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Impact of COVID-19 on the Sustainability of Indian Sugar Industry

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A B S T R A C T

The Indian sugar industry, which is a major contributor to the country's economy, has encountered many obstacles along the way. The most recent danger is the developing pandemic new corona virus (COVID-19), which is affecting sugar industry and their interconnected businesses not just in India but across the globe. The spillover effects have had a negative influence on the Indian sugar industry's whole value chain, including sugarcane, sugar, molasses, ethanol, and their subsequent marketing and export. India is still lagging behind in sugar exports, is dealing with surplus inventories, and is underutilizing sugar by-products. The purpose of this paper is to investigate India's sugar business, its impact on the Indian economy, the impact of the pandemic on the sector, and to suggest a path ahead for the Indian sugar industry.

Keywords: Sugar, Ethanol, global demand, sugar production, COVID-19

1. Introduction

The Indian sugar industry is a major player in the worldwide sugar market, as it is the world's second biggest sugar producer after Brazil, producing approximately 15% of global sugar and 25% of global sugarcane, respectively. It makes a major contribution to the country's socioeconomic growth. There are 597 sugar mills in operation, 309 distilleries, 213 cogeneration facilities, and many pulp, paper, and chemical manufacturing units in the sugar sector. Sugarcane covers around 5 million hectares, or about 3% of the country's total cultivable land. To satisfy the domestic sweetener demand, the sector produces 350–400 metric tonnes of cane, 25–30 metric tonnes of white sugar, and 6–8 metric tonnes of jiggery and khandsari. Aside from that, approximately 2.9 billion liters of alcohol are produced yearly, and the sector is perfectly capable of fulfilling demand for both drinkable alcohol and 10% gasoline blending. Sugar mills are transforming into sugar complexes that produce sugar, bio-electricity, bio-ethanol, bio-manure, and chemicals, accounting for about 1.1 percent of the country's GDP. Sugarcane and sugar-related economic activities currently generate a revenue of USD 16–17 billion per year (Solomon, 2014).The whole value chain of the sugar industry related to sugarcane, i.e. sugar, ethanol, and other economically significant goods and by-products, particularly their production, consumption, transportation, and export, is likely to be affected owing to the prolonged lockdown due to the COVID-19 epidemic. According to the Indian Sugar Mills Association (ISMA), sugar mills have over INR 70,000 crore in unsold sugar and ethanol stocks, and demand for ethanol has dropped as a result of the sharp drop in gasoline use. Sugar mills' cash flow has been harmed as a result of these factors, and they have been unable to pay cane growers. Even if the ban is removed by the end of May 2020, the sector will not be able to make up for lost time. COVID19's potential consequences are addressed, as well as the government's and industries realistic responses in these trying circumstances.

2 Impact of Covid-19 restrictions on sugar industry

There was a decrease in sugar output in the nation during the early days of the lockdown owing to a lack of labour and key inputs such as lime, sulphur, packaging material, and other associated difficulties. Sugar mills throughout India that have not completed their sugarcane crushing operations will

