CHAPTER VI

INDUSTRIES USING AGRICULTURAL RAW MATERIALS

(Their distributional pattern and trends of development)

The local industries are both big and small, generally devoted to the manufacture of agricultural raw materials into marketable products of higher value. This is well illustrated by the large number of looms, village oil 'ghanies', small flour mills, dal splitting mills, rice-hulling mills, cane-crushers, etc., practically in all the districts of Uttar Pradesh as well as by the huge sugar, textile and oil mills.

With regard to the number of workers employed in these industries the cotton textiles industry is the largest industry of the State. The sugar industry ranks next to it; then comes the oil industry, and so on.
COTTON MILL INDUSTRY

Owing to the development of the cumulative forces which tend to reduce the cost of production and favour concentration and due to the deglomerating tendencies which act against local concentration, the cotton textile industry began to be developed in the State, Madhya Pradesh and Gujarat, away from ports. Besides, the introduction of more uniform rates of the railway transport, based on distances, also helped in the dispersal of the industry within the country. Thus, the first textile mill of the State was founded after 50 years of the introduction of the mill industry in India. Till the outbreak of the second World War, this State occupied the third position in the making of textiles in the country. The considerable expansion, during recent years, can be judged from the figures of equipment and production given in the Appendix XIV. Except the number of mills and spindles, the percentage increase in all other items in this State has been considerably greater than in the whole of India.

In its evolution and organisation, the cotton mill industry of the State reveals several distinctive features. Unlike other centres, the industry owes its origin and earlier development to European initiative, enterprise and organising ability. Indeed most of the important mills were established in the second half of the 19th century by rich and experienced European merchants or their employees who conceived industrial organisation on somewhat bold and large lines. The first

1. Sharma, T.R. Location of Industries in India, page 22.
important up-country centre to attract cotton mill industry outside the Peninsular cotton belt was Kanpur, with conditions congenial for the beginning to be made on large scale.

Recent developments, however, show a tendency for the shifting of the industry from Kanpur to other cotton growing centres like Agra, Hathras, Aligarh, Ujhyani, Banaras, Lucknow, etc. The fundamental factors that have contributed to this diversion, are prevalence of low wage rates, the proximity to raw material, and consumer's market and the availability of cheap water power. This tendency is not new to this State only. Indeed, cotton manufacturing has been moving from area of high productivity and high wages such as Bombay and Ahmedabad to the more interior centres like Sholapur, Poona, Jalgaon, Chalisgaon, etc., of the Bombay State. Similarly, it has been moving from Nagpur to Wardha, Akola, Burhanpur, Amravati, etc. In foreign countries also similar tendencies are operating. In the United States of America, manufacturing activities have long been shifting from such centres as Bedford, Fall River, and Lowell to Southern States of Georgia and Alabama, North and South Carolina, Virginia and Tennessee. In great Britain the centre of industrial activity has been shifting from north to south and S.E. districts of England have gained at the expense of North and North-East.

The most arresting fact in the evolution and organisation of the cotton mill industry is, however, the increasing concentration of ownership and control in fewer hands and in fewer establishments. Of the 12 mills, as many as 6 are owned, managed and controlled by two leading business houses of Kanpur, viz Juggimal Kamalapat (J.K.) and British India Corporation Ltd. (B.I.C.). Another renowned firm of J.P.Srivastava and Sons
COTTON TEXTILE FACTORIES

DISTRIBUTION
OF
SPINDLES AND LOOMS

- 1000 SPINDLES
- SITES OF FACTORIES
- SITES NEED EXPANSION
- NEW SITES FOR SPINING MILLS

NUMBER OF LOOMS

- JAUNPUR: 503
- MIRZAPUR: 74
- KANPUR: 443
- LUCKNOW: 321
- HANAUJ: 58
- KANPUR: 440
- BADAUN: 191
- AGRA: 72
- LUCKNOW: 58
- FAIZABAD: 10
- MAU: 503
- BASTI: 74

CITIES:
- SAHARANPUR
- MUZAFFARNAGAR
- MEERUT
- MORADABAD
- BULANDSHAHAR
- ALIGARH
- MATHURA
- HATHRAS
- AGRA
- ETAWAH
- KANPUR
- BANARAS
- MIRZAPUR
- JAUNPUR
- MAU
controls and manages two important cotton mills at Kanpur. Similarly, John Brothers of Agra own, manage and control four spinning mills, all located at Agra. Thus, we see that about half of the spindle and loom activity in the State is controlled and managed by four big business houses.

A first rate spinning and weaving mill is another big venture of the house of Modis. It would be one of the largest spinning and weaving units in Northern India. The Modi group consists of eight big industries at Modinagar (Meerut).

In point of spindles and the total output of cloth, U.P. ranks third while in the mill cloth only it comes next to Bombay. About 3 lakhs of new spindles have also been recommended for installation in this State.

Likewise, the concentration of output is also in fewer hands. The three big mills of Kanpur, viz., the Swadeshi, the Muir and the Victoria cotton mills, alone account for about 45 per cent of the spindle activity and over 40 per cent of the loom activity in the cotton mill industry of the State. They employ, on an average, a little less than one-third of the total number of workers engaged in this industry and consume one-third of the total quantity of cotton consumed by all the mills in the State.

Is it not surprising a high degree of concentration? (Map No. 26) This unplanned development and mal-adjustment all over the country has resulted in an over-all shortage of millions of yards of cloth and in making India the most sparsely clothed country in the world. Compared with America's per capita consumption of 55 yards, Britain's 45 yards, Japan's 20, the consumption in India amounts only 9 to 10 yards per head per annum.
Raw Materials

The State is so deficient in raw materials that mill owners sometimes are of the view to close down certain sections owing to scarcity conditions. During recent years, 'Desi' cotton imported from Madhya Bharat, Madhya Pradesh, East Panjab, and Rajasthan, was so small in quantity that mills had to work under uneconomic conditions. On an average, the textile mills are reported to have consumed 3,00,000 bales of cotton in 1946. Now the quota has been reduced to 70 per cent of the consumption of 1946. Under such circumstances, when the country has to fight the food crisis, the Government could not increase the cotton acreage for 1950-51 by more than 10 per cent.

