

" Every man has a right to be wrong in his opinions, but no man has a right to be wrong in his facts. "

- B. Baruch 'The Public Years' -

CHAPTER III

SUGAR INDUSTRY IN INDIA.

- A brief Profile -

SUGAR INDUSTRY IN INDIA.

A Brief Profile.

The sugar industry is second largest agro-based industry in India after textiles. The first sugar in India was established in 1784 in the private sector. However, the real growth of the industry can be said to have commenced mainly after 1930 in the wake of the policy of protection adopted by Government of India.

Cooperative sugar factories are one of the important cooperative processing industries in the cooperative sector. In the words of Shri. S.K.Dey, the former minister of community development and cooperation - *"...this sector in sugar industry is 'brightest' star of cooperation on the horizon of India"*.

After the five year plan had been undertaken, rapid growth has been registered in the cooperative sugar industry. Establishment of sugar factories brought in a lot of benefits to the agriculturists and others.

The sugar production on cooperative processing lines was first attempted in India in 1933. Upto year 1935, there were only four cooperative sugar factories in India. Three of these were in Andhra Pradesh [AP] and one in Uttar Pradesh [UP].

After independence, people's participation was sought in economic development of the country. The cultivators were encouraged to organise and manage processing industries in such crops, as produced by them. Hence, the efforts were made to establish grower's cooperative sugar factories.

In the second five year plan, further input was provided for the setting up of sugar factories. It was decided to accord preference to cooperative sugar mills for the issue of licence

under the 'Industrial Development Regulation Act, 1951'. Further, Industrial Finance Corporation could advance loans to cooperative sugar factories on the basis of 50 : 50 guarantee between the state and the central Government. As a result, in almost over a decade the country was dotted with an impressive number of cooperative sugar factories.

In 1933-34, there were only three cooperative sugar mills accounting for 1.6 % of the national production. In 1955-56, there were 52 cooperative sugar factories in production accounting for 26 % of the total sugar production.

The number of cooperative sugar factories registered and licenced, increased from 57 in 1961-62 to 76 in 1967. The sugar production in cooperative sector stood at 9.43 lakh tonnes representing about 17.05 % in 1961-62. The cooperative sugar factories had been continuously maintaining their record of highest all India percentage of sugar recovery from the cane i.e. 12.19 % as against a national average of 9.7 %. The cooperative share in the total production of raw sugar for export in the country worked out to be 25 % during 1965-66.

In 1970-71, 75 cooperative sugar factories were in production and they produced 12.63 lakh tonnes of sugar representing 33.6 % of the total production in 1974-75.

During 1980-81 season, 149 cooperative sugar factories were in production. They produced 20.9 lakh tonnes of sugar accounting for nearly 56.4 % of the country's total production of sugar as against only 14.8 % in 1960-61.

In 1985-86 season, 197 cooperative sugar factories were in production. They formed themselves into eight State federations and National federation.

The growth of sugar industry in India, particularly in the

cooperative sector is fairly conspicuous in the data on, number of sugar factories, area under sugarcane, production of sugarcane, yield of sugarcane per hectare, production of sugar and changes in the recovery rates.

Table 3.01 shows the total number of sugar factories in different states in India in 1989-90.

TABLE 3.01

STATE-WISE DISTRIBUTION OF SUGAR FACTORIES IN INDIA 1989-90.

State	Factories	Total	In the Coop. Sector	% Share of the Coop. Sector in the state.	
1 A.P.	33	(8.75)	18	(8.49)	54.55
2 Assam	2	(0.53)	2	(0.94)	100.00
3 Bihar	28	-	-	-	-
4 Goa	1	(0.27)	1	(0.47)	100.00
5 Gujarat	14	(3.71)	14	(6.60)	100.00
6 Haryana	8	(2.12)	7	(3.30)	87.50
7 Karnataka	27	(7.16)	15	(7.08)	55.56
8 Kerala	2	(0.53)	1	(0.47)	50.00
9 M.P.	8	(2.12)	3	(1.42)	37.50
10 Maharashtra	96	(25.46)	92	(43.40)	95.83
11 Nagaland	1	(0.27)	-	-	-
12 Orissa	5	(1.33)	4	(1.89)	80.00
13 Punjab	13	(3.45)	9	(4.25)	69.23
14 Pondicherry	2	(0.53)	1	(0.47)	50.00
15 Rajasthan	2	(0.53)	1	(0.47)	50.00
16 T.N.	30	(7.96)	13	(6.13)	43.33
17 U.P.	104	(27.59)	31	(14.62)	29.81
18 W.B.	1	(0.27)	-	-	-
Total	377	(100.00)	212	(100.00)	56.23

Source : Cooperative Sugar Vol 23, No. 1, Sep. 1991, p.58.

There were in all 377 sugar factories in India in 1989-90, representing both the private sector and cooperative units. The number of units tilted slightly in favour of the cooperative sector [56.2 %]. The sugar factories were spread over eighteen states with U.P. [104], Maharashtra [96], A.P. [23], Tamilnadu [30], Bihar [28] and Karnataka [27] accounting for the majority of the factories [59.42 %]. Some of the states like Bihar, Nagaland

and West Bengal had all their factories in the private sector while Assam, Goa, and Gujarat had all their factories in cooperative sector. Maharashtra had the highest

TABLE 3.02
STATE WISE AREA UNDER SUGAR CANE IN INDIA
(1978-79 to 1989-90)

(in '000 hectares)

	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
1 A.P.	142	114	132	180	170	141	138	133	135	143	154	162
2 Assam	48	47	48	49	49	49	53	48	46	43	42	39
3 Bihar	131	120	111	124	130	127	112	119	112	120	127	125
4 Gujarat	58	57	75	84	95	103	103	91	69	82	94	106
5 Haryana	190	127	115	147	147	134	124	106	124	142	131	126
6 H.P.	4	3	3	3	3	4	3	3	3	3	3	2
7 J&K	1	1	1	1	1	1	1	1	1	1	1	1
8 Karnataka	154	135	157	175	187	173	172	171	181	203	239	219
9 Kerala	7	8	8	8	8	8	8	8	8	8	8	8
10 M.P.	62	51	39	43	47	45	43	37	46	47	44	53
11 Maharashtra	244	222	256	297	328	294	292	265	280	292	314	383
12 Manipur	2	2	2	2	2	2	2	1	3	2	2	2
13 Mizoram	1	4	1	1	1	1	1	1	1	1	1	1
14 Nagaland	3	4	4	4	4	3	3	3	3	3	3	3
15 Orissa	46	47	49	50	51	42	57	58	45	42	47	47
16 Punjab	110	77	71	106	104	84	79	78	97	106	97	103
17 Pondicherry	2	2	2	2	2	2	2	3	3	3	3	2
18 Goa D.D.	1	2	1	1	2	2	2	2	2	2	2	2
19 Rajasthan	60	34	29	37	38	34	31	26	29	27	16	16
20 T.N.	154	149	183	201	175	152	169	191	196	195	221	232
21 Tripura	2	2	2	2	2	2	2	2	2	2	2	2
22 U.P.	1634	1373	1363	1652	1783	1688	1543	1490	1678	1801	1761	1755
23 W.B.	32	29	14	23	31	20	13	13	13	11	16	15
Total	3088	2810	2667	3193	3358	3110	2953	2850	3079	3279	3329	3405

Source : Cooperative Sugar, Vol 20, No.11, July 1989

: Cooperative Sugar, Vol 22, No. 9, May 1991.

number of factories in the cooperative sector [92 out of total 96], whereas U.P. which had the highest number of factories [104 i.e. 28 % of the total] had only 31 factories [15 % of the total] in the cooperative sector. Thus a significant aspect of distribution of sugar factories amongst the cooperative and non-cooperative sector is that the largest state with the highest number of sugar factories had very low [comparatively] factories

in the cooperative sector.

The importance of sugarcane cultivation in India is fairly apparent from the fact that a large area has continued to remain under sugarcane cultivation. In 1978-79, a total of 30.38 lakh hectares were under sugar cultivation, which increased to 34.05 lakh hectares in 1989-90. [Table 3.02].

