

Management Discussion and Analysis

SUGAR BUSINESS

Indian Sugar Industry - Overview

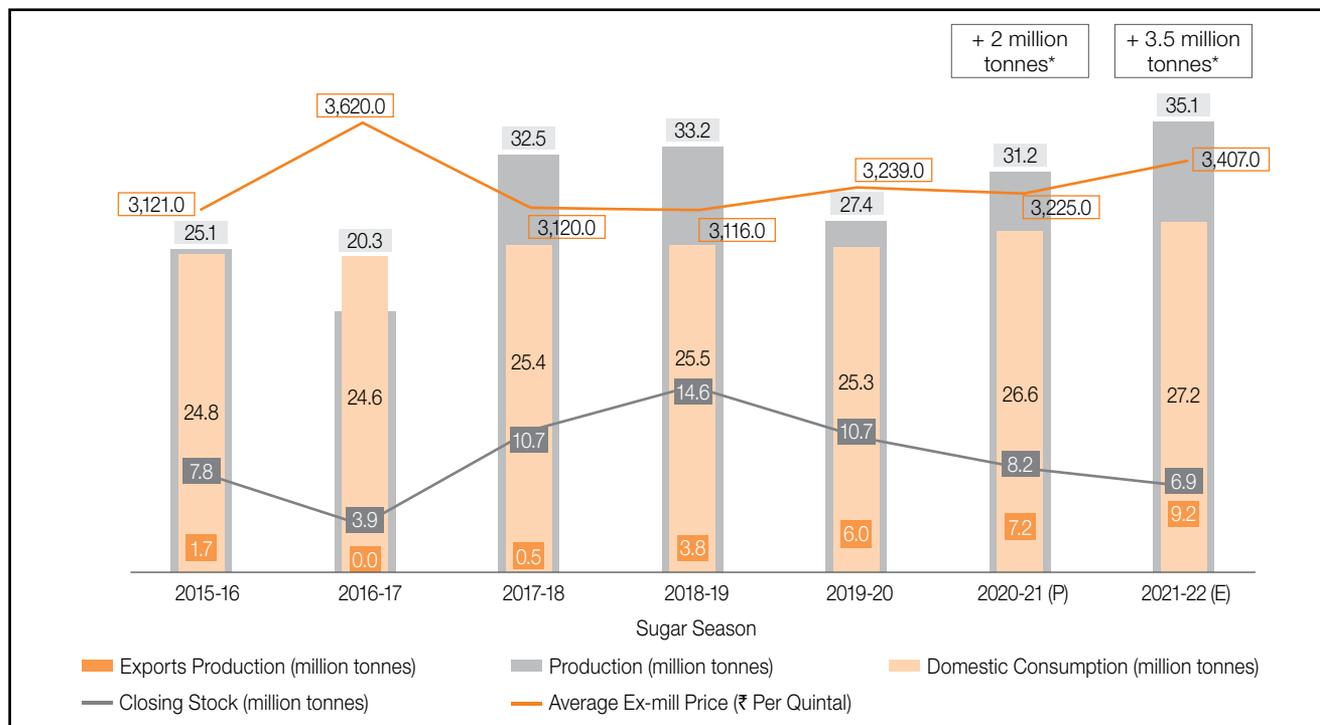
An important industrial crop in India, sugar contributes significantly to the growth of the country's agriculture and also National Gross Domestic Product (GDP). Importantly, the sugar and allied industries support India's rural economy in the traditional sugarcane growing areas, as the farmers generally get 50-60% higher returns from sugarcane as compared to competing crops. Being a sturdy crop, sugarcane can withstand weather fluctuations better than other crops. Further, it is supported by regular research and development to evolve improved varieties of sugarcane, leading to better protection of the interests of both, the farmers and the sugar industry.

The 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. 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.

Government policies, over the past few years, have proactively addressed the major issues confronting the sugar industry, leading to improved financials and better cane price paying capacity of sugar mills. This has also helped in better management of surplus sugar in the country through effective export schemes. Consequently, sugar cyclicality, a bane of the industry, has become a thing of the past. The minimum sale price of sugar (MSP), sugar release quota mechanism and the Ethanol Blended Petrol (EBP) programme policies are all supporting the sugar industry and, in turn, the sugarcane farmers.

Prior to 2014, there were perpetual delays in payment of cane dues of farmers. However, the constructive policies of the present Government have led to improvement in the fundamentals and liquidity of sugar mills, resulting in significant improvement also in payment of cane price to the farmers. The domestic ex-mill prices of sugar are also now stable and are in the range of ₹ 32-35/kg, enabling sugar mills to make timely payment of cane dues to farmers for Sugar Season 2021-22. The average retail price of sugar in the country is about ₹ 41.50/kg.

India Sugar: Strong production and higher realisations suggest cyclicality is a thing of the past



*sugar diversion to ethanol production

Note: Data pertains to India for Sugar Season (SS); 2020-21(P) is Provisional & 2021-22 (E) is Estimate

Source: ISMA

Triveni estimates for SS 2021-22 : Production 35.5 million tonnes, Domestic Consumption 27.5 million tonnes, Exports 10.0 million tonnes, Closing stock 6.2 million tonnes and Sugar Diversion to Ethanol of 3.5 million tonnes



DOMESTIC SUGAR SEASON 2021-22 (SS 21-22)

As per the Agriculture Department, sugarcane area increased 3% year-on-year to 54.37 Lakh hectares during SS 21-22. Major increases were witnessed in Maharashtra and Karnataka, due to good southwest monsoon rainfall and sufficient water availability in the reservoirs.

The country's sugar production stood at 34.237 million tonnes till April 30, 2022, as against 30.029 million tonnes produced at the same time last year. Further, 217 sugar mills in the country were still operational at this time, as compared to 106 sugar mills in the previous year.

In Maharashtra, sugar production till April 30, 2022 was 13.206 million tonnes, compared with 10.563 million tonnes produced in the same period last year. In this season, 76 mills had closed their crushing operations in the state and 123 sugar mills were still operating as on April 30, 2022. This was a massive increase over last year, when only 23 mills were operating on the corresponding date. Since mills were facing problems in harvesting and transportation of harvestable cane, the State Government had announced assistance to enable them to continue crushing till cane lasts.

In the state of Uttar Pradesh (UP), sugar mills had produced 9.898 million tonnes of sugar as on April 30, 2022, which was lower than the production of 10.562 million tonnes achieved

last year on the corresponding date. Of the 120 mills that operated this year, 78 had ended their crushing as on April 30, 2022, while 42 mills continued their operations this year compared to 45 mills which were operating around the same time in the previous year. Most of the operating mills in the current season are expected to close by mid-May, though some could continue operations till the end of May 2022.

