-81</td>
<td>149</td>
<td>166</td>
<td>315</td>
<td>67</td>
<td>10</td>
<td>77</td>
</tr>
<tr>
<td>1990-91</td>
<td>220</td>
<td>165</td>
<td>385</td>
<td>93</td>
<td>4</td>
<td>97</td>
</tr>
<tr>
<td>1995-96</td>
<td>232</td>
<td>184</td>
<td>416</td>
<td>106</td>
<td>3</td>
<td>109</td>
</tr>
<tr>
<td>1996-97</td>
<td>239</td>
<td>173</td>
<td>412</td>
<td>102</td>
<td>3</td>
<td>105</td>
</tr>
<tr>
<td>1997-98</td>
<td>222</td>
<td>178</td>
<td>400</td>
<td>92</td>
<td>3</td>
<td>95</td>
</tr>
<tr>
<td>1998-99</td>
<td>251</td>
<td>173</td>
<td>424</td>
<td>116</td>
<td>3</td>
<td>119</td>
</tr>
<tr>
<td>1999-2000</td>
<td>256</td>
<td>240</td>
<td>496</td>
<td>187</td>
<td>5</td>
<td>192</td>
</tr>
</tbody>
</table>

Sources: working results of sugar factories in Maharashtra 1999-2000 compiled by V.S.I. Pune manjari,
Table No. 5.1 shows that in 1999-2000 the total 496 sugar factories in India and co-operative sector 256 and 240 in private sector. In the state of Maharashtra 1999-2000 has 192 units out of the 187 in the co-operative sector and 5 in private sector. The growth of sugar industry in state may be examined in two phases.

The first phase had started in 1930 when few private owned sugar factories were established. until 1932 when the protective duties made,refined sugar much more expensive imports and almost all home produced sugarcane was processed in to gur by the local farmers. The number of factories increased to 109 in 1995-1996 primarily due to the grant of protection to this industry. The number increased upto 192 in 1999-2000.(Fig.No. 5.1)

Second phase had begin with the introduction of the co-operative sugar factories. The successful attempt was made to establish sugar factory on 31st December 1950 under the able guidance of the late Prof D.R. Gadgil a Veteran economist and Shri Vike Patil, a social worker and agriculturist in Ahmednagar district. It was pioneering attempt to organized sugar factory in the co-operative sector at Pravanagar and the ideas of co-operative sugar factory after independence cane in reality.
This successful attempt encouraged several cane growers to come together and establish sugar factories in the state come production has increased considerably. Since the construction of 1 co-opertative and 14 private sugar factories from 1950 onwards. Between 1950-1951 to 1999-2000 the number of sugar factories rose from are to 123 units due to the consequent increase in cane area from 2.01 to 6.30 lakh hectares with production of 38 lakhs tones in sugarcane, sugar production also increased from 0.05 lakh tones to 65.03 lakh tones.

The Maharashtra has less than 10% area under sugarcane but produces more than 22% sugarcane as that of India. In 1999-2000 there are 496 sugar factories existing in India which crushed 174.7 millions tones of sugarcane. In Maharashtra there are 127 factories which crushed 80 millions tones of sugarcane.

**SOLAPUR DISTRICT**:

The foundation stone of sugar industry in Solapur district was laid by Mali families migrated from 'Saswad' taluka of pune district to Malinagar in Solapur district, by establishing The Saswad Mali sugar factory Pvt.Ltd. in 1932 at Malinagar taluka Malshiras, Dist- Solapur. Its initial crushing capacity was 850 T.C.D. Shri J.C. Agase and Shri
S.L. Limaye from Shreepur of Malshiras taluka, incorporated "Brihan Maharashtra Sugar Syndicate Pvt. Ltd." in 1934. They established "Bhima sugar Pvt. Ltd." in 1936 as a sister concern of "Brihan Maharashtra sugar syndicate Pvt. Ltd." for producing crystal sugar and distillery products. Thus upto 1936, the sugar industry in Solapur district was confined only to private sector, therefore area under sugarcane and sugarcane production could not increase.