The State is specially handicapped in the matter of supply of long staple cotton. The mills of the State specially outside Kanpur are unable to pay for imported long stapled cotton because of the high prices due to wholesale purchases made by the big consumers. According to Dr. T.R. Sharma, Indian cotton, even of the best variety, cannot prove of much use for spinning higher counts beyond 36s without admixture with imported varieties. For still higher counts a much larger proportion of foreign cotton will be required. For spinning 60s the Japanese use about 80 per cent Egyptian and 20 per cent American cotton.

The approximate proportion of the various types of cotton consumed in the cotton mills of the western districts of the State can be estimated from the consumption of one of the important mills in that area.

Cotton Consumption in Ramchand Spinning and Weaving Mills, Hathras (Aligarh District).

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Bengal</td>
<td>2,406</td>
<td>289</td>
<td>956</td>
</tr>
<tr>
<td>C.P. Long</td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4-F</td>
<td>504</td>
<td>259</td>
<td>-</td>
</tr>
<tr>
<td>L.S.S.289-F</td>
<td>2,790</td>
<td>287</td>
<td>54</td>
</tr>
<tr>
<td>Parso-American</td>
<td>416</td>
<td>283</td>
<td>78</td>
</tr>
<tr>
<td>C.P.</td>
<td>94</td>
<td>-</td>
<td>35</td>
</tr>
<tr>
<td>Jarilla C.P.</td>
<td>402</td>
<td>1,003</td>
<td>1,937</td>
</tr>
<tr>
<td>520-C</td>
<td>14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Matia</td>
<td>50</td>
<td>2,418</td>
<td>737</td>
</tr>
<tr>
<td>E.P. Cotton</td>
<td>-</td>
<td>84</td>
<td>-</td>
</tr>
<tr>
<td>Mewar-American</td>
<td>-</td>
<td>1,197</td>
<td>429</td>
</tr>
<tr>
<td>American Deshi</td>
<td>-</td>
<td>49</td>
<td>140</td>
</tr>
<tr>
<td>Malvi-Cotton</td>
<td>-</td>
<td>49</td>
<td>60</td>
</tr>
<tr>
<td>American-Mix</td>
<td>-</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Upland</td>
<td>-</td>
<td>59</td>
<td>188</td>
</tr>
<tr>
<td>Bagarh</td>
<td>-</td>
<td>12</td>
<td>1,915</td>
</tr>
<tr>
<td>Dholleras</td>
<td>-</td>
<td>619</td>
<td>802</td>
</tr>
<tr>
<td>N.T.</td>
<td>-</td>
<td>1</td>
<td>54</td>
</tr>
<tr>
<td>Vijaya</td>
<td>-</td>
<td>-</td>
<td>108</td>
</tr>
<tr>
<td>Coconadas</td>
<td>-</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>-</td>
<td>497</td>
</tr>
</tbody>
</table>

Total bales consumed 6,776 6,621 7,490

(Source: Figures supplied by the Manager of the mill).

The average consumption of cotton by the above mill is 7,000 bales a year while that of Bijli Mills, another consumer of the same town, has been 25,000 bales.

Structure

Out of the 28 mills, 9 mills are purely spinning mills, 3 weaving mills and the rest are composite mills, i.e. both spinning and weaving.

The industry outside Kanpur is predominantly spinning in character. These are typically small in size and mostly
cater for the local demand of the handloom-weavers. But for the proximity and local supply of raw material and consuming markets, it would have been difficult for these smaller units to survive the period of depression and industrial competition. Indeed these smaller spinning mills have always had precarious existence. Most of them have either often closed or changed hands, and were several times reorganised and reconstructed. It is interesting to note that the Bijli Mill (formerly Tulsidas Tejpal Mills, Ltd.) has changed hands about a dozen times.

Mills doing simple weaving, hardly occupy any place of importance in the cotton mill industry of the State. In 1949, there were 3 such mills with less than 100 looms and employing less than 100 workers. They were at Agra, Allahabad and Mirzapur. The scarcity of raw material and yarn even for the handlooms would not allow such units to survive. It is only for this reason that most of the spinning mills do not propose to start weaving section in the near future.

The combined 16 mills produce 90 per cent of the yarn and piece goods manufactured by the mill industry of the State. Twelve of these mills are located at Kanpur alone. Of these mills, Laxminarayan Cotton Mills Co. Ltd., have the latest pattern of machinery. In no other centre, except Bombay, are the mills organized on such a large scale as in Kanpur. Five cotton mills of Kanpur are equipped with more than 50,000 spindles and 1,000 looms. The Swadeshi Cotton Mills Co. Ltd., has a capacity of over a lakh of spindles and 2,000 outside looms. The other mills of Kanpur are not of much importance.
The study of the variations in the number of spindles and looms installed confirms the conclusion that the greatest expansion has occurred in weaving than in spinning. The Swadeshi Cotton Mill Co. Ltd., alone added 400 looms immediately after the War. The average number of looms working has increased by more than 1/3rd while that of spindles only by 1/7th.

Another clue to the expansion of the industry is provided by the increased consumption of cotton more in proportion than the increase in the number of spindles.

The apparently large size of the industry from the weaving point of view is very illusory as would be clear from the fact that in 1953-54, although spun 11,77,00,000 lbs. of yarn the actual quantity which went into the looms was no more than 61 million lbs., a good 40 million lbs. having been sold by the mills to the handloom weavers.

