

MANAGEMENT DISCUSSION & ANALYSIS



SUGAR BUSINESS

MARKET OVERVIEW

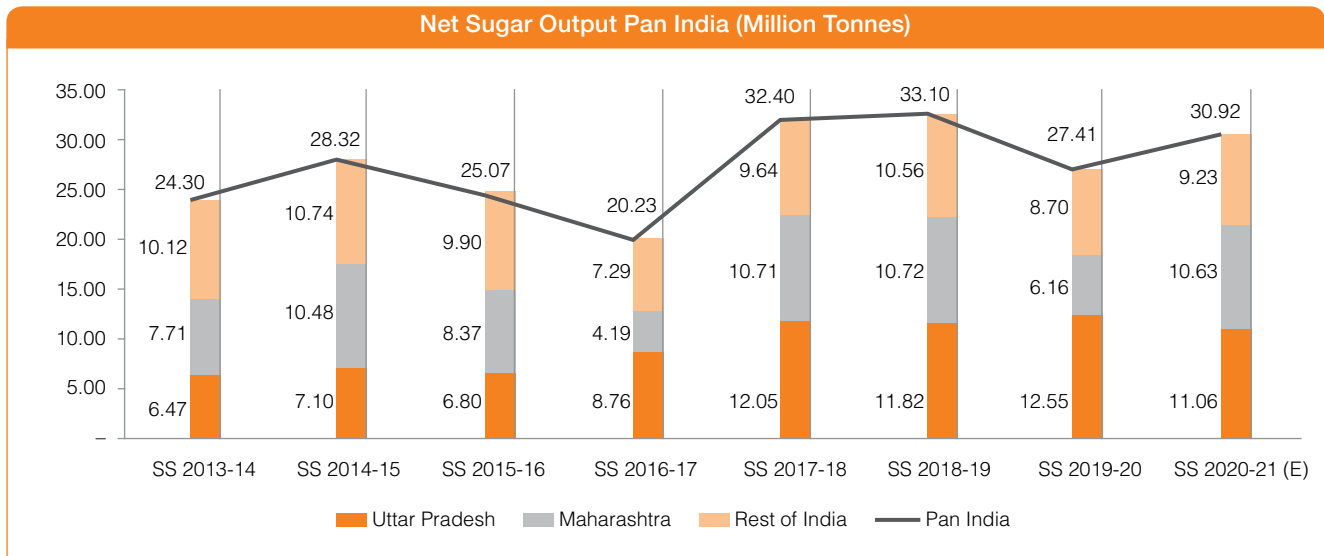
Sugar industry is one of the largest agro-based industries in India, with a total turnover of over ₹1,00,000 crore including sugar and its co-products. It contributes significantly to the nation's socio-economic development. Around 50 million farmers, along with around 2.5 million farm and industrial workers are involved in sugarcane farming and the sugar manufacturing value chain.

Over the past few years, Indian sugar industry has witnessed a structural shift from a cyclical industry into more secular and consistent performance-based industry. The country, over the past few years, has witnessed consistent production much above the consumption levels, which led to a surplus scenario. This was primarily due to improved yields of sugarcane by ~25% coupled with improved recoveries of ~1.5% and the key factor that led to this improvement was change in varietal mix in the largest sugar producing state of Uttar Pradesh (UP). This surplus scenario resulted in India becoming a regular exporter of sugar in the range of 5-6 million tonnes per annum for the past two years and estimated to export 7 million tonnes in SS 2020-21. Another important factor which facilitated the structural shift is a consistent Government policy with regard to sugar and sugarcane

pricing, ethanol blending programme as well as a robust export programme.

The change in varietal balance achieved across the state of UP has been phenomenal with the area under sugarcane for early and high sugar varieties going up to 90% in SS 2019-20 in comparison to an insignificant share of ~11% a decade ago. This has resulted in the state becoming the highest sugarcane and sugar producing state.

Graph showing the sugar production between UP & Maharashtra & All India trend of which amply highlights the share of UP in the all India production over the course of last eight years.



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India has gained a significant role in the global sugar production, being the second largest producer of sugar while it holds the first position in terms of consumption globally. Over the past four years, on account of the surplus sugar production in the country, India is also gaining its presence in the global trade.

The sugar mills in India have transformed significantly in the past decade by producing sugar, bio-electricity, bio-ethanol, bio-manure and chemicals which contribute ~1.1% to the national GDP. Currently, the sugarcane and sugar related economic activities led to an annual turnover of over ₹ 1,00,000 crore.

For SS 2020-21, the sugar production in the country is expected to increase by ~13% y-o-y to 30.9 million tonnes after considering sugar diversion of about 2.14 million tonnes towards ethanol production during the year as against 27.4 million tonnes in the previous season. The annual sugar consumption of the country is around 26 million tonnes which is the highest globally. India is among the largest producers of sugar globally and it can now be categorised as a structural surplus sugar producing nation as well.

The sugar industry is one of the key strategic focus areas of the Central Government on account of its large stakeholder base as well as its role as a significant facilitator in implementing the clean energy programme for the Government. The various proactive measures by the Government have been instrumental in maintaining the sustainable performance of the industry in the recent years.

Indian Sugar Industry during COVID-19

The global economy has been impacted by the COVID-19 pandemic. The sugar industry in India has largely been safeguarded from this impact mainly on account of the Central and State Government's proactive measures since the industry manufactures "essential goods". The sugar industry operated without any interruption although it faced logistics challenges but these were overcome due to the active support of both the State and Central Government.

Sugar production continued even during the lockdown period of March 2020 till May 2020. Though the overall sugar off-take was lower during the April 2020 and initial days of May 2020, it later picked up due to rise in institutional demand as the manufacturing activities opened up and consumer demand rose. The sugar exports were impacted for a brief period and significant quantity was stuck at the ports but by the end of the first quarter of the financial year, exports also resumed at full momentum.

Domestic Sugar Balance Sheet

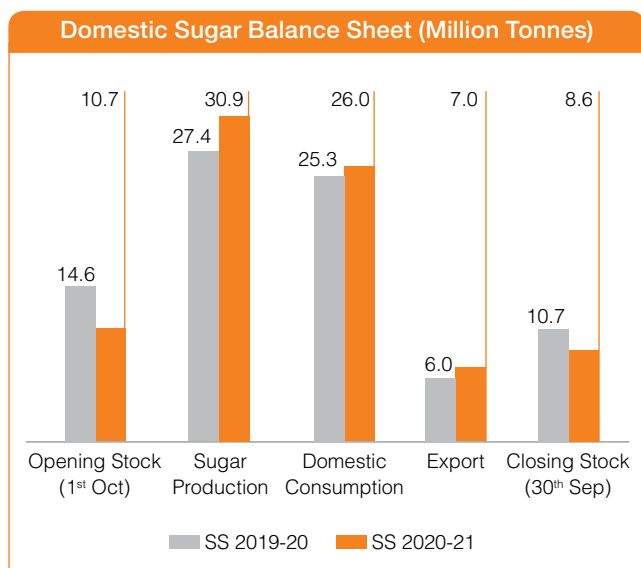
For SS 2020-21, the sugar production is estimated to be around 30.92 million tonnes with a likely diversion of over 2.14 million tonnes for ethanol production. In the previous season of SS 2019-20, the sugar production stood at ~27.41 million tonnes and 0.8 million tonnes was diverted for ethanol production.

Sugar production estimates for UP are about 11.06 million tonnes in SS 2020-21 as against 12.55 million tonnes produced in SS 2019-20. The lower estimates in sugar production in UP are reportedly on account of lower sugarcane yields and lower sugar recoveries due to climatic factors and higher diversion to gur/khandsari units as well as through B-heavy molasses for ethanol production. Further, during the current season, it is estimated that approx. 0.73 million tonnes of sugar will be diverted for production of ethanol using B-heavy molasses and sugarcane juice, which is an increase of 78% over the previous season.

Maharashtra has produced about 70% more sugar than the previous season at 10.63 million tonnes while Karnataka has produced 4.17 million tonnes of sugar as compared to 3.38 million tonnes last season.

India started its SS 2020-21 (October to September) with an opening inventory of 10.7 million tonnes as on October 1, 2020. As on 30th June, the actual production of sugar stood at 30.66 million tonnes. Only 5 sugar mills were still operational in the country. With the opening stock of 10.7 million tonnes, the total sugar availability in the country for SS 2020-21 is estimated at 41.6 million tonnes. The sugar consumption is estimated at 26 million tonnes and with expected exports of around 7 million tonnes, thus the total offtake during the season is estimated to be around 33 million tonnes which will lead to the estimated closing inventory of sugar at 8.6 million tonnes on September 30, 2021.

For SS 2020-21, the sugar production is estimated to be around 30.92 million tonnes with a likely diversion of over 2.14 million tonnes for ethanol production.



Source: ISMA

Note: Data for SS 2020-21 is estimated

Domestic Sugar Balance Sheet (Million Tonnes)

	SS 2019-20	SS 2020-21
Opening Stock (1 st October)	14.6	10.7
Sugar Production	27.4	30.9
Domestic Consumption	25.3	26.0
Exports	6.0	7.0
Closing Stock (30 th September)	10.7	8.6

Global Sugar Balance Sheet

The world sugar market is extremely volatile and is affected by the sugar policies of the key sugar producing countries notably Brazil, Thailand and India. The demand-supply dynamics in the global market is impacted by the production

in these three key countries and thus affect the global sugar prices and the trading price levels.