A very striking feature of the total area under sugarcane cultivation in India between 1978-79 and 1989-90 is the share of UP in this total. This share has varied between 51 % and 55 % of the total area under the cane cultivation. This simply emphasises that in rest of the country, the share of all other states is less

TABLE 3.03

STATE-WISE AREA UNDER SUGARCANE PRODUCTION IN INDIA

(1978-79 to 1989-90)

	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
1 A.P.	4.60	4.37	5.95	5.63	5.06	4.53	4.67	4.67	4.38	4.36	4.63	4.76
2 Assam	1.50	1.80	1.80	1.53	1.46	1.58	1.20	1.68	1.49	1.31	1.26	1.15
3 Bihar	4.24	4.60	4.16	3.88	3.87	4.08	3.79	4.18	3.64	3.66	3.81	3.67
4 Gujarat	1.88	2.18	2.81	2.83	2.83	3.31	3.49	3.19	2.24	2.50	2.82	3.11
5 Haryana	6.15	4.87	4.31	4.60	4.38	4.31	4.20	3.72	4.03	4.33	3.94	3.70
6 H.P.	0.13	0.11	0.11	0.09	0.09	0.13	0.10	0.11	0.10	0.09	0.09	0.06
7 J&K	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03
8 Karnataka	4.99	5.17	5.89	5.48	5.57	5.56	5.82	6.00	5.88	6.19	7.18	6.43
9 Kerala	0.23	0.31	0.30	0.25	0.24	0.26	0.27	0.28	0.26	0.24	0.24	0.23
10 M.P.	2.00	1.95	1.46	1.34	1.40	1.45	1.46	1.30	1.49	1.43	1.32	1.50
11 Maharashtra	7.90	8.51	9.60	9.30	9.71	9.45	9.89	9.30	9.09	8.91	9.43	11.25
12 Manipur	0.06	0.08	0.07	0.06	0.06	0.06	0.07	0.40	0.10	0.06	0.06	0.06
13 Mizoram	0.03	0.15	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03
14 Nagaland	0.10	0.15	0.14	0.13	0.12	0.10	0.10	0.11	0.10	0.09	0.09	0.09
15 Orissa	1.49	1.80	1.84	1.57	1.52	1.35	1.93	2.04	1.46	1.28	1.41	1.38
16 Punjab	3.56	2.95	2.66	3.32	3.10	2.70	2.68	2.74	3.15	3.23	2.91	3.02
17 Pondicherry	0.06	0.08	0.07	0.06	0.06	0.06	0.07	0.11	0.10	0.09	0.09	0.06
18 Goa D.D.	0.03	0.08	0.04	0.03	0.06	0.06	0.07	0.07	0.06	0.06	0.6	0.06
19 Rajasthan	0.94	1.30	1.09	1.16	1.13	1.09	1.05	0.91	0.94	0.82	0.48	0.47
20 T.N.	4.99	5.71	9.86	6.30	5.12	4.89	5.72	6.72	6.37	5.95	6.64	6.81
21 Tripura	0.06	0.08	0.07	0.06	0.06	0.06	0.07	0.07	0.06	0.06	0.06	0.06
22 U.P.	52.91	52.61	51.11	51.74	53.10	54.28	52.25	52.28	54.50	54.92	52.90	51.54
23 W.B.	1.04	1.11	0.52	0.72	0.92	0.64	0.44	0.46	0.39	0.34	0.48	0.44
Total	100	100	100	100	100	100	100	100	100	100	100	100

Source : Cooperative Sugar, Vol 23, No.1, September 1991, P.58 (Table 11)

than half the total as far as land under the cane cultivation is

concerned. The share of Maharashtra which incidently ranks second, has a range between 8 % and 11 % of the total area under the cane cultivation in India [Table 3.03].

The share of A.P., Bihar and Haryana hovered around 4 % of the total, with Karnataka having a much higher share. The share of Punjab and Gujarat remained around 3 % almost right through.

The total production of sugarcane in India increased from 1,516.55 lakh tonnes in 1978-79 to 2,226.28 lakh tonnes in 1989-90. [Table 3.04]. The major producer states are A.P., Karnataka,

TABLE 3.04

STATE-WISE PRODUCTION OF SUGARCANE IN INDIA

(1978-79 to 1989-90)

(In 000 Tonnes)

	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
1 A.P.	9014	8422	10054	14961	12606	9743	9791*	9674	8808	9490	10767	11552
2 ANI	1	1	N	N	1	N	1	1	1	1	15	15
3 Assam	1858	1892	1723	2153	2076	2159	2887	1971	2117	1883	1864	1667
4 Bihar	3570	3914	3480	4180	4464	3884	3737	4001	3729	4546	5483	6694
5 Delhi	2	1	3	N	N	N	N	N	N	N	N	N
6 Gujarat	3287	3192	4435	5023	6695	7746	7582	6490	5566	6078	7907	9160
7 Haryana	6890	3950	4660	5840	5500	5930	5190	5150	6740	5240	6580	6750
8 H.P.	87	77	49	43	29	58	48	27	27	20	20	30
9 J&K	35	38	30	23	22	23	24	18	17	12	22	22
10 Karnataka	10973	9670	12421	14286	14916	12820	13392	13815	14854	17580	18733	17648
11 Kerala	376	487	462	479	821	871	428	426	412	562	538	536
12 M.P.	1790	1111	1071	1210	1356	1476	1390	1218	1646	1604	1644	1841
13 Maharashtra	22482	19819	23591	28780	31360	26549	26367	23706	24091	24984	25500	34008
14 Manipur	68	72	78	78	60	60	60	19	72	95	74	74
15 Meghalaya	10	9	9	9	9	6	7	6	5	4	4	3
16 Mizoram	9	7	5	5	5	4	4	3	6	3	6	7
17 Nagaland	170	138	122	137	141	90	81	96	106	119	129	129
18 Orissa	2810	2823	3060	3220	3189	2882	3700	3700	2786	2786	3200	3325
19 Punjab	6240	3930	3920	6120	6340	5530	4920	5050	6110	5820	6000	6500
20 Pondicherry	176	122	146	184	164	113	136	283	460	293	272	176
21 Goa, DD.	64	70	58	60	64	67	80	67	40	86	60	85
22 Rajasthan	2196	1160	1164	1437	1430	1485	1369	1010	1290	948	686	715
23 T.N.	15431	15393	18570	20208	15210	13258	17594	20005	21605	20766	23768	23444
24 Tripura	77	70	65	71	80	70	73	85	69	72	81	88
25 U.P.	62324	51228	64205	76440	81387	78244	70888	73036	84736	93054	88523	97128
26 W.B.	1885	1437	867	1411	1600	1022	770	812	757	691	1162	1031
All India	151655	128833	154248	186358	189505	174076	170319	170648	187090	196737	203037	222628

Source : Cooperative Sugar , Vol 20, No. 11; Jul, 1989,
Cooperative Sugar , Vol 22, No. 9; May, 1991.

Maharashtra, Tamilnadu and UP. The combined production of the cane in these five states ranges from a minimum of 79 % of the total in 1978-79 to a maximum of 84 % in 1987-88. Thus the share of other 21 states and union territories was literally negligible. [Table 3.05].

TABLE 3.05
STATE-WISE SUGARCANE PRODUCTION IN INDIA
(1978-79 to 1989-90)

	(Percentages)											
	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
1 A.P.	5.94	6.54	6.52	8.03	6.65	5.60	5.75	5.67	4.71	4.82	5.30	5.19
2 Assam	1.09	1.31	1.12	1.16	1.10	1.24	1.58	1.16	1.14	1.10	1.92	0.75
3 Bihar	2.35	2.04	2.26	2.24	2.36	2.23	2.19	2.34	2.00	2.31	2.70	3.10
4 Gujarat	2.17	2.48	2.88	2.70	2.53	2.45	2.15	2.80	2.98	2.09	2.89	4.11
5 Haryana	4.54	3.07	3.02	3.13	3.09	3.41	3.05	3.02	3.60	3.67	3.24	3.03
6 H.P.	0.06	0.06	0.03	0.02	0.02	0.03	0.03	0.02	0.01	0.01	0.01	0.01
7 J&K	0.02	0.03	0.02	0.01	0.01	0.01	0.01	0.01	N	N	N	N
8 Karnataka	7.24	7.51	8.05	7.67	7.87	7.36	7.86	8.01	7.94	7.93	9.23	7.93
9 Kerala	0.25	0.38	0.30	0.26	0.43	0.50	0.25	0.25	0.22	0.21	0.26	0.24
10 M.P.	1.18	0.86	0.89	0.85	0.72	0.85	0.82	0.71	0.88	0.82	0.81	0.83
11 Maharashtra	14.82	15.38	15.29	15.44	16.55	15.25	15.48	13.89	12.88	12.70	12.56	15.28
12 Manipur	0.04	0.06	0.05	0.04	0.03	0.03	0.04	0.01	0.04	0.04	0.04	0.03
13 Nagaland	0.11	0.11	0.08	0.07	0.07	0.05	0.05	0.06	0.06	0.05	0.06	0.06
14 Orissa	1.85	1.19	1.98	1.73	1.67	1.64	1.17	1.17	1.50	1.54	1.58	1.49
15 Punjab	4.11	3.05	3.54	3.15	3.35	3.18	3.89	3.96	3.27	3.91	3.96	2.92
16 Pondicherry	0.12	0.09	0.09	0.10	0.09	0.08	0.08	0.17	0.25	0.25	0.13	0.08
17 Goa D.D.	0.04	0.03	0.04	0.03	0.03	0.04	0.05	0.04	0.02	0.04	0.03	0.04
18 Rajasthan	1.45	0.09	0.75	0.77	0.75	0.85	0.80	0.59	0.69	0.52	0.34	0.32
19 T.N.	10.18	11.95	12.04	10.84	8.03	7.62	10.33	11.72	11.55	10.58	11.71	10.53
20 Tripura	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
21 U.P.	41.10	39.76	41.62	41.02	42.95	44.95	41.62	42.80	45.29	47.30	43.60	43.63
22 W.B.	1.24	1.12	0.58	0.76	0.84	0.59	0.45	0.48	0.40	0.35	0.57	0.46
Total	100	100	100	100	100	100	100	100	100	100	100	100
Combined of 1,8,11,20 & 22	79.3	81.1	83.54	83.0	82.05	80.78	81.04	82.04	82.37	84.32	82.4	82.56

