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THE ROLE OF AGRICULTURAL PROCESSING INDUSTRIES IN ECONOMIC DEVELOPMENT : A CASE STUDY

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ROLE OF AGRO-INDUSTRIES IN ECONOMIC DEVELOPMENT

As is generally known, much of agriculture in India is largely subsistence type. This mode should give way to organized, commercialized farming. It should be able to withhold flow of labour from the countryside to urban centres of industry. To bring about this change, agro-industries can contribute a great deal.

Agro-industries can be variously defined as: (i) industries where the contribution of agriculture in the gross value of the product is very high, (ii) industries which service agriculture, and (iii) industries which are engaged in the processing of agricultural commodities.

Broadly speaking, agro-industries fall into two categories: (i) processing and (ii) servicing. Agricultural processing industries include sugar manufacturing, cotton ginning and pressing, rice, flour and oil milling, coffee, tea and tobacco curing, fruit canning and preservation, etc. Servicing industries include those which manufacture fertilizers, agricultural implements, agricultural chemicals, etc.

A programme to modernize and effectively develop these industries is bound to convert the farming sector around them from the subsistence to commercialized type.

SUGAR MANUFACTURING IN MANDYA DISTRICT

To ascertain the extent to which the agricultural processing industries can bring about agricultural development, as defined above, the case of sugar manufacturing industry in Mandya has been studied here.

(a) *Agriculture in Mandya before the Establishment of Sugar Factory*

Before the construction of the Krishnarajasagar Dam across the river Cauvery, the area comprising the present Mandya district was mostly a dry region with rainfall ranging between 22 to 25 inches annually. People cultivated only "dry" crops such as *ragi* and jowar. Paddy was grown only where water facilities were available and sugarcane was an unfamiliar crop. Farming was largely subsistence type. Agriculture was the mainstay of the people and no industry was in existence.

With the completion of the Krishnarajasagar Dam and the irrigation plan under the Irwin Canal (now Visveswarayya Canal) in the year 1931, designed to

*The authors are grateful to the Mysore Sugar Co. Ltd., Mandya, Pandavapura Sahakara Sakkare Kharkane Ltd., District Statistical Office, Mandya and others who have supplied statistical and other data.

irrigate approximately 1,20,000 acres of land, ample scope for vast cultivation of commercial crops like sugarcane was created and the crop pattern was thoroughly changed.

(b) *Establishment of the Sugar Mills*

The farmers, left to themselves, would have grown paddy on all lands which were newly irrigated. But the construction of the dam led the State Government to introducing a crop like sugarcane which could bear the cost of constructing and maintaining the dam. The farmers being new to sugarcane growing, Government had to assist them and persuade them to grow sugarcane. Thus, loans for the purchase of seeds, implements, and fertilizers were sanctioned to the farmers. The Agricultural Department established a farm in the locality and sugarcane grown on 200 acres was made available to the farmers as seed in the planting season of 1933. The Government undertook to purchase all the sugarcane grown in the area at a fixed price. As a result of all these measures, a new crop was grown where it was never grown before, and a new sugar factory had to be established in the region which could convert sugarcane into sugar as the cane grown on such a vast area could not be converted into jaggery or *gur* in the usual way. The Mysore Sugar Company was promoted as a limited joint stock company in 1933 with its head office at Bangalore and factory at Mandya.

(c) *Changes after the Establishment of Sugar Factory*

The first inevitable change that took place was the continuous increase in the area under sugarcane cultivation in the Mandya taluk, which increased from 3,000 acres in 1934 to 8,612 acres in 1956-57 and to 15,417 acres in 1963-64. Besides this absolute increase in the acreage under sugarcane crop, it is observed that the area under sugarcane has increased proportionately more than the area under any other crops. For instance, in 1956-57, the total cropped area in the Mandya taluk was 79,650 acres of which 8,612 acres (10.8 per cent of the total) were under sugarcane. But in 1963-64, this proportionate share of land under sugarcane to the total went upto 15.9 per cent (total cropped area 96,668 acres; area under sugarcane 15,417 acres).

Secondly it is also interesting to note that although the area under paddy cultivation has substantially increased on account of irrigation facilities, the ratio of area under sugarcane to the total area under paddy and sugarcane has increased from 25 per cent to 34 per cent during 1956-57 to 1963-64. This is a clear indication that there has been a continuous shift of land towards cultivation of sugarcane, a money crop. This shift is brought about by the creation of an assured market for sugarcane grown in the region and by the assured price made known in advance of the planting season.