Of the 72 mills which operated in Karnataka, 70 had closed their crushing operations for the main season as on April 30, 2022, and only 2 mills were still in operation. By that time, the state had produced 5.902 million tonnes of sugar. However, a few of the closed mills were expected to operate in the special season commencing June / July 2022. During the corresponding period last year, all the operating 66 sugar mills had closed their operations, having produced 4.248 million



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tonnes of sugar. However, in the special season last year, 0.220 million tonnes of sugar was additionally produced.

Gujarat had produced 1.155 million tonnes of sugar till April 30, 2022, with 10 sugar mills in operation. Last year, 1.015 million tonnes of sugar had been produced, with 5 mills in operation on the same date.

In the case of Tamil Nadu, of the 29 sugar mills which operated this season, 5 sugar mills had ended their crushing as on April 30, 2022, though some were expected to operate in the special season later in the year. Till April 30, 2022, sugar production in the state was 0.840 million tonnes, compared with 0.604 million tonnes produced by 27 sugar mills as on the corresponding date last year. Of the 27 sugar mills, 9 had ended their operations while 18 mills were in operation as on April 30, 2021. In the special season last year, Tamil Nadu mills had produced 0.216 million tonnes of sugar.

The remaining states of Andhra Pradesh, Telangana, Bihar, Uttarakhand, Punjab, Haryana, Madhya Pradesh, Chhattisgarh, Rajasthan and Odisha had collectively produced 3.236 million tonnes till April 30, 2022. Of them, Bihar, Punjab, Chhattisgarh, Rajasthan and Odisha had already closed

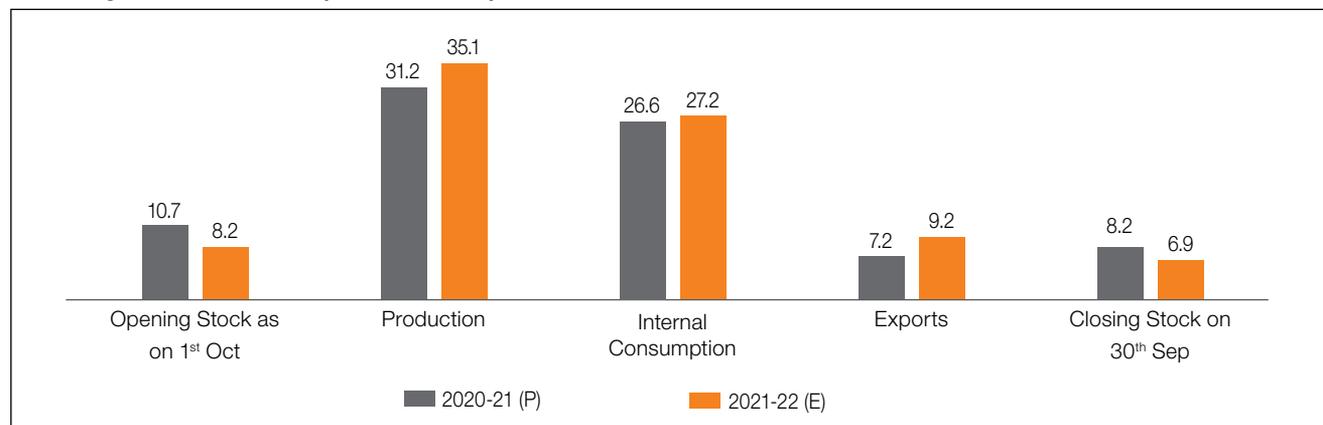
their crushing operations for the current campaign as on April 30, 2022.

As per industry estimates, all-India sugar production is expected to be around 35.1 million tonnes for Sugar Season (SS) 2021-22, after taking into account diversion of ~3.5 million tonnes of sugar to ethanol. In SS 2020-21, production stood at 31.2 million tonnes after diversion of ~2 million tonnes of sugar for production of ethanol.

Till the end of April 2022, the country had already entered into exports contracts of ~ 8.2 to 8.3 million tonnes, of which about 6.8 to 7.0 million tonnes was reported to have been physically exported. The domestic sugar consumption in this season was estimated to be 27.2 million tonnes as against last year's figure of 26.6 million tonnes.

With an opening stock of about 8.2 million tonnes as on October 1, 2021, domestic consumption of 27.2 million tonnes, sugar exports of 9.2 million tonnes, and estimated sugar production of 35.1 million tonnes in this sugar season, the closing stock as on September 30, 2022 was expected to be 6.9 million tonnes, which would be sufficient for 3 months of domestic consumption.

India Sugar Balance Sheet (million tonnes)



Source: ISMA

Note: Data for SS 2021-22 is estimated; 2020-21(P) is Provisional & 2021-22 (E) is Estimate

Triveni estimates for SS 2021-22 : Production 35.5 million tonnes, Domestic Consumption 27.5 million tonnes, Exports 10.0 million tonnes, Closing stock 6.2 million tonnes



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SUGAR POLICY AND MARKET DEVELOPMENTS

The Central Government has fixed the Fair and Remunerative Price (FRP) of sugarcane for SS 2021-22 at ₹ 290 per quintal, linked to a basic recovery of 10% and subject to a premium of ₹ 2.90 per quintal for every 0.1% increase of recovery, over and above 10% and reduction in FRP at the same rate for each 0.1% decrease in the recovery rate till 9.5%. With a view to protecting the interests of farmers, the Government has decided that there shall not be any deduction where recovery is below 9.5%; such farmers will get ₹ 275.50 per quintal for sugarcane in the current season.

The Government of Uttar Pradesh announced a ₹ 25 per quintal hike in the State Advised Price (SAP) for SS 2021-22 over SS 2020-21. In Uttar Pradesh, there are three varieties (categories) of sugarcane - early, ordinary and rejected. Early variety constitutes 97% of the sugarcane cultivated, while 2.7% is the ordinary variety. The rejected variety constitutes only 0.3%. The SAP of the early variety has been hiked from ₹ 325 per quintal to ₹ 350 per quintal, while for ordinary variety it has been increased to ₹ 340 per quintal from ₹ 315 per quintal. The SAP of the rejected variety has gone up from ₹ 310 per quintal to ₹ 335 per quintal.

DOMESTIC SUGAR PRICES

The average sugar price for the industry remained quite volatile during the year, with a peak of ₹ 3,700 per quintal from a bottom of ₹ 3,150 per quintal. The fluctuations were mostly attributable to the quantum of the monthly release quota allocated to the domestic mills, especially to the mills of Uttar

Pradesh and Maharashtra. With heavy carryover stocks of the previous season and further piled up stocks from SS 2020-21, this resulted in disproportionately higher quota for the North Indian states, thereby impacting the realisation price.

Indian sugarcane prices are the highest globally, which has made Indian sugar uncompetitive in the international market in the past. Historically, sugar exports have thus been dependent on Government subsidies, which will not be possible post December 2023 due to WTO guidelines. The Government did not announce any export subsidies for SS 2021-22 and consequently, non-coastal states like Uttar Pradesh were unable to significantly participate in the sugar exports programme. However, favourable global prices led to record exports from coastal states like Maharashtra and Karnataka.