Under the post war expansion scheme, the target for the State has been fixed at 10,62,000 spindles with a capacity to produce 52,10,000 yards of cloth and 18,70,00,000 lbs. of yarn per annum. This will involve the setting up of half a dozen more cotton mills in the State. According to the present equipment and production, the State is included in the deficit zone. It has 7.5 per cent of the total spindlage of the country and produces 7.7 per cent of the total cloth. The latter consists of 90 per cent of the mills and 10 per cent of the handlooms.

Production

During the War, most of the mills were busy in War supply and enjoyed prosperity, while, on the other hand, the public was experiencing great scarcity of cloth. On account of the soaring prices of cotton cloth to unprecedented heights in the
year 1943, stringent controls were enforced by the Central Government. The prices were not minimized, whereas black-marketing and corruption achieved climax. But the problem of providing adequate clothing is only second to that of food to the people on the list of priorities.

The present production of cotton textile goods in the Republic from the mills is 3,21,00,000 yards from handlooms 2,11,00,000 yards and 1,70,00,000 yards from imports. Thus the total comes to 7,02,00,000 yards. Assuming that the minimum requirement of cloth for every individual is 19 yards the country is short of 50,00,00,000 yards of cloth. Taking into consideration the wage earning capacity of the individuals (or a family) in the State the class to which they belong, the climatic conditions prevalent, the nature of their work and other equally material conditions, the State needs more cloth for consumption than may other States of the country. But the allotment, in terms of present estimates of per capita consumption is admittedly low for the State. Hence, the production of cloth should in all cases be stepped up with great rapidity.

The National Planning Committee in 1939 had recommended that the minimum requirement of clothing should be doubled so as to make it 30 yards per head per year. Despite great deficiency, India is exporting her cloth to other countries. In the year 1949-50, she exported to the extent of 30,80,00,000 yards of cloth.

Although in relation to the country's textile industry, the cotton textile industry of U.P. ranks second in the volume of

cotton consumed and spindles installed, and first in the number of looms installed, yet the State is in a deficit zone. The division of India, the security of food grains and to a certain extent, damage by excessive rains in the cotton growing areas, have all combined together to change State from surplus to a deficit cotton growing area. Hence in order to meet the cloth famine, the industry needs expansion in the production of textile goods.

Suggestions

The decline in cloth production during the last years of War was due to the shortage of coal. The Ram Chand Cotton Mills of Hathras alone consume 7,000 tons of coal annually. Hence, provision of hydro-electricity to this industry is very essential. If hydro-electric power, at a price cheaper than coal, becomes available for the textile mills located in the western districts of the State, the productive capacity of the cotton industry in this area might be increased considerably. We have a living example of how the development of electric power resources have helped the emergence of a large spinning industry in southern India (page 152). Over 90 per cent of the Japanese textile industry today depends upon public utility electric power generation for its light and power, although a few have small auxiliary power generating units.

Now that the hydro-electric schemes are being developed all over the State and cotton is to be grown again in some areas, the industry can develop in areas with large and prosperous population in the western parts of the State. There is no sense in hearding population in big cities like Kanpur.

1. Sharme, T. P., op. cit. p. 44.
The industry can easily be established in the cities of Saharanpur, Meerut, Bulandshahr, Muzaffarnagar, Bijnor, Aligarh, Mathura, Hathras and Etawah. These towns are in the cotton-producing region and will have the facility of electric power and means of cheap transport. They are very good consuming centres too. New mills can also be opened in the districts in which power is available from the recently completed Sarda Power House. Some other sites for the location of more units will open up in the east with the completion of the Rihand Dam Scheme. If the places like Mau, Jaunpur or Basti, away from the existing power stations, are selected, pilot plants will have to be established on the sites. Although these areas are out of the cotton zone, yet a larger population resides there to consume the output. Besides, it makes little difference between the transport of cotton or the finished product so far as the bulk of the load is concerned. Therefore the expenses of the import of cotton from other parts would be compensated by the saving on export of finished goods.

The sanction of two new cotton textile mills in the State, one at Modinagar and the other at Saharanpur is a wise step to restrict further concentration of industry at Kanpur and the choice of the western districts is suitable on account of the nearby cotton growing areas of the Panjab. This accords well with the Government of India's statement of industrial policy, that the new industry should be developed only in deficit areas.

The State is well known for its production of coarse cloth, while Bombay and Ahmedabad produce mainly cloth of high texture from medium and higher counts of yarn and the output compares fairly well in quality with the foreign products. If such a
regional specialisation is maintained, there is no cause of apprehension of keen inter-state competition. Moreover, for spinning yarn of higher counts beyond 36, the State will have to depend upon foreign cotton. Thus, there must be a regular flow of American and Egyptian cotton into the State so long as it is not grown in the State. But more cotton from America and Egypt cannot be imported because of the high prices due to buying competition by the big concerns. Egyptian cotton, which was being purchased by Russia, was selling at Rs. 2,700/- per candy, while American cotton used to be sold at Rs. 900/- is now selling at Rs. 2,300/- per candy. Mills in the State outside Kanpur are unable to pay these prohibitive prices.

Thus the secret of the development of the textile industry in the State lies in producing largely coarse cloth and for that growing larger quantity of medium staple cotton. This is in easy range of achievement as the yield per acre of cotton is generally much less than in the United States. It is considerably lower even when compared to Pakistan as shown below:

<table>
<thead>
<tr>
<th>Countries</th>
<th>Range of yield per acre</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>66 to 85 lbs.</td>
<td>1947-48 to 1950-51</td>
</tr>
<tr>
<td>Pakistan</td>
<td>141 to 168 lbs.</td>
<td>...Do...</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>222 to 311 lbs.</td>
<td>1937-38 to 1950-51</td>
</tr>
<tr>
<td>Egypt</td>
<td>392 to 580 lbs.</td>
<td>...Do...</td>
</tr>
</tbody>
</table>

The low yield is partly due to different climate and partly due to the mode of cultivating cotton, which presents some curious and interesting contrasts with the practice in America. When we copy Japan in the method of rice cultivation, why should we not imitate Egypt in the cotton cultivation, where it is necessary to confine to the areas of perennial irrigation?