During the period of first five year plan Govt. of India and Planning Commission, inspired by the successful establishment and working of Prawara Co-operative Sugar Factory, accepted co-operation both as a means and ends for the economic development of the rural people and decided to grant further licences for the establishment of the sugar factories particularly in co-operative sector. This led to a spurt in demand and requests from all corners of Maharashtra began to pour-in to start co-operative sugar factories in their areas, where sugarcane was produced in huge quantity which and was enough to meet the needs of the proposed sugar factories. Many proposals were accepted by the Central Govt. and accordingly, licences were issued to them. The Govt. of Maharashtra also took a policy decision regarding the contribution to the share capital of such co-operative sugar factories.
This inspired the late Shankarrao Mohite-Patil and his followers from Akluj and they decided to divert cultivators of akluj area from cultivating traditional crops to sugarcane cultivation, for their financial improvement. Accordingly they sent a proposal for starting a co-operative sugar factory at Akluj, to the central Govt. and registered the "Shankarrao Mohite-Patil Sahakari Sakhar Karkhana Ltd., Akluj in 1960, under the Maharashtra state co-operative societies Act. 1961. The factory got its industrial licence on 10th Oct. 1961. It had its first crushing season in 1961-62. Thus in Solapur district, the first co-operative sugar factory got established by raising share capital partly from State Govt. and partly from sugarcane producers members.

In the very first tenure of its working, Mohite/Patil Sahakari Sakhar Karkhana, became a nucleus of various development activities in and around its operational area. The factory not only created irrigation facilities in its area but also established other co-operative ventures like co-operative dairy, co-operative poultry, co-operative marketing, co-operative consumer stores and co-operative bank, etc.

This provided not only income security to the rural people by way of ready market and reasonable prices to their produce and employment opportunities to them but also the opportunities of social and political leadership. In such an
environment, local leaders from various talukas of the
district became of the opinion that for developing their own
talukas and for establishing their own leadership, sugar
factory is necessary. Therefore co-operative leaders from
Pandharapur, Mohol, Barshi, & South Solapur talukas came
forward for establishing co-operative sugar factory in their
area and sent proposals for establishing such factory, to
the State Govt. In those days, demand of a co-operative sugar
factory had become a political movement rather than an
economic one.

The Govt. of Maharashtra submitted these proposals to
the Central Govt. according to their feasibility from time to
time for the grant of letter-of-intent. In due course of time,
the Central Govt. sanctioned minimum one proposal for each
taluka according to its merit and issued letters-of-intent
according. Thus sugar industry is one of the most important
industries in this district. But sugar industry in this region
is of recent origin.
### Table No.5.2  
**Overall Development Of Sugar Industry In Solapur District**

<table>
<thead>
<tr>
<th>Name of factory.</th>
<th>date of Registration</th>
<th>crushing capacity TCD.</th>
<th>Expended crushing capacity TCD</th>
<th>Trial crushing season.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malshiras Taluka</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Sahakar Maharshi shankarrao Mohite/Patil S.S.K.Ltd.Akluj</td>
<td>7-12-60</td>
<td>1000</td>
<td>4500</td>
<td>1961-62</td>
</tr>
<tr>
<td>2) Shri Shankar Sahakari Salhar Karkhanna Ltd. S.Nagar</td>
<td>20.-5-67</td>
<td>850</td>
<td>2500</td>
<td>1969-70</td>
</tr>
<tr>
<td>3) Shri. Pandurang S.S.K.Ltd. at Shreepur Purchased existing Pvt.Fact.</td>
<td></td>
<td>1300</td>
<td>Nil</td>
<td>1987-88</td>
</tr>
<tr>
<td>4) The Saswad Mali Sugar Factory Ltd. (private) at Malinagar.</td>
<td>6-7-30</td>
<td>850</td>
<td>1500</td>
<td>1931-32</td>
</tr>
<tr>
<td>North Solapur</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Shri Siddheshwar S.s.K.Ltd. Kumthe.</td>
<td>28-10-67</td>
<td>1250</td>
<td>2000</td>
<td>1968-69</td>
</tr>
<tr>
<td>Mohol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Bhima S.S.K.Ltd. at Takli</td>
<td>9-8-74</td>
<td>1250</td>
<td>Nil</td>
<td>1973-74</td>
</tr>
<tr>
<td>Pandharpur</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Shri Vithal S.S.K. Ltd. at Gursale Barshi.</td>
<td>13-10-77</td>
<td>1250</td>
<td>Nil</td>
<td>1979-80</td>
</tr>
<tr>
<td>1) Bhogawati S.S.K. Ltd. Vairag.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mangalwedha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Sant. Damajee S.S.K. Ltd. at B.puri ..</td>
<td>20-12-75</td>
<td>1250</td>
<td>Nil</td>
<td>1980-81</td>
</tr>
<tr>
<td>Karmala</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Adinath S.S.K.Ltd., Jeur.</td>
<td>12-11-93</td>
<td>1250</td>
<td>Nil</td>
<td>3-4-94</td>
</tr>
</tbody>
</table>

Sources : Compiled from Annual Reports of the respective sugar factories.
Above table No. 5.2 shows that the overall development of sugar industry in Solapur district in period of three decades. Upto the year 1965 there was only one sugar factory in co-operative sector, i.e. Dhankarrao Mohite/Patil S.S.K. Ltd. at Akluj and two were in private sector viz. "The Saswad Mali Sugar Factory" at Malinagar and "Brihan - Maharashtra sugar Syndicate Ltd" at Shreepur. All these three sugar factories were in Malshiras taluka of the district.