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continue to operate because sugarcane and sugar are major components of the Essential Commodity Act 1955. The Ministry of Home Affairs has released required instructions on the steps to be taken to control the COVID-19 pandemic in the nation, which said that industrial facilities would stay closed; however, production and transportation of vital goods would be exempted. The government has guaranteed that trucks transporting key sugar industry supplies may travel freely between states and within states. The Ministry of Consumer Affairs, Food and Public Distribution has also taken measures to guarantee that essential inputs for sugar production facilities, including as sulphur, lime, phosphoric acid, and packaging bags, are available to ensure that sugar mills can continue to operate without interruption. During the latter stages of the shutdown, this has made it easier for the sugar mills to run smoothly. Sugar mills in the nation produced 24.8 million tonnes of sugar as of April 15, 2020, a decrease of nearly 20% (6.4 million tonnes) from the previous year. Sugar output of 27 MT may be anticipated this sugar season, given that crushing operations in 90 sugar mills are still going strong owing to cane availability. Sugar mills throughout the nation produced 25.80MT of sugar between October 1, 2019 and April 30, 2020, according to ISMA. This is 6.37 MT fewer than the 32.17 MT of sugar produced in the same time the previous year. In the 2019–2020 season, India is projected to produce 26.85 million tonnes of sugar, down from 33.16 million tonnes the previous year. The recent corona crisis (COVID-19) is having a negative impact on the sugar industry's current and future operations by interfering with national and international sugar and ethanol trade. It will have an impact on sugar sector stakeholders and related industries, either directly or indirectly. The COVID-19 lockout would have a major effect on sugar consumption. Because ice cream, cold beverages, and confectionary are made less during this time, there is expected to be a significant drop in sugar demand from the general public. Sugar supplies to aerated and non-aerated beverage producers have been significantly curtailed since bottling facilities have ceased operations during the summer months, when demand for such drinks is highest. Because all hotels, restaurants, bars, sweetmeat stores, and other miscellaneous food businesses have been shuttered, the hotel, retail, and catering market sector, which is one of the biggest users of sugar, is one of the most badly affected by the nationwide lockdown. In India, institutional sugar consumption is estimated to account for around 65 percent of total domestic sugar sales. The corona epidemic may reduce domestic sugar consumption by 1.0–1.5 million tonnes. Sugar mills have been unable to meet their monthly sugar sales quotas due to a drop in demand, resulting in a loss of revenue. As a result, mills are unable to pay cane arrears to farmers due to a lack of working capital realization. Sugar mills are battling to pay INR 16,000 crore in cane arrears, since sales have dropped by half and worldwide prices have plummeted. The government recently took the positive move of extending the deadline for selling the sugar sale quota to March 2020. Sugar millers throughout the nation have been relieved to be able to sell their sugar inventories as a result of this. Sugar prices have dropped significantly as a result of the decreased demand and use. As a result, many nations, including India, may find sugar export to be an unattractive option. This will result in a 10–12 million-ton rise in sugar stock carryover in India. Iran, Somalia, Malaysia, Bangladesh, and Sri Lanka are the main export destinations for Indian sugar. Due to low container traffic, restricted labour availability, the lack of courier services and public transportation, and little customs activities during the COVID-19 crisis, port operations have slowed. According to the All India Sugar Trade Association, Indian mills have sent out 2.86 million tonnes of the 3.75 million tonnes of sugar export agreements agreed upon since the season began on October 1, 2019. In this season, which began in October 2019, sugar mills have dispatched almost 3.0 million tonnes of sugar from their stockpiles, compared to an MAEQ (Maximum Admissible Export Quantity) goal of 6.0 million tonnes. Sugar sales in India have suffered a hit in both local and international markets as a result of the countrywide quarantine imposed to prevent the spread of the deadly COVID-19 virus. However, India's export prospects are not hopeless. Even though exports aren't very appealing on a global scale, Indonesian sugar markets remain a safe bet, especially with Thailand, a key sugar exporter to Indonesia, reporting a 6.5 MT decrease in sugar output, which is likely to continue next year. The Indonesian government's recent decision to allow 600 ICUMSA sugar from India, Australia, and Thailand to be imported duty-free adds to India's ability to export significant amounts of sugar to Indonesia. In addition, the Indonesian government has given its refineries an extra import quota. This scenario may benefit the Indian sugar sector, and this nation can become a significant export market for India. ISMA and the sugar mills are now resting their hopes on potential exports to Indonesia to make up for the losses that have accumulated.