2. Stamp and Gilmour, ibid, p. 177.
In view of the well established and regularly increasing demand for finer cloth even from rural areas, where the cultivator's average income has increased handsomely during the last decade, necessitates the installation of an additional number of spindles of finer counts than has been approved by the Government of India. As regards raw materials, the American variety of cotton can be recultivated in the areas where it was grown in the pre-war days, and obtained from the Panjab where it will be grown in huge quantities as a result of irrigation facilities from the Nangal Dam Project. As for the type of labour required for the mills producing finer goods, there is no dearth of skilled labour in this State, where the art of cotton manufacturing has been highly patronised by native rulers for a long time.

Production must be supplemented, not by imports of foreign cloth, but by the development of the handloom industry which would give an additional or subsidiary employment to another group of persons, who are at present producing equal to about 1/3rd of the total production of the mills (Chapter IX).

In the cotton textile industry a study of the changing tastes is of vital importance for a successful production. Hence the mills must show a great adaptability to such changes. As the mills are situated in proximity to consuming areas, it will not be difficult to find out the people's tastes.

In order to earn foreign exchange the export of only such varieties of cloth should be allowed as will not cause scarcity of cloth and yarn in the internal market. A very high rate of export duty on raw cotton should always be levied as a policy of the Government.

1. Report of the Post-War Planning Committee, p.3.
A number of processes in the textile industry, such as yarn sizing, require heat, which is generated at most mills by coal. Such heating plants should be converted permanently to electric driven motors.

The Japanese, rather than the Europeans and Americans, find it more economical to produce coarse yarn from short staple cotton of Indian type\(^1\). In order to achieve the same economy the Japanese textile industry should be carefully studied by the Indian mill engineers.

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SUGAR INDUSTRY

Supremacy of the State

The State occupies the premier and unique position with regard to this industry due to its huge profits, varied subsidiary industries, the number of workers directly employed, its nutrition value and its contribution of 54 per cent of the country's output of sugar with a capital investment of between eight to nine crores of rupees. It has had the lion's share in raising India from the position of an importer of about a million tons of white sugar to one of the world's largest sugar producing countries, since the grant of protection to the industry in 1932.

The first sugar mill in the State for making crystallised sugar direct from cane was established about the year 1900. It was started as a consequence of the fillip given to the sugar industry on account of the depression of the indigo industry in northern India. Though by the year 1929 the number of sugar factories in the State alone had increased to 12, yet most of the white or refined sugar consumed in India till then had been imported from Java, Cuba and Mauritius.

In 1936-37, for the first time, the country became self-sufficient in sugar bringing down the sugar prices to Rs.6/13/5 per maund, a level never reached by that time. Thus, it affected the sugar industry of the Dutch East Indies, Mauritius and the West Indies which had too strong a position in the Indian market to be easily shaken. In this year, the State from its 68 factories produced more than 54 per cent of the total output of India, and gave birth to a Sugar Syndicate to safeguard the industry from

1. Saxena, S.L. Profits of Sugar Industry since 1932, National Heralded, Lucknow, Dec. 1949, "There are many instances where new mills have been set up from profits of one original factory."
slumps. But since then no appreciable improvement has taken place in any sphere. Neither the number of factories has increased nor has the average manufacturing efficiency of factories improved very much in spite of the fact that from 1940 onwards the sugar industry developed rapidly outside the State as well as abroad.

The present concentration of industry

A feature of the sugar industry is its concentration in the eastern zone of the State. (Map No.27) The uneven distribution of these factories in the various districts has resulted in the sugar-cane crisis in the eastern part of the State. There are districts in this part, like Deoria, which contain as many as 16 sugar factories, while there are some in the western part which do not have even a single factory. (Appendix XVI). Hence, the eastern districts feel the scarcity of sugar-cane for their mills. During recent years, on account of the shortage of sugar-cane, 13 out of the 71 factories located in the State were closed. In western districts of the State the factories have a greater area of sugar-cane at their command. This is why the factories of this zone have a greater capacity of production than those of the eastern zone. 60 per cent of the sugar mills in the State have the capacity to crush over 800 t ons per day, while only 30 per cent of the mills in the rest of the country have this capacity. (Appendix XVII and XVIII).

Sugar industry is dominated by accessibility to raw material. This proves that the industry must be established in relation to transportability of sugar-cane, irrespective of the cost of fuel and power. In the manufacture of cane sugar, it is necessary that there should be not merely sufficient quantity of cane but
that the cane should be fresh when crushed. A sixteen-mile radius round about the factory is the utmost that can be economically managed. So a sugar factory can be economically and successfully worked, if sugar-cane is found in proximity to it. Concentrated cultivation of sugar cane is found mostly in the State and more particularly in the eastern zone accounting for more than 50 per cent of the cane acreage. This is the most important factor which had led to the provision of innumerable sites for the sugar factories, both of small and big size, in the eastern parts of the State. Besides, it has been noticed that the Panjab, though the next important sugar-cane producing belt of India, is less suitable for the industry.

Production

The production figures indicate that there has been a marked increase in the production of sugar from 1931-32 to 1936-37, but since then it has been oscillating from year to year on account of the ever-changing area under cane crop and the consequent fluctuation in the prices of sugar. It has been alleged that the production of sugar has been stagnated with a view to make the output disproportionate to consumption in the country and thus create an artificial scarcity in the market for reaping high profits. The decreasing trend in the sugar production following the year 1943-44 is also attributed to the paucity of cane which, it is stated, is diverted to 'gur'-making owing to the prevailing high prices of 'gur' and also due to more acreage.