As per recent global reports (International Sugar Organisation (ISO)), the global deficit forecast has been lowered for 2020-21 from 4.8 million tonnes earlier to 3.1 million tonnes. The World output is also expected to fall by 1.92 million tonnes in the current year. Due to the pandemic, the consumption should also reduce to 172.4 million tonnes down from 173.8 million tonnes previously forecasted but still up 1.2% year-on-year.

As per reports, the major sugarcane producing region in Brazil, Centre-South Brazil, completed the 2020-21 (April/March) harvest with 605.46 million tonnes of sugarcane crushing which is an increase of 2.6% over the 590.36 million tonnes crushed in 2019-20 as per the industry data. The Centre-South (CS) region of Brazil processed 46.07% of total raw material into sugar during the 2020-2021 harvest producing 38.46 million tonnes of the sugar, representing a 43.73% increase over 26.76 million tonnes in the previous cycle.

As on Jun 29, 2021, reports indicated that sugar production estimates for Brazil's CS region's 2021-22 were revised downwards to 34.1 million tonnes from an April projection of 35.6 million tonnes, as persistent dry weather hurt cane development, food trader and supply chain services. It was also reported that Brazilian millers will be able to crush only 535 million tonnes of sugarcane this season, down from earlier estimates of 558 million tonnes. The update estimates for sugarcane crush are the lowest since 2012.

In Thailand, according to industry reports, the sugarcane crop in Thailand in 2020-21 suffered from unfavourable weather conditions again leading to decline in sugar production to 7.6 million tonnes as against 8.27 million tonnes in 2019-20. Higher local cane prices and forecasts of ample rains suggest a production recovery in Thailand for 2021-22 to be about 10.5 million tonnes, up 38% year-on-year.

Global Sugar Balance Sheet (Million Tonnes)

	SS 2019-20	SS 2020-21	Change in Million Tonnes	Change in %
Production	171.16	169.24	(1.92)	(1.1)
Consumption	170.27	172.38	2.11	1.2
Surplus/Deficit	0.89	(3.14)		
Import Demand	66.50	61.70	(4.80)	(7.2)
Export Availability	66.55	61.96	(4.59)	(6.9)
End Stocks	97.61	94.22	(3.39)	(3.5)
Stocks/Consumption Ratio (%)	57.33	54.66		

Government Policies

In order to support the dynamics of the sugar market and ensure timely payments to the farmers, the Central Government announced various measures during the current season:

1. An export quota of 6.0 million tonnes was allocated to all sugar mills on December 31, 2020 with export date till September 30, 2021 and notified scheme for providing assistance to the sugar mills for expense on marketing costs including handling, upgrading and other processing costs and costs of international and internal transport and freight charges on export of sugar. The aggregate assistance under this scheme was prescribed at ₹ 6,000 per tonne of exports to be used to clear cane payment dues of farmers.
2. Fixed Remunerative Price (FRP) of sugarcane for SS 2020-21 was increased by ₹ 10/quintal to ₹ 285/quintal calculated at 10% recovery with a premium of ₹ 2.85 per quintal for every 0.1% rise in recovery.
3. Minimum Selling Price (MSP) fixed by the Government in Feb 2020 at ₹ 31/kg remained unchanged.
4. The Government of UP kept the sugarcane prices at the same level as last year for the current SS 2020-21. The State Advised Price (SAP) remained at ₹ 315 per quintal for the common variety, while the prices for early variety and rejected varieties of sugarcane remained at ₹ 325 and ₹ 310 per quintal, respectively.
5. The release quota mechanism set up by the Government in the last season is also continued during the current season so as to regulate the supply of sugar into the market, thereby enabling steady sugar prices in the market.
6. Later on May 20, 2021, the Government announced a reduction in its assistance to the export of sugar from ₹ 6,000 per tonne to ₹ 4,000 per tonne of sugar against MAEQ for SS 2020-21 owing to global market dynamics. The reduced assistance is be applicable for the quantity of Maximum Admissible Export Quantity (MAEQ) for which the export contracts/agreements are signed on or after May 20, 2021

Sugarcane Prices

The Central Government announced Fair & Remunerative Price (FRP) for sugarcane and for SS 2020-21 was increased

by ₹ 100 per tonne at ₹ 2,850 per tonne as per guidelines of Commission for Agricultural Costs and Prices (CACFP).

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Sugarcane pricing plays a significant factor in the competitiveness of Indian industry. In view of high sugarcane cost and the resultant higher cost of production of sugar, it is not possible to compete with the export prices without any support from the Government. Sugarcane price in India is 70-80% higher than that of Brazil or Thailand. For self-sufficiency, sugarcane pricing policies would need rationalisation and these need to be brought in tune with global practices. In the state of UP, sugarcane arrears as on May 31, 2021 stood at ₹ 11,803 crore. The Maharashtra sugarcane arrears based on FRP excluding Harvest & Transport (H&T) stood at ₹ 957 crore as on June 15, 2021.

The mismatch between sugar prices and cane prices adversely affects the liquidity of mills and their ability to pay the sugarcane price to sugarcane farmers. The sugarcane farmers and sugar mills are hopeful of an early announcement by the Government regarding increase in MSP of sugar as a measure to improve revenue realisation by mills and payment to farmers, which will in turn ease the current situation of very high sugarcane price arrears.

Sugar Exports

On the export front, Indian millers had achieved export programme for SS 2019-20 and the country exported 6 million tonnes, even though exports were impacted due to lockdown and other logistics problems. Similarly, sugar industry has responded well to SS 2020-21 export programme, even though it was announced late in Dec 2020 after the commencement of the SS 2020-21. Strong international prices helped Indian sugar industry to contract significant quantity of sugar in a short span of time. Market reports are encouraging and indicate that, as on June 15, 2021, contracts of ~5.8 million tonnes have already been made so far out of 6 million tonnes for the current season prescribed by the Central Government. It is also estimated that physical exports of almost 4.4 – 4.5 million tonnes of sugar have been completed during January 2021 to May 2021. In view of strong international prices,

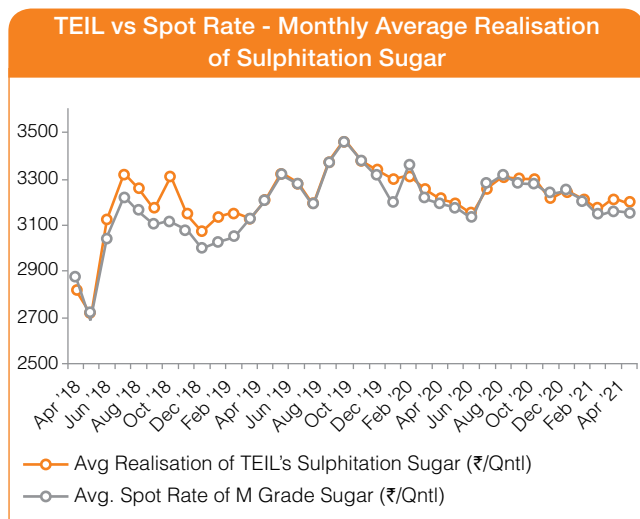
sugar may be exported even beyond export quota of 6 million tonne under Open General Licence (OGL) without availing any export assistance from the Government to maintain liquidity of funds and to generate adequate funds to be able to pay the full cane price to sugarcane farmers. It is possible that export quota may even be surpassed by up to one million tonne, including spill over from the previous season export quota. Expected substantial exports will help in correcting the surplus sugar inventories.

Sugar Prices

Domestic

The average sugar prices for the industry remained range bound during SS 2020-21 with a peak reaching ₹ 3,300 per quintal from a bottom of ₹ 3,100 per quintal. This is mainly on account of the size of the release quota allocated to the domestic mills and brief impact of the lockdown. The carryover stocks of previous season combined with the stocks of SS 2020-21 led to higher inventory in North Indian states. This led to a variation in the domestic price realisation.

Further, the opening stock of 10.7 million tonnes at the start of the season, which is sufficient for more than 5 months' consumption as against the ideal stock equivalent of 2-2.5 months' consumption, also impacted the prices during the crushing season. Additionally, expected substantial increase in sugar production in the state, led many sugar mills from Maharashtra to sell in those markets that are traditionally catered by UP sugar mills. These sporadic sales were to alleviate the problem of storage of sugar and to improve their working capital, thereby putting pressure on the overall market prices.

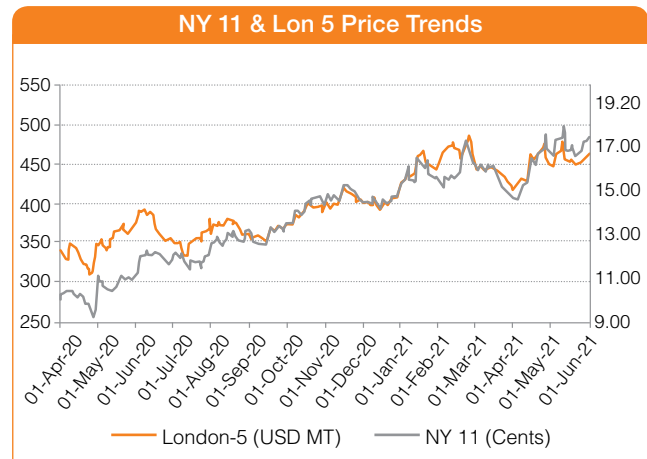


Global

In the last financial year, the global sugar prices remained at lower levels during the beginning of the year from April to May 2020 due to lockdown impacting the overall demand in various parts of the world. The prices started moving upwards from Sep 2020 with rising demand owing to ending of the lockdowns.