During the period of 25 years, (1965 to 1990) sugar Industry of Solapur District developed to a considerable extent, which can be seen from table No. 5.2. Ten sugar factories were in operation by the end of 31st March 1993 of which only one i.e. The Saswad Mali sugar factory is in private sector, one factory i.e. Sant Damajee Co-operative Sugar Factory has just completed its trial season in 1992-93. Mohite/Patil co-operative sugar factory which is the oldest in the district has successfully expended its crushing capacity from 1000 T.C.D. to 4500 T.C.D. within a period of 321 years and established distillery plant, acetone plant and biogas plant. After the successful performance of Mohite/Patil sugar factory on co-operative basis, co-operative sugar factories in south Solapur taluka, Mohol taluka, Pandharpur taluka, and Mengalwedha taluka of Solapur district were established and have tried to develop irrigation facilities and motivated the farmers for plantation of
sugarcane. Only three factories viz. Shri Siddheshwar, Shri Vithal and Shri Shankar could increase their crushing capacity upto March 1993.

The development of sugar co-operatives in Solapur district is due to favourable policy of Government regarding the prices of sugar and sugarcane. These factories are strictly farmer's factories. As a result, farmers have keen interest in the development of sugar co-operatives. They have also become central agencies of further economic efforts and development within their own area. As it is pointed out, "The remarkable progress of the movement since independence has given a firm basis to its structure and organization, which is reflected in the development of the co-operative spirit and enterprise and the expansion of the activities undertaken through this form of organization. Once a co-operative society begins functioning effectively in an area the members realize the advantages occurring to them through the co-operative effort and they look forward to the expansion of facilities which can be made further available through the society. The aid and the facilities given by government are significant but a society cannot progress without the enthusiastic co-operation of the members and their desire to expend the field of their activities. The development of this desire in the areas served by the co-operative society
is a district contribution of the movement. It has acquired a momentum of its own and given favourable trends in economic growth, the movement will be able to develop further and expend its activities."

The development of sugar co-operative in Solapur district has to be largely described to the leadership of Shankarrao Mohite/Patil. The role of political leaders has become important and this has led to the growth of sugar industry. The involvement of the Government along with Shri Mohite/Patil and eminent thinker Prof. D.R. Gadgil and Vikhe-Patil in the growth of co-operative sugar factories on a large scale began during fifties. But the idea of sugar co-operatives can be directly stressed to the success of Malshiras taluka during 1932-65. Thus Solapur district is a pioneering district in the development and growth of co-operative sugar factories in Maharashtra.

Sugar co-operative came in quick succession in the various taluka of the district since 1975. The organization of sugar factories by sugarcane growers is an important step in the development of co-operative movement. Solapur district thus occupies a unique position in the sphere of sugar production. This is due to the fact that the percentage of recovery of sugar from the
cane and the yield of sugarcane per hectare are high in the district compared with other sugarcane growing areas.

Table no. 5.3:

**Development Of Sugar Factories In Solapur District:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Co-operative Sugar Factories</th>
<th>Private Sugar Factories</th>
<th>Total Sugar Factory</th>
<th>Growth of Sugar factory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932-1941</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1950-1951</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1960-1961</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1970-1971</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>1980-1981</td>
<td>4</td>
<td>-</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>1990-1991</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2000-2001</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>2</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
</tbody>
</table>

Sources: performance of sugar factory in Maharashtra, Vasant Dada Sugar Institute, Pune.

Above table No. 5.3 shows that Solapur district it is seen that the total sugar factories rose from 10 in 1934 to 1991. The striking thing is units in co-operative sector increased from 1960 to 2000 during this period 10 in co-operative sector and 2 in private sector. This indicates that factories are working successfully in co-operative sector than those in the private sector. This growth is in keeping pace of Government’s objective of promotion of sugar co-operatives movement in rural areas development.