The share of UP ranged between 40 % and 45 % during the period, whereas the share of Maharashtra ranged between 13 % and 16 %, followed by Tamilnadu between 8 to 12 %, AP 6 %, Haryana 3 % and Karnataka 7 to 8 % and Punjab 3 to 4 %. An interesting fact that emerges from the data on statewide area under sugarcane

production is that the production per hectare in UP is relatively much lower [Table 3.06]

TABLE 3.06
STATE-WISE YIELD OF SUGARCANE IN INDIA
(1978-79 to 1989-90)

(In Tonnes per Hectare)

	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
1 A.P.	63.6	74.1	75.9	83.3	74.3	68.9	71.1	72.6	63.9	66.2	70.0	71.1
2 AMis	13.0	5.0	3.0	3.0	13.0	4.0	5.0	6.0	6.0	6.0	25.8	25.8
3 Assam	34.6	35.7	35.8	43.6	42.0	43.9	50.7	41.2	45.5	43.4	44.7	43.0
4 Bihar	27.2	27.2	32.7	28.2	33.8	34.2	30.4	33.4	33.3	38.0	43.2	53.7
5 Delhi	5.7	5.5	1.5	1.0	0.5	1.0	Neg	Neg	Neg	Neg	Neg	Neg
6 Gujarat	56.8	56.1	59.2	59.6	70.3	75.5	73.4	71.5	60.4	74.4	84.4	86.4
7 Haryana	36.3	31.1	40.5	39.7	37.4	44.3	41.9	48.6	54.4	36.9	50.2	53.6
8 H.P.	22.4	24.0	15.7	14.4	9.3	15.6	14.2	10.0	10.1	7.2	6.7	11.8
9 J&K	31.9	37.9	37.1	28.5	27.6	32.6	34.4	30.0	28.3	23.0	43.2	43.2
10 Karnataka	71.4	71.5	79.4	81.5	79.7	74.2	27.9	80.6	82.2	86.8	78.2	80.5
11 Kerala	57.0	57.4	59.2	59.9	NA	NA	54.8	54.6	54.2	66.2	65.6	66.1
12 M.P.	29.0	21.6	27.4	28.4	28.7	33.1	32.6	32.7	36.1	34.0	37.5	34.4
13 Maharashtra	92.1	89.3	92.3	96.9	96.3	90.3	90.1	89.4	86.1	85.6	81.1	88.8
14 Manipur	32.1	34.1	33.9	33.9	35.3	35.3	35.3	27.6	27.6	41.4	32.2	32.2
15 Meghalaya	48.5	45.5	46.5	45.0	45.0	56.0	56.0	27.5	46.0	40.0	30.0	30.0
16 Mizoram	18.2	2.0	4.6	4.6	4.6	5.0	3.5	4.5	9.8	3.0	13.0	11.8
17 Nagaland	54.8	32.0	29.9	31.8	37.0	30.0	27.0	30.0	32.1	35.0	36.9	36.9
18 Orissa	61.1	60.7	63.0	64.4	61.9	67.7	64.9	64.0	61.2	65.9	68.1	70.0
19 Punjab	56.7	51.0	55.2	57.7	61.0	65.8	62.5	64.7	63.0	54.9	61.9	63.1
20 Pondicherry	88.1	87.8	76.5	83.5	86.1	59.3	67.9	67.7	139.5	83.7	93.8	92.6
21 Goa, DD.	45.8	46.7	48.4	49.8	42.7	44.5	49.9	42.0	47.1	50.6	35.3	50.0
22 Rajasthan	36.8	34.3	39.5	38.7	37.5	44.2	44.5	38.1	44.0	35.7	42.6	45.9
23 T.N.	99.9	103.0	101.5	100.4	87.2	87.4	43.8	104.7	110.0	106.8	107.6	101.2
24 Tripura	38.6	38.9	38.2	39.6	40.0	37.9	36.4	36.1	38.6	38.2	42.4	44.0
25 U.P.	38.2	37.3	47.1	46.3	45.7	46.4	45.9	49.0	50.5	51.7	50.3	55.3
26 W.B.	58.7	49.1	60.7	61.3	51.4	50.4	57.5	63.0	60.6	62.9	70.9	68.3
All India	49.1	49.4	57.8	58.4	56.4	56.0	57.7	59.9	60.4	60.0	61.0	65.4

NA = Data not available Neg = Negligible

Source : Cooperative Sugar , Vol. 20 No.11 P 783, Jul, 1989.

Cooperative Sugar , Vol. 22 No. 9 P 607, May 1990.

The average sugarcane production per hectare for the country as a whole increased from a low of 49.10 tonnes in 1978-79 to 65.38 tonnes in 1989-90. Amongst the various states, the average production per hectare in Assam, Bihar, Haryana, Jammu & Kashmir, M.P., Manipur, Nagaland, Rajasthan, Tripura, Goa and U.P. were relatively low, ranging from 22 tonnes [minimum] to 55 tonnes

[maximum]. In fact, these figures do not include the production figures of some states like Mizoram etc. where the hectare-wise production was abysmally low, ranging from 2 tonnes to 18 tonnes.

Amongst the states that had a fairly high production of sugarcane per hectare were AP [83 tonnes], Gujarat [86 tonnes], Karnataka [87 tonnes], Kerala [66 tonnes], Maharashtra [97 tonnes], Orissa [70 tonnes], Punjab [66 tonnes], Pondicherry [140 tonnes], Tamil Nadu [110 tonnes] and West Bengal [71 tonnes]. The figures show that the highest continuous production of sugarcane per hectare was in Tamil Nadu, where except for two years [1982-83 and 1983-84], the production was above 100 tonnes during the period 1978-79 and 1989-90. This was followed by Maharashtra. The average production per hectare in UP, with the largest area under the cane cultivation, was hardly around 50 tonnes.

From among the five major states, the share of UP reduced the most [between 45 to 55 %] of the total followed by Maharashtra, Tamil Nadu, Karnataka and AP. The total production of sugarcane in the five major states i.e. UP, Maharashtra, Karnataka, Tamil Nadu and AP ranges between 1045.32 lakh tonnes in 1979-80 and 1837.80 lakh tonnes in 1989-90. [Table 3.07]. The shares of U.P. in this total production was very high and varied between a minimum of 45 % [1986-87] and maximum of 57 % in 1987-88. The share of Maharashtra remained more or less constant between 1978-79 and 1984-85 at around 19 %, after which it tended to decline almost continuously to about 13 % in 1989-90. Maharashtra was followed by Tamil Nadu with its share tending to fluctuate between the high of 15 % [1979-80] and low of 9 % [1983-84]. The share of Karnataka remained more or less constant, with slight variations around 9 %. The share of AP was more or less centered around 6 %.

TABLE 3.07

THE RELATIVE SHARE OF PRODUCTION OF SUGARCANE OF THE MAJOR STATES IN THEIR TOTAL PRODUCTION.