1. "Next to U.P. this is the 2nd most important sugar-cane area in India, but the sugar factories situated there have not had a happy record. There were three factories in 1936 in the Panjab. One of them has shifted to the U.P.; another did not work in the last two seasons ... The probability, therefore, is that the Panjab is not suitable area for sugar production. The recovery has been uniformly low" (Report of the Indian Planning Committee, page 8).
being devoted to food grains instead of cane during these years.

Consumption

The consumption of sugar is the true index of the wide scope for further development of the industry. The per capita consumption of refined sugar, consisting about 99.9 per cent pure sucrose, is only one-fourth that of Great Britain. This has brought the nutritional standard of India so low. Hence, in order to plan an improvement in the standard of diet in an age of food shortage, it is necessary to provide, through sugar, more vitamins than the people get at present.

Before the War, the average annual demand for internal consumption was 10,80,000 tons. It has since then grown owing to the general growth of population, particularly in urban areas, with consequent changes in their standard of living and the adoption of modern habits of diet. To these causes may be added the general impact of modern habits on rural life on account of the two million demobilised soldiers. Certain figures of the cost of living index, issued by the Labour Department of the Government of India about family budgets of working classes in urban areas, indicate an increase of 60 per cent in the per capita consumption of sugar. A target of 15,50,000 tons would have provided roughly 24 lbs. of white sugar per head per annum for towns with a population of more than 5,000 and 6 lbs. for the rest of the country.

In order to provide a balanced diet to the citizens of India, 2 ozs. sugar must form part of the every day meal of a man. This would bring the per capita consumption to about 46 lbs.

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1. Based on the Memorandum of the Advisory Board of the Imperial Council of Agricultural Research on the Development of Agricultural and Animal Husbandry in India.
year which is the minimum required in the matter of nutritious food. Even to achieve so much, the 'gur' and sugar industries need at least double their production as the present production falls far short of the requirements within the country to say nothing of the exports.

As the State is the only great surplus area, it cannot be doubted that it played great part in relieving India from foreign dependence on white sugar. As has been mentioned before, India's increasing consumption has out-run her production during the recent years and thus has not freed her from dependence on foreign imports and thus she is still an importing and exporting country. The opportunity of capturing the foreign markets deserves the careful consideration as a safety valve for years of over production.

Pakistan, having only a few sugar mills, needs sugar badly. There are reports, which reveal, that the Dominion in the past before had sold sugar at prohibitive prices she imported Cuban sugar. Any way, India may help her sister Dominion in saving dollars, especially, when the Indian cost of sugar will compare well with those of other countries.

Prices of Sugar

The prices of Indian sugar are double the world price and present a danger signal chiefly to the export markets. The history of sugar has shown that a lower price has meant greater consumption. The rise in price of food like sugar drastically reduces its in-take by the cultivator whose purchasing power is very low. At present, there are nine countries which are selling sugar at prices lower than those in India and some are selling at equal rates. The difference is said to have widened to this
extent that the price of Java sugar is less than the price paid for sugar-cane here. The sugar in the dollar areas is much cheaper i.e. Rs.11/8/- per maund. Prior to 1940, the sugar prices here were not so high. In the month of May and June, 1937, it was sold at Rs.6/2/- per maund. This came fairly near the price of Java sugar landed in Calcutta at Rs.4/- per maund.

Sixty per cent to seventy per cent sugar price is accounted for by the price of cane, and it should be reduced, if a cheap out-put is desired. It has been noted at times that the sugar prices have been reduced tremendously owing to the over production of sugar-cane. From this it is concluded that the increased yield per acre and improved quality of sugar-cane can help in this matter without reducing the income of the cultivator. This needs the co-operation of both the cultivator and the miller, the latter should earmark a part of the profit for investment in the fields for irrigation facilities, etc.

Sugar industry is a seasonal industry. The capital investment and some of the labour is counted for the whole year while it pays for only a part of the year. This also affects the price of sugar. The mean duration of cane-crushing season in U.P. was 114 days in 1953-54 and 140 days in 1936-37. These figures may be compared with those of the Irwin Canal Area (Mysore) where the factories work 9 months. During the idle period they may refine sugar.

How far the increased recovery of sugar can enhance the production of sugar and lower its cost needs no explanation. Though there has been an improvement in the percentage of the recovery of sugar contents from 1932 onwards, yet it has been
oscillating from year to year. The highest figure ever reached in U.P. is 10.16 per cent for the year 1942-43 while the maximum recovery recorded in India has been 13.46 per cent. This leaves a wide margin to be covered by the sugar industry in the Uttar Pradesh, if it has to make any improvement under the planned economy of the State.

As for the increased technical efficiency in the sugar industry, Dr. C.A. Kloppenburg has described a new process of recovering sucrose from molasses (in which the quantity and the value of sugar left every year in the factories of India is enormous and is estimated to be about 1,30,000 tons) the value of which, in his estimate, would pay for the manufacturing cost of alcohol normally obtained from the molasses. (See Chapter VIII)

With regard to labour as the workers are not in a mood to accept lower wages, the only way out is to increase efficiency of the labour, so that with higher wages, the wage cost may not be quite as high.

The lowering of profits by the millers is another way of reducing the sugar prices. The trading profits, which range up to 29 per cent or more may easily be taken in the State to be at least four times those of the textile industries at Kanpur. This reveals a profound scope for increasing the per capita consumption of sugar by lowering its price.

The stability of so lucrative an industry, however, should not be jeopardised by foreign competition, but be planned to the

extent that it might be put in the open market.