Table No. 5.3 reveals that the highest number of co-operative sugar factories in Malshiras taluka in solapur district. (4) The production of sugar is also highest in
Fig. No. 5.2
Growth of Sugar Factory in Solapur District
1932 to 2001

Cumulative Growth of Sugar Factories

YEARS

Malshiras taluka then Pandharpur, Mangalwedha, Mohol, North Solapur, Barshi, and Karmala each taluka has only one co-operative sugar factory established in various period. (Fig.No.5.2)

The sugar industry in the Solapur district has been divided into three zones viz. 1) western zone 2) Central zone 3) eastern zone

1) **WESTERN ZONE**:

Western zone of district which includes Malshiras, Pandharpur, Sangola, Madha & Karmala talukas In this talukas there are six sugar factories situated in Bhima & Nira basin. In this zone highest production of sugarcane and sugar and sugar recovery.

2) **CENTRAL ZONE**:

Central zone of the district which includes Mangalwedha, Mohol, & Madha in this talukas there are three sugar factories situated in Bhima & Sina river basin. In this zone moderate production of sugarcane and moderate sugar recovery.

3) **EASTERN ZONE**:

Eastern zone of the district which includes Barshi, North and South Solapur and Akkalkot. In this talukas
Fig. No. 5.3
Zonewise Per Hectare Cane Yield and Sugar Recovery in Solapur
1975 - 2000

Yield per Hectare in tonnes

Zones

Western zone Central zone Eastern zone Total

Average Recovery (%)

Sugarcane Yield per hectare
Average recovery %
there are three sugar factories situated eastern part of region. In this zone low production of sugarcane and low sugar recovery.

Table No. 5.4

**Zone Wise Sugar Factories, Sugarcane Yield & Sugar Recovery**

<table>
<thead>
<tr>
<th>Zones</th>
<th>No. of factories</th>
<th>Sugar yield per hectare</th>
<th>Average recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western zone</td>
<td>6</td>
<td>90.15</td>
<td>11.45</td>
</tr>
<tr>
<td>Central zone</td>
<td>3</td>
<td>80.00</td>
<td>10.56</td>
</tr>
<tr>
<td>Eastern zone</td>
<td>3</td>
<td>70.78</td>
<td>10.34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>240.93</strong></td>
<td><strong>32.35</strong></td>
</tr>
</tbody>
</table>

**Sources**: Records of Directorate of sugar Pune.

Table No. 5.4 shows that western zone of district 6 sugar factories operating and in this zone sugarcane yield per hectare and sugar recovery is highest in the region. The Central zone of the district there are 3 sugar factories operating and in this zone sugarcane yield per hectare and sugar recovery is moderate level. The Eastern zone of the district 3 sugar factories operating and in this zone sugarcane yield per hectare and sugar recovery is low level in the region. (Fig.No.5.3)

5.3 **INDUSTRIAL LOCATION**:

The location question is important for the sugar industry on account of its being in the rural complex which confers important benefits apart from producing sugar. It can act as a growth point in a rural area resulting and various types of activities and also the amenities of life are
so developed in the centre of an area comprising a more or more village that the enjoy both, the benefits of village life particularly healthy atmosphere, and the amenities of urban life, such as school and shop etc.

The location of sugar industry is dependent on the availability of sugarcane in sufficient quantities within a responsible distance. Thus the location of sugar industry is entirely governed by the availability of raw material. But some other factors like transportation facilities, water supply and Labour supply also play important role in the localisation of sugar industry.

The location of sugar industry is based on weight losing and perishable raw materials viz. sugarcane. There is a great reduction in bulk and weight of sugarcane during processing. After cane is cut, it begins to lose sucrose content through evaporation and simultaneous loss of sugar takes place due to inversion.

The sugar industry must be established in relation to the transportability of the cane, cost of fuel and power. The location and seasonal character of the factory makes the labourers to have intimate association with their villagers.
It is intended to study the location of sugar industry between two periods, that is pre-independence and post independence period. Sugarcane is mainly grown in tropical region. But bulk of the acreage under sugarcane lies in the sub tropical regions of India.

"In the period between 1950-51 and 2964-65, two new clusters developed in the tropical belt. The first one includes a linear block in the districts of Ahmednagar, North-Satara, South Satara and Kolhapur in Maharashtra. The second cluster also in the form of linear block in the coastal belt of Andra Pradesh running from the northeastern top of the state to the deltaic tract in the districts of east Godavari, West Godavari and Krishna."

