



## **SUGAR INDUSTRY IN INDIA: AN AGRO-BASED INDUSTRY A SOURCE OF EMPLOYMENT GENERATION.**

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### **Abstract**

*This paper aims to analyse the role of Agro-based industries in employment generation in India's economic growth and find out how much employment generates by the sugar industry. The study is based on a secondary source of data analysis which is collected from the authentic govt source and research papers of eminent researchers have used. In India, where 70% of the population depends on agriculture for their living, Agro-based industries are crucial to pro-poor growth. Agriculture serves as the source of raw materials for agro-based industries, which produce finished or semi-finished commodities. By mobilising rural resources and creating more prospects for higher income and employment, the sugar industry in India is essential to the socioeconomic development of rural areas. About 45 million sugarcane farmers, their dependents, and a sizable number of agricultural labourers are engaged in sugarcane production, harvesting, and ancillary operations, making up about 7.5 per cent of the rural population. The sugar industry in India ranks second in terms of Agro-based industries only behind the textile sector and also generates excise duty and taxes annually. The study has found that the sugar industry employs a large section of the population and the increasing rate of production and export of sugar also led to increasing employment by the multiplier effect.*

**Keywords:** *Agro-based industry, Employment, Sugar Industry, Sugar, India.*

### **Introduction**

The centre of any economy's economic development is industrial development. Its direct impact on employment, Gross Value Added (GVA), the standard of living, per capita income, and so on. India has long been seen as an agrarian economy, with more than 70% of the people employed in agriculture and related sectors. Agro-based units have provided opportunities to the majority of the village population and have made significant contributions to rural development and economic equality (Gupta, 2018).

Agriculture is a major source of raw materials for industry such as paper, sugar, textiles, fertiliser, chemicals, edible oil, and so on. Agro-based industries can play an important role in alleviating poverty, unemployment, and inequality in India, and can significantly contribute to the overall development of the economy by efficiently utilising local raw materials, which may increase gainful employment opportunities for poor people, primarily landless, marginal, and small farmers (Pasupathi et al., 2016). Agro-based industries contribute significantly to India's agricultural export revenues. This sector also gives a great number of employment possibilities to both rural and urban residents. Farmers, agricultural workers, industrial employees, wholesalers, retailers, exporters, and other people involved in manufacturing and exporting. Food-based export items have grown significantly in importance, accounting for a significant portion of India's GDP (Alam, 2019). Agro-based industries provide profitable employment and activity diversity in villages, ensuring balanced industrial expansion in rural areas (Negia, et.al., 2020).



Sugarcane is a major commercial crop. Sugar mills employ sugarcane as a raw material, and the principal result is white sugar (Singh et.al. 2021). It is grown in over 100 nations, including Brazil, India, China, Thailand, and Pakistan. After Brazil, India is the largest consumer and the second-largest producer of sugarcane. It is India's second most significant commercial crop after cotton, produced on over 5.0 million hectares and producing approximately 31 million tonnes, providing direct and indirect employment to 40 million farmers and 3.5 lakh trained and unskilled people in the sugar industry (Singh et.al. 2018).

### **Literature Review**

Verma and Kesavan (1986) believed that there is a strong link between agricultural output and employment in Agro-based industries, as well as growth in this sector, the study was only conducted in select areas of Haryana.

Khanna and Pavate (1990) Apart from utilising local resources, it is believed that agro-based enterprises have a significant potential to produce substantial employment.

Jain (1975), R. Rao (1978) & Venkaih (1987) believe that good rural development through industrialisation will aid in the reduction of economic disparities, hence contributing to balanced economic growth.

Kanthareddy and Kumara (2014) viewed that agro-based industries have the potential to solve the problem of rural unemployment Such units have enormous potential for maintaining revenue and reducing unemployment because they require a comparably little amount of capital to establish.

Vasant Gandhi (2001) viewed that Agro-industry has been given substantial attention in India's economic development. In India, the agro-industrial sector produces a significant portion of total industry employment, as well as value addition and income generation. Its ability to support rural employment and small farm income, particularly among the landless poor, determines how effectively it can promote development and reduce poverty. From a managerial point of view, one of the biggest challenges is managing sustained production and procurement from a large number of small farmers.

Pawan Kumar Dhiman and Amita Rani (2011) discussed that Agro-based business is recognised as the Indian economy's "rising star" due to its high development potential and potential socioeconomic influence on employment and revenue generation. The agriculture sector in India produces over half of the national income and employs one-third of the entire population.