Years	Total '000 tonnes	U.P.	Maharashtra	Karnataka	TN	A.P.
1978-79	120254	57.83	18.70	9.12	12.33	7.52
1979-80	104532	49.00	18.95	9.25	14.73	8.06
1980-81	128841	49.83	18.31	9.64	14.13	7.80
1981-82	154675	49.42	18.60	9.24	13.06	9.67
1982-83	155479	52.35	20.17	9.59	9.78	8.11
1983-84	140614	55.64	18.88	9.12	9.43	6.92
1984-85	138032	51.36	19.10	9.17	12.75	7.09
1985-86	140236	52.08	16.90	9.85	14.25	6.90
1986-87	154094	44.99	15.63	9.64	14.20	5.72
1987-88	164908	56.60	15.15	8.77	13.20	6.24
1988-89	167291	52.92	15.24	11.20	14.21	6.44
1989-90	183780	52.85	12.76	9.60	11.20	6.29

A study of the utilisation of sugarcane produced indicates three major categories viz. production of white sugar, as seed, feed and for chewing etc. and for Gur and Khandsari production. The share of the cane used for feed and chewing etc. has remained constant at 12 % over the period 1967-68 to 1988-89. However, there has been a dynamic reversal of shares of the cane used for the production of white sugar and Gur and Khandsari over the same period, the share of Gur and Khandsari was as high as 65 % and that of white sugar as low as 24 % in 1967-68. The share of Gur and Khandsari declined to 40 % whereas, that of white sugar production increased to 48 % in 1987-88. [Table 3.08].

TABLE 3.08

UTILISATION OF SUGARCANE FOR DIFFERENT PURPOSES

Years	Production of sugarcane ('000 tonnes)	Cane used for ('000 tonnes)			% of sugarcane prodn. utilised for		
		Prodn. of white sugar	Seed, feed & chewing etc	Gur and Khandasri	Prodn. of white sugar	Seed, feed & chewing etc	Gur and Khandasri
1967-68	95,500	22,638	11,234	61,628	23.7	11.8	64.5
1968-69	124,676	37,699	14,734	72,243	30.2	11.8	58.0
1969-70	135,024	45,701	16,291	73,032	33.8	12.1	54.1
1970-71	126,368	38,205	15,173	72,990	30.2	12.0	57.8
1971-72	113,589	31,015	13,514	69,040	27.3	11.9	60.8
1972-73	124,866	40,407	14,999	69,460	32.4	12.0	55.6
1973-74	140,805	42,278	16,802	81,725	30.0	11.9	58.1
1974-75	144,289	48,435	17,188	78,666	33.6	11.9	54.5
1975-76	140,604	41,880	16,692	82,032	29.8	11.9	58.3
1976-77	153,007	48,819	18,314	85,874	31.9	12.0	56.1
1977-78	176,966	67,329	21,029	88,608	38.0	11.9	50.1
1978-79	151,655	59,717	17,934	74,004	39.4	11.8	48.8
1979-80	128,833	39,050	15,104	74,679	30.3	11.7	58.0
1980-81	154,248	51,584	18,201	84,463	33.4	11.8	54.8
1981-82	186,358	87,342	21,990	77,026	46.9	11.8	41.3
1982-83	189,505	82,897	22,304	84,504	43.6	11.8	44.6
1983-84	174,076	59,024	21,136	93,916	33.9	12.1	54.0
1984-85	170,319	60,090	20,115	90,114	35.3	11.8	52.9
1985-86	170,648	68,565	20,326	81,757	40.2	11.9	47.9
1986-87	186,090	85,202	22,242	78,646	45.8	12.0	42.2
1987-88	196,723	93,933	23,674	79,116	47.8	12.0	40.2
1988-89	203,037	85,647	24,292	93,098	42.2	12.0	45.8

Source : COOPERATIVE SUGAR, VOL. 22, No.9, May 1989, pp 667

The proportion of the sugarcane utilised for the production of sugar from 1979-80 to 1988-89 is indicated in Table 3.09 for major cane producing states in India.

The proportion of the cane used for production of sugar on All India basis increased from 30.3 % to 42.2 % between 1979 -80 and 1988-89, with 47.8 % to be highest in 1987-88. The 'increases' for each state also have varied [i.e. between highest and lowest] from 12.2% in UP to 34.6% in AP. Similarly, the share of the cane used for the production of Gur and Khandasri has declined from 58% in 1979-80 to a minimum of 40.2 % in 1987-88 on All India basis. The range of fall for the major states as a whole was between

14.3 % and 35.7 %.

TABLE 3.09
STATE-WISE UTILISATION OF SUGARCANE
FOR DIFFERENT PURPOSES

(1978-79 to 1988-89)

STATE	PERCENTAGE OF CANE UTILISED FOR THE MANUFACTURE OF SUGAR										
	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
U.P.	25.3	19.9	30.2	29.0	25.6	23.4	21.8	23.6	32.0	32.1	27.2
Bihar	80.6	46.1	60.8	NA	NA	63.3	40.7	65.8	NA	NA	NA
Punjab	15.9	13.1	15.0	25.1	22.4	26.8	27.2	29.7	39.5	36.3	46.2
Haryana	22.2	24.7	26.1	34.4	35.0	31.9	28.0	33.0	43.3	52.3	43.1
M.P.	37.8	23.9	19.0	53.8	50.6	35.0	39.4	38.8	43.6	NA	NA
Maharashtra	85.5	66.3	80.0	NA	88.1	67.4	79.0	89.9	90.2	NA	NA
Gujarat	89.2	65.7	75.2	NA	NA	48.1	49.0	78.4	NA	57.7	NA
A.P.	38.0	27.6	28.6	42.2	45.0	31.5	38.5	43.7	62.2	39.0	43.4
T.N.	37.4	26.5	26.8	42.5	47.4	31.4	35.7	42.4	39.4	39.0	41.8
Karnataka	43.9	28.0	28.8	45.0	43.5	28.0	31.6	35.2	40.6	50.9	36.2
ALL INDIA	39.4	30.3	33.4	46.9	43.7	33.9	35.3	40.2	45.8	47.8	42.2

STATE	G U R A N D K H A N D A S A R I										
	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
U.P.	62.9	68.4	66.0	56.4	60.6	64.8	64.4	62.6	54.2	54.1	59.0
Bihar	6.6	42.2	25.1	NA	NA	24.9	45.1	20.0	NA	NA	NA
Punjab	72.3	75.2	72.6	53.1	65.2	61.4	60.3	57.8	48.0	50.2	41.3
Haryana	66.0	63.6	61.4	56.4	52.5	56.3	59.5	54.5	44.2	35.2	44.4
M.P.	50.4	64.4	60.6	33.8	37.0	53.2	48.2	48.8	44.0	NA	NA
Maharashtra	2.7	22.0	10.5	NA	2.4	20.6	11.5	0.6	0.3	NA	NA
Gujarat	NA	22.6	13.0	NA	NA	40.1	39.2	9.7	NA	NA	NA
A.P.	50.2	60.7	63.8	50.1	47.4	56.7	53.8	48.7	28.1	34.7	48.9
T.N.	50.8	61.8	63.2	47.4	42.6	56.8	54.2	47.5	50.5	51.0	48.1
Karnataka	44.3	60.3	62.1	62.4	47.3	60.2	59.2	55.7	50.3	40.0	50.7
ALL INDIA	48.8	58.0	54.8	41.3	44.6	54.0	52.9	47.9	42.3	40.2	45.8

Note : Average percentage of cane utilised for seeding, chewing and stock feeding for different year has been taken as follows :

	11.8	11.7	11.8	11.8	11.8	12.1	11.8	11.9	12.0	12.0	12.0
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NA = Data not available.

Source : Cooperative Sugar, Vol 20, No.5; January 1989, P 356
Cooperative Sugar, Vol 23, No.1; September 1991, P 54

The total sugarcane crushed by sugar factories in the period 1978-79 and 1989-90 is shown in Table 3.10. The total amount of the cane crushed has varied substantially between 390.5 lakh tonnes and 1111.58 lakh tonnes. However, the share of the

TABLE 3.10

TOTAL SUGARCANE CRUSHED BY SUGAR FACTORIES IN INDIA.
1978-79 to 1989-90

('000' Tonnes)			
Year	Total	Coop. Sector	(3) As a % of (2)
1	2	3	
1978-79	59,717	29,589	49.55
1979-80	39,050	20,618	52.80
1980-81	51,627	27,628	53.51
1981-82	87,342	45,678	52.31
1982-83	82,697	43,547	52.66
1983-84	59,024	30,325	51.38
1984-85	60,090	34,383	57.22
1985-86	68,566	38,876	56.70
1986-87	85,202	46,101	54.11
1987-88	93,933	52,133	55.50
1988-89	85,647	47,917	55.95
1989-90	1,11,158	64,190	57.75

cooperative sector in the total cane crushed has been quite high. [from 49.55 to 57.75 %].

The state-wise total sugarcane crushed by the cooperative sector in different years is represented in Table 3.11. It is seen from the table that Maharashtra is the only state where a very high proportion of cane is crushed in the cooperative sector. This is followed by Gujarat, A.P., Karnataka, U.P. and Tamil Nadu.