Diversion of cane for ethanol production and associated byproducts is another major sector that will be affected. Because of the drop in crude oil prices, diverting cane to ethanol production has become unprofitable. The price of crude oil fell to US$32/barrel in March 2020, and the COVID19 pandemic may cause it to fall even lower to US$20/barrel. As a result, millers in Brazil may shift more cane to sugar production rather than ethanol, which is losing market share to gasoline. In Brazil, just 52 percent of the canes will be diverted for ethanol production (as opposed to the normal 67 percent), implying a 6–7 million tonne rise in sugar output. This is anticipated to result in a worldwide sugar glut, with global sugar prices falling from USD 425 per tonne of sugar to approximately USD 300 per tonne of sugar. This will make sugar exports to global markets unfavourable once again. Fresh sugar procurement from mills is expected to begin shortly, since the supply chain has mostly dried up over the past several weeks, which should keep sugar prices in check while helping local mills. In terms of ethanol production in India, a decrease in ethanol off-take by OMCs caused an early setback, but reallocation to various sites has resulted in a more regularised off-take. In Jharkhand, Bengal, Madhya Pradesh, Chhattisgarh, Rajasthan, Gujarat, Andhra Pradesh, Telangana, and Kerala, ethanol is now being delivered to newer depots. Efforts are being made to investigate whether ethanol can be sent to Odisha and Assam as well. Furthermore, several sugar mills have begun producing alcohol-based hand sanitizers. Due to the increasing demand for hand sanitizers as a result of the COVID-19 epidemic, the Essential Commodities Act has designated ‘‘Hand Sanitizers" as an essential product until June 30, 2020. Sugar millers all across the nation are helping to meet the growing demand for alcohol-based sanitizers. According to the Indian Sugar Mills Association, the local sugar sector could provide sufficient amounts of ethanol or extra neutral alcohol (ENA) to meet the demand for hand sanitizers. Nearly 50 sugar mills throughout India have produced 100,000 litres of sanitizer each day. Most sugar companies have successfully launched this new segment of hand sanitizer production very quickly. Those who have already forayed into the segment include firms such as Balrampur Chini Mills Ltd., Uttar Pradesh, Bajaj Hindusthan Sugar Ltd., Dhampur Sugar Mills Ltd., sugar mills under the Triveni Group, Dalmia Sugars, and others. The slow spread of COVID19 has been claimed to have had a significant impact on continuing sugarcane harvesting and transportation in a few states, including Maharashtra and Karnataka. The countrywide lockdown has had a negative impact on the sugar sector in Maharashtra, causing an undue delay in the harvesting of over 1.0 million tonnes of sugarcane, potentially reducing sugar output by more than one lakh metric tonnes in the state. Between October 2019 and March 2020, companies in Karnataka crushed 3.38 million tonnes of sugarcane, a 15% decrease from the previous year's comparable period. However, it is believed that more over 90% of the cane crushing in Uttar Pradesh has been finished. According to a recent study, Uttar Pradesh produced

12.42 million tonnes of sugar on May 23, 2020, which is 6.82 million tonnes more than the previous year. Due to the lockdown, companies have been instructed not to let workers to leave their workplaces and to make required food and shelter preparations. For smooth operations, the government recently issued appropriate instructions that the whole value chain, including cane, sugar, ethanol, and other by-products, be placed under the essential commodities act (ECA). This is critical in light of the spring and summer plantings that are now taking place in the North Indian states. The lockout and the difficulties that come with it may have an impact on sugarcane planting and field upkeep to some degree. Even though an overall normal monsoon is expected, below-average rainfall in June and a prolonged dry spell in July are expected, which may contribute to the challenges encountered during the crop's early stages. As a result, there is a chance that sugarcane output may fall somewhat between 2020 and 2021, although overall projections indicate that cane production will be higher than in the present year. In the aftermath of the COVID-19 danger, the Indian Council of Agricultural Research (ICAR) has issued an advice for Rabi crop harvesting and threshing, as well as post-harvest, storage, and sale of agricultural products, including sugarcane. This should, to a large degree, assist the stakeholders in overcoming adversity. The production of jiggery is another linked industry that has been badly impacted by COVID-19. The lack of labour has hampered the operations of jaggery factories all across the nation. However, if a steady supply of laborers is available, the jiggery industry may take advantage of the circumstance, and any unharnessed cane can be transferred to jaggery manufacturing. Standing canes can be used for jiggery production using household labour, particularly in areas where mills have closed due to a lack of laborers for cane harvesting. According to statistics from the Centre for Monitoring Indian Economy (CMIE), India's unemployment rate increased to 24.6 percent on May 7, 2020, as a result of the suspension of economic activity to combat the spread of COVID-19. Concerns have been raised regarding the impact of the COVID-19 pandemic on the sugar sector, which employs around 0.5 million people and accounts for 7.5 percent of the country's total rural population. Farm operations are expected to be hindered in certain areas due to a labour shortage. To help alleviate the situation, India's Finance Minister announced an INR 1.7 trillion plan, aimed primarily at protecting vulnerable groups (such as farmers) from the effects of the Corona epidemic. In addition, the early payment of INR 2000 to farmers' bank accounts as income assistance under the PM-KISAN programme was announced. A special PM-CARES (Prime Minister Citizen Support and Relief in Emergency Situations) fund has been established to provide cash and food assistance to those working in the informal sector, mainly migratory laborers.