The assured market for sugarcane crop is a result of the *oppige* system which governs the sale and purchase of sugarcane. *Oppige* means an undertaking on the part of every farmer to plant and supply sugarcane to the factory as per terms and rules stipulated in the agreement to be executed by each one of them individually. The sugar factory in its turn agrees to buy the stipulated quantity of cane. Barring a small quantity of 6 to 7 per cent of the factory's requirements, the entire quantity of 3 to 3.5 lakh tons of sugarcane is supplied by nearly 8,000 to 10,000

farmers every year coming under this *oppige* system. Certainty prevails not only in respect of the market for sugarcane but also in respect of the price of sugarcane, since the price the factory is willing to pay is made known to the cane growers in advance of the crop season.

The third consequence of the establishment of the sugar factory was the improvements in the methods of cultivation, better seeds, expert advice regarding manures, control of pests and diseases and credit facilities to cane growers, etc.

To start with, H.M. 320, an indigenous variety of sugarcane was grown in the area for supply to the factory. Since this variety showed signs of deterioration after a period of 7 or 8 years, it was gradually eliminated and replaced by CO. 419 variety, which now forms 100 per cent of cane supplied to the factory. While the average yield of H.M. 320 in the beginning ranged between 20 and 22 tons per acre and went upto 25 tons, the present CO.419 variety's average yield has gone upto 35-37 tons per acre, with a sucrose content of 14.9 per cent which is the highest record so far achieved for this region.

The Mandya sugar factory renders free expert advice to farmers. The sugar factory has maintained a staff of 180 headed by a cane superintendent to supervise the growing of sugarcane crop at all stages. Besides, a parasite laboratory has been maintained at Mandya under the charge of the Government Entomologist for the purpose of controlling pests and diseases of sugarcane and the establishment charges thereon are being met by the company. A Sugarcane Development Office, in-charge of an officer, has come up in the region where research on sugarcane is carried on, and its benefits are to be passed on to the sugarcane growers. The factory owns nearly 2,000 acres of irrigable land and these lands are mainly meant for experimental purposes and for propagating new varieties of cane best suited for the area and grown with advantage to the factory as well as to the farmers. Sugarcane was raised on a two-acre experimental plot in one of the company farms and it yielded 104 tons per acre which stands as a record for the region.

The sugar company is making advances to the farmers under the *oppige* system to buy their requirements of seed material and manures besides paying them a cash advance of Rs. 8 per ton of cane to meet the harvesting and supply expenses. The total advances so made to the ryots came to, on an average, about Rs. 350 to Rs. 400 per acre.

Fourthly, it is worth noting that, the growing of a cash crop like sugarcane resulted in a continuous increase of cash income to the farmers. The amount paid by the mill to the farmers for the purchase of cane increased from Rs. 9.22 lakhs in 1934-35 to Rs. 37.94 lakhs in 1944-45; from Rs. 154.86 lakhs in 1954-55 to Rs. 206.31 lakhs in 1964-65.¹

Additionally, the State and the Central Government exchequers have benefited to the tune of Rs. 1.86 lakhs in 1934-35, Rs. 12.55 lakhs in 1944-45, Rs. 23.78 lakhs in 1954-55, Rs. 89.39 lakhs in 1964-65 by way of excise duties. Likewise the State Government has benefited to the tune of Rs. 11.32 lakhs in 1947-48,

1. The Mysore Sugar Company Limited, Bangalore, 32nd Annual Report, 1964-65.

Rs. 22.34 lakhs in 1954-55, and Rs. 29.23 lakhs in 1964-65 in the form of cane cess and cane purchase tax.² In other words, the establishment of a processing industry like sugar manufacturing in the region has augmented the sources of cash incomes to the people of the region and the Government.

GENERAL ECONOMIC DEVELOPMENT OF THE MANDYA TALUK

It would not be entirely out of place to focus attention here on the general economic development which has resulted from the prosperous conditions brought about by this sugarcane processing industry. These resultant economic changes may be called as "secondary effects" induced by the primary force of an agricultural processing industry like the Mandya sugar factory in this case.

(a) *Expansion of the Factory*

The story of development will not be complete unless the growth of the factory, both concentrically and horizontally, is considered. The factory started crushing from 1933-34 season with an initial daily capacity of 400 tons. Within a period of two years, the capacity was raised to 1,400 tons per day and in 1938, additional equipment was installed, raising the crushing capacity to 2,000 tons of cane per day on the milling side. However, the capacity on the boiling side remained at 1,400 tons and is being gradually raised to 2,000 tons. In 1965, a licence was received by the factory to raise the capacity to 2,500 tons per day.

The quantity of sugar manufactured was 8,072 tons in 1934-35, 17,322 tons in 1944-45, 35,312 tons in 1954-55 and 35,519 tons in 1964-65. Thus the factory has expanded its sugar production nearly $4\frac{1}{2}$ times of the initial production.