There is an urgent need for India to adopt global pricing practices. The Minimum Selling Price (MSP) of sugar was revised to ₹ 31/kg in February 2019, and has since remained unchanged. Fortunately, however, the actual selling price has remained above the MSP. The mismatch between the higher sugarcane pricing and sugar prices leads to sugarcane arrears. Sugar industry has been demanding steady increase in MSP in line with the increase in cane price and other input costs. Further, as per the recommendations of the Commission for Agricultural Costs & Prices (CACP) for reforming the sugarcane pricing policy, the Government should adopt Revenue Sharing Formula (RSF) along with Price Stabilisation Fund (PSF), to grant justifiable increase in cane price without burdening the sugar industry. It is a win-win situation for all the stakeholders.



GLOBAL SUGAR INDUSTRY**Global Sugar Industry Balance Sheet**

According to the International Sugar Organisation report in May 2022, the global sugar production estimate for 2021-22 increased by 3.51 million tonnes to 174.03 million tonnes, and the global consumption also went up by 1.35 million tonnes to 173.79 million tonnes. India showed the largest incremental change on both these counts. The agency now expects a surplus of 0.24 million tonnes, compared to a deficit of 1.93 million tonnes that was estimated in February.

WORLD SUGAR BALANCE (ISO)

(Million Tonnes)

Particulars	2021-22 (Estimates)	2020-21 (Estimates)
Production	174.026	168.984
Consumption	173.789	171.034
Surplus/Deficit	0.237	-2.05
Imports demand	59.345	62.574
Exports availability	60.631	62.754
End Stocks	95.537	96.579
Stocks/Consumption ratio in %	54.97	56.47

Source:- ISO

In the Centre-South (CS) Brazil region, the near absence of sugar production during the latter part of the 2021-22 April-March season meant that the final cane total was lower than projected, at 523.447 million tonnes, while sugar output stalled at 32.06 million tonnes, with just 3.925 million tonnes produced during the October 2021 to March 2022 period, as compared to 6.410 million tonnes in the previous season.

Meanwhile, the cane harvest in Thailand returned a better-than-expected cane total of 92.1 million tonnes, compared to the projected total of 87 million tonnes. Sugar production consequently rose to 10.134 million tonnes, over 3 million tonnes more than the last season.

OUTLOOK

For the global balance sheet for 2022-23, ISO has projected consumption growth rate in 2022-23 at a modest 0.41%, compared to this season's projected growth figure of 1.61%. As the world would have moved beyond the COVID-19 pandemic, the prospects are now underpinned by normalised consumption figures.

On the production side, the agency expects the substantial increase in production in India and Pakistan in 2021-22 to lead

to another large crop next year, as farmers allow at least one ratoon, for a combined figure of 40 million tonnes of sugar. Meanwhile, the CS Brazil production is expected to also recover next season, as it moves beyond the drought impact seen in the previous season. West European production is not expected to see as high a production total as in 2021-22, on account of lower acreage, dry spring conditions and exceptional yields in the previous season. Asian production is also expected to increase, with the Thai harvest rumoured to total 110 million tonnes of cane, while a rebound in Chinese cane sugar production is expected for the 2022-23 season after disappointing results this season. On a combined basis, this gives a provisional production estimate of 177.372 million tonnes for 2022-23. The net balance between production and consumption therefore stands at a surplus of 2.768 million tonnes.

GLOBAL SUGAR PRICES

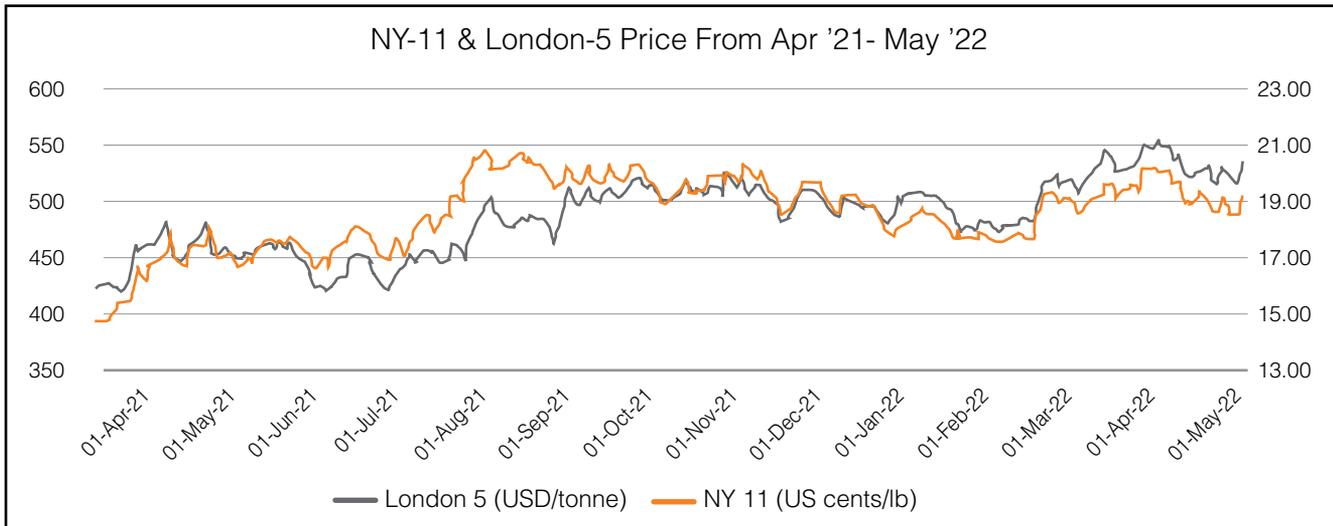
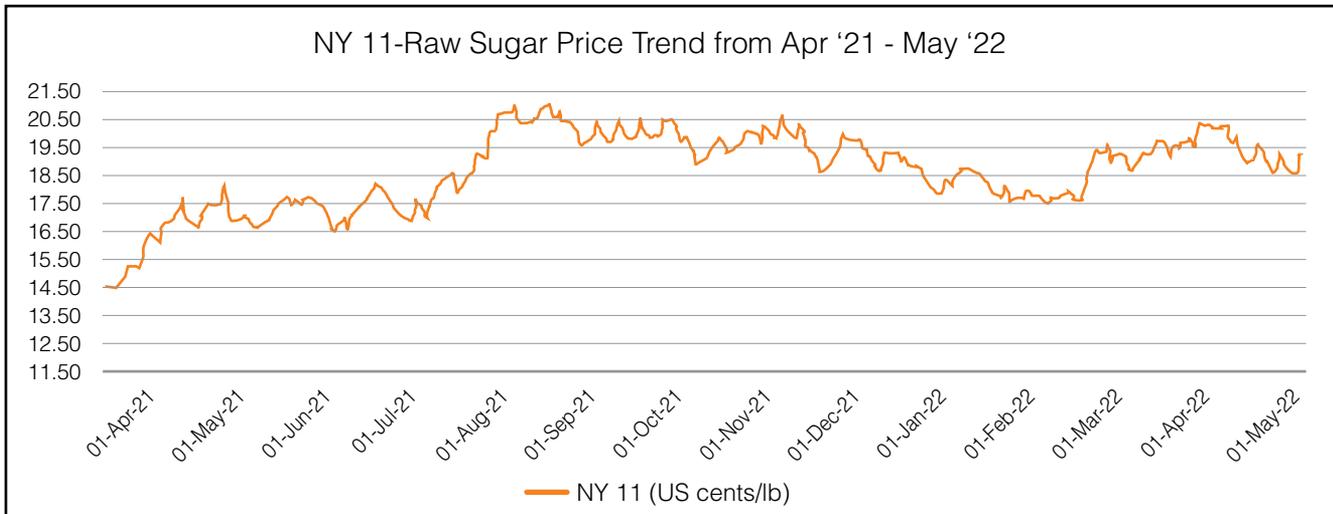
International sugar prices are up 25-30% since the beginning of FY 22. These were supported by higher consumption demand amidst expectations of relatively lower production in Brazil, driven by increased diversion for ethanol due to better prices relative to sugar.