The lower production estimates from Thailand and higher diversion of sugar towards ethanol in India led to further firming of prices from September to December 2020. The prices further increased from January 2021 to February 2021 due to reports of dry conditions in Brazil and increasing energy prices and remained range bound since March 2021.

In view of estimated significantly lower production in Brazil in 2021-22, the supply may continue to be tight until Jan 2022 when supply of Thai sugar of 2021-22, which is expected to bounce back to over 10 million tonnes, starts entering the market. Until then, firm international sugar prices may be maintained. It may provide a window for the Indian sugar to export at remunerative prices.



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Sugar Business Performance

Triveni operates seven sugar units spread across the state of UP. Most of the mills are located in Western and Central UP, while one unit is located in Eastern UP. The Company manufactures refined sugar, which constitutes over 40% of the total sugar production and realises a premium over normal crystal sugar realisation. The refined sugar is supplied to high grade end-users, thereby creating a niche customer profile for Triveni. The Company also produces different grades of pharmaceutical sugar that can be customised as per the user requirements and over the past few years, has developed a large customer base for this product also.

The seven sugar units strictly adhere to best-in-class manufacturing processes and quality benchmarks. The Company supplies sugar to major multinational soft drink companies, leading confectionery manufacturers, breweries, pharmaceutical companies, dairies and leading ice cream producers.

The Sugar business has performed well in FY 21, owing to continuous improvement in reducing the cost of production of sugar, backed by stability in sugar prices. In terms of sugar production in SS 2020-21, the Company has been ranked second in the country with sugarcane crush of 8.54 million tonnes and sugar production of 0.94 million tonne. Khatauli Sugar Mill achieved the highest sugar production in the country as a single unit and second highest sugarcane crush in the country. Two sugar units recorded their highest ever

crush – Sabitgarh & Rani Nangal. Triveni's focussed sugarcane development programme, with almost 100% high yielding and high sugared variety sugarcane, helped the farmers achieve higher return as a result of high farm productivity while improving the Company's profitability through higher volume of sugarcane crush and improved recoveries of sugar. The production of over 40% refined sugar, coupled with the high-grade pharmaceutical quality sugar produced by the Company, helps it secure higher realisation. The pharma sugar production, which fetches a substantial premium over refined sugar, has also increased during the current sugar season. Such mix of co-product capacities further helps the Company optimise its overall profitability.

Over and above these factors, the strong financials of the Company and its ability to procure funds at a reasonable cost also contribute in achieving consistent profitability. Consequent to surplus sugar production in the country for several years, one of the biggest challenges for the sugar industry has been to effectively manage its working capital, which has increased significantly due to higher production and limited despatches through monthly quota. The Company has managed sugar inventories well through aggressively engaging in exports under the MAEQ scheme as well as through B-heavy molasses for production of ethanol. The total sugar quota for exports under SS 2020-21 MAEQ scheme is 1.82 lakh tonnes and the entire quota was contracted, of which 1.03 lakh tonnes have been physically despatched in FY 21.

Across UP, there has been a decrease in sugarcane yields and sugar recovery largely attributable to climatic factors as well as due to infestation of crop with disease in certain regions. This resulted in a significantly lower sugarcane availability particularly in eastern UP. Further, the sugarcane crush has reduced due to increased diversion (last year the diversion had been lower due to frequent rainfall & COVID-19 pandemic). The sugar production in the state of UP is around 11.06 million tonnes as on June 30, 2021 down from 12.55 million tonnes last year.

Five sugar units operated with B-heavy molasses diversion in SS 2020-21 (one sugar unit operated for part of the season) as against three units in SS 2019-20. This was done to ensure adequate feedstock (molasses) availability for its distillery units. Consequently, the amount of sugar diversion for the ethanol production has increased this season to 75,148 tonnes as compared to 37,004 tonnes in the previous season. Recovery

of 10.98% (Gross Recovery of 11.86% after adjustment on account of B-heavy molasses) recorded in SS 2020-21.

The Company crushed marginally 2.3% lower sugarcane at 8.54 million tonnes as compared to 8.74 million tonnes in the previous season. The decline is mainly due to general trend of lower yields in the state as well as extensive crop damage in Eastern UP due to heavy waterlogging resulting infestation of the crop with disease.

It is important to highlight that though the Company's sugarcane crush and sugar production during SS 2020-21 is lower than the previous sugar year, it has fared better than the state averages where the decline in crush and sugar production is much higher. For SS 2020-21, the Company's crush declined by 2.3% as compared to 8.2% decline for the state on an average. The Company's sugar production declined by 7.0% as compared to 13.0% decline for the state on an average.

(Million Tonnes)

Units	Sugar Recovery (%)		Sugarcane Crushed		Sugar Production	
	SS 2020-21	SS 2019-20	SS 2020-21	SS 2019-20	SS 2020-21	SS 2019-20
Khatauli	11.28	11.67	2.37	2.47	0.27	0.29
Deoband	10.47	10.95	1.60	1.68	0.17	0.18
Ramkola	11.17	12.00	0.64	0.83	0.07	0.10
Sabitgarh	11.50	12.11	1.13	0.97	0.13	0.12
Chandanpur	10.84	12.25	0.99	0.95	0.11	0.12
Rani Nangal	10.97	11.22	1.04	1.03	0.11	0.12
Milak Narayanpur	10.43	10.83	0.77	0.81	0.08	0.09
Group	10.98	11.54	8.54	8.74	0.94	1.01

The average domestic sugar price realisation for the Company was ₹ 32,703/tonne during the year as against ₹ 33,184/tonne in the previous year. Exports realisation price (excluding subsidy) stood at ₹ 24,381/tonne in FY 21 as against ₹ 19,716/tonne in FY 20.

The average domestic sugar price realisation for the Company was ₹ 32,703/tonne during the year as against ₹ 33,184/tonne in the previous year. Exports realisation price (excluding subsidy) stood at ₹ 24,381/tonne in FY 21 as against ₹ 19,716/tonne in FY 20.

Sugar Business comprises three grid-connected large capacity co-generation plants and three smaller co-generation capacities (incidental co-generation facilities) at its five sugar units, namely Khatauli, Deoband, Chandanpur, Milak Narayanpur and Sabitgarh units. Triveni's co-generation plants at Khatauli and Deoband utilise highly efficient 87 ata / 515°C steam cycle to maximise efficient usage of bagasse. After meeting the sugar factory's captive requirement, as well as the co-generation plant's auxiliary power requirement, surplus power from these plants is exported to the grid. The Company has power purchase agreements with Uttar Pradesh Power Corporation Ltd. (UPPCL) for all its co-generation facilities.

Unit-wise capacities of the co-generation plants are as follows:

S.No.	Name of Unit	Capacity (MW)
1	Deoband	22.0
2	Khatauli - Phase 1 & Phase 2*	46.0
3	Sabitgarh	13.5
4	Chandanpur	10.0
5	Milak Narayanpur	13.0
	Total	104.5

*Note: Khatauli - Phase 1 & Phase 2 are 23 MW each

Co-generation operations (including incidental co-generation) exported 2,239 lakh units to the grid during the current year as against 1,831 lakh units in the previous year. Consequently, external sales increased to ₹ 68.35 crore in the current year from ₹ 54.16 crore in the previous year, a growth of 26%.

Organic Growth through Triveni Sugarcane Development Programme

Triveni's sugarcane development programme is a key propeller of its socially and financially inclusive growth strategy. The Company continuously engages with the farmers to increase sugarcane productivity through its well-structured cane development programme. The dedicated team of sugarcane development staff works closely with the farmers, disseminating knowledge on the new technologies and innovations in the field of agriculture in general and sugarcane in particular.

The Company has been working relentlessly on varietal development, yield improvement and crop protection. The structured varietal development programme has been instrumental in faster multiplication and commercial exploitation of high sugar varieties e.g. Co-0238 & Co-98014 and hence provide an edge over the peers.