Prabeena Ambidattu (2015) explain India is a major food producer, as well as a major producer of grain, sugarcane, and tea. The country is the second-greatest producer of rice, fruits, wheat, and vegetables. Agriculture and Agro-based sectors employ 70% of the Indian population. On the one hand, the growth of Agro-processing industries means the development of agriculture, and on the other, the development of an entire set of industries, linkages, and investment that responds to the needs of the population while increasing income and the environment.

### **Objective**

To analyse the role of the Sugar Industry a manufacturing industry in employment generation in India through the export of Sugar.



## **Methodology**

The study relies on secondary data sources such as authentic journals, papers, and official websites to analyse the role of the sugar sector in generating employment from sugar export. The secondary data for export was obtained from the statistic.com website.

## **Function of the apex body of the sugar industry**

Since 1925, the Sugar Technologists Association of India (STAI) has been the apex body of sugar industry institutions and professionals dedicated to the growth and development of sugar and allied sectors. Recognised by the government of India's scientific and industrial research agency, it works hard to develop new and cost-effective technologies in the production of sugar, alcohol, power, and sugarcane to improve the quality and competitiveness of its products.

The Indian Sugar Mills Association (ISMA) is the governing body of India's private sugar mills. This organisation currently has approximately 250 members. ISMA is recognised by both the central and state governments as the country's premier sugar body, representing the concerns of private sugar mills and the sugar industry.

The National Federation of Cooperative Sugar Factory (NFCSF) Limited is India's apex cooperative sugar mill organisation. It was founded in 1960 with the goal of developing India's robust and dynamic cooperative sugar business. Members of all cooperative sugar enterprises and state cooperative sugar federations. The federation is involved in sugar policy-making at the national and state levels, and it helps to set the agenda for the sector's development and expansion in India.

## **Labour of the sugar industry in India**

Sugarcane is a labour-intensive crop that takes a long time to grow 12 months in the subtropics and 12–18 months in the tropics. In the subtropics, each hectare of sugarcane requires 150–180 labour days, while the tropics south region needs more like 250–300 days. The majority of farmers carry out the majority of cane cultivation operations by hand and only occasionally employ machines, such as for field preparation. The cost of labour accounted for 32.3% of the entire cost of growing sugarcane, while at the national level, the factor share of labour in the value of output has slightly grown from 4.5% to 4.7%. In the cultivation of sugarcane, labour productivity has grown by 28.1%.

Workers in the sugar industry can be classified as skilled, unskilled, semi-skilled, permanent seasonal, contract, casual, part-time, managerial, supervisory, or clerical. When compared to sub-tropical states, the tropical states have higher labour consumption per hectare of sugarcane crop, according to a review of trends in labour absorption in the industry. In some zones of a single state, the pattern of labour absorption has changed. However, compared to other zones of the states, hiring of humans, robots, and bullock labour is also more common in tropical zones. The acceptance and dissemination of contemporary technologies by farmers and the expansion of commercial services for custom hiring may be responsible for the higher labour consumption in these Zones.

## **Statistics of the Sugar Industry in India**

The GDP is considerably boosted by sugarcane, which is seen as a crop for the future. The industry's three main products are sugar, ethanol, and jaggery, and its annual output from product sales and other related economic activities was projected to be INR 800 billion. This output is expected to rise by about INR 1022 billion (Kumar, et., al, 2016). The sugar mill pays the sugarcane growers roughly 60% of this as cane prices. When sugarcane is harvested, sugar mills process it to produce a variety of goods and by-products that can be used as raw materials in a variety of businesses, including those that