Favourable prices have supported Indian exports, which are already at record highs and expected to reach 9.2 million tonnes for the season.

After witnessing lows of 9.2 US cents/lb in April 2020, raw sugar prices have been on the uptrend in the last 15 months. Raw sugar prices in the April-July 2021 period ranged from 14.72 - 18.61 US cents/lb, averaging around the 17 US cents/lb mark. White sugar averaged USD 447/tonne, ranging from USD 419 – 481 / tonne, during this period.

Amid increased expectations of a global deficit, a strong rally ensued during August-December 2021, which saw peaks of 20.85 US cents/lb and an average of 19.71 US cents/lb for raw sugar. White sugar prices increased as well, ranging between USD 445 – 527 during this period and averaging at USD 498/tonne. In 2022, till May 13, raw prices had tapered off marginally, though still averaging an impressive 18.73 US cents/lb. However, white sugar prices surged in the same period, driven by higher demand, averaging USD 511/tonne, while peaking at close to USD 555/tonne in early April, marking a 5-year high.

India is projected to export close to 7 million tonnes next year, with the drop from the current year expected to be compensated by higher exports expected from Brazil and Thailand, which should keep the international prices stable.



SUGAR BUSINESS PERFORMANCE

Triveni operates seven sugar units spread across the State of UP. All units are located in well irrigated and fertile areas suitable for cane cultivation. While Khatauli (District Muzaffarnagar), Deoband (District Saharanpur), Sabitgarh (District Bulandshahr) are located in western UP, Chandanpur (District Amroha), Rani Nangal (District Moradabad) and Milak Narayanpur (district Rampur) are located in Central UP. One unit, namely Ramkola (district Kushinagar), is located in Eastern UP.

The Company currently manufactures refined sugar, which constitutes approx. 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. Over the past few years, it has developed a large customer base for pharma sugar too. The Company also supplies high quality crystal sugar from some of its non-refinery units to large institutions, which fetches it a premium.

The Company's seven sugar units are FSSAI certified and 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, top ice cream producers, etc.

The Sugar business has performed well in FY 22, owing to continuous improvement in operational efficiencies and consequent reduction in cost of production, backed by improvement in sugar prices. In the Sugar Season 2021-22, three sugar units were still in operational, with total sugarcane crushed at 8.2 million tonnes with gross recovery of ~ 11.67%, as on May 13, 2022. The Company is expected to achieve sugarcane crush of ~8.4 million tonnes and sugar production of nearly 0.9 million tonnes.

Over the years, Triveni's focussed sugarcane development programme, with almost 100% high-yielding and high-sugared variety sugarcane, has helped the farmers achieve higher returns as a result of enhanced farm productivity. At the same time, this has helped augment the Company's profitability through higher volume of sugarcane crush and improved recoveries of sugar. Keeping in mind the high dependence on single cane variety Co-0238, the Company has undertaken a structured programme to gradually replace this variety by other high-sugared and high-yielding cane varieties.



The Company strives to increase the realisation price of sugar in every possible way. The production of ~40% refined sugar, coupled with bold grain sugar and the high-grade pharmaceutical quality sugar produced, helped it secure higher realisations.

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Consequent to reduced export potential for the North-based sugar mills, on account of cessation of export subsidy, it is imperative to manage the working capital effectively. In view of the Company's long-term rating at ICRA AA (stable outlook), it has easy access to funds at competitive rates. The Company was, therefore, able to contain its finance costs in FY 22. Further, the Company is steadily increasing diversion of sugar for production of Ethanol.

Across U.P., there has been a decrease in sugarcane yields and sugar recovery, largely attributable to climatic factors/unseasonal high rains, flooding in certain areas, and high ambient temperatures & heat wave starting from the end of March 2022, which impacted the recoveries. In some regions, the crop has been infested with red rot (in some units), top and root borers. This resulted in lower sugarcane yields and availability, particularly in eastern UP where the Company's Ramkola unit is located. Flash floods in the area of Milak Narayanpur unit in district Rampur adversely impacted yield and recoveries. Despite such challenges, the Company managed to perform well in SS 2021-22, with its reduction in crush and recovery lower than the average for the State.

In SS 2021-22, five sugar units largely operated on the B-heavy molasses process for the entire season whereas Khatauli sugar unit operated only with effect from Jan 01, 2022 onwards on B-heavy diversion process. Ramkola sugar unit operated on C-heavy process during the entire season and Milak Narayanpur sugar unit also undertook diversion of syrup towards the fag end of SS 2021-22 for the production of ethanol from its newly commissioned distillery.