Between 1950-51 and 2964-65, the sugar mill industry in the tropical belt increased at a rate of 5 to 8 times higher than that in the sub-tropical belt. In the sugar mill industry their significant locations accounted for 72% of the total capacity of the industry in 1950-51 and 60% in 1964-65. Of the total increase in the capacity during 1950,65, the new locations accounted for 45%. The non-significant locations for 29% and the significant locations for 26%. Further the bigger locations lost 58% and their relative share of the smaller locations remained unchanged.
A) FACTORS IN LOCATIONAL CHANGE:

Following factors are responsible for changes in location:

1) The location of sugar industry is mainly related to the availability of sugarcane. Factors such as the current yield and quality of sugarcane and potentialities for increasing the acreage under sugarcane and its yield rate, and for improving the quality of cane also determine the growth of the sugar industry at specific location.

2) The industry got concentrated by the length of the crushing season. That means the industry was dispersed to locations in those districts where there was a phenomenal increase in sugarcane production. This increase in sugarcane enjoyed the comparative advantages over other crops.

3) Almost all the sugarcane producing districts in the sub-tropical belt suffer from unreliability of the monsoon from time to time. Against unfavourable natural calamities only sugarcane cultivation assures them their much needed security. It is the only hardy crop which can resist well. Despite it poor quality, it fetches them some cash to meet their various requirements.
4) The cane development activities are responsible for bringing about locational changes. "Sugarcane represents approximately 78 to 92 percent of the total manufacturing costs of sugar production. So, the lower the costs incurred in sugarcane production the better the economy of a sugar mill. Keeping the cost considerations in view, it can be said that the sugar mills in the tropical tracts, particularly, in Maharashtra are among those which incur the lowest basic costs, because irrigation costs are lower and the higher productivity per hectare neutralizes the heavy manuring costs."

5) In the tropical tracts the yield per hectare is increasing. The farmers are making efforts to reduce the cost of production. High cost is the result of over manuring. But during the last few years, the cane cultivators are using proper quantities of suitable chemical fertilizers. This has reduced the cost of manures to a reasonable extent.

6) "The faster rate of growth of the sugar mill industry in the tropical belt is also due to the discriminatory policies pursued by the respective state governments,

The State Governments in the tropical belt also extended various facilities for irrigation, supply of fertilizers and transport so that cultivation could be on a larger area using improved varieties of sugarcane. It is not surprising
therefore, that the sugar mill industry tended to shift to locations in the tropical belt in the southern states."

Sugar industry is one of the important agro-based industries for which sugarcane is the main raw material. The region under study has favourable agro-climatic conditions for sugarcane cultivation. The area under sugarcane in the region 2.70% in 1951-55 and 5.60 in 1971-75 and 1977-78 it increase to 9.40%. Thus increasing area under sugarcane helps to increase the incomest cultivations. So that the purchasing power increases and other infrastructural facilities of the region is favourable for the growth of sugar factories. The location of factories on rural areas helps to increase the employment in the region.

In the Solapur district sugarcane production is large scale due to irrigation facility available in the area of Bhima and Nira river. The suitable condition which is necessary for sugarcane plantation is available in the west region of Solapur district so this region leads in sugarcane production. The face of Solapur district including, Malshiras, Madha, Pandharpur, Karmala, Mohol and North Solapur etc. has completely changed due to the Ujani dam on Bhima river and Vir dam on Nira river. Thus availability of irrigation facilities and various methods of sugarcane plantation and varieties use of fertilizers and favourable climate this all these factors
favourable so that sugarcane quality, quantity and recovery is very high. Thus the sugar industries concentrated in sugarcane area in Malshiras taluka.

There are some factors to be noted which relate the development of sugar factory in solapur district. The sugar factories are located along the state highway, district roads, and other roads are connected to the national highway. This location is provided to be help in factor to all this sugar factories. In Malshiras and pandharpur talukas there are 5 sugar factories located along the state and district roads. Thus national highway No. 9 and its connections with state highway and district roads have become the raw material collecting arteries of the factory.

Sugar industry is Raw Material oriented industry it is located in very close proximity to the sources of raw material as like sugarcane, transport, energy, labour, capital, market, all these basic locational factors essential to the location of sugar industry. Sugarcane is used in large quantities and this industries needs continious and uninteupted supply of sugarcane. Sugarcane must be taken to the factory in minimum possible time after cutting, because sugarcane start drying up after cutting ones sugarcane is cut it starts loosing sucrose content through evaporation. Simultaneously loss of sugar also takes place.
In general, it is estimated that after cutting the stalk, the cane loses some 2.0 percent sugar content and it loses some 4.8 percent of its recoverable sucrose every day after first 45 hours.