Suggestions

The future of the industry will depend principally upon effecting substantial increase in the yield per acre by intensive cultivation and development of the by-products of the industry. The concentration of the sugar industry in one part of the State and the growing number of sugar factories in other States challenges the supremacy of Uttar Pradesh in regard to this national industry. This ultimately threatens the economic life of a large number of cultivators and workers. Hence, in order to maintain the glory of the State, the industry should be nationalised on western lines. The industry needs consolidation rather than expansion.

The essential part of industrial planning is that the producing and consuming areas of sugar-cane should largely coincide. Early planting of sugar-cane should be urged on farmers in view of larger yields obtained by giving the crop a longer growing season. In other countries sugar-cane cultivation is mechanised and is carried on in large plantation. The factories are located either within or close to the fields so that there is the least loss of sucrose content. This may also be tried in the fields here as well. The potential capacity of the existing sugar factories should be higher than the target fixed to cope with a bumper cane crop. With regard to the scope for the improvement of factories, 25 sugar factories in the State may enhance their capacity from below 800 tons per day to over 800 tons per day.

1. The Salar Jung Sugar Mills Ltd. Mumrabad, one of the most modern factories of the Orient with a daily output of about 300 tons of sugar and 9,000 gallons of alcohol has been erected recently.
The high losses in bagasse indicate the inefficiency of chemical and engineering section of the sugar mills. Hence, the boiler, furnace designs and consumption of steam in factories should be definitely improved. This would result in checking the loss of sucrose appreciably reducing the consumption of bagasse as fuel which would ultimately be utilized for paper manufacturing.

The utilization of by-products of the industry such as molasses, bagasse, press-mud and the installation of auxiliary industry for production of power alcohol, rectified spirit, sugar candy, confectionery, food yeasts are matters which also deserve greater attention than has been paid to them so far. The sugar manufacturing plants may also be utilised, out of the season, for the manufacture of paper from by-products of timber bagasse, etc. or for oil-crushing. This may greatly help in the lower cost of the sugar production.

Efforts should also be made to minimise all unnecessary wastage of sugar under unscientific storage conditions. The amount of sugar that is being lost at present due to deterioration can be put at 5 lakh tons every year. Substitutes should also be found for foreign material now not easily available in the country, like chemicals and bags. (See Chapter VII)

It has been argued that the loss of Pakistan markets has mainly affected the scope for expansion of the industry. No doubt, in that part about 2½ lakh tons of sugar is normally consumed and that is now imported from other countries. But it has been discussed that the moment Indian output of sugar

comes out cheaper, it would capture the lost market again, specially at present when there is a dollar crisis in that Dominion too. As for her plans to install new factories there the past experience shows less chance of their success. If, in the remote future, the plan is executed, new markets by that time may be found for the Indian product. The increasing population of the country and the rising standard of living will also play its own role, besides those migrating into the country.

The output of the new units proposed to be established by the Panel will make some states like Madras and Bombay self-sufficient to some measures. However, this would not virtually curtail the exports to those States where the demand is sure to rise due to fall of sugar price and rise in standard of living.

**OILSEED-CRUSHING**

Oil-milling is a major industry of the State as well as of the country. There are about 140 registered oil-mills in the State with an annual crushing capacity of about 75 lakhs maunds of oils. Besides, there are about 500 small power driven oil-mills and about 1,50,000 bullock driven oil 'Chanies'. The most important centres of oil-crushing are Kanpur, Hathras, Agra, Aligarh, Banaras, Allahabad, Chandausi, Napur, Lucknow, Bareilly, Jhansi and Modinagar. These mills crush mustard, groundnut, linseed, castor, mahua and til, but the first three of these are the most important. The production of oil and yield of oil per maund are given below:-
Name of oil | Average production by registered mills (in maunds) | Estimated production from small mills | Average yield of oil per maund of seed (in Seers)
--- | --- | --- | ---
Rape & Mustard | 12,00,000 | 8,00,000 | 14
Linseed | 2,25,000 | 2,00,000 | 16
Groundnut | 2,00,000 | 50,000 | 10
Castor | 1,00,000 | 75,000 | 15.5
Mahua | 50,000 | 15,000 | 13.5
Til | 20,000 | 1,00,000 | 15.5
Neem | nil | 10,000 | 17

The capacity of the oil-mills in the State varies according to the power of the plant installed. The maximum capacity of some of the mills is given as below:

Name of the Mill | Monthly crushing capacity
--- | ---
Shri Syam Nath Mills Ltd., Sitapur | 6,500 maunds
Saraya Oil Mills, Gorakhpur | 8,400
Shri Gauri Oil Mills, Bulandshahr | 3,958
The Tara Oil and Ginning Mills, Hapur | 52,000
Tika Ram Oil Mills, Aligarh | 10,416
Bilichand Omraolal Oil Mills, Kanpur | 14,500
Prahladrai Oil Mills, Kanpur | 10,000
Hiralal Radhakishan Oil Mills, Hathras | 34,000
Acme Oil Mills, Lucknow | 9,166

Some of the mills own their depots in other States e.g. the Prag Ice and Oil Mills, Aligarh, have depots at Calcutta, Cuttack, and Delhi.

Boiled Oils

The boiled oil industry is now firmly established in the State. Most of the mills now supply boiled oils to Government and Railway Departments and paint and varnish factories in the country, but a certain quantity is also exported out of India. Prior to the second World War, there were only five
concerns with a production capacity of about 2,00,000 gallons a year. Now the number has increased to 15 which have a production capacity of about 5 lakhs of gallons. There is a great scope for the development of boiled oils industry, as it forms the chief raw material for paints and varnish factories, which are being established in the State.

In some of the mills e.g. the Ganesh Textile and Oil Mills, Hathras, and Dulichand Omrao Lal Oil Mills, Kanpur, the steam engine and other parts are an age old machine, whose compression has greatly been deteriorated with the lapse of time. Such high power engines and bodies are not available in the market and hence cannot be substituted. They do not get sufficient iron and steel for manufacturing spare parts for ‘Kolhus’ and oil-expellers and other machine parts.