TABLE 3.11

STATE-WISE CANE CRUSHED BY COOPERATIVE SUGAR FACTORIES
IN INDIA (1978-79 to 1989-90)

	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
1 A.P.	1,115	595	730	2,099	1,773	1,113	1,410	1,834	2,555	2,502	1,942	2,087
2 Assam	104	69	40	91	74	60	30	27	67	133	110	130
3 Goa	88	67	57	120	106	79	80	67	93	111	95	101
4 Gujrat	2,932	2,932	3,337	5,461	4,945	3,742	3,717	5,086	5,280	5,661	5,039	6,084
5 Haryana	708	327	432	888	825	787	594	784	1,612	1,506	1,568	1,816
6 Karanataka	2,195	1,257	1,820	3,183	3,164	1,793	2,253	2,520	2,991	3,714	3,301	3,707
7 Kerala	220	139	156	164	162	92	69	65	95	59	135	139
8 M.P.	74	13	63	237	248	243	218	202	256	377	230	290
9 Maharashtra	16,697	11,827	16,951	25,088	24,567	16,170	19,064	19,671	20,631	24,810	23,040	35,508
10 Orissa	221	107	105	230	278	170	144	136	226	338	167	156
11 Punjab	695	393	399	636	791	791	785	893	1,545	1,419	1,795	1,926
12 Pondicherry	-	-	-	-	-	49	119	251	316	292	317	197
13 Rajasthan	117	16	42	78	71	51	28	52	115	-	88	68
14 T.N.	2,428	1,481	1,696	3,364	3,117	1,851	2,670	3,591	3,609	3,795	4,156	3,834
15 U.P.	1,995	1,395	1,800	3,639	3,426	3,352	3,204	3,697	6,710	7,426	5,934	6,149
Total	29,589	20,618	27,628	45,678	43,547	30,325	34,383	38,876	46,101	52,133	47,917	64,190

The total sugarcane crushed in the cooperative sector on the All India basis increased from a minimum of 206.18 lakh tonnes in 1979-80 to a maximum of 641.90 lakh tonnes in 1989-90. The amount of the cane crushed has increased substantially by about 311%, but there have been fluctuation in the totals from year to year. The state where the major crushing work has been done is Maharashtra. The total amount of the cane crushed in the cooperative sector in Maharashtra ranged from a minimum 118.27 lakh tonnes in 1979-80 to 355.06 lakh tonnes in 1989-90. Other major contributing states are Gujarat, Haryana, Karnataka, Punjab, T.N. and U.P..

The share of Maharashtra in the total sugarcane crushed by the cooperative sector each year has ranged between 61.35 % [highest] in 1980-81 and 44.76 % [lowest] in 1986-87. In fact, the share of cooperative sector in Maharashtra in the All India performance has remained to a very large extent, substantially

above the 50 % mark [Table 3.12]. Thus, the cooperative sector in Maharashtra has played and continues to play a very important role in the Indian Sugar Industry.

TABLE 3.12
STATE-WISE PERCENTAGE SHARE IN TOTAL CANE CRUSHED BY
THE SUGAR FACTORIES IN INDIA (1978-79 to 1989-90).

	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
1 A.P.	3.77	2.88	2.64	4.60	4.07	3.67	4.10	4.72	5.43	4.80	4.05	3.25
2 Assam	0.35	0.33	0.15	0.20	0.17	0.20	0.09	0.07	0.15	0.28	0.23	0.20
3 Goa	0.30	0.32	0.21	0.28	0.24	0.28	0.23	0.27	0.21	0.21	0.20	0.16
4 Gujarat	9.91	14.22	12.08	11.96	11.36	12.28	10.81	13.08	11.46	10.88	10.52	9.48
5 Haryana	2.39	1.59	1.58	1.94	1.89	2.60	1.72	0.02	3.51	2.89	3.27	2.83
6 Karnataka	7.42	6.11	6.59	6.98	7.27	5.91	6.55	6.48	6.50	7.12	6.89	5.78
7 Kerala	0.74	0.67	0.58	0.38	0.37	0.30	0.20	0.17	0.21	0.11	0.28	0.22
8 M.P.	0.25	0.06	0.23	0.52	0.57	0.60	0.63	0.52	0.57	0.72	0.48	0.45
9 Maharashtra	56.45	57.36	61.35	54.92	56.41	53.32	55.45	50.60	44.78	47.59	48.08	55.31
10 Orissa	0.75	0.52	0.38	0.50	0.64	0.56	0.42	0.35	0.49	0.65	0.35	0.24
11 Punjab	2.35	1.91	1.44	1.83	1.82	2.61	2.28	2.29	3.36	2.72	3.75	3.00
12 Pondecherry	-	-	-	-	-	0.16	0.35	0.85	0.89	0.58	0.68	0.31
13 Rajasthan	0.40	0.08	0.15	0.17	0.16	0.17	0.08	0.13	0.26	-	0.18	0.11
14 T.N.	8.20	7.18	6.14	7.36	7.18	6.11	7.77	9.24	7.84	7.28	6.67	5.97
15 U.P.	6.74	6.77	6.52	6.40	7.82	11.05	9.32	9.51	14.56	14.23	12.39	12.89
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The utilisation of capacity on the All India basis in the cooperative sector indicates a better performance by the cooperative sector [Table 3.13]. The capacity utilisation has been much higher in the cooperative sector, ranging between a minimum of 86.4 % and a maximum of 123.4 %. This compares very favourably with the All India performance between 86 % and 117.6 %.

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TABLE 3.13 [11

STATEMENT SHOWING STATE-WISE INSTALLED ANNUAL SUGAR PRODUCTION CAPACITY AND UTILIZATION OF CAPACITY . 1983-84 to 1989-90

Years State	1983 - 84			1984 - 85			1985 - 86			1986 - 87							
	Coop.	Total	B	Coop.	Total	B	Coop.	Total	B	Coop.	Total	B					
1 A.P.	2.22	5.48	44.6	53.8	2.30	5.56	52.2	63.8	2.382	5.622	66.3	72.1	2.362	5.705	94.4	92.7	
2 Assam	0.08	0.20	62.5	25.0	0.08	0.20	25.0	15.0	0.08	0.20	26.9	10.7	0.20	0.32	25.0	15.6	
3 Bihar	-	3.475	-	64.7	-	3.475	-	41.4	-	3.505	-	71.2	-	3.475	-	86.0	
4 Goa	0.20	0.20	35.0	35.0	0.20	0.20	35.0	35.0	0.20	0.20	29.9	29.9	0.20	0.20	40.0	40.0	
5 Gujarat	4.64	4.64	84.5	84.5	4.96	4.96	81.3	81.3	5.155	5.155	108.1	108.1	5.155	5.155	111.7	111.7	
6 Haryana	0.63	1.16	119.1	148.3	1.02	1.55	53.9	88.4	1.02	1.55	67.1	103.9	1.02	1.55	151.0	166.5	
7 Karnataka	3.16	6.67	57.6	57.4	3.615	7.125	63.6	61.9	3.615	7.286	72.4	69.9	3.695	7.916	76.5	77.3	
8 Kerala	0.16	0.22	44.4	45.5	0.16	0.22	33.3	36.4	0.16	0.22	34.1	33.5	0.18	0.22	44.4	45.5	
9 M.P.	0.27	0.64	85.2	115.6	0.27	0.64	74.1	79.7	0.27	0.64	68.3	66.2	0.27	0.64	81.5	110.9	
10 Maharashtra	18.72	21.16	96.3	94.2	20.52	22.96	103.4	100.7	21.692	24.492	100.9	97.5	23.012	25.612	98.6	93.2	
11 Nagaland	-	0.12	-	25.0	-	0.12	-	16.7	-	0.12	-	-	18.8	-	-	-	33.3
12 Orissa	0.19	0.22	84.2	77.3	0.19	0.22	68.4	63.6	0.19	0.22	67.6	61.4	0.19	0.22	105.3	95.5	
13 Punjab	0.48	0.88	177.1	165.9	0.48	0.68	177.1	161.4	0.70	1.10	124.5	132.6	0.81	1.21	187.7	193.4	
14 Pondicherry	0.15	0.34	26.7	55.9	0.15	0.34	73.3	82.4	0.15	0.34	153.2	150.9	0.15	0.34	186.7	173.5	
15 Rajasthan	0.09	0.27	55.6	85.2	0.09	0.27	33.3	70.4	0.09	0.27	53.1	49.9	0.09	0.27	111.1	81.5	
16 T.N.	2.64	6.115	66.7	69.3	2.64	6.185	98.1	97.0	2.64	6.66	132.3	121.7	2.935	6.805	121.3	119.6	
17 U.P.	3.27	16.874	94.2	102.3	3.97	17.684	76.1	83.6	4.25	18.223	81.2	90.5	4.55	18.656	137.1	137.1	
18 V.B.	-	0.15	-	13.3	-	0.15	-	6.7	-	0.15	-	-	4.0	-	-	-	26.7
ALL INDIA	38.92	68.814	86.4	86.0	40.685	72.739	89.04	84.5	42.794	75.953	96.1	92.4	45.019	78.564	105.6	108.2	

Column A = Capacity (in lakh tonnes), Column B = Utilization of Capacity %

Source - Coop. Sugar, Vol.20, No.8; April 1989, p.577.