Thus to get higher recovery at sucrose, the sugarcane must be taken to the factory and crushed within a shirtest time. So to achieve this to factory lovcation be in a close. vicinity of source of raw materials i.e. sugarcane.

5.4 TALUKAWISE DISTRIBUTION OF SUGAR INDUSTRY:

The development of sugar industry of solapur district in the period of 1932 upto 2000. there was 2 sugar factories private sectors and 10 sugar factories in co-operative sector. i.e. Sahakar Maharshi Shankarrao Mohite/Patil S.S.K.Ltd., at Akulj and Shankarrao Mphite/Patil S.S.K. Ltd., at Sadashiv nagar,Malshiras , and Saswad Mali sugar factory at Malinagar and Brihan Maharashtra sugar sindicate factory Ltd., at Shreepur all these 4 sugar factories were in Malshiras taluka of the district.

During the period of 25 years (1975-2000) sugar industry in solapur district developed to a considerable extent which can be seen from (Table No. 5.4 ) 12 sugar factories were in operation by the end of March 2000 of which only 1 i.e The Saswad Mali sugar factory is in private sector, Sahakar Maharshi Shankarrao Mohite/Patil co-
operative sugar factory and Shri, Shankar sahakari co-operative sugar factory Shri Pandurang co-operative sugar factory, which is the oldest in the district has successfully and expanded its crushing capacity from 1000 T.C.D. to 6000 T.C.D within a period of 31 years and established distillery plant, acetone plant and biogas plant and co-generation plant. After the successful performance of sugar factory on co-operative basis than other talukas as such North Solapur, Mohol, Mangalwedha, Pandharpur, Akkalkot, Barshi and Karmala. All these taluka of solapur district were established each sugar factory. (Fig.No.5.3) Thus in Solapur district increased area under sugarcane, sugarcane production and developed irrigation facilities and motivated the farmers for plantation of sugarcane. All this factors related to the development of sugar factory in the region.

Table No. 5.5

**Talukawise Distribution Of Sugar Factories In Solapur District.**

(1975-2000)

<table>
<thead>
<tr>
<th>Taluka</th>
<th>Co-operative sugar factories</th>
<th>Private sugar factories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malshiras</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Pandharpur</td>
<td>2</td>
<td>--</td>
</tr>
<tr>
<td>Magalwedha</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Mohol</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>North Solapur</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Akkalkot</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Barshi</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Karmala</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

Source: Performance of sugar factory in Maharashtra Vasant dada sugar Institute, Pune.
Fig. No. 5.4A
Talukawise Distribution of Sugar Factories: 1975-2000
Solapur District

Malshiras  | Pandharpur  | Mangalvedha  | Mohol  | North Solapur  | Akkalkot  | Barshi  | Karmala

Total number of Sugar Factories
SOLAPUR DISTRICT
TALUKAWISE LOCATION OF SUGAR INDUSTRIES

Fig.No. 5-4
Above table No. 5.5 shows that talukawise distribution of sugar factories in Solapur district. The sugar factories rose from 1975 to 2000. The highest number of sugar factories in Malshiras taluka because the irrigation facilities available Bhima and Nira river, canal and lift irrigation system. Thus the sugarcane area and sugarcane production increased day by day in Malshiras taluka. In this taluka sugarcane production, sugar production and average recovery of sugar is highest in Solapur district. Above table shows that in Pandharpur taluka 2 sugar factories and Mangalwedha, Mohol, North Solapur, Akkalkot, Barshi and Karmala has for each sugar factory operating the co-operative sector.((Fig.No.5.4)

Sugar production and sugar recovery largely depends upon adequate irrigation facilities and favourable monsoon. Major part of Solapur district comes under drought prone zone. Therefore sugar factories in such area do not get adequate sugarcane. Sugarcane crushing and sugar production during the period of 5 years from 1988-89 to 1992-93 increased from 2.3 lakh tones to 3.40 lakhs tones.
5.5 ROLE OF THE CO-OPERATIVE SECTOR IN THE DEVELOPMENT OF SUGAR INDUSTRY:

The co-operative movement in India had its birth during 1904 with the passing of the Co-operative societies Act. Later on activities started with the establishment of primary credit co-operative with an objective to help the small farmers for distribution of loans mainly to avoid their exploitation by the money lenders. After India's independance (1947) the government of India in its industrial policy Resolution of 1948 stressed the need for rapid industrialisation in the country by building up large co-operative sector with the financial assistance from the government. In the successive five year plans, the co-operative sector given preference in every field over the private and public sector organisations.