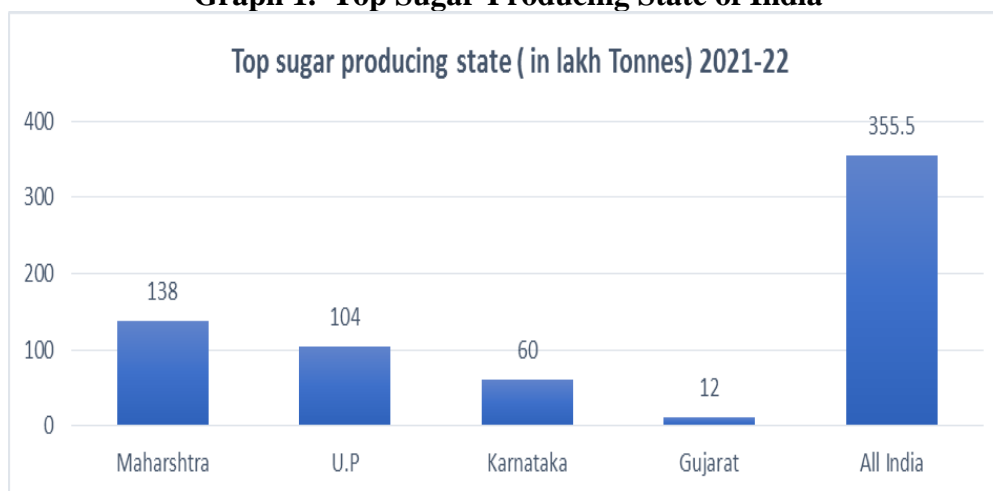
produce alcohol and electricity (Chakraborty, 2020). It significantly contributes to the nation's economic development. There are 327 co-operatives, and 362 private and 43 public sugar factories in India (DFPD, 2022).

Around 5 million acres, or around 3% of the total cultivable area in the nation, is devoted to sugarcane. The sugar complexes, which produce sugar, bioelectricity, bioethanol, bio manure, and chemicals and contribute 1.1% to the national GDP, are increasingly replacing the sugar mills (Solomon et.al., 2020). With its ability to meet this global demand, U.P. is the leading state for the production of sugar. The benefit for the sugar business in the U.P. region is plentiful cane availability due to favourable climate and soil conditions for sugarcane cultivation and adequate labour availability. The state's western, central, and eastern regions are home to mills in the commercial, cooperative, and public sectors that produce sugar. (Tiwari et.al.,2016).

Sugar mills in the country have always focused purely on the mass production of specific grades. With the liberalisation of the economy, this sector has seen various industry advancements, including the production of sulphur-free sugar, branded sugar, packaged sugar in one, two, and five-kg sizes, and value-added goods such as sugar syrups and sugar cubes. Furthermore, sugar corporations have begun to diversify their businesses in order to boost their bottom lines by focusing on properly utilising by-products (Singh, et.al., 2015). Sugar industry by-products offer large potential reserves for human and animal use, as well as a renewable source of energy. Sugarcane and its by-products are valuable raw materials for more than 25 industries. The main by-products of the sugar industry which have greater economic value are (a) Bagasse (b) Molasses (c) Press mud (Solomon,2011).

In India, there are nine major states where sugar is produced, with Maharashtra and Uttar Pradesh leading the way with 27% and 30% of the overall production, respectively. 80% of all sugar produced in India is produced in Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu, Bihar, Punjab, and Haryana, among other important states. The sugar business provides direct and indirect employment for an estimated 12% of the rural population in these nine states. Each farmer contributes to the 2.9 MT of sugar that is produced each year (Niti Ayog, 2020).

**Graph 1. Top Sugar-Producing State of India**



Source: Statista 2022

From the above table, it is clear that Maharashtra has overtaken U.P in 2021-22.



### Sugar Export and Employment

Export promotion has the potential to increase the growth of the economy. It can significantly affect labour markets when the demand is low it creates unemployment and high demand creates employment. The indirect and induced effects can also be led to the spillover effect from the export sector through demand for inputs from upstream industries (indirect effects) and consumption (induced effects). The direct effect can see in new job creation in the sector of final export. Export required more production which means more jobs are available in the sector. Expanded production implies that more inputs from other sectors are required, creating jobs in those upstream sectors. For example, if sugar export increase, more sugarcane inputs are in demand to manufacture the additional sugar, which creates jobs in the sugar industry. When the input is produced domestically by the labour-intensive sector, the multiplier effect can be large, which creates huge job creation. On the other hand, the multiplier effect is small when inputs are mostly imported.