- Coop. Sugar, Vol.23, No.1; Sept. 1991, p.61.

TABLE 3.13 [I I]

STATEMENT SHOWING STATE-WISE INSTALLED ANNUAL SUGAR
PRODUCTION CAPACITY AND UTILIZATION OF CAPACITY .
1963-84 to 1989-90

Year State	1987 - 88			1988 - 89			1989 - 90			
	A Coop.	Total	B Coop.	A Coop.	Total	B Coop.	A Coop.	Total	B Coop.	Total
1 A.P.	2.362	5.835	89.3	2.362	5.835	82.1	2.225	5.523	88.4	102.5
2 Assam	0.20	0.32	50.0	0.20	0.32	45.0	0.115	0.184	91.7	57.3
3 Bihar	-	3.475	-	-	3.579	-	-	3.348	-	99.9
4 Goa	0.20	0.20	45.0	0.20	0.20	45.0	0.093	0.093	95.4	95.4
5 Gujarat	5.35	5.35	108.0	5.35	5.35	108.0	6.066	6.066	109.9	109.9
6 Haryana	1.02	1.55	145.1	1.02	1.55	149.0	1.380	2.508	127.7	133.9
7 Karnataka	3.895	7.916	98.3	4.07	8.091	86.5	3.701	7.695	104.3	103.4
8 Kerala	0.18	0.22	27.8	0.18	0.22	66.7	0.136	0.170	93.5	82.4
9 M.P.	0.27	0.64	129.6	0.27	0.64	61.5	0.334	0.785	81.2	93.6
10 Maharashtra	24.332	26.932	110.6	24.732	27.132	103.1	27.215	30.02	139.9	130.7
11 Nagaland	-	0.12	-	-	0.12	-	-	0.064	-	76.8
12 Orissa	0.19	0.22	136.8	0.37	0.40	43.2	0.392	0.427	36.6	34.8
13 Punjab	1.03	1.43	139.8	1.03	1.562	168.0	1.642	2.482	109.1	119.0
14 Pondicherry	0.15	0.34	160.0	0.15	0.34	200.0	0.174	0.383	101.4	94.9
15 Rajasthan	0.09	0.27	Nil	0.09	0.27	88.9	0.077	0.232	83.5	53.4
16 T.N.	2.935	6.955	119.9	2.935	7.695	144.5	3.572	9.495	99.9	93.6
17 U.P.	4.77	19.291	137.1	4.85	19.571	112.2	6.236	23.893	115.3	125.9
18 V.B.	-	0.15	-	-	0.15	-	-	0.067	-	2.1
ALL INDIA	46.974	81.214	112.2	47.809	83.024	108.1	53.358	93.413	123.4	117.6

Column A = Capacity (in lakh tonnes). Column B = Utilization of Capacity %
Source - Coop. Sugar, Vol.20, No.8; April 1989, p.577.
- Coop. Sugar, Vol.23, No.1; Sept. 1991, p.61.

The amount of sugar produced each year depends upon the recovery rate. The recovery rate is thus an important factor which affects the production of sugar. In India, there are fluctuations in the recovery rate of sugar from 1930-31 to 1987-88.

TABLE 3.14
ALL INDIA SUGAR PRODUCTION AT A GLANCE
[1930-31 TO 1989-90]

Year	A	B	C	D	E	F
1930-31	29	-	-	1,339	120	8.96
1935-36	135	126	644	10,045	934	9.29
1940-41	148	113	750	11,492	1,113	9.70
1945-46	145	93	768	9,510	959	10.09
1950-51	139	101	882	11,348	1,100	9.99
1951-52	140	132	938	15,886	1,474	9.57
1952-53	134	113	952	13,219	1,277	9.98
1953-54	134	86	926	9,778	985	10.08
1954-55	136	132	958	15,759	1,586	9.93
1955-56	143	145	980	18,642	1,834	9.83
1956-57	147	150	1016	20,536	1,998	9.73
1957-58	158	129	1040	19,438	1,946	10.01
1958-59	164	118	1082	19,187	1,889	9.84
1959-60	168	138	1131	24,041	2,384	9.92
1960-61	174	166	1172	31,021	3,021	9.74
1961-62	180	148	1144	27,946	2,729	9.76
1962-63	186	106	1150	20,779	2,139	10.28
1963-64	194	122	1185	25,716	2,573	10.01
1964-65	198	153	1204	33,454	3,232	9.66
1965-66	200	159	1253	36,512	3,541	9.70
1966-67	200	96	1229	21,637	2,151	9.94
1967-68	200	97	1273	22,638	2,248	9.92
1968-69	205	152	1320	37,699	3,559	9.44
1969-70	215	174	1333	45,701	4,262	9.33
1970-71	215	139	1394	38,205	3,740	9.79
1971-72	220	107	1437	31,015	3,113	10.04
1972-73	228	133	1454	40,407	3,873	9.57
1973-74	229	135	1491	42,278	3,948	9.34
1974-75	246	140	1534	48,435	4,797	9.90
1975-76	252	116	1563	41,880	4,262	10.18
1976-77	270	125	1578	48,819	4,840	9.91
1977-78	287	165	1551	67,329	6,461	9.59
1978-79	299	140	1556	59,717	5,841	9.78
1979-80	300	86	1651	39,050	3,858	9.88
1980-81	315	104	1718	51,564	5,150	9.98
1981-82	320	173	1721	87,342	8,437	9.66
1982-83	321	158	1779	82,697	8,229	9.95
1983-84	326	111	1779	59,024	5,917	10.02
1984-85	339	106	1824	60,090	6,144	10.22
1985-86	342	116	1885	68,566	7,016	10.23
1986-87	354	141	1862	85,202	8,502	9.98
1987-88	357	152	1888	93,933	9,110	9.70
1988-89	365	133	1925	85,647	8,752	10.22
1989-90	377	158	2036	111,158	10,989	9.89

A = No. of factories in operation. B = Av. duration. [Days].
C = Av. capacity [Tonnes per day] D = Total cane crushed ['000 tonnes]. E = Total Sugar Produced ['000 tonnes].
F = Recovery of sugar % cane.
Source - Cooperative Sugar, Vol 23, No.1; September 91, pp 51

In 1930-31, the recovery rate was 8.96 % and in 1987-88 it was 10.22 %. No doubt, it is increasing but the fluctuations in the recovery rate affects the production. When the recovery rate is higher the production of sugar also tends to be higher. Table 3.15 shows, the recovery rate for the country as a whole and for the cooperative sector. As far as the country is concerned, the recovery rate of sugar percent cane ranged between a minimum of 9.66 % and a maximum of 10.23. However, the recovery rate in the cooperative sector in the country has been continuously higher each year compared to the performance for the 'All India' level. The average recovery of sugar percent cane in the cooperative sector in India ranged between a minimum of 10.08 and a maximum of 10.5 during 1980-81 and 1989-90.

The average recovery of sugar is the highest in Maharashtra, as compared to that of other states. In 1972-73, it was 12.12 % , from this point the recovery rate is decreasing.

The average crushing days also affect the total production of sugar. The average crushing days were 140 in 1978-79 in India, but in 1987-88 , the average days increased and reached to 152. In Maharashtra, the proportion was 177 days in 1978-79 while in 1987-88 it was 156 days [Table 3.16]. This decrease in average crushing days is unfavourable to the sugar industry in Maharashtra. Even then, Maharashtra is first amongst all states in the production of sugar.