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Area under sugarcane (Ha)	167068	156671	166675	183423	194159	191840	195057
Sugarcane crushed (LQ)	512.72	452.07	640.03	836.70	797.58	874.25	853.97
Sugar produced (LQ)	49.1	48.8	70.8	95.2	94.0	100.9	93.8
Sugar Production (LQ) including sugar loss in B-heavy molasses	49.1	48.8	70.8	95.2	94.0	104.6	101.3
Recovery (%)	9.57	10.80	11.06	11.38	11.79	11.54	10.98
Recovery (%) – considering sugar loss in B-heavy molasses	9.57	10.80	11.06	11.38	11.79	11.97	11.86



The programme has helped in increasing productivity and farmers' income while simultaneously elevating standard of living and social and educational status of 3 lakh plus farmers. The programme is also aimed at helping the Government in achieving the goal of doubling farmers' income by 2022. Triveni's focus during the year remained on the following key activities:

- a. Propagation of high sucrose varieties
- b. Increasing productivity through adoption of new technologies and better farm management practices
- c. Soil health sustenance and improvement through a structured comprehensive programme of soil testing and nutrient recommendations
- d. Better irrigation techniques and water conservation

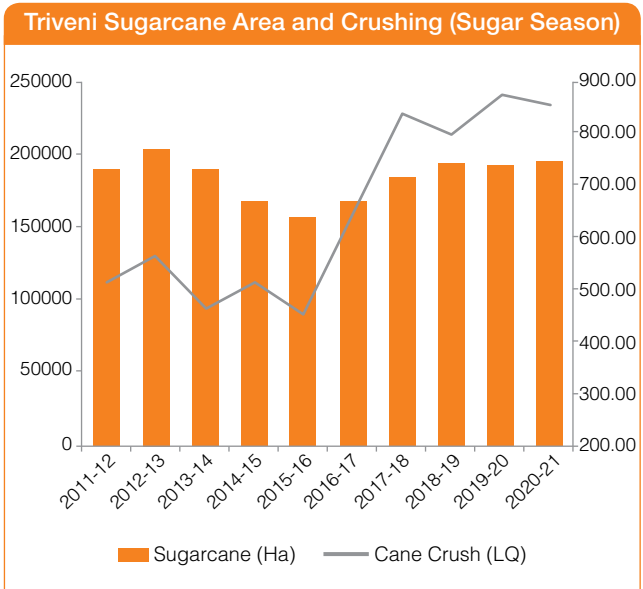
Cumulatively, these continuous efforts have led to increase in recovery along with significant increase in sugarcane productivity leading to increased sugarcane crushing. With the increasing incidence of red rot reported in Co-0238 throughout Eastern UP and some parts of Central UP, the Company has initiated varietal replacement plan at all its sugar units. Besides focussing on propagation of tested varieties e.g. Co118, Co 98014, CoLk 94184, Co J85 (along with CoJ 88, an improved variety), new varieties e.g. Co 15023 & Co S13235, are being explored. Techniques such as single bud planting are being adopted for faster propagation of the varieties.

The Company is continuously working on yield improvement. Wide row-to-row spacing (specifically, trench technique & paired row technique) besides application of balanced dosage of fertilisers based on soil analysis reports are being propagated aggressively.

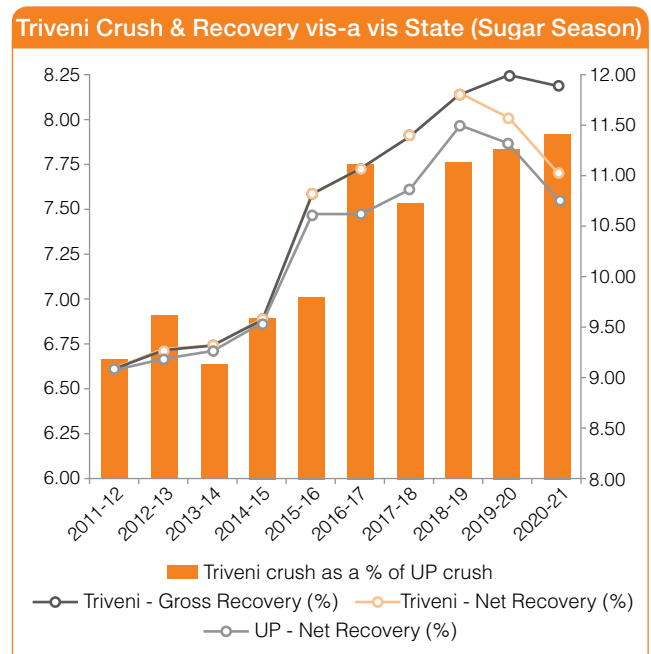
Since crop protection (protecting the standing crop from diseases & pests) is integral to the yield improvement endeavours, the Company is working aggressively on this aspect. It has specially incentivised availability of fungicides & pesticides for seed and soil treatment for the sugarcane farmers at all of its units.

The Company also persistently works on dissemination of knowledge on cropping methods for the overall growth of its farmers. They are being educated and persuaded to adopt new scientific and innovative techniques through a well-planned and structured extension programme, involving various digital and conventional tools.

Going forward, the Company believes that the sugar industry should explore potential applications of Artificial Intelligence (AI) in sugarcane production management, crop and soil health monitoring, predictive crop-analysis, while continually improving its existing smart and digital supply chain.

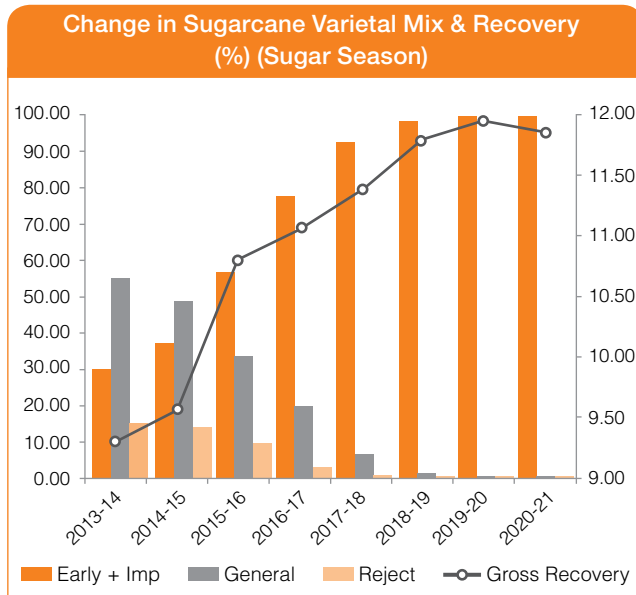


The area under sugarcane for the Company was marginally higher during SS 2020-21 as compared to SS 2019-20. However, the crushing reduced from 8.74 million tonnes in SS 2019-20 to 8.54 million tonnes in SS 2020-21 on account of climatic factors and red rot disease in certain regions.



(*) Gross recoveries (after adjustment on account of B-heavy molasses): 11.86% as against 11.97% in the previous period.

The Company has consistently performed better in terms of recovery as compared to average UP state recovery.



Note: Net recoveries (after adjustment on account of B-heavy molasses): 10.98% as against 11.54% in the previous period.

The Company has achieved around 100% area under early and improved variety of sugarcane in SS 2020-21.

Market Outlook

The sugarcane area in states like Maharashtra & Karnataka has increased as well as crop yield in SS 2020-21. The SS 2020-21 is likely to close with a stock of less than 9.0 million tonnes which is sufficient to cater to the domestic consumption for more than 4 months. The growing diversion of sugarcane juice, B-heavy molasses and C molasses towards ethanol production is positive for the demand-supply in the market which should maintain the prices range-bound.

Initial estimates of SS 2021-22 indicate a production of around 31.09 million tonnes considering rise in sugar production in Maharashtra & Karnataka, as well as increased diversion of sugar to B-heavy molasses / sugarcane juice by around 3.4 million. Water levels in these states are at comfortable levels and it is predicted that the monsoon is expected to be normal.

The sugar supply is expected to be higher than the demand in the domestic market in SS 2021-22. It is imperative that the Government continues to pursue its policy on sugar exports and sugar mills need to aggressively push the ethanol production. India has one of the highest cane prices globally and accordingly, Indian sugar cannot compete effectively in the international market based on its resultant cost structure. Since the Government may not be able to offer export subsidies beyond 2023 due to WTO issues, there is an urgent need to address high cane prices and bring in necessary reforms by way of fixing cane price through Revenue



Sharing Formula (RSF) and Price Stabilisation Fund (PSF). Accordingly, cane price should be fixed as a percentage of sugar revenues and the shortfall, if any, to be contributed by PSF, wherein funds would be contributed when the sugar prices are robust and are more than adequate to pay the cane price. Staggered payment of sugarcane price and increased focus on ethanol blending programme will go a long way to help the sugar sector and make it self-sufficient to operate on market forces with far less regulations and dependence on the Government. The Ethanol Blending Programme is the step in the right direction.

In the medium term, it is estimated that the prospects for the SS 2021-22 may be more balanced in the international market with a surplus of 1.7 million tonnes. Forecasts of ample rains and increase in sugarcane prices suggest a production recovery in Thailand during the next season to about 10.5 million tonnes. The consumption in the global market is expected to grow with little effect of the pandemic. If the oil prices continue to rule firm, the mix of sugar towards ethanol in Brazil may further improve, limiting sugar production for global supply. Considering these factors, the global market prices may remain range bound in medium term.

ALCOHOL BUSINESS

Ethanol Market Overview

The Central Government is focussed on reducing the country's dependence on imported crude oil while reducing the environmental impact of the pollution/emissions. In order to achieve this, the Government has been actively promoting the production and blending of fuel ethanol with petrol, and has targeted 20% blending (EBP20) by 2025. EBP20 which was earlier targeted by 2030, was advanced recently, which reaffirms the Government's focus and commitment.