There is no other country in the world than Indian having such a large and diversified co-operative movement, wherein large number of people are directly involved about 4.88 lakh co-operative societies have been established in India with a total membership of about 190 milion farmers.

During the last 23 years from 1960 the number of sugar co-operative factories has increased from 34-156 in country, where as in Maharashtra it has increased from 14
to 67 in addition to 14 new sugar factories in co-operative sector.

The co-operative form of organization has been instrumental in bringing about significant changes in the economic structure of Maharashtra in general and a rural Maharashtra.

Most of the co-operative sugar factories in Maharashtra have started schools, colleges, technical institutions as well as activities of area development like various irrigation schemes, some co-operative sugar factories in Maharashtra have provided gainful seasonal employment to the rural masses. The co-operative sugar factories have sponsored a given undertaking to the financial institution for extension of assistance for purchase of trucks, tractors and also in some cases given money to deserving educated unemployed with a view to enable them to raise capital for employment.

The co-operative sugar factories in Maharashtra have been playing the role lead industry for the development of area by taking up various by products industries like paper plant, distilleries. This create the forward and backward linkage in the process of industrial development. The multiple effect of the development of these industries in the rural area may have also to be taken in to consideration while judging the place of the co-operative sugar factories in the process of socio-economic development.
Fig. No. 5.5
Growth of Co-operative Sugar Factories in India and Maharashtra

- India
- Maharashtra
- Linear (India)
- Linear (Maharashtra)

Number of Sugar Factories

YEARS

Sugar factory therefore, has to be viewed not only as sugar factory also as a lead industry for development of the rural area and as sa growth venture.

There were 139 factories in operation in India during 1950-51 out of which only two were grower's cooperatives. About 430 sugar factories were operating during 1999-2000 season out of which 252 factories (58.60%0 are cooperatives which account for 58% of the total production of sugar. (Fig.No.5.5)

The state of Maharashtra proudly occupies a predominant position in the sugar sector. A notable feature of its sugar industry is that it is in the co-operative sector. The State not only accounts for 35-40% of sugar production of the country but is also ahead with regard to productivity both in fields and in factories (cane yield and sugar recovery is higher by about 25 t/ha and 2 unit respectively than the national average.) More than 1.55 million cane growers are directly related to sugar co-operatives. The industry is the largest employer in rural areas providing direct employment to 0.1 million people and more than 10 million people rely on it. The industry's turnover is around US$ 1744 million (Rs. 80000 million ) and it transfers resources equal to us$ 773.27 million (Rs. 35454.62 million ) per annum to rural areas. There are 133 sugar factories of which only four are
in the private sector. During 1999-2000 season, 123 factories were in operation of which 119 (97.54%) are in co-operative sector and accounted for 97.73% sugar production in the State. The growth of co-operative sugar factories in India and Maharashtra is shown in Table No. 5.6

**Growth Of Co-Operative Sugar Factories In India And Maharashtra**

<table>
<thead>
<tr>
<th>Year</th>
<th>India Co-operative</th>
<th>Maharashtra Co-operative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1960-61</td>
<td>30</td>
<td>14</td>
</tr>
<tr>
<td>1970-71</td>
<td>73</td>
<td>30</td>
</tr>
<tr>
<td>1980-81</td>
<td>149</td>
<td>67</td>
</tr>
<tr>
<td>1990-91</td>
<td>220</td>
<td>93</td>
</tr>
<tr>
<td>1995-96</td>
<td>232</td>
<td>106</td>
</tr>
<tr>
<td>1996-97</td>
<td>239</td>
<td>102</td>
</tr>
<tr>
<td>1997-98</td>
<td>222</td>
<td>92</td>
</tr>
<tr>
<td>1998-99</td>
<td>251</td>
<td>116</td>
</tr>
<tr>
<td>1999-2000</td>
<td>256</td>
<td>187</td>
</tr>
</tbody>
</table>

Sources: working results of sugar factories in Maharashtra 1999-2000 compiled by V.S.I.Pune manjari,

The growth of co-operative sugar factories and success of three stories viz. Padmashri Dr. Vitthalrao Vikhe-Patil SSK.Ltd.Pravaranagar, Dist-Ahmednagar, Tatya saheb kore Warna SSK ltd. Warna nagar Dist-Kolhapur and Sahakar Maharshi Shankarrao Mohite-Patil SSK Ltd. Akluj, Dist-Solapur are illustrated as under some co-operative data on three factories. distillery, paper, chemical, or compost units the factories are also encouraged and assisted in establishment of various co-operative units for rural development.
Fig. No. 5.5A
Growth of Sugar Factories in India and Maharashtra