TABLE 3.15
STATE-WISE AVERAGE RECOVERY OF SUGAR PERCENT CANE IN INDIA
(1980-81 to 1989-90)

State	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90										
	Coop. Tl. Coop.	Tl. Coop.	Tl. Coop.	Tl. Coop.	Tl. Coop.	Tl. Coop.	Tl. Coop.	Tl. Coop.	Tl. Coop.	Tl. Coop.										
1. A.P.	8.85	9.14	8.26	8.64	8.69	9.07	8.89	9.66	8.53	9.41	8.79	9.60	8.75	9.36	8.42	9.17	9.98	10.12	9.43	9.99
2. Assam	8.09	8.09	8.60	8.61	5.80	6.66	8.16	8.16	8.26	7.87	7.82	7.82	7.43	7.43	7.67	7.67	7.93	7.93	8.10	8.10
3. Bihar	-	9.17	-	9.00	-	8.32	-	9.13	-	9.44	-	9.48	-	9.22	-	8.97	-	9.16	-	8.99
4. Goa	8.51	8.51	9.65	9.31	9.31	9.31	9.29	9.29	9.05	9.05	8.89	8.89	8.83	8.83	8.23	8.23	9.27	9.27	8.76	8.76
5. Gujarat	9.95	9.95	9.72	9.72	9.57	9.57	10.52	10.52	10.84	10.84	10.96	10.96	10.91	10.91	10.20	10.20	11.28	11.28	10.96	10.96
6. Haryana	8.85	8.43	8.77	8.59	10.20	9.47	9.52	9.07	9.25	9.35	8.73	9.48	9.57	9.91	9.81	9.94	9.71	9.88	9.70	9.77
7. Karnataka	10.60	10.37	10.23	10.09	10.23	10.18	10.14	10.19	10.22	10.40	10.40	10.44	9.95	10.16	10.30	10.13	10.67	10.53	10.41	10.38
8. Kerala	8.67	8.47	8.48	8.08	8.89	8.47	8.45	7.93	9.22	8.73	9.47	8.98	8.43	8.04	8.62	7.64	8.91	8.64	9.17	8.92
9. M.P.	7.94	8.43	8.63	8.84	10.08	9.54	9.56	9.43	9.27	9.32	9.11	8.97	8.47	9.20	9.20	9.31	9.37	9.56	9.34	9.78
10. Maharashtra	11.07	11.04	10.71	10.70	10.97	10.95	11.15	11.13	11.13	11.08	11.23	11.20	11.00	10.98	10.85	10.82	11.07	11.05	10.72	10.71
11. Nagaland	-	8.24	-	9.02	-	7.42	-	7.93	-	8.26	-	8.58	-	8.54	-	8.15	-	7.61	-	8.30
12. Orissa	8.96	8.70	8.03	8.19	7.88	7.98	9.31	9.32	9.09	9.10	9.44	9.34	8.92	8.93	7.65	7.70	9.44	9.39	9.18	9.18
13. Punjab	8.90	8.87	9.90	9.71	10.76	10.62	10.72	10.47	10.76	10.63	9.76	9.72	9.83	9.68	10.19	10.13	9.64	9.62	9.30	9.13
14. Pondicherry	-	8.06	-	8.78	-	8.96	8.66	8.78	8.92	9.23	9.17	9.16	8.82	8.91	8.37	8.47	9.80	9.77	8.98	9.29
15. Rajasthan **	9.61	9.49	10.00	9.13	10.31	9.83	10.56	9.44	10.01	9.85	9.20	9.32	8.79	8.99	-	8.35	9.12	8.87	9.42	9.24
16. T.N.	9.04	8.68	9.07	8.80	9.11	9.04	9.53	9.30	9.71	9.54	9.73	9.55	9.87	9.55	9.29	9.23	10.21	10.10	9.31	9.30
17. U.P.	9.79	9.77	9.43	9.47	8.91	9.13	9.58	9.67	9.17	9.33	9.42	9.57	9.33	9.58	9.30	9.44	8.82	8.90	8.82	9.04
18. W.B.	-	7.31	-	9.21	-	8.41	-	7.43	-	5.76	-	8.68	-	6.97	-	6.80	-	6.83	-	4.17
All India	10.51	9.98	10.08	9.66	10.36	9.95	10.51	10.02	10.58	10.22	10.58	10.23	10.31	9.98	10.11	9.70	10.59	10.22	10.26	9.89

** Includes recovery of sugar percent sugarbeet.

Source : Cooperative Sugar, Vol. 23, No. 1 ; September 1991, p 60.

TABLE 3.16
STATE-WISE DURATION OF CRUSHING SEASON IN INDIA
(1978-79 to 1989-90)

State	1978-79		1979-80		1980-81		1981-82		1982-83		1983-84		1984-85		1985-86		1986-87		1987-88	
	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.
1. A.P.	87	89	48	55	64	73	144	148	113	122	69	66	75	78	90	88	126	120	126	127
2. Assam	137	87	94	64	56	46	115	88	111	85	76	76	45	29	39	39	88	88	88	88
3. Bihar	-	101	-	59	-	68	-	126	-	147	-	75	-	53	-	94	-	101	-	103
4. Goa	88	88	75	75	57	57	109	109	101	101	74	74	74	74	64	64	79	79	103	103
5. Gujarat	136	136	110	110	135	135	194	194	152	152	132	132	125	125	149	149	172	172	203	203
6. Haryana	135	149	68	62	85	99	175	183	149	160	138	154	101	110	85	93	163	168	150	155
7. Karnataka	144	143	82	82	97	99	169	167	157	152	92	95	96	93	102	109	123	130	150	149
8. Kerala	128	120	78	79	81	75	87	78	86	85	101	79	79	55	71	50	101	71	65	51
9. M.P.	85	134	18	49	38	38	112	108	115	125	103	113	62	89	60	66	77	100	115	120
10. Maharashtra	176	177	112	111	148	145	202	203	188	189	123	122	144	142	131	132	128	128	158	158
11. Nagaland	-	133	-	102	-	62	-	90	-	98	-	53	-	33	-	38	-	61	-	62
12. Orissa	122	102	54	45	98	60	106	103	131	112	83	71	71	57	64	53	105	86	159	132
13. Punjab	174	173	79	75	77	63	176	174	151	145	145	137	140	127	126	122	190	182	133	128
14. Pondicherry	-	181	-	127	-	157	-	181	-	171	47	72	96	110	200	191	232	218	207	186
15. Rajasthan	100	130	19	54	40	54	70	92	66	99	53	67	31	70	55	54	114	88	-	46
16. T.N.	187	176	111	122	121	142	214	123	198	187	127	120	160	158	200	194	177	184	185	182
17. U.P.	128	134	77	83	95	97	184	176	149	157	126	126	94	95	96	98	167	161	175	172
18. W.B.	-	81	-	28	-	33	-	79	-	80	-	21	-	7	-	13	-	45	-	43
ALL INDIA	151	140	94	86	118	104	185	173	164	158	115	111	120	108	120	116	142	141	157	152

Source : Cooperative Sugar, Vol. 20, No. 11; July 1989, p 789.

The production of sugar was 58,41,000 tonnes in 1978-79 which reached to 1,09,89,000 tonnes, [an increase by 88 %] by 1989-90. In Maharashtra, the sugar production in 1987-88 was 27,95,000 tonnes. Out of the total production, the cooperative sector produced 26,91,000 tonnes of sugar. In the case of UP, these figures were 26,66,000 tonnes and 6,54,000 tonnes respectively [i.e. 24.5 %]. The percentage of sugar production in the cooperative sector is 96.3 % of the total sugar production in Maharashtra, whereas in the case of "All India", it is 57.8 %.

TABLE 3.17
STATE-WISE SUGAR PRODUCTION BY SUGAR FACTORIES IN INDIA
(1978-79 to 1989-90)

[In '000 Tonnes]

State	1978-79		1979-80		1980-81		1981-82		1982-83		1983-84		1984-85		1985-86		1986-87		1987-88		1988-89		1989-90	
	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.	Coop. Tl.
1. A.P.	98	311	48	199	65	263	173	546	154	513	99	295	120	355	161	406	223	529	211	544	194	507	197	566
2. Assam	6	11	5	7	3	5	8	12	4	8	5	5	2	3	2	2	5	5	10	10	9	9	11	11
3. Bihar	-	258	-	165	-	194	-	344	-	370	-	225	-	144	-	250	-	299	-	312	-	319	-	334
4. Goa	6	6	6	6	5	5	12	12	10	10	7	7	7	7	6	6	6	6	6	9	9	9	9	9
5. Gujarat	297	297	222	222	332	332	531	531	473	473	392	392	403	403	557	557	576	576	578	578	578	578	578	667
6. Haryana	63	133	29	91	38	103	78	172	84	182	75	172	55	137	69	161	154	289	148	272	152	280	176	336
7. Karnataka	229	487	128	271	193	371	325	648	324	627	182	383	230	441	262	508	296	612	383	745	352	703	388	796
8. Kerala	17	23	11	16	14	17	14	17	14	19	8	10	6	6	6	7	8	10	5	7	12	14	13	14
9. M.P.	7	62	1	24	5	17	20	58	25	75	23	74	20	51	18	42	22	71	35	85	22	63	27	72
10. Maharashtra	1631	2105	1280	1394	1677	2085	2687	3026	2696	3025	1803	1993	2121	2311	2210	2389	2270	2388	2691	2795	2550	2629	3808	3923
11. Nagaland	-	9	-	7	-	4	-	7	-	6	-	3	-	2	-	2	-	4	-	6	-	5	-	5
12. Orissa	18	20	9	10	9	10	18	21	22	24	16	17	13	14	13	14	20	21	26	28	16	17	14	15
13. Punjab	67	94	41	52	35	51	83	149	85	150	85	146	85	142	87	146	152	234	144	210	173	245	179	295
14. Pondicherry	-	26	-	16	-	21	-	25	-	26	4	19	11	28	23	51	28	59	24	50	30	54	17	36
15. Rajasthan **	12	34	1	11	4	12	6	23	7	26	5	23	3	19	5	13	10	22	-	6	8	14	6	12
16. Tamil Nadu	213	491	139	367	153	430	305	755	284	651	176	424	259	600	349	811	356	814	352	784	424	1004	357	889
17. U.P.	184	1462	131	997	170	1224	342	2081	329	2035	308	1727	302	1478	345	1650	624	2557	654	2666	544	2301	719	3009
18. West Bengal	-	10	-	3	-	4	-	10	-	9	-	2	-	1	-	1	-	4	-	3	-	2	-	Neg.
ALL INDIA	3052	5841	2032	3658	2903	5148	4604	8437	4511	8229	3188	5917	3637	6144	4113	7016	4754	8502	5270	9110	5073	8753	6586	10989
Coop. % of Production	52.3	52.7	56.4	54.6	54.8	53.9	58.6	59.2	58.6	55.9	57.8	58.0	59.9	58.0	59.9	58.0	59.9	58.0	59.9	58.0	59.9	58.0	59.9	58.0