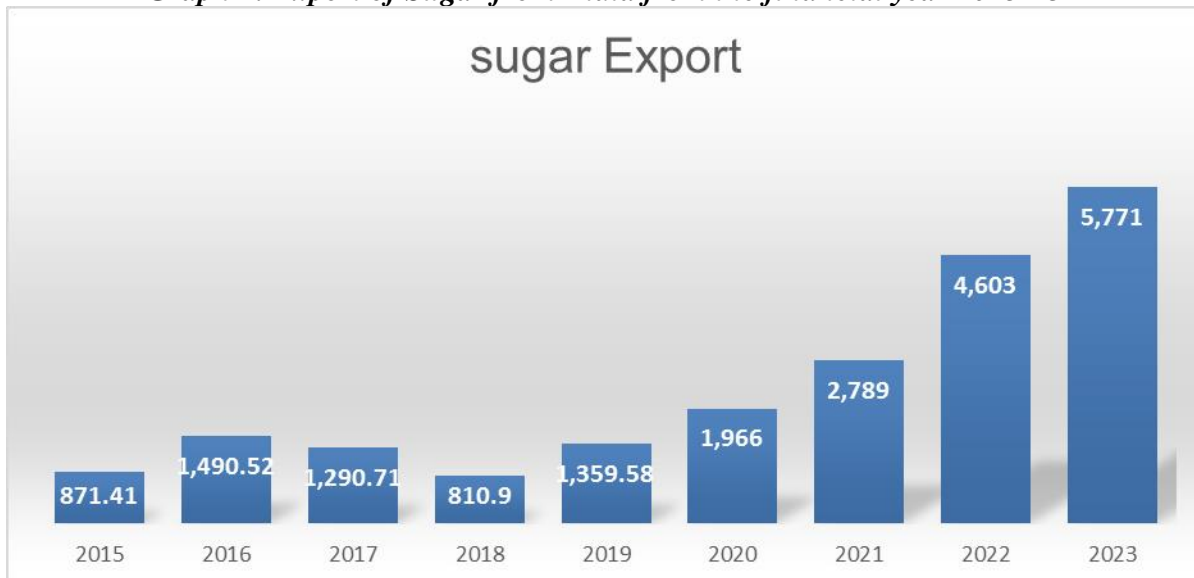
**Production increase → means more income, consumption & revenue → increase demand and investment → job growth in the sector.**

Suppose, the sugar industry expands export and hires a number of workers, they use their wages to increase consumption. If they spend their part of income in other sectors it expands the income of that sector and hires more workers. So, this way it creates multiple jobs in different sectors.

### Export of sugar from India to other countries

In fiscal year 2022, India's sugar exports were valued at more than \$5 billion USD. This was a substantial increase over the prior fiscal year. Since the fiscal year 2018, there has been a constant increase in the value of sugar exports.

**Graph 1. Export of Sugar from India from the financial year 2015-23**



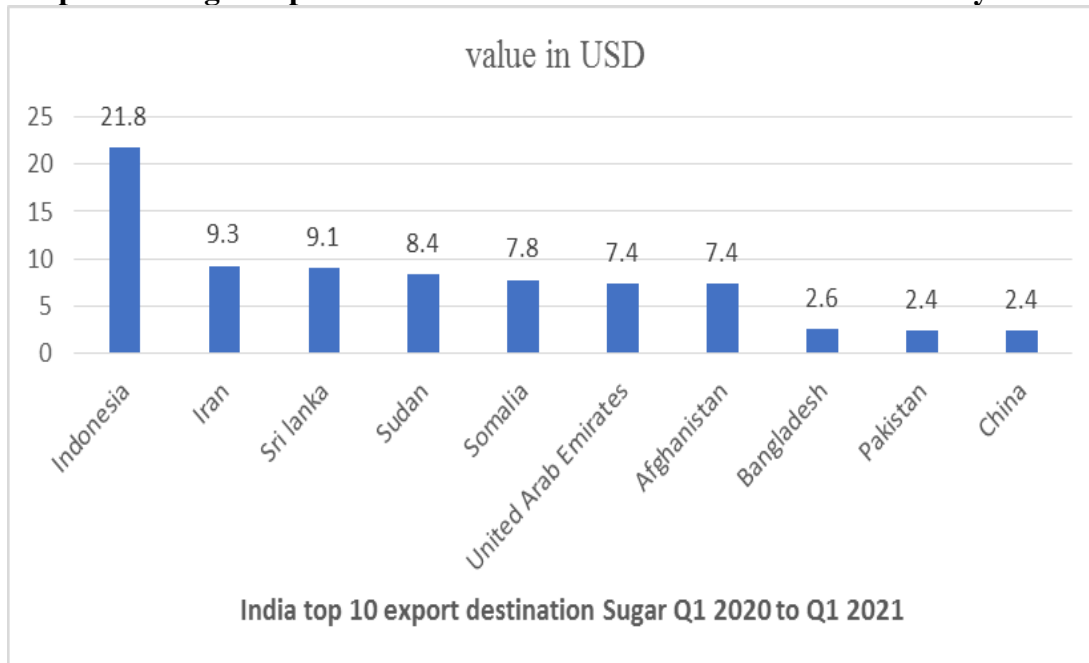
Source: Statista 2023

From the above table, it is clear that the sugar export is drastically increasing from 2018. According to (Directorate General of Commercial Intelligence and Statistics) DGCI data from FY 2013–14 to FY