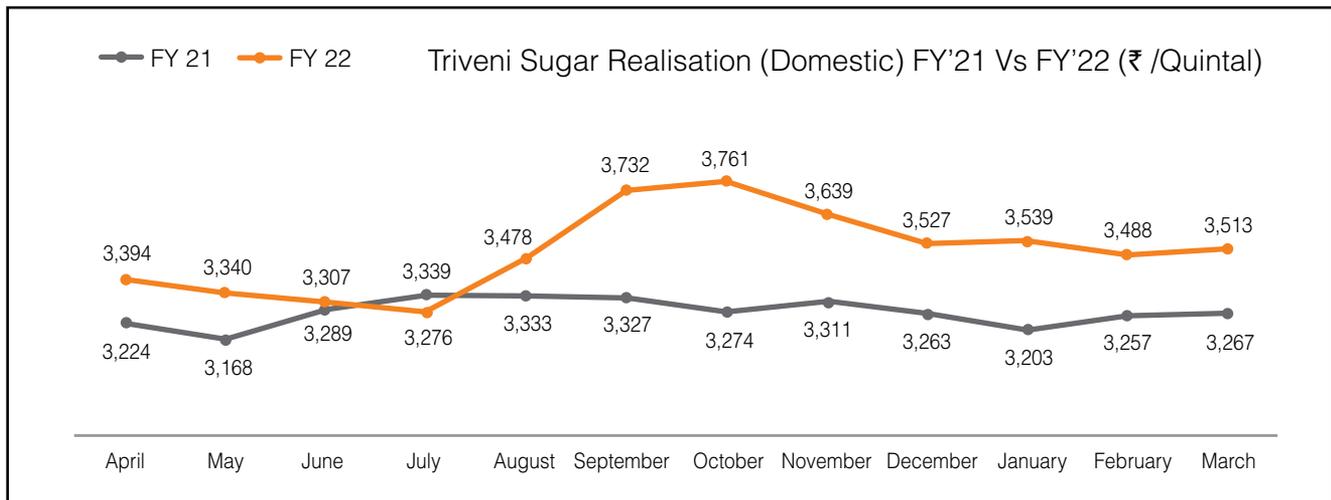
Consequently, the amount of sugar diversion for ethanol production was expected to increase this season to approx. 93,000 tonnes as compared to approx. 75,000 tonnes in the previous season. Recovery was estimated at 10.55% (Gross Recovery of 11.70% after adjustment on account of B-heavy molasses and syrup diversion) for SS 2021-22.

(Million Tonnes)

Sugar Units	Net Sugar Recovery (%)		Sugarcane Crushed		Sugar Production	
	SS 2021-22	SS 2020-21	SS 2021-22	SS 2020-21	SS 2021-22	SS 2020-21
Khatauli	10.51	11.28	2.25	2.37	0.24	0.27
Deoband	10.33	10.47	1.66	1.60	0.17	0.17
Ramkola	11.44	11.17	0.67	0.64	0.08	0.07
Sabitgarh	10.79	11.50	1.08	1.13	0.12	0.13
Chandanpur	10.62	10.84	0.95	0.99	0.10	0.11
Rani Nangal	10.86	10.97	1.02	1.04	0.11	0.11
Milak Narayanpur	9.58	10.43	0.77	0.77	0.07	0.08
Group	10.55	10.98	8.41	8.54	0.89	0.94

Gross recoveries (after adjustment on account of B-heavy molasses and syrup diversion): 11.70% as against 11.86% in the previous period.

The average domestic sugar price realisation for the Company was ₹ 35,020/tonne during the year as against ₹ 32,703/tonne in the previous year. Exports realisation price (including subsidy) stood at ₹ 31,780/tonne in FY 22 as against ₹ 32,600/tonne in FY 21.



The average domestic sugar price realisation for the Company was ₹ 35,020/tonne during the year as against ₹ 32,703/tonne in the previous year.

The Triveni Sugar business also 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. 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) involved export of 1,959 lakh units to the grid during the year, as against 2,239 lakh units in the previous year. Co-generation operations (including incidental co-generation) achieved external sales of ₹ 62.38 crore during FY 22 as against ₹ 68.35 crore in FY 21, a decline of 9% due to lower operating days.

GROWTH THROUGH SUGARCANE DEVELOPMENT PROGRAMME

Triveni's sugarcane development programme is pivotal to its sustainable growth strategy, and the Company continuously engages with the farmers to increase sugarcane productivity through its comprehensive cane development programme. Its dedicated team of sugarcane development staff works closely with the farmers, disseminating knowledge on 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. Its structured varietal development programme has been instrumental in faster multiplication and commercial exploitation of high sugar varieties, e.g. Co-0238 & Co-98014, providing the Company an edge over the peers.

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Area under sugarcane (Hectare)	167068	156671	166675	183423	194159	191840	195537	198376
Sugarcane crushed (Lakh Quintals)	512.72	452.07	640.03	836.70	797.58	874.25	853.97	840.91
Sugar produced (Lakh Quintals)	49.1	48.8	70.8	95.2	94.0	100.9	93.8	88.7
Net Recovery (%)	9.57	10.80	11.06	11.38	11.79	11.54	10.98	10.55
Gross Recovery (%)	9.57	10.80	11.06	11.38	11.79	11.97	11.86	11.70

Gross recoveries (after adjustment on account of B-heavy molasses and syrup diversion): 11.70% as against 11.86% in the previous period.

The programme has helped in boosting productivity and enhancing the income of about 3 lakh plus farmers who are associated with the Company's sugar units. Triveni's focus during the year remained on the following key activities:

- Propagation of high sucrose varieties
- Increasing productivity through adoption of new technologies and better farm management practices
- Soil health sustenance and improvement through a comprehensive programme of soil testing and nutrient recommendations
- Better irrigation techniques and water conservation methods
- Crop protection programme to protect the crop from pests and diseases



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



These sustained efforts have led to increase in recovery over the years, along with significant enhancement in sugarcane productivity, translating into increased sugarcane crushing. With the growing incidence of red rot reported in Co 0238 throughout Eastern UP and some parts of Central UP, the Company has initiated sugarcane varietal substitution plan at all its sugar units. Besides focussing on propagation of tested varieties, e.g. Co 118, Co 98014, CoLk 94184 (along with CoJ 88, an improved variety), new varieties such as Co 15023 are also being explored. Techniques for faster propagation of the varieties are also being implemented.

The Company is continuously working on yield improvement. Wide row-to-row spacing (specifically, trench technique and 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 and pests) is integral to the yield improvement programme, the Company is working aggressively on this aspect. It has specially incentivised availability of fungicides and pesticides for seed and soil treatment for the sugarcane farmers at all its units.

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

SUGARCANE VARIETAL SUBSTITUTION PLAN

Varieties play a pivotal role in improving sugarcane productivity. Since sugarcane is a perennial crop being grown over a long period of time (say 8-10 years or more), it is subject to different biotic and abiotic stresses, along with breakdown of pest and disease resistance. This necessitates introduction of newer varieties with superior qualities (e.g. higher sucrose %, yield, and disease and pest resistance) for replacement of the existing old varieties. Co 0238, the most widely cultivated variety across our units (as well as the State) has started becoming susceptible to red rot under certain climatic conditions at some of our units. There is, thus, need to gradually replace it with newer promising varieties. The focus is on having a back-up of new varieties (up to 40-50%) to mitigate the risk of disease susceptibility of Co 0238.