** Includes sugar recovered from beet. Neg = Negligible.
Source : Coop. Sugar. 1. Vol.20, No.5, January 1969, p.364.
2. Vol.23, No.1, Sept. 1991, p. 62.

The consumption of sugar in India has been on the increase. In 1979-80, the total consumption of sugar on All India basis was 51.08 lakh tonnes and increased almost continuously to 98.60 lakh tonnes in 1988-89. [Table 3.18]. The major consuming states

TABLE 3.18
STATE-WISE CONSUMPTION OF SUGAR IN INDIA
(1978-79 TO 1989-90)

[In Thousand Tonnes]

State	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
1. A.P.	292	298	302	379	453	361	372	483	518	534
2. Assam	97	125	102	139	157	143	169	145	176	212
3. Bihar	315	308	339	366	425	401	362	461	512	516
4. Delhi	112	94	116	134	152	148	101	138	172	206
5. Gujarat	379	357	411	492	598	568	526	622	635	783
6. Haryana	133	119	149	182	225	220	195	244	310	368
7. Karnataka	276	238	282	315	381	354	354	416	444	454
8. Kerala	189	203	224	266	332	281	313	406	399	429
9. M.P.	283	301	358	405	427	439	404	471	524	564
10. Maharashtra	697	750	848	974	1168	1138	1105	1252	1482	1604
11. Orissa	106	111	126	141	144	118	117	157	168	173
12. Punjab	285	259	326	379	454	472	398	456	552	616
13. Rajasthan	198	246	280	308	369	323	282	351	414	482
14. T.N.	366	342	340	424	501	431	464	602	633	664
15. U.P.	674	636	727	852	1008	915	850	1062	1208	1370
16. W.B.	363	356	400	480	531	459	412	497	593	674
17. Others *	143	158	170	193	181	210	179	202	209	231
ALL INDIA	5108	4901	5500	6471	7546	6981	6581	7965	8949	9860

* Including Jammu and Kashmir, Himachal Pradesh, Manipur, Tripura, Pondicherry/Karikal /Maha Yanam, Goa/ Daman/ Diu, Nagaland, Chandigarh, Mizoram Meghalaya, Andaman and Nicobar, Sikkim, Bhutan and Defence requirements.

Source - Coop. Sugar, Vol. 23, No. 1; Sept. 91. p. 67.

are Maharashtra, Punjab, Tamil Nadu, UP, West Bengal, Karnataka, Gujarat, Bihar, M.P and AP. The share of these & other states in the total consumption of sugar each year is shown in Table 3.19. The share of Maharashtra, in the total consumption of sugar each year

TABLE 3.19
STATE-WISE PERCENTAGE SHARE IN TOTAL CONSUMPTION OF SUGAR
(1979-80 to 1988-89)

	1979 -80	1980 -81	1981 -82	1982 -83	1983 -84	1984 -85	1985 -86	1986 -87	1987 -88	1988 -89
1. A.P.	5.72	6.08	5.49	5.86	6.03	5.17	5.65	6.06	5.79	5.42
2. Assam	1.90	2.55	1.85	2.15	2.08	2.05	2.57	1.82	1.97	2.15
3. Bihar	6.17	6.28	6.16	5.97	5.63	5.74	5.50	5.79	5.72	5.23
4. Delhi	2.19	1.92	2.11	2.07	2.01	2.12	1.53	1.73	1.92	2.10
5. Gujarat	7.42	7.28	7.47	7.60	7.92	8.14	7.99	7.81	7.10	7.94
6. Haryana	2.60	2.44	2.71	2.81	2.98	3.15	2.96	2.06	3.46	3.73
7. Karnataka	5.40	4.86	5.13	4.87	5.05	5.07	5.38	5.22	4.96	4.60
8. Kerala	3.70	4.14	4.07	4.45	4.39	4.03	4.76	5.10	4.46	4.35
9. M.P.	5.54	6.14	6.51	6.26	5.66	6.29	6.14	5.91	5.86	5.72
10. Maharashtra	17.56	15.30	15.42	15.05	15.74	16.30	16.79	15.72	16.56	16.27
11. Orissa	2.08	2.26	2.29	2.18	1.90	1.89	1.78	1.97	1.88	1.75
12. Punjab	5.58	5.28	5.93	5.86	6.02	6.76	6.02	5.73	6.17	6.25
13. Rajasthan	3.86	5.03	5.09	4.76	5.16	4.63	3.98	4.41	4.63	4.69
14. T.N.	7.16	6.98	6.18	6.55	6.64	6.17	7.05	7.56	7.07	6.73
15. U.P.	13.19	12.98	13.22	13.17	13.36	13.11	12.92	13.33	13.50	13.69
16. W.B.	7.11	7.26	7.27	7.42	7.04	6.57	6.26	6.24	6.62	6.84
17 Others	2.60	3.22	3.10	2.97	2.39	3.01	2.72	2.54	2.33	2.34
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source : Coop. Sugar, Vol.23, No.1; Sept. 91, p.67.

has been the highest of 17.56 % [in 1979-80]. This is followed by UP, whose share in total consumption on All India basis has remained more or less constant at 13 % almost right through. The share of West Bengal, Gujarat, and Bihar has been fairly high.

Table 3.20 shows the share of the cooperative sector in the total sugar production. It may be seen that, the share of the cooperatives in the total sugar production has been continually increasing both on the All India basis in the cooperative sector. This is because the Government has provided full support for the factories, besides other reasons such as increased average duration, crushing capacity, recovery of sugar and total sugarcane production. The average duration of crushing of the cooperative sugar factories play an important role in the country's total sugar production.

TABLE 3.20
TOTAL SUGAR PRODUCTION IN INDIA

Year	PRODUCTION Total [All India]	Coop. Sector	Share of Coop.Sector [Percent]
1960 - 61	0.45	0.07	14.8
1968 - 69	1.20	0.41	33.8
1974 - 75	1.09	0.47	43.6
1975 - 76	2.03	0.99	47.7
1976 - 77	2.32	1.11	47.9
1977 - 78	3.17	1.55	49.0
1978 - 79	3.02	1.59	52.7
1980 - 81	5.15	2.90	56.4
1981 - 82	8.44	4.60	54.6
1982 - 83	8.23	4.51	54.8
1983 - 84	5.92	3.19	53.9
1984 - 85	6.14	3.64	59.2
1985 - 86	7.02	4.11	58.6
1986 - 87	8.50	4.75	55.9
1987 - 88	9.11	5.27	57.8
1988 - 89	8.75	5.07	58.0
1989 - 90	10.99	6.59	59.9

Source - National Cooperative Development, Cooperative Annual Report, 1986.
Cooperative Sugar, Vol.22, No.9; May 1991, p.616.

The above brief discussion indicates that the sugar industry contributes substantially to the economic development process. This importance gets magnified when we note that this is rural agro-based industry. Today, of the total population of India, about 3.50 crore persons are dependant upon sugar industry. It provides employment for 3.50 lakh persons. The sugar factories provide Rs. 150 crores to the State Government through purchasing tax, cane tax etc. and generate Rs.2,200 crores by way of income to the sugarcane growers.