For the proper development of the oil industry, development of the industry for manufacturing milling machinery is essential. So far only power driven ‘ghanies’ and expellers’ parts are manufactured in the State.

**Hydrogenated Oil and ‘Vanaspati’**.

The development of the vegetable ghee industry has become a subject of national importance. It is an outcome of the establishment of synthetic industries in the 20th century, and next to the sugar industry, it is the largest food processing industry in India and possibly in Asia. Although in Europe and America, the hydrogenated oil industry has been quite important since 1914, in India it was established in the year 1924. Owing to the general world shortage of animal fats for human consumption and industrial purposes, the need of hydrogenated oils is steadily increasing. The total capacity of India
is 4,00,000 tons per annum. The Government of India has approved a scheme for its country wide popularity and the opening of hydrogenated plants. Incidentally, Uttar Pradesh, the second important State after Bombay, has got all the necessary resources for the development of this industry.

There are four factories of vegetable ghee at present in U.P. - one at Kanpur and the other at Modinagar, and two at Ghaziabad. At present all these factories are producing some 49,000 tons of vegetable ghee, which should be raised to a target of 1,32,000 tons. It is not difficult to achieve this target as the increasing production during the past few years has been quite encouraging.

The extinction of Germany as an industrial competitor in the West and Japan in the East has created a vacuum in the industrial world. So this is the right time for the Government and the industrialists to start and develop the industry in right earnest and thus exploit the market to their best advantage.

'Cottonseed oil has given economic value to a by-product of the cotton-growing industry which was for a long time, and to some extent still is, treated as waste product.' The consensus of scientific opinion appears to be that cottonseed oil is a suitable oil for hydrogenation and manufacture of 'Vanaspati'; that the bleaching, refining and marketing of cottonseed oil costs somewhat more than that of groundnut oil. Thus, the prospects of utilising cottonseed oil for 'Vanaspati' manufacturing in particular areas would depend mainly on the relative price of cotton seed oil and groundnut oil in these areas.

1. Stamp and Gilmour, op. cit. p.223
The bulk of the cotton-seed is utilised in cattle feeding. It contains some hard parts which cause harm to the health of cattle. Besides, all the oil contained in the cotton-seed is not assimilated by them. At least 8 per cent of the oil in oil-seed is wasted by feeding them the whole seed. The cake from decorticated cotton-seed is a better cattle feed than the whole cotton-seed. Hence, it should not be given to them in this form. It should be converted into cotton-seed cake before it is given to cattle. This would also reduce the cost of cotton-seed oil as the by-products viz., linters and husks could also be utilised. Besides, the oil obtained by crushing undecorticated cotton-seed is of very inferior quality and the cake contains a large percentage of fibre and is, therefore, injurious to cattle.

Till such time as the crushing of decorticated cotton-seed by modern machinery is developed, the supplies of cotton-seed oil of suitable quality will be limited and the factories which may be allowed to set up in cotton-seed producing areas may find difficulty in obtaining supplies of cotton-seed oil economically. They may, therefore, be tempted to use groundnut oil for their product. This may be safe-guarded by permitting 'Vanaspati' factories to be set up in cotton-seed producing areas only on the condition that they lay up their own cotton-seed crushing plants including machinery for delinting and dehusking. This would reduce the waste of cotton-seed and provide incentive to manufacturers taking interest in the improvement and development of cotton-seed oil industry.

1. Stamp and Gilmour, op. cit., p. 223.
Regarding pure 'ghee' production, there are many schemes for improvement in animal husbandry, but considering the nature of cattle development, one should not think that any marked increase in supply of ghee will affect 'Vanaspati' industry adversely. In any case, should there be any increase in milk supplies in towns it is likely to be consumed as fluid milk and not used for conversion into 'ghee', which is less remunerative to the cattle owner.

It would be advantageous to India to export vegetable oils in preference to oil seeds as, besides leading to development of oil-crushing industry, this would result in the retention of oil-cakes in the country. This industry has already given inducement to local mills for crushing ground-nuts.

During the first World War (1914-18) the Royal Society of Food Committee in Great Britain recommended 3½ ozs. of fat per head as a desirably daily ration of fat. If the available quantity of 'ghee' in India be distributed among the entire population, every persons would get only 1/5 oz. per day, and it is only a small fraction of the desirably daily ration. Moreover, while the population of India has increased almost 15 per cent during the last ten years, the cattle, the pastures and the production of milk and 'ghee' have not increased at all, with the result that the per capita consumption of 'ghee' is progressively diminishing.

The tapping of rural population and of the areas hitherto untouched, the abolition of the bars on the entry of 'Vanaspati' in many areas and prohibition of its imports from foreign countries and general rise in the standard of living are also factors.

which will involve greater intake of 'Vanaspati'. Use of cakes, biscuits, pastries and chocolates is growing in India and 'Vanaspati' can very efficiently be used in the preparation of these articles.

At present, it is mostly utilised for the adulteration of 'ghee'. It has also given a fillip to several ancillary industries. Its use in the industrial sphere alone indicates vast possibilities. Its high degree of efficiency in the preparation of high quality toilet-soaps, will have a beneficial effect on soap industry. It can replace tallow, a product used in the process of sizing the textile industry. The use of tallow from 'Vanaspati' can make the country self-sufficient in this respect and give a fillip to the indigenous hydrogenated oil industry. It can be used in candle and leather industry as well.

India has got enormous possibilities in creating markets for 'Vanaspati' across her frontiers and in other eastern countries. Ceylon, South Africa, Persia, Arabia, Afghanistan, Burma, Malaya, Phillipines and other eastern countries provide great markets for Indian 'Vanaspati'. Thus 'Vanaspati' industry has got appreciable future possibilities.