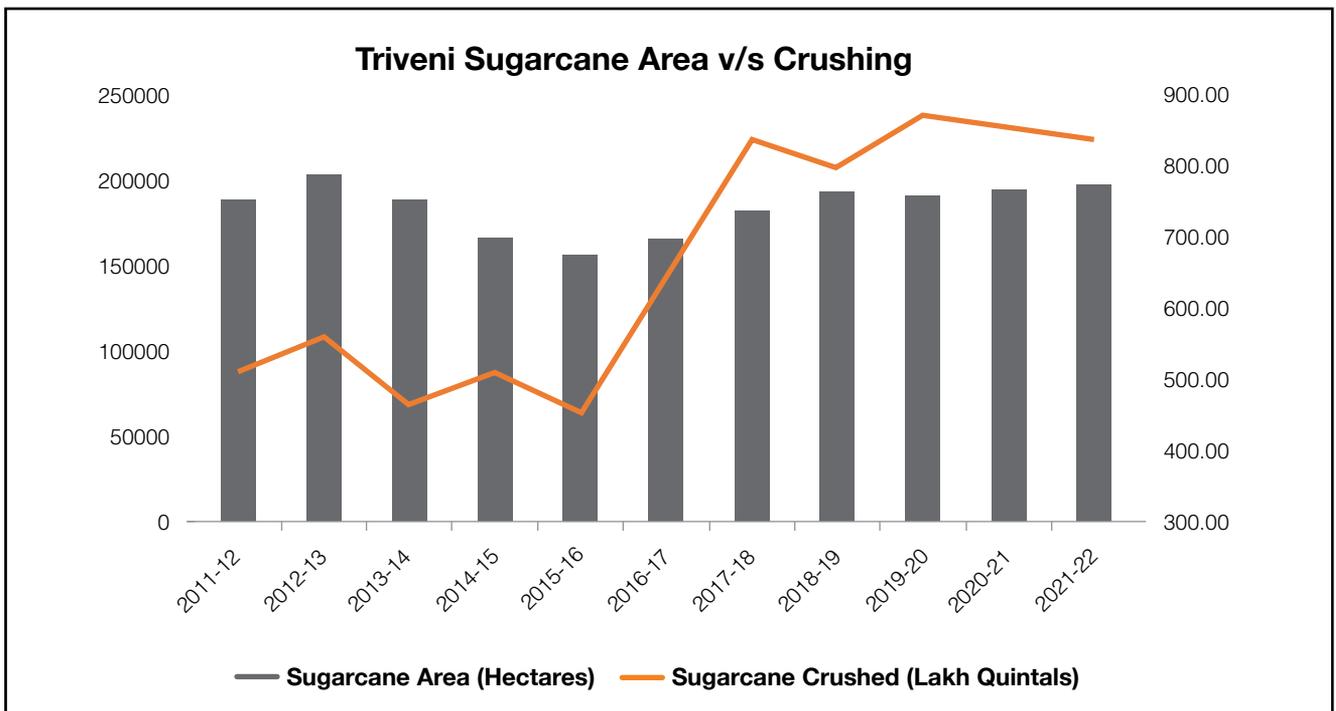
We have identified some new varieties e.g. Co 118 & Co 15023, amongst some other existing varieties e.g. Co 98014 etc., for propagation at our units; a number of varieties have been identified to mitigate different unit-specific climatic and topographical challenges.

Sugarcane varietal substitution, which involves continuous evaluation and selection, is an integral part of our sugarcane development plan. We have signed an agreement with the Sugarcane Breeding Institute, Coimbatore, for varietal evaluation and selection trials.

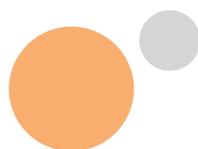


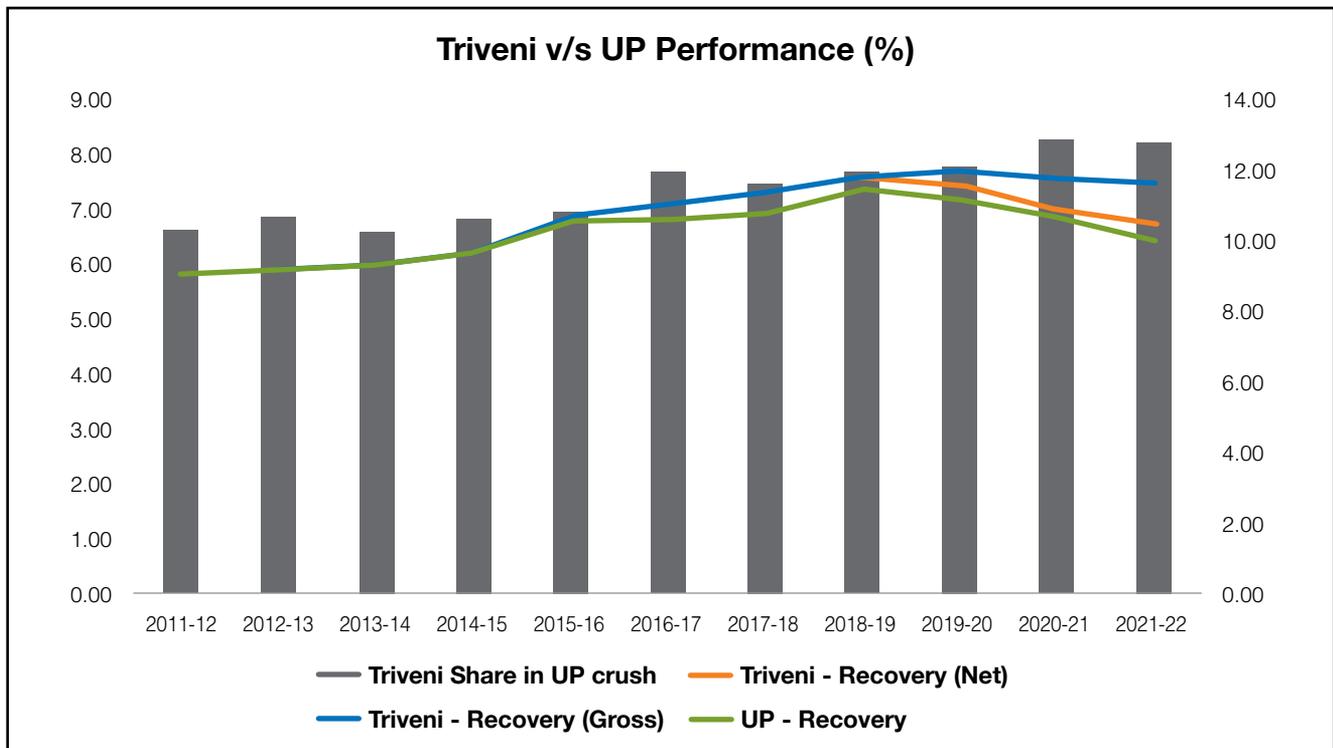
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Moving ahead, the Company believes that the sugar industry should explore potential applications of Artificial Intelligence (AI), digitisation, coupled with IoT and drones in sugarcane production management, yield estimation, crop and soil health monitoring, as well as predictive crop-analysis. It should, at the same time, focus on continually improving its existing smart and digital supply chain.