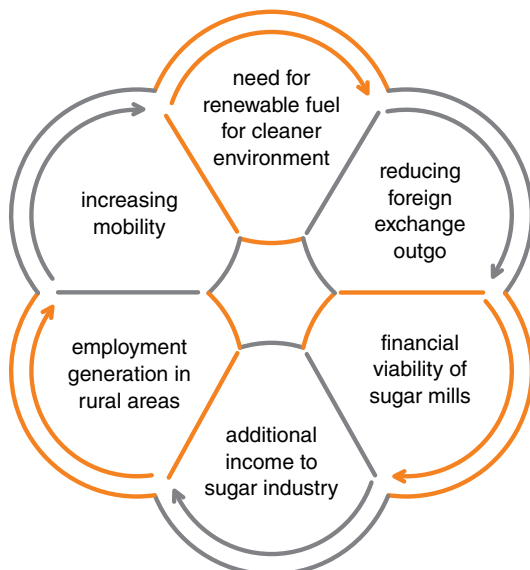
The blending programme brings several benefits, such as, increase in domestic energy production leading to increase in energy security; reduction of oil import bill, thereby saving foreign exchange; to address structural problems in sugar industry and provide remunerative income to farmers; make use of damaged and surplus grains; and address environmental concerns.

Ethanol Demand Drivers

With population growth and increasing urbanisation pushing the need for mobility, India's transportation sector is growing rapidly, causing dependence on oil to also concurrently rise. Considering the burgeoning oil import bill and the growing concern for the environment, there is a need to adopt non-conventional fuels.

Ethanol, being a value-added product from molasses – a co-product in the manufacture of sugar from sugarcane – benefits sugarcane farmers across the country.

The key drivers for the Ethanol Industry are:



Ethanol Demand-Supply Scenario

For the marketing year 2019-20 (December 2019 to November 2020), the Oil Marketing Companies (OMCs) estimated the requirement at 511 crore litres against which only ~ 195 crore litres were contracted and only 89% of the same was supplied. This resulted in an overall blending of 5% across the country. Around 770 million litres have been produced from B-heavy molasses and sugarcane juice, leading to a reduced production of sugar to the extent of 8,00,000 tonnes.

The ethanol blending programme for the past three years has been as under:

Comparative Supplies (for Marketing Year – Dec - Nov)

Particulars	2017-18	2018-19	2019-20
Supplies	150.50	188.55	173.05
	crore	crore	crore
Blending % age	4.22%	4.92%	5.00%

For the Marketing Year 2020-21, Oil Marketing Companies (OMCs) have issued a tender for 457.6 crore litres against which contracts were finalised for 348 crore litres. Of the total ethanol contracted, 12% quantity is from sugarcane juice and 13% quantity is from damaged foodgrains and surplus rice etc.

The OMCs issued the total Letter of Intent (LOI) quantity of 348 crore litres, during the current marketing year and contracted 326.10 crore litres and 169.4 crore litres of ethanol have been supplied as on June 24, 2021. About 77% of the total supply so far comprises of ethanol made from sugarcane juice/B-heavy molasses. The country, on an average, achieved a blending percentage of 7.79% so far in the current Marketing Year 2020-21, resulting in almost 8-10% blending in most of the states except Rajasthan, Kerala, West Bengal, Assam, NE states, Kashmir and Ladakh.

The Central Government announced the revised prices for ethanol for the season starting from Dec 2020 to Nov 2021: Ethanol from C-heavy molasses - ₹ 45.69/litre (+ ₹ 1.94/litre), Ethanol from B-heavy molasses - ₹ 57.61/litre (+ ₹ 3.34/litre) and Ethanol from sugarcane juice - ₹ 62.65/litre (+ ₹ 3.17/litre).

The Government is targeting to achieve 20% blending of Ethanol by 2025 which would largely solve the problem of excess sugar, relieve sugar industry from the problem of storage of surplus sugar, and also improve the revenue realisation of sugar mills leading to timely payment of

sugarcane dues of sugarcane farmers. EBP 20 is estimated to consume 6 million tonnes of surplus sugar which will lead to stable sugar prices as a result of matching of production with consumption.

Under the WTO norms, the Government cannot provide any assistance for sugar exports from 2023 onwards. In order to manage the demand-supply of sugar in the country after 2023, the Central Government is planning an investment to the tune of ₹ 41,000 crore to achieve the incremental ethanol production capacity.

There is a need of 1,016 crore litres of ethanol in order to achieve 20% blending in the country along with a higher installed capacity of 1,350 crore litres as sugar companies use part of ethanol for producing alcohol by fermenting it with grains, fruits or vegetables.

Government Policies

The various policy initiatives undertaken by the Indian Government for ethanol blending, over the years, include:

2021	Covering Ethanol Blended Petrol (EBP) programme target of 2025 vs 2030 earlier
2020	OMCs have given 5-year off-take programme as against the annual ones in the past
2019	Fixed higher ethanol price derived from different raw materials
2018	National Biofuel Policy
2017	Increase in Ethanol price for MY 2017-18
2016	Introduced mechanism for revision of ethanol price
2015	Fixed pricing mechanism with 10% blending
2013	Price decided through open tenders
2007	EBP with 5% blending mandatory; fixed procurement price
2002	EBP started



Historically, there have been notable interventions by the Government in this area such as the National Biofuel Policy, announced in 2018 for accelerated development and utilisation of biofuels in view of the direct and indirect subsidies to fossil fuels and distortions in energy pricing.

The Policy categorised biofuels as:

- “Basic Biofuels” - First Generation (1G) bioethanol and biodiesel
- “Advanced Biofuels” - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels
- Third Generation (3G) Biofuels, Bio-CNG etc.

The Policy expanded the scope of raw material for ethanol production by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, as well as damaged foodgrains like wheat, broken rice, rotten potatoes that are unfit for human consumption, for ethanol production.

The recent Government initiatives are given below:

- The Central Government, announced the revised prices for ethanol for the season starting from Dec 2020 to Nov 2021 whereby the ethanol from C molasses will realise ₹ 45.69/litre, an increase of ₹ 1.94/litre and the ethanol from B-heavy molasses will realise ₹ 57.61/litre an increase of ₹ 3.34/litre. The realisation from Sugarcane juice has been revised upward by ₹ 3.17/litre at ₹ 62.65/litre. This augur well for the sugar industry.
- The Central Government also announced a modified scheme for extending financial assistance by way of interest subvention for five years (on the loan availed from banks), @ 6% per annum or 50% of the rate of interest charged by banks whichever is lower, to incentivise enhancement of ethanol distillation capacity or to set up new distilleries for producing 1st Generation (1G) ethanol from feedstocks sugar beet, sweet sorghum, cereals etc. or converting molasses-based distilleries to dual feedstock. It is the step in the right direction to manage with the surplus sugar production in the country and to effectively utilise damaged and surplus grains. This is expected to bring an investment of about ₹ 40,000 crore
- The Government has also fixed remunerative prices of ethanol derived from various feedstocks
- Moreover, OMCs, being the assured buyer for ethanol, had issued tender in October 2020 for ethanol procurement for 2020-21 wherein they have indicated yearly quantity off-

take for the next 5 years. The medium term off-take visibility provided by the OMCs helps the sugar industry to plan its capex programme as there is more clarity in terms of off-take of ethanol over a longer period

- The Government is now targeting to achieve 20% blending of Ethanol by 2025 as against 2030 earlier, which would largely solve the problem of excess sugar, relieve sugar industry from the problem of storage of surplus sugar and also improve the revenue realisation of sugar mills leading to timely payment of sugarcane dues of sugarcane farmers

Our Facilities

The Company's Alcohol business presently comprises two distilleries with aggregate capacity of 320 Kilo Litre per Day (KLPD) – a) 160 KLPD at Muzaffarnagar district is a standalone distillery located between two large capacities sugar units, b) 160 KLPD distillery is located at Sabitgarh, district Bulandshahar, at one of the sugar units.

The Company plans to enhance the total distillation capacity to 660 KLPD before the commencement of the SS 2022-23, with expansion of existing distilleries and two new plants in the pipeline. The first is a new distillery being set up at our Milak Narayanpur sugar mill, which will be operated on molasses/sugarcane juice/syrup & grain. The second is a new grain-based distillery, being set up at Muzaffarnagar.

The existing distilleries are among the largest single stream molasses-based distilleries in India. These distilleries have assured access to consistent supply of captive raw material (molasses) – C as well as B-heavy molasses, sugarcane juice/syrup. In the upcoming distilleries, there would be flexibility to operate with dual feedstock as per the Government of India's Biofuel policy based on economics and availability.

The distillery at Muzaffarnagar has a flexible manufacturing process, allowing it to produce high quality Extra Neutral Alcohol (ENA), Rectified Spirit (RS), Specially Denatured Spirit (SDS) and Ethanol, based on the market dynamics and requirements, whereas the distillery at Sabitgarh is designed to produce only ethanol. The distilleries have been mainly producing ethanol over the last few years for supplying to Oil Marketing Companies (OMCs) for blending in petrol.

In line with the new directives and guidelines of the Government of India regarding effluent treatment and to ensure Zero Liquid Discharge (ZLD), all the distilleries of the Company are based on concentrated spent wash (termed as SLOP) fired incineration. The upcoming distilleries would also follow the same route to treat the effluent with ZLD system.

Sanitizer & Indian Made Indian Liquor (IMIL) plants

The Company had set up a modern hand sanitizer production facility at the existing distillery complex at Muzaffarnagar in the first quarter of FY 21. The objective was to cater to acute shortage of sanitizers to combat the spread of COVID-19. This endeavour of the Company ensured regular availability of the sanitizer from this facility to help fight against the pandemic.