The importance of this industry in the national economy may be summed up thus: more 'Vanaspati' means more oil-seeds and more cakes; it means more manure for better agricultural yield and greater prosperity. The industry may reveal still better prospects, by better methods of refining, improvement in appliances and equipment; introduction of new raw materials its for/manufacture, recovery of new by-products and its new uses for industrial purposes.

The State is now producing refined groundnut oil, which is mostly consumed in the State. Refined castor oil is manufactured for lubricating purposes and is being supplied to railways.

In Bengal, Bihar and Uttar Pradesh, people are accustomed to mustard oil. In South India the fresh ghani pressed genuine gingili oil is considered to be better source of fat for body in the absence of pure 'ghee'. With due consideration to the results of experiments carried on in the Izatnagar laboratory and later in other parts of India, it can be said that 'Vanaspati' is nutritionally inferior to common vegetable oils. When there is not much 'ghee' and all people cannot afford to take it, 'Vanaspati' is not the only alternative. Cheaper and more nutritious are vegetable oils to which our countrymen have been accustomed for generations.

Hence, the rural and cottage industries processing fresh drawn vegetable oils should be encouraged, while the adulteration of 'Vanaspati' with indigenous 'ghee' should be discouraged. The 'Vanaspati' should be developed as a first rate oil for processing and various other industrial uses only and not for culinary purposes. The potentialities of the cotton seed oil should also be explored to a greater extent in the State.

Allahabad may be suggested, as a site for the establishment of a new 'Vanaspati' Factory, as it is directly accessible on the Central Railway to bring ground-nut from southern parts of India.

JUTE INDUSTRY

Hundreds of miles away from the source of raw materials, the industry after initial failures, has at last struck root in a State which is not even climatically deemed fit for jute manufacture.
Of the three jute mills in the State, two are located in Kanpur. These are the Meheshware Devi Jute Mills established in 1936 and the J.K. Jute Mill Co. Ltd., established in 1931. The third mill, the Mahabir Jute Mills, Ltd., established in 1936 is located at Shajamwala in the District of Gorakhpur.

All processing from cutting of jute to baling and binding of finished products is done by automatic machines. The mills are fitted with modern plants for carding, spinning and weaving. Sack cloth, hessian, canvas, and preparing fine quality tweed, etc., are some of the items prepared in these Mills.

Like other textiles, this industry had a very brisk operation during the War period. Consequently, the production reached its zenith in 1943, when 75,225 bales of jute goods were manufactured in these mills. The production is declining gradually to the pre-war position.

Formerly, the U.P. mills used to meet the gunny bags requirements of the Panjab and send large quantities of hessian to Ahmedabad. Now after the partition, the Panjab market is disrupted while for lack of transport facilities, the local industry cannot serve the Ahmedabad market either. The State produces raw jute which meets only two months' requirements of the local mills. Hence, it is imported from Bengal. So it suffers from heavy transportation cost.

The State Government has recently launched several schemes for the growth of jute on a large scale. They have selected four zones, comprising the Districts of Lakhimpur, Sitapur, Gonda and Gorakhpur. Previously, the production was only 6,000 maunds. Now efforts are being made to increase the acreage of jute cultivation to 6,00,000. The low prices of raw jute have resulted in the lower acreage under jute cultivation in the State.
With the passing away of the War period the foreign and extra-state competitions have begun to lay their hands upon the mills of the State. Therefore, the industry needs protection.

The raw material used in these mills is the jute fibre of various qualities imported from Lakhimpur Kheri District, Bihar and Bengal States. With the increased production of jute in the State, there is scope of starting more jute mills in U.P. as their production efficiency is estimated at 75 per cent as compared with 80 or 82 per cent in Calcutta.

The alternative fibres, which can easily be worked out on jute mill machinery, should be widely used to meet the existing shortage of jute fibres. It has been found that 33 per cent mixture of linseed fibre does not decrease the quality.

<table>
<thead>
<tr>
<th>Mixture of Linseed</th>
<th>Suitable for</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 per cent</td>
<td>low quality hessian warp</td>
</tr>
<tr>
<td>50 per cent</td>
<td>low quality hessian weft or a good sacking warp</td>
</tr>
<tr>
<td>Up to 100 per cent</td>
<td>sacking weft</td>
</tr>
</tbody>
</table>

The product thus obtained has been successfully used for making hessian, gunny bags and other articles. The fibre itself is obtained from linseed straw which is wasted by cultivators every year in huge quantities.

Hand extraction of linseed fibre is a slow process. The Cottage Industries Department, therefore, has imported a machine from a British Firm which originally made it for Argentina where experiments on these lines had been carried out. With the help of this machine, fibre of a fine variety is extracted from

the straw and then mixed with raw jute. The fibre, so obtained, can be spun on the existing jute machinery.

The low grade sunn-hemp fibre can be placed in a better grade, if proper care is taken in the method of retting and extraction. For tackling the fibre special types of frames have been constructed, which can produce a larger percentage of uniformly long and clear fibre. Sunn-hemp secured a sound position for itself against New Zealand, Russian and Italian hemp in European markets during the first World War. During the second World War, stronger sunn-hemp was turned into twines much needed for the manufacture of camouflage nets.
FOREST POTENTIALITIES OF TEHRI GARHWAL

ANNUAL YIELD OF WOOD 17,79,500 cft.
" " LOP 4,40,000 cft.

CONIFERAE 650 "
CHIR 455 "
KAIL DEODAR 88 "
FIR & SPRUCE 112 "
BROAD LEAVED 980 "
OAK 856 "
PAPRI 2 "
KUKAT 122 "
GRASSY 750 "

TOTAL AREA 4,522 SQ MILES

HARDWAR
DEHRA DUN
MUSSOORIE
RISHIKESH
GANGA