2021–22, India's sugar exports increased by an amazing 291%, from USD 1,177 million to USD 4600 million. India shipped sugar to 121 nations worldwide. India exported sugar for USD 1965 million in 2019–20, increasing to USD 2790 million in 2020–20 and USD 4600 million in 2021–2022. Since 2010–11, India has continuously produced more sugar than was needed for domestic consumption. The sugar producers would be able to lower their stock due to the record exports, and sugarcane growers would gain from the higher demand for Indian sugar, which is anticipated to raise their profitability. Brazil and India are the world’s largest producers’ countries of sugar. Brazil accounted for 42% and India 33% of the world’s total sugar production in 2020. The European Union (EU), China and Thailand are other major sugar producers. The maximum sugar shipment was sent to Indonesia which shares 21.8% of the overall value of sugar shipment in 2020.

**Graph 2. of Sugar export from India to other countries in the financial year 2022**



Source: Statista 2022

From the above table, it is clear India’s top 10 export partners of sugar accounted for 78.6% to total sugar export in the given year. Other major countries that import sugar from India are Iran, Sri Lanka, Sudan, Somalia, United Arab Emirates, Afghanistan, Bangladesh, Pakistan, and China.

**SWOT Analysis of Sugar Industry in India**

A project's or industry venture's strengths, weaknesses, opportunities, and threats are assessed using the SWOT analysis, a strategic planning technique. A SWOT analysis segregates environmental information into internal (strengths and weaknesses) and external problems (opportunities and threats).

- Strengths: characteristics of the business or team that give it an advantage over others in the industry.
- Weaknesses: these are characteristics that place the firm at a disadvantage relative to others.
- Opportunities: external chances to make greater sales or profit in the environment.
- Threats: external elements in the environment that could cause trouble for the business.



**The strength, weaknesses, opportunities, and challenges (SWOT analysis) of the Indian sugar Industry.**

Strengths	Weakness	Opportunities	Threats
<ul style="list-style-type: none"> <li>• Second largest producer in the world.</li> <li>• Surplus sugar production</li> <li>• 35000 revenue generated by the Sugar industry.</li> <li>• Employment-</li> <li>• Provide raw materials.</li> <li>• More profitable crop.</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to pay for the sugarcane supplies the farmers.</li> <li>• Most of the mill is 40 years old which decreases the production capacity.</li> <li>• Lack of expertise, or technical knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>• Sugar industry is a sugar complex because of by-products.</li> </ul> <p>Huge potential to increase the productivity of cane and sugar. recovery rate.</p> <ul style="list-style-type: none"> <li>• Technology up gradation by new technology.</li> </ul>	<ul style="list-style-type: none"> <li>• Vulnerable to political interest.</li> <li>• Groundwater availability for irrigation.</li> <li>• Overuse of fertilizer deteriorates the quality of the soil.</li> <li>• Unhealthy competition between the member of society.</li> </ul>

**Conclusion**

Agriculture-based industries have played a significant part in the rural economy in which Sugar factories play a prominent role. It aided in the development of rural areas by creating job possibilities. Because of the large variety of by-products produced by the sugar business, it is sugar complicated. Labour is the key factor in contributing to the growth of basic and heavy industries and strengthening the economic infrastructure. Not only workers in sugar factories, but millions of farmers and agricultural labourers are employed in India's sugar industries. Increased export of Agro-based industries in India increases employment, revenue generation, industrial units and outputs, regional growth, and connections with people from all walks of life. As a result, it can be concluded that increased sugar output and exports benefit all farmers and employees directly or indirectly. As a result, strong steps must be implemented in the future to promote Agro-based industries. It is a time for governments and Industrialists to recognise agriculture as a competitive, value-added sector and to stimulate the growth of Agro-based industries.

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## Appendix

**Table1. India's Top 10 Export Destinations of Sugar**

Country	value USD
Indonesia	21.8
Iran	9.3
Sri Lanka	9.1
Sudan	8.4
Somalia	7.8
United Arab Emirates	7.4
Afghanistan	7.4
Bangladesh	2.6
Pakistan	2.4
China	2.4