3 The Sugar Industry in India: What's Next?

- Sugarcane is a labor-intensive, long-term crop, thus lengthy periods of/frequent lockdowns may disrupt planting and field activities. Mechanization initiatives for various cultural activities such as planting, inter-cultural operations, ratoon control, and harvesting should be prioritized.
- Small and marginal farmers should be given first attention when it comes to custom-hiring facilities and cost-effective agricultural equipment.
- The sugar industry should investigate AI's potential uses in sugarcane production management, crop and soil health monitoring, predictive crop analysis, and smart supply chain creation.
- Diversification/specialty goods and value addition should be prioritized in the Indian sugar sector. Sugarcane co-products and sugars should be used to create specialized sugars, low GI sugars, neutraceuticals, wellness goods, medicines, and other items.
- Bagasse (chemicals, resins), filter cake (bio-methane, bio-CNG), and other by-products should be used commercially. Why Since air quality increased throughout the lockdown period, according to several studies, this air quality must be maintained, and ethanol blending may be an efficient way to accomplish this goal. As a consequence, more sugarcane molasses/juice may be processed for ethanol generation, and 10% or higher blending should be achieved as soon as possible. In the years 2019–2020, 5.11 billion litres of ethanol are expected to be required, despite the fact that total installed capacity in sugar mills is only 3.55 billion litres. Using all available resources, such as cane juice and B-Heavy molasses, our sugar mills have plenty of space to increase their ethanol production.COVID-19 has highlighted the need of maintaining sanitary conditions, and hand sanitizer manufacturing may be a continuous activity. In the near future, this will also result in increased demand for RS and ENA.
- With appropriate use of future possibilities, the industry should place a greater emphasis on globalization of manufacturing and other services/products.
- India's alcohol business is the world's third biggest, with sales in the spirits sector expected to reach US$ 36,944 million by 2020. The market is projected to expand at a 6.6 percent annual rate from 2020 to 2023 (CAGR 2020–2023). India has a 1000 million litre IMFL shortfall, with space for more. If the government of India makes obligatory the use of 10% ethanol in gasoline, additional 1380 million gallons of fuel would be needed. As a result, the sugar industry has a great opportunity to increase IMFL production by expanding the capacity of its distilleries and developing advanced technologies to produce ethanol from a variety of raw materials, including biomass, sugar beet, leftover grains, potato/starch-based products, and so on.
- The government has authorized a subsidy of INR 10,448 ($137.5) per tonne for exports of 6 million tonnes in the 2019–2020 seasons, which ends on September 30. This is in order to decrease debt and minimize increasing stocks. The Indian government should take more efforts like these. The sugar mills in Karnataka have requested an INR 1000 crore rescue package from the state government in the form of soft loans, government guarantees to meet cane payments, and mill upkeep, among other things. The South Indian Sugar Mills Association (SISMA) has also asked that governments provide sugarcane farmers with free fertilizers, insecticides, and additional credit facilities. In essence, all sugar sector subsidies and soft loans should be given to the food ministry in a budgeted package and disbursed against mill claims. Banking institutions should provide a 6- to 9-month moratorium on agricultural term and crop loans.
- Opportunities for agribusiness, entrepreneurship, and export in a variety of open pan goods, organic sugar, organic chewing cane, and juice.

4 Conclusion

Due to the continuing COVID-19 issue, the industry is at a fork in the road, and micro-level planning for identifying the sugar sector's present and future developmental needs is critical. This is necessary so that farm and industrial production can be maintained despite limited resources and severe weather conditions, and stakeholders throughout the value chain—farmers, millers, retailers, and international traders—benefit. Many of these effects may be transient, and the sector could quickly recover, as it has in the past. However, measures like as increasing automation in grower fields, diversification and ethanol blending, value addition, and others are here to stay and strengthen, allowing the sector to overcome such unexpected setbacks and difficulties and move toward greater sustainability.

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