Additionally, the Company has in December 2020 set up a IMIL production facility at its existing distillery complex Muzaffarnagar to capture value in respect of molasses, which are required to be sold to IMIL units at a price much lower than the market price of molasses (reserved molasses). As per the present molasses policy, 18% of C-heavy molasses are required to be sold to the IMIL units. Given the opportunity in the growing market of IMIL in UP, the Company decided to leverage the in-house production facility of ENA into quickly entering into the Indian Made Indian Liquor (IMIL) market. Accordingly, by using molasses in the manufacture of IMIL, the Company would reduce its obligation to supply the reserved molasses.

The Company has received an approval to process ENA up to 52.8 lakh litre for manufacture of IMIL and it has plans

to increase the capacity up to 3.0 lakh cases per month in phases. The products of the Company were launched in the third quarter of FY 21 and have been well received. The Company would be soon launching the Alco-beverages under multiple brands and would target superior market penetration using attractive packaging.

Other Value Add Products from the Distillery By-Products

At distillery unit located at Sabitgarh, the Company has set up a CO₂ Capturing Unit and an Ash Granulation Plant (ash from the incineration boiler is rich in potash content) on Built-Own & Operate (BOO) basis and the same are in operation.

Alcohol Business Performance

Triveni has maintained steady growth in this business, on account of the increasing focus on ethanol production. The proposed increase in capacity would be a further boost to the ethanol business of the Company. A judicious production plan based on B-heavy molasses as well as C-heavy molasses has helped the business to maximise the revenues. In view of ZLD ensured by the Company, higher 350 days operation has been permitted to both the distilleries, which has helped to increase the production.

Despatches

Particulars		FY 21		FY 20	
B-heavy - Ethanol	Lakh Ltrs	565	54%	238	28%
C-heavy - Ethanol	Lakh Ltrs	391	38%	581	69%
Total Ethanol	Lakh Ltrs	956	92%	819	97%
ENA + SDS	Lakh Ltrs	80	8%	27	3%
Total Despatches	Lakh Ltrs	1036		846	
Average Realisation	₹ / Ltr	48.90		46.09	

Production

Particulars		FY 21		FY 20	
Production					
Muzaffarnagar	Lakh Ltrs	543		525	
Sabitgarh	Lakh Ltrs	527		414	
Production (Mzn + Sbt)					
B-heavy - Ethanol	Lakh Ltrs	604	56%	316	34%
C-heavy - Ethanol	Lakh Ltrs	385	36%	577	61%
Total Ethanol	Lakh Ltrs	989	92%	893	95%
ENA + SDS	Lakh Ltrs	81	8%	45	5%
Total Production	Lakh Ltrs	1070		938	



The production and despatches are significantly higher in view of full year impact of the new distillery commissioned in the previous year whereas in the previous year, the operations of the new distillery were stabilised only by Q2 FY 20. During the current financial year, the Company produced 56% Ethanol from B-heavy molasses as compared to 34% last year. The profitability of the distillery in FY 21 is lower due to increased cost of molasses, higher fuel cost, especially during initial stabilisation period of incineration boiler at old distillery at Muzaffarnagar, and non-recurring expenses in relation to discarding of certain fixed assets consequent to installation of new incineration boiler. The distillery received contracts of 10.09 crore litres from OMCs during the ethanol supply year 2020-21.

Market Outlook

Ethanol, also known as fuel alcohol, is blended with petrol as a green fuel. Apart from augmenting the country's fuel self-sufficiency with cost advantage, it helps in reducing the carbon footprint and results in savings of precious foreign exchange on import of crude oil. As per the biofuel policy of the Central Government, ethanol blending was initially targeted at 20% by 2030, creating continued demand from indigenous suppliers. The target has been advanced by

5 years and now the Government is targeting 20% blending by 2025. Continued Government push and incentivisation has helped the industry to set up new facilities and increase the ethanol supplies. The Government has been helping the Industry through remunerative pricing of ethanol derived from various feedstock as well through significant interest subvention on loans availed to fund new capacities. This has helped the industry to significantly enhance the ethanol supplies to OMCs.

Further, loss of sugar in B-heavy molasses and sugarcane juice will also help sugar industry to rectify mismatch between production and consumption of sugar as presently, production being substantially more than the consumption.

The ethanol blending programme will provide alternate revenue stream to the sugar industry, stable earnings, mitigation of cyclicity of sugar sector and improvement in its risk profile.

Despite some glitches like slower lifting of ethanol by the OMCs and lockdown on account of pandemic, the supplies have been steady to OMCs. Going forward, it should help in earning more revenues from the existing distilleries as well as from the upcoming new distilleries.

POWER TRANSMISSION BUSINESS (PTB)

Power Transmission Business (PTB) of Triveni has three distinct segments - Gears, Built-to-Print and Defence Segment.

POWER TRANSMISSION BUSINESS

The Industrial Gears industry

The Gears Industry in India is categorised into Industrial Gears and Auto Gears. The Industrial Gears segment manufactures Gears, Gearboxes, Gear Motors and Gear Assemblies. Industrial gearboxes are a common type of power transmission devices, used as an intermediary equipment in various types of machineries and heavy electrical equipment. The majority of the players in the domestic market manufacture standard products i.e. standardised catalogue type, as it requires less customisation and engineering. There are only a few players in customised gears manufacturing, which requires advanced technology and stringent adherence to international quality and manufacturing standards, with requisite infrastructure and highly skilled manpower.

Demand Drivers

Industrial growth and in turn, industrial capital expenditure in sectors like Power, Steel, Refineries, Cement, Textiles, Sugar

and Mining stimulate the growth for industrial gearboxes market. High speed gears are widely used in turbo applications like steam turbines, gas turbines, compressors, pumps, blowers and test rigs. The aftermarket for above products is strongly linked to plant utilisation levels, cost pressures on maintenance budgets, policy of keeping insurance spares, emergency breakdowns and alternate sourcing other than global OEMs to bring down product life cycle costs.

The increasing deployment of digitalisation and robotics in manufacturing industries including paper, rubber, plastic, chemical, and cement with booming construction industry, especially in developing nations, is facilitating the growth of the industrial gearbox market. The growth in industrial segments require more power generation which in turn is expected to increase the steam turbine market and the industrial gearboxes. A rise in the adoption of combined-cycle natural gas plants as a reliable source of energy is one of the key reasons for the growth of the steam turbine and industrial gearboxes.

Large investments made by private organisations and Governments in material handling, metal and mining, construction, constant investments made in developing automation in India, China, and Japan, are expected to add to the growth in global industrial gearbox market.



The expansion of Oil & Gas downstream infrastructure is expected across the globe due to increasing demand for refined petroleum products. African countries such as Nigeria and Algeria are planning to become regional hubs for refiners and opportunities will arise for new refineries in these markets.

Business Opportunities

As a result of the policies being pursued by the Government of India, business sentiment and capacity utilisation have improved perceptibly and there are some indications of fresh capital investment in industrial segments like steel, cement, sugar and oil and gas. Increased acceptance of engineered capital goods from India in global markets has boosted sourcing from quality-conscious credible Indian manufacturers.

New opportunities for power generation is expected from Waste to Electricity from various states like Kerala, Punjab and Telangana. Besides, Waste Heat Recovery plants are becoming popular from cement and steel sectors.



In addition, there are many Government policies which may benefit the business in short & long term:

- BS-6 policy has given way to Refinery expansions, both brownfield and greenfield, having potential for high speed gearboxes for all applications
- Pollution control equipment are made mandatory for Thermal projects. The new standards are estimated to cut PM emissions from new thermal plants (after 2017) by 25%, sulphur dioxide emissions by 90%, nitrogen oxides by 70% and mercury by 75%. There will be requirement for Gearboxes for FGD – SO₂ reduction and Oxy blower requirements for NO₂ reduction in the next 3-4 years
- New nuclear power plants are under construction under the Department of Atomic Energy where opportunities will come for boiler feed water pump application

Segments – Products and Aftermarket

Products Domestic

This business caters to both High Speed Gears and niche Low Speed Gears segments used as speed increasers and speed reducers. It has a leadership position in High speed gears segment in India and enjoys a market share in the range of 80-90% across all major OEMs supplying Steam Turbines, Pumps and Compressors, FD and ID Fans.

Major customers for high speed gears segment include Indian OEMs of Steam Turbine, Gas Turbine, Centrifugal Pumps and Compressors, FD and ID Fans catering to API and Non-API segments. In the low speed segment, the Company caters to gearboxes used in reciprocating compressors, pumps mainly used in Oil & Gas and Fertiliser plants. The Company also caters to the low head hydropower units which require gearboxes for power generation.

Products Exports

Currently, Gears business is catering to international OEMs successfully in select geographies like Japan, Korea, China, Malaysia, and Indonesia and in Europe (Italy, France, Germany, and Spain), US and Latin America. During the year, the business entered new regions of Brazil and Czech Republic. Most of the global OEMs have relationship with PTB through their Indian operations which is being leveraged.

Products Highlights

- Products segment has seen 9% growth in order booking. Decline in turnover by 15% in the current year is due to COVID-19 related issues and constraints



The growth in industrial segments requires more power generation which in turn is expected to increase the steam turbine market and the industrial gearboxes.