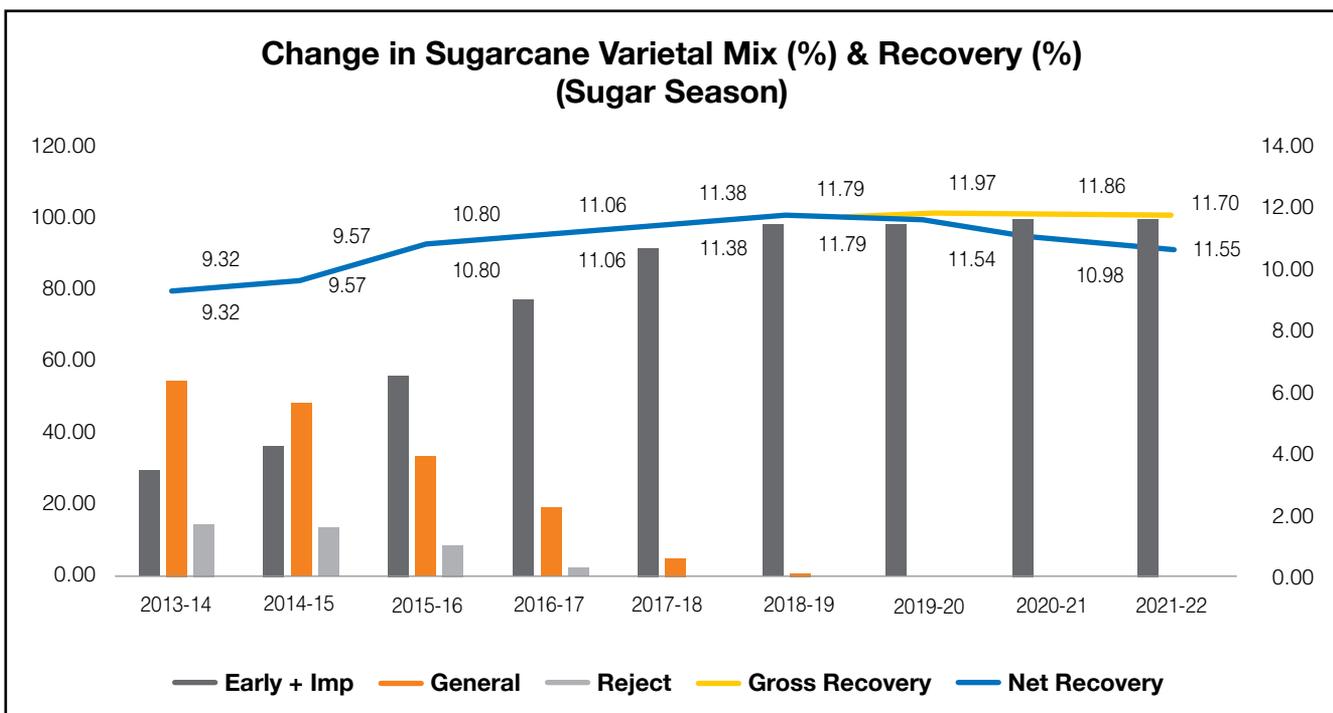
The area under sugarcane for the Company was marginally higher during SS 2021-22 as compared to SS 2020-21. However, the crushing is marginally lower on account of climatic factors, flooding in certain areas, and pests and disease infestations.





Note: Gross recoveries (after adjustment on account of B-heavy molasses and syrup diversion) 11.70% as against 11.86% in the previous period.

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



Note: Gross recoveries (after adjustment on account of B-heavy molasses and syrup diversion): 11.70% as against 11.86% in the previous period. From SS 2013-14 to SS 2018-19, the Gross recovery and Net recovery are the same as the Company was not diverting any sugar for ethanol production.

The Company achieved around 100% area under early and improved variety of sugarcane in SS 2021-22.

SUGAR INDUSTRY OUTLOOK

During SS 2021-22, states like Maharashtra and Karnataka saw an increase in their sugarcane area along with better crop yield, leading to record production for the country. Further, despite the industry's active participation in export campaign, SS 21-22 is likely to close with a stock of at least 6.9 million tonnes, which is sufficient to cater to domestic consumption demand for 3 months.

Monsoon in 2021 had replenished the major dams in states such as Maharashtra and Karnataka, which encouraged farmers to roll back to their most remunerative crop i.e. sugarcane. Based on the initial estimates, sugarcane area may increase by 5-10% this year. Water levels in these states are still intact, and with the forecast of normal monsoon, another year of high production is expected in SS 22-23. Net availability of sugar and the broader health of the industry will depend on parameters such as exports and optimised diversion of B-heavy for Ethanol production.

ALCOHOL BUSINESS

Indian Ethanol Industry – Overview

In line with global trends, energy security and transitioning to a low carbon economy has emerged as a priority for India in recent years. The Central Government has accordingly

been focussing on reducing the country's dependence on imported crude oil while minimising the environmental impact resulting from pollution and emissions. The Government has been actively promoting the production and blending of fuel ethanol with petrol, and has targeted 20% blending through Ethanol Blended Petrol (EBP) Programme or EBP20 by 2025. EBP20, which was earlier targeted by 2030, was advanced in December 2020, reaffirming the Government's focus and commitment towards biofuels.

The NITI Aayog has projected an ethanol demand of 10.16 billion litres by 2025, based on the growth in vehicle population. In July 2021, the ethanol production capacity in India was 4.26 billion litres as derived from molasses-based distilleries and 2.58 billion litres from grain-based distilleries, which was proposed to be expanded to 7.6 billion litres and 7.4 billion litres respectively. This was estimated to require 6 million tonnes of sugar and 16.5 million tonnes of grains per annum by 2025.

Till the year 2014, ethanol distillation capacity of molasses-based distilleries was only about 2.15 billion litres. However, policy changes made by the Government over the last eight years has seen the capacity of molasses-based distilleries go up to 5.69 billion litres. Capacity of grain-based distilleries,



which was 2.06 billion litres in 2014, has also risen - to 2.98 billion litres. In total, India's ethanol production capacities have increased from 4.21 billion litres to 8.67 billion litres in just 8 years.

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

To achieve the blending targets, the Government is encouraging sugar mills and distilleries to enhance their distillation capacities and is facilitating them in availing loans from banks, with interest subvention @ 6% or 50% of the interest charged by the banks, whichever is lower, being borne by Government. This will bring in an investment of about ₹ 41,000 crore.

As a result of these measures, it is likely that ethanol distillation capacities in the country would be doubled by 2025, which would ensure realisation of the 20% blending target. It will also address the problem of surplus sugar and ensure timely payment of cane dues of farmers.

ETHANOL: KEY POLICY AND MARKET DEVELOPMENTS 2014

- **Re-introduced administered price mechanism** for ethanol to be procured under the EBP Programme. Opened alternative route for ethanol production (2nd Generation including Petrochemicals), directed Oil PSEs to set up bio-refineries.
- **Tendering processes simplified:** Multiple Expression Of Interest (EOI), transportation slab rates.