- India
- Maharashtra
  - Linear (India)
  - Linear (Maharashtra)

YEARS
- 1950-51
- 1960-61
- 1970-71
- 1980-81
- 1990-91
- 1995-96
- 1996-97
- 1997-98
- 1998-99
- 1999-2000

Number of Sugar Factories
- 600
- 500
- 400
- 300
- 200
- 100

0
Shankarrao Mohite-Patil and his followers from Akluj and they send a proposal for starting a co-operative sugar factory at Akluj to the central Govt. and registered the "Shankarrao Mohite-Patil Sahakari Sakhar Karkhana Ltd., Akluj in 1960, under the Maharashtra state co-operative societies Act.1961. The factory got its industrial licence on 10th Oct.1961. It had its first co-operative sugar factory got established by raising share capital partly from State Govt. and partly from sugarcane producers members. In the very first tenure of its working, Mohite-Patil Sahakari Sakhar Karkhana, became a nucleus of various developmental activities in and around its operational area. The factory not only created irrigation facilities in its area but, also established other co-operative ventures like co-operative dairy, co-operative poultry, co-operative marketing, co-operative consumer stores and co-operative bank etc.

The success of the first co-operative sugar factory (Pravara nagar) created tremendous enthusiasm amongst the sugarcane growers in the state to organize more and more co-operative sugar factories. These co-operative sugar factories in the state have brought about a change in the cropping pattern and through the introduction of better varieties of cane have succeeded in improving the quality of sugarcane substantially. The cane yield in their areas can proudly claim to have attained the highest recovery among
all types of sugar factories. Alongwith the technological achievements they have also infused in the atmosphere, the other powerful social and economic forces, so that the co-operative sugar factories in the state today have come to be regarded as effective spring-boards for achieving rural development.

**SUMMARY:**

In this chapter some important aspect of development of co-operative sugar industry in Maharashtra and solapur district. The rapid growth of sugar industries in Maharashtra after the 1960. In pre independene period sugar industry of Maharashtra was entirely in private sectors and was concentrated in canal area of Ahmednagar, Pune, Satara, Kolhapur and Solapur district. Therefore it is now an established fact that the soil and climatic condition of solapur district are favourable to plantion of sugarcane. Sugarcane production increased in canal area and thus the sugar industry established in sugarcane area. Basically major part of the solapur district comes under drought prone zone of the state. But due to irrigation facilities made available by Bhima Ujani dam and basin of Nira river and other lifts irrigation projects the area under sugarcane increased from 1960-1990. The presentage of area in under sugarcane to irrigated area in the district also increased from 9.77 to 22.11. Thus during 1960-1990 number of sugar factories
increased from 3 in 1960 and 9 upto 1993. Sahakar Shankarrao Mohite/Patil from Akluj and Mali families from Malinagar laid foundation stone of co-operative sugar industries and private sugar industries in solapur district. After 1995 in solapur district pandharpur, Mohol, Barshi, Mangalwedha, Akkalkot all these taluka has each co-operative sugar factory established in sugarcane area.

Over all development of sugar industries in solapur district in the period of three decades upto year 1965 to 1990. Sugar industry of solapur district developed to a considerable extent which can be seen 12 sugar factories were in operation by the end of March 2000. After the successful performance of Mohita/Patil Sugar factory on co-operative basis co-operative sugars factories developed other talukas. In solapur district were established and have tired to develop irrigation facilities and motivated the farmers for plantation of sugarcane and thus increased production of sugarcane. All these factors related to the development of sugar industries in solapur district.
REFERENCES:

   Anmoal publication, New Delhi. P.8

2. Baviskar V.I. (1980) : Politics of development of sugar co-
   operative in rural Maharashtra P.24

   factories, Bombay, Popular prakashan
   P.1

   factories in Maharashtra.

   economy. Parimal Prakashan
   Aurangabad P.P. 9-27

   sugar Aug.1992 P.P. 8-20

   Govt. of Maharashtra, Bombay
   P.P 68-69

   factories is Kolhapur district. un
   Shivaji University, Kolhapur
   P.P. 30-72

   performance, problems and prospects.
   Maratha Chamber of commerce and
   Industries, Pune P.P. 99-104.
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<tr>
<th>No.</th>
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<th>Reference</th>
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