- PTB witnessed contraction in orders from Domestic OEMs by 10% during the year partially due to COVID-19 impact and also due to sudden steel price hike
- Products exports order booking has increased by more than 200% during the year as a result of strategic push given over the past few years
- PTB bagged multiple orders for supply of compressor gears and gearboxes from India and overseas customers which may also be a potentially high growth segment going forward
- Received orders for Flue Gas Desulphurisation (FGD) blower application from domestic OEMs, carrying good future potential
- 6 New OEMs were added in FY 21

Aftermarket Domestic

Aftermarket segment caters to high speed and niche slow speed gears, gearboxes, services of Triveni and other global brands of gearboxes across industry segments including power upgrades, for API & AGMA requirements. Make-in-India initiative of the Government of India has been instrumental in the reduction of capital goods import, particularly from public sector, helping PTB business to push replacement solutions strongly.

Aftermarket Exports

Major focus in Aftermarket Exports was in the Middle East followed by South East Asia and East Africa. PTB intends to build on the existing strategy of spreading network of aligned agents to achieve growth in the export markets, as that remains a strong focus area for the business going forward.

Aftermarket Highlights

In view of numerous uncertainties due to COVID-19, the turnover of the aftermarket segment declined by 10% but

order booking was maintained at last year level, which aggregates to about 40% of overall PTB's business.

Consistent with the strategy of exploring new avenues and segments, PTB has expanded its presence in compressor as well as Power Gen Load gears as both these segments offer promising growth potential from domestic and export markets, and particularly from different operating units of existing large accounts. Ten new high potential customers were added during FY 21.

Refining, IPP, Steel, Petrochemical and Fertilisers were the major contributors for FY 21 order bookings.

In the Aftermarket segment also, the business aligned to the overall strategic push whereby exports grew by 25% during the year and it is expected that the trend may continue in future as well. Customer retention and growth through existing relationships has been consistent as during FY 21 with 95% of bookings coming from existing customers.

BUILT TO PRINT

Power Transmission business has partnered with global OEMs for precision manufacturing of components for wind gearboxes as well as industrial high-speed compressor gears, helping the business to enhance capacity utilisation productively. This segment offers high potential for growth for exports in the medium to long term. In FY 21, Built to print segment has significantly contributed towards higher order booking from the overall exports than the previous year.

The new segment of compressor gears which the Company entered in the last few years, with leading OEMs is expected to show growth in the coming years from domestic and export markets.

DEFENCE BUSINESS

Defence business is poised to cater to engineered equipment requirements for Defence under the Make in India initiative. With the background of having experience in critical rotary machinery technology and experience of supplying and meeting requirements of Defence and Defence support organisations in the past, group's expertise in turbo machinery, Defence business has been able to get approval for both new projects as well as for refurbishing requirements in naval defence space.

In order to promote indigenous design and development of defence equipment, most of the new enquiries in Indian Navy have been issued to promote Indian industry for major mission critical equipment and services. Triveni is actively engaged with the Naval headquarters, Shipyards and other naval establishments to align with the major upcoming projects with indigenous designs in the area of shafting and critical application pumps or with transfer of technology (ToT) collaborations for varying products as stabilisers, power generation sets, etc. In addition, Triveni is also venturing into niche areas like propulsion system integration with a technology partner in a collaborative work share arrangement.

The Government of India's 'Make in India' initiative has led to new opportunities for diverse engineered products and Triveni's Mysuru facility is actively participating in many of these indigenous development projects. The Defence Procurement Policy 2020 focusses on self-reliance for various equipment in Design, Development and Manufacture by Indian Industry. Most of the new projects envisaged by the Defence sector are customised requirement for critical equipment, offering substantial value to the existing portfolio of PTB's rotating machinery. PTB is initially focussing on Naval Defence markets and has gained some foothold in the critical turbo pumps space.

Defence business can significantly contribute on indigenisation of gearboxes to further align with Aatma Nirbhar programme announced by Government of India. Defence business is also currently working on several projects under Make-In-India programme, related to engineered products as well as gearboxes for Indian Navy as well as Indian Coast Guard.

The Defence business is also poised to grow as the Government of India has ambitious plans to spend on the country's defence especially in the naval segments. This will also augur well for Triveni to achieve growth in the medium to long term.

Power Transmission Business Performance

Power Transmission Business achieved a turnover of ₹ 130.08 crore during the year, a decline of 15.6%, and segment profit

of ₹ 40.9 crore, lower by 15.7% than the previous year. The total order booking, however, during the year was marginally higher than last year at ₹ 157.8 crore. The outstanding order book as on March 31, 2021 stood at ₹ 166.23 crore including long duration orders of ₹ 66.63 crore executable over a couple of years.

Impact due to COVID-19

The capital goods (comprising of power generating equipment, material handling equipment, furnaces, mining machinery, etc.) has borne the maximum adverse impact of the COVID-19 pandemic, which in turn has also affected the performance of PTB.

COVID-19 pandemic had posed unprecedented challenges in terms of delays, hold, travel restrictions, closure of plant / partial running, migration of labour across regions and these demanded intrinsic changes in business operations. As a result, the investments as well as existing projects were postponed by customers. PTB was forthright to get prepared in a shorter span of time for conducting negotiations, contractual resolutions and remote monitoring of product testing including online service support. This helped PTB to maximise turnover in the given scenario and aggressive push was given to maximise bookings.

While the domestic steel demand is expected to take some hit due to the ongoing second COVID-19 wave, production of the commodity is also expected to align itself temporarily to meet urgent Oxygen requirement for medical reasons and has returned back to normalcy. As a result, the second wave impact is expected to be significantly lower as compared to first wave.

Market Outlook

Steel, power, cement, telecom, coal and mining were some of the sectors that accounted for the bulk of the capex undertaken by both private as well as government players on the back of friendly GOI policies on infrastructure spending.

Coal-based power added 3.1 GW to total generation capacity in the eleven months to February 2021, taking its total installed capacity to 201 GW. India's power demand is expected to rise to 1,905 TWh by FY 22 from current generation level of 1,558.7 TWh. The growth in infrastructure and real estate sector, post-COVID pandemic, is likely to augment the demand for cement in 2021. The industry is likely to add ~8 MTPA capacity in cement production. The industry could benefit with the pent-up demand phenomena as the economy has been on an unlock mode but on the flipside as the second wave of the contagion is hitting the economy, this could be a detriment to the entire demand-supply of the industry. With the rural markets normalising, the demand outlook remains strong.

The overall fertiliser production grew by 4-6% during FY 21. The country witnessed on-time arrival of Southwest monsoon, followed by a quick spread across the region, which has resulted in higher sowing, thus augmenting the sales of fertilisers, which has led to an increase in production. The Government is reviving 5 closed fertiliser plants which will have potential for gearbox replacement.

Under the new Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) Policy 2020-35, a combined investment of USD 142 billion is targeted by the year 2025 in all the PCPIRs across the country. PCPIR Gujarat has already attracted investments wherein various Indian and multinational companies have opened facilities. PCPIR Rajasthan is actively working towards brining investments from top global players which will open ample opportunities for new facilities.

India's oil demand is projected to reach 10 million bpd by 2030, from 5.05 million bpd in 2020. The Government allows 100 percent Foreign Direct Investment (FDI) in upstream and private sector refining projects.

National Steel Policy 2017 had envisaged achieving up to 300 MTPA of production capacity by FY 31 from current level of 140 MTPA. The steel production in India in 2020, however, was down by 10%, to 97 MTPA, as against the ideal level of 110-120 MTPA. Indian Japan Steel Dialogue is expected to boost the steel sector on total production and capacity expansion. The increased capital expenditure for infrastructure projects in Union Budget 2021-22 is likely to push up the demand for infrastructure in the country.

Paper industry was one of the most affected (during the pandemic) as educational institutes were shut down. Education is one of the big drivers for the paper industry in India. Paper and Paperboard market in India is expected to grow at CAGR of ~5% cumulatively from 2021-26 due to higher growth of food and beverages, cosmetics, and other industries in India. Paper consumption is forecasted to increase by 7.6% per year in the coming years.

Indian sugar mills' output rose by nearly a fifth year on year to 27.76 million tonnes in the first six months of FY 21. The Indian sugarcane market is projected to reach a CAGR of 4.3% during 2020-25.

On the backdrop of contraction during FY 22, consistent with economic growth expected in the domestic and international markets, PTB expects smart growth not just from domestic market but further consolidation into exports. Combined with the overall demand growth and also strong orders in hand position at the end of FY 21 of ₹ 166.23 crore, PTB expects promising growth during FY 22.

WATER BUSINESS

Market Overview

The urban population in India, which stood at 377 million in 2011, is expected to grow by 404 million to become 781 million by 2050 (World Urbanisation Prospects, 2014). Many Indian cities get their water supply from sources far away at high costs including for energy used for pumping water to these cities. Cities with larger populations generally rely more on surface water than the groundwater. In cities, where groundwater is the source of water supply, aquifers are getting depleted due to over extraction. At the same time, sanitation has not kept pace with water supply in the country. Human health and economic prosperity are very much dependent on clean water supply and good sanitation as on other factors. Hence, it is important to look at how pollution of water sources, especially from sewage, affects water quality and water security.