(b) *Expansion of Product Lines*

Another aspect of the development of the Mandya sugar factory is that it has undertaken to manufacture many additional products, besides sugar. Molasses is an important by-product of sugar and nearly 10,000 to 15,000 tons of molasses are produced every year. As a means of economic disposal of molasses, a most modern distillery was installed as early as 1935 as an adjunct to the factory with an initial capacity of 1,500 gallons of 96 per cent rectified spirit per day. A dehydration plant was added later on, to produce absolute alcohol. The whole plant was duplicated to double the capacity of the distillery and now steps are being undertaken to increase the annual output to 10 lakh gallons. At present, the distillery is getting molasses from its factory, from Pandavapura sugar factory and Tungabhadra sugar factory. The production of rectified spirit has increased from 2,97,170 gallons in 1955-56 to 7,49,785 gallons in 1965-66. It is providing employment to nearly 95 persons.

A good portion of alcohol manufactured is utilized for making potable liquors such as brandy, whisky and rum, etc. A portion of the rectified spirit is used as a source of power by the factory itself. A good portion of the rectified spirit is sent to the Cardiat Factory, Ooty, where it is used in the manufacture of explosives.

2. *Op. cit.*

Yet another product manufactured by the factory is a superior quality of golden syrup. Its production is facilitated by the availability of good sugar. It is also significant to note that this growing concern has become a feeder industry to other industrial units which have come up in the region and which use products and by-products of the sugar mill as raw materials. A few of them are mentioned below.

In view of the availability of bagasse in this unit, the Mandya National Paper Mills has come up in Belagola. It is providing employment to nearly 700 to 800 people.

Co₂ gas, which is liberated during the process of manufacturing of alcohol from molasses, is piped to the Mysore Mineral and Gas Company, Mandya. This unit provides employment to nearly 43 people.

The sugar factory has undertaken the programme for manufacture of acetic acid. The necessary machinery is under installation. In view of the proposed manufacture of acetic acid by the sugar factory, the Mysore Acetate and Chemicals Company Limited has taken up a new project for the manufacture of "Tri-Acetate" and this factory will be constructed at a cost of little over Rs. 4 crores. The company will buy acetic acid from the Mandya sugar factory and manufacture tri-acetate and send it to the Hindustan Photo Film Corporation, Ooty where it is utilized in the manufacture of coloured films.

(c) Growth of Banking and Credit Institutions

One of the indicators of economic development of any region is the development of banking and credit institutions. As early as 1936, the State Bank of Mysore opened its branch office in Mandya. In the last decade, two more of the nation's leading banks opened their branches in the region. A co-operative banking institution is also operating. To illustrate the fast expanding banking activity one can note that the total deposits of a leading bank in the region have increased from Rs. 4.5 lakhs in 1956 to Rs. 36.1 lakhs in 1965.

(d) Housing and Construction

A spurt in construction activity which is observed within a short span of four years is another indicator of economic development of the region. For example in 1959-60, the total number of residential buildings constructed, both completed and under construction, was 180. The number increased to 203 in 1960-61, to 229 in 1961-62 and to 249 in 1962-63.³

(e) Educational Development

Also noticeable is the development in educational standards of the people in this region. There are proportionately more educational institutions in the Mandya taluk than in other taluks of the districts. In 1963-64, population of the taluk was 20 per cent of the total district population, whereas nearly 25

3. District Statistical Office, Mandya.

per cent of the high schools in the district were found in this taluk alone.⁴ Moreover, there have been started in this taluk one first grade college, one engineering college, polytechnic and technical high schools—institutions which are not to be found in other taluks of the district.

CONCLUDING REMARKS

From the foregoing analysis emerge the following conclusions :

(1) Development of an agricultural processing industry, sugar in this case, has resulted in making sugarcane growing a commercial proposition.

(2) The expansion of this processing unit has further led to the establishment and expansion of allied industries.

(3) A net result of (1) and (2) above has been the general economic prosperity of the region which is reflected in increased activities like construction, banking and credit, higher education, etc. This economic development, obviously, has created opportunities for new and more jobs.

It may be concluded, therefore, that if other agricultural processing activities like cotton ginning, oil milling or rice and flour milling can be organized on modern lines, similar results may be obtained.

LOCATION AND ROLE OF MUSTARD AND RAPE SEED PROCESSING INDUSTRY IN HISSAR

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Introduction

By processing is meant the work which changes raw materials into finished products.¹ When applied to agriculture, it means the processing of agricultural produce or agricultural raw materials. Many agricultural products such as milk, eggs, fruits and vegetables may be consumed in the form in which they leave the

4. The population of the Mandya district in 1963-64 was 9,07,110 and that of the Mandya taluk was 1,83,279. The total number of high schools in the Mandya district was 57 and that in the Mandya taluk was 13, according to Mandya District Statistical Office.

1. Wilson Gee : *The Social Economics of Agriculture*, 1942, p. 273.