An integrated approach needs to be evolved, balancing infrastructural and socio-economic measures for water quality management. This approach demands construction of new wastewater treatment systems, improvement of the existing wastewater treatment systems, upgrading of wastewater treatment technologies and renovation of the sewer system, all with sharper focus on economy viability. Importance should also be given to creating awareness on sanitation and pollution issues among users to ensure their cooperation in maintaining their own environment. The "Clean India" or





“Swachh Bharat” campaign will be successful only if water is available in the toilets constructed and if the wastewater generated is also treated and the treated water reused or disposed of in a sustainable manner.

FY 21 has been subdued due to COVID-19 pandemic which affected largely in the finalisation of new orders. On the execution of orders, due to labour migration & COVID-19 related restrictions, the progress in major project sites got impacted adversely. Large numbers of vendors who were supplying equipment to us also suffered due to pandemic and manpower shortage.

The Company is pursuing opportunities with National Mission for Clean Ganga (NMCG), UP Jal Nigam, Delhi Jal Board, Bangalore Water Supply & Sewerage Board, Pali CETP Foundation, Pune Municipal Corporation, other opportunities in Maharashtra and various other Clients in EPC and HAM/PPP projects. The PPP opportunities for STP recycling on PPP format are also being explored.

Market Analysis

The global water and wastewater treatment equipment market size was valued at USD 61.60 billion in 2020 and is expected to grow at a compound annual growth rate (CAGR) of 4.0%

from 2021 to 2028. Addressable market for the Company is ~₹ 5,000 crore annually.

- The wastewater treatment plants market in India is projected to grow at a CAGR of over 12% during 2021-25
- India’s industrial water and wastewater treatment market is expected to reach USD 2.3 billion by 2022
- India’s water and wastewater treatment chemicals market is projected to reach USD 805 million by 2023
- Indian pharmaceutical industry is forecast to grow at a CAGR of 12.89% over 2015-20 to reach USD 55 billion by 2020. This is projected to drive the Indian industrial wastewater treatment plants market
- Due to rising water shortages, the water industry in India has turned into a multibillion-dollar industry.
- Each year, the Government spending on water infrastructure is increasing under various schemes
- State Governments are also hiking investments in setting up more water and wastewater treatment plants
- There is a healthy demand for Water & Wastewater treatment plants in India

- There is a significant increasing demand for water due to population growth, agricultural use, environmental degradation and economic development

Demand Drivers

To meet the increasing demand and maintain the pace of the rapidly growing market, all the OEMs in the water industry are focussing on core technologies and new products suitable for local market as well as increasing global requirements. While on one hand, companies need to be agile and scalable in terms of capacity and capabilities, they also need to cut time and costs when releasing new solutions and products. Most OEMs have started integrating themselves to multi-location (across the globe) offices cum factories and remote design centres from a localised design cum manufacturing base. This helps to reduce the project cycle time and build more capacity.

Water scarcity and strict regulation has led many industries to adopt water-recycling systems especially in the food, textile, pharmaceutical, chemical and power industries. Zero liquid discharge (ZLD) systems and wastewater recycling are becoming increasingly popular in India. We have used this technology in projects like Balotra which is 18 MLD capacity ZLD plant, wherein effluent is recycled back to industries for reuse after treatment.

The municipal wastewater discharge has become a critical problem for environmental and public health concern and the intervention have been placed with the introduction of high tech and innovative wastewater treatment technologies but because of its inefficient, incomplete and expensive approach it is important to adopt integrated approach such as: 1) minimisation and prevention, 2) treatment for reuse, 3) natural self-purification.

Due to revision of discharge standards of STPs in metropolitan & other areas by NGT, which has become more stringent, all older STPs become non-compliant and there is a need for retrofitting & refurbishment of these plants. Going forward, there will be enormous opportunities in this segment.

The Central Government's focus on Namami Gange for cleaning of Ganga, JICA funded projects in Delhi, Karnataka and Maharashtra, AMRUT programmes for Pollution abatement, Recycling and Re-use, Stricter Vigil by National Green Tribunal will be key demand drivers.

Due to COVID-19 disruption, FY 21 was subdued for new orders owing to funding crunch and change of priorities. The next year FY 22 is expected to be much better in terms of new order intake.

Business Opportunities

- **Significant financial support from the Government:** In the past five years, the Government has introduced a number of programmes and schemes to improve the country's water supply and sewerage infrastructure. The JJM, AMRUT, the Namami Gange programme and the Swachh Bharat Mission were launched to help scale up infrastructure capacities. These projects are estimated to entail an investment of over ₹ 3 trillion. Over the past 2-3 years, there have been visible improvements in water supply and waste management at the city level. There have been some improvements in the financial and operational capabilities of Urban Local Bodies (ULBs).
- **Private sector to play a bigger role in infrastructure creation and service delivery:** As the sector's long-term investments cannot be met by public sector expenditure alone, the private sector has an important role to play in the water supply and sewerage sector. Therefore, private sector participation is being encouraged in areas such as providing 24x7 water supply, and setting up sewage treatment plants (STPs), Waste-to-Energy (WtE) plants and recycling and tertiary treatment facilities. In the past few years, a number of projects have been implemented on a public-private partnership (PPP) basis. A new PPP format, the hybrid annuity model (HAM), which is a mix of the engineering, procurement and construction and build-operate-transfer models, is being used for setting up STPs under the Namami Gange programme. ULBs are entering into long-term (15-20 years) operations and maintenance (O&M) contracts for operating and maintaining water and wastewater treatment facilities.
- **Greater attention being paid to capacity building, recycling and reuse, rationalising user charges and Non-Revenue Water (NRW):** Strengthening the capacities of ULBs is one of the top priorities of state governments today. They have been incentivising and encouraging local bodies to become self-sufficient and mobilise resources through instruments such as municipal bonds. Nine cities – Pune, Greater Hyderabad, Bhopal, Amaravati, Ahmedabad, Lucknow, Surat, Vizag and Indore – have issued municipal bonds to fund infrastructure development. As part of the reform process under AMRUT and Smart City Management, a number of ULBs have shifted to computerised accounting systems and e-service delivery platforms. District metered areas are being established to better manage water distribution networks. Pipeline repair/replacement works are being carried out to plug leakages, reduce NRW and replace obsolete pipes.

Water Business Performance

Water business was impacted during the year due to COVID-19 pandemic in terms of disruptions in project execution and delay in order finalisation. Despite such constraints, the Company has recorded annual turnover of ₹ 260.74 crore with a PBIT of ₹ 26.74 crore (on a consolidated basis) in its Water business during the year.

Turnover	Amount in ₹ Crore
Equipment	25.96
Industrial	66.88
Municipal	140.98
O&M/Others	26.92
Total Turnover	260.74

The Operation efficiency has improved during the year which is evident from indirect and administrative cost which remained under control.

Going forward, majority of investments are expected from the Central Government through NMCG and JICA, besides State funding from Karnataka, UP, Delhi, MP, Bihar, Jharkhand, Maharashtra and Rajasthan. WBG is well positioned to undertake more jobs in its chosen area of expertise. WBG has secured one package in Maldives towards the end of the year and actively looking to expand in foreign market; it will continue to evaluate opportunities in neighbouring countries on case-to-case basis.

Key Highlights

1. Secured new Overseas EPC orders of Water & Sewerage projects worth USD 22.80 million (₹ 156 crore, net of GST) from Ministry of National Planning, Housing and Infrastructure, Republic of Maldives, funded by Exim Bank of India

Water business was impacted during the year due to COVID-19 pandemic in terms of disruptions in project execution and delay in order finalisation. Despite such constraints, the Company has recorded annual turnover of ₹ 260.74 crore.

2. Secured Equipment Orders of ₹ 30.50 crore
3. Achieved turnover of ₹ 260.74 crore in FY 21 and PBIT of ₹ 26.74 crore (on consolidated basis)
4. Completed 40 MLD STP based upon SBR technology for BWSSB
5. Completed 210 MLD ISPS project for BWSSB
6. Regular participation in new bids have given a recognition in market

Market Outlook

Rapid urbanisation, combined with declining freshwater resources in the country, is expected to drive the adoption of innovative technologies and improvement of service delivery mechanisms. The private sector needs to play a larger role in driving this trend in innovation. While the Smart City Management is a big leap forward, certain measures need to be taken to ensure that it meets its purpose and targets. Equally important is the need to focus on mobilising new funding sources. ULBs also need to build financial and operational capacity.

The Outlook for FY 22 is positive and the Company sees potential business opportunities of approx. ₹ 4,000 crore through bids in first half of FY 22 including EPC and HAM projects. We expect that COVID-19 pandemic will subside in first half of FY 22 and normal business may start in second half of FY 22.

Hybrid Annuity Model (HAM) opportunities in Water Business

As we all are aware that Water is a State subject and is largely underfunded. There are several projects which are stalled due to lack of funds. The Company is in discussion with several Municipal Corporations / Water Boards to persuade them to implement projects on PPP / HAM basis with a view to generate business opportunities and to create a business niche for ourselves. The Company with its strong financials can invest in PPP / HAM concession projects and increase EPC opportunities. Apart from the State projects, many projects under the NMCG are also adopting the HAM route to finalise projects. The Company has submitted a number of bids under this programme and is also expecting many more opportunities to come in the current financial year. With good experience in the project at Mathura (HAM), the Company is well positioned to approach the market through this route and the learnings from the on-going project will help it to achieve success.