2018

- **Notified forward-looking and updated National Policy on Biofuels - 2018**, involving all stakeholders.
- **Interest Subvention Scheme** to improve and increase the ethanol production capacity in the country. Government to provide interest (interest subvention), for a period of 5 years. GST on Ethanol lowered from 18% to 5%.
- **Differential ethanol pricing:** Allowed conversion of B heavy molasses, sugarcane juice, and damaged food grains to ethanol. Fixed differentiated ex-mill ethanol price and sourcing of raw material utilised for ethanol production given priority. Marked beginning of differentiated ethanol pricing, based on raw material utilised for ethanol production.



It is likely that ethanol distillation capacities in the country would be doubled by 2025, which would ensure realisation of the 20% blending target.

2019

- **Relaxation given for getting environmental clearance** for distillery units to increase the capacities, either through incidental enhancements or by adding on capacities to speed up the infrastructure requirements to meet EBP 20 target.
- **New sources of sugar and sugar syrup introduced** for ethanol production at fixed remunerative price.
- **Published "Ethanol Procurement Policy on a long-term basis under EBP Programme"**.

2020

- **One-time registration of ethanol suppliers for long term**, including giving them visibility of ethanol demand for 5 years.
- **Approval of National Biofuel Coordination Committee (NBCC) to utilise maize for ethanol production.** Interest subvention scheme for enhancement and augmentation of ethanol production capacity extended to grain-based distilleries.

2021

- **Scheme for extending financial assistance:** The scheme for extending financial assistance to project proponents for enhancement of their ethanol distillation capacity or to set up distilleries for producing 1st Generation (1G) ethanol from feed stocks such as cereals (rice, wheat, barley, corn & sorghum), sugarcane, sugar beet etc.
- **Use of a blend of 12% and 15% ethanol in gasoline as automotive fuels facilitated:** The Ministry of Road Transport & Highways has notified General Statutory Rules (GSR) to facilitate use of a blend of 12 percent and 15 percent ethanol in gasoline as automotive fuels. Comments and objections have been solicited from concerned stakeholders.

- Doubling incentive on sugar sacrificed for producing ethanol from October 2021:** With a view to encourage sugar mills to divert excess sugar cane / sugar to ethanol & to achieve targets of blending ethanol with petrol in line with Ethanol Blended with Petrol program, incentive on sugar sacrificed for producing ethanol from B-heavy molasses/sugarcane juice/sugar syrup/sugar has been doubled from October 2021, onwards in their monthly release quota. Now, those sugar mills which will be diverting sugar to ethanol would be getting the entire quantity of sugar sacrificed on producing ethanol from B-heavy molasses/sugarcane juice/sugar syrup/sugar in their monthly release quota.
- Tax Breaks on Ethanol:** In order to promote ethanol blending, the Government has lowered Goods and Services Tax (GST) rate to 5% from 18% on ethanol meant for blending under the Ethanol Blended Petrol (EBP) Programme.

2022

- Government extends timeline for disbursement of loan/completion of ethanol projects:** In respect of all the schemes notified during 2018-2021, the Central Government has decided to extend the time line for disbursement of loans up to September 30, 2022 to facilitate project proponents to complete their projects & to avail benefits of interest subvention.
- Fresh applications to set up new distilleries:** Department of Food and Public Distribution (DFPD),

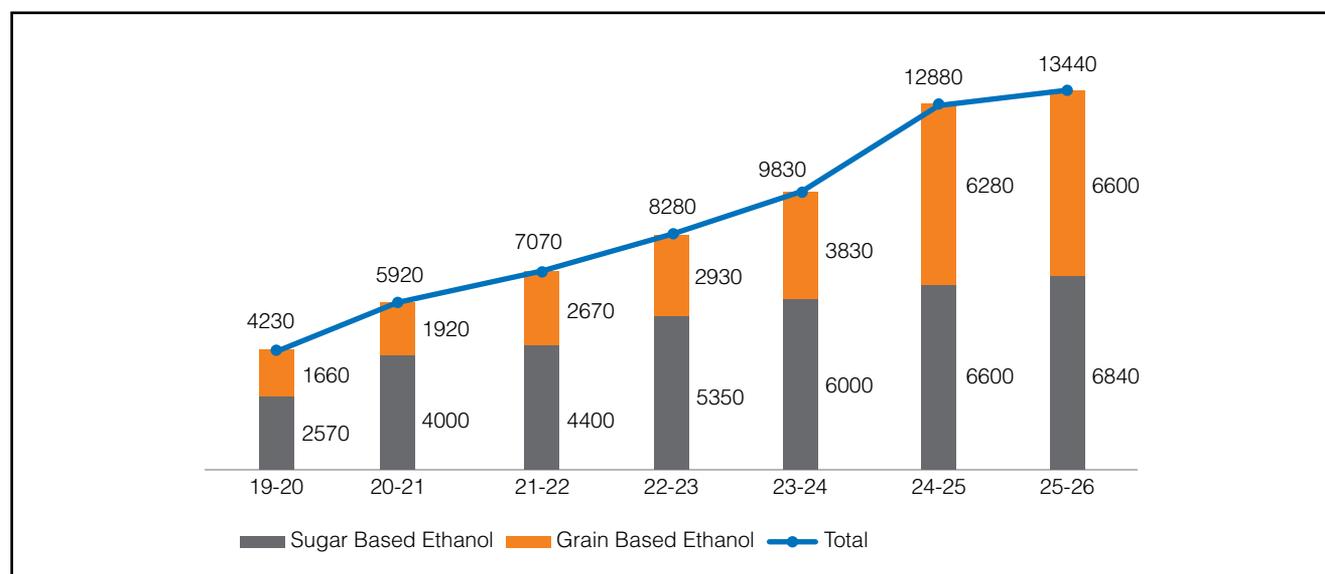
opened a window for 6 months, w.e.f 22.04.2022, for inviting applications from project proponents for enhancement of their existing ethanol distillation capacity or to set up new distillery for producing 1st Generation (1G) ethanol from feed stocks such as cereals (rice, wheat, barley, corn & sorghum), sugarcane (including sugar, sugar syrup, sugarcane juice, B-heavy molasses, C-heavy molasses), sugar beet etc.

- Encouragement to produce ethanol from other sustainable crops:** To increase production of fuel grade ethanol, the Government is also encouraging distilleries to produce ethanol from maize and rice available with FCI. Government has fixed remunerative price of ethanol from maize & FCI rice.

The Government of India announced revised prices for ethanol for the season from December 2021 to November 2022:

- Ethanol from C molasses: ₹ 46.66/litre, an increase of ₹ 0.97/litre
- Ethanol from B-heavy molasses: ₹ 59.08/litre an increase of ₹ 1.47/litre
- Ethanol from sugarcane juice: ₹ 63.45/litre, an increase of ₹ 0.80/litre
- Ethanol from Maize and damaged foodgrains: ₹ 52.92/- per litre and
- Ethanol from surplus rice available with FCI route: ₹ 56.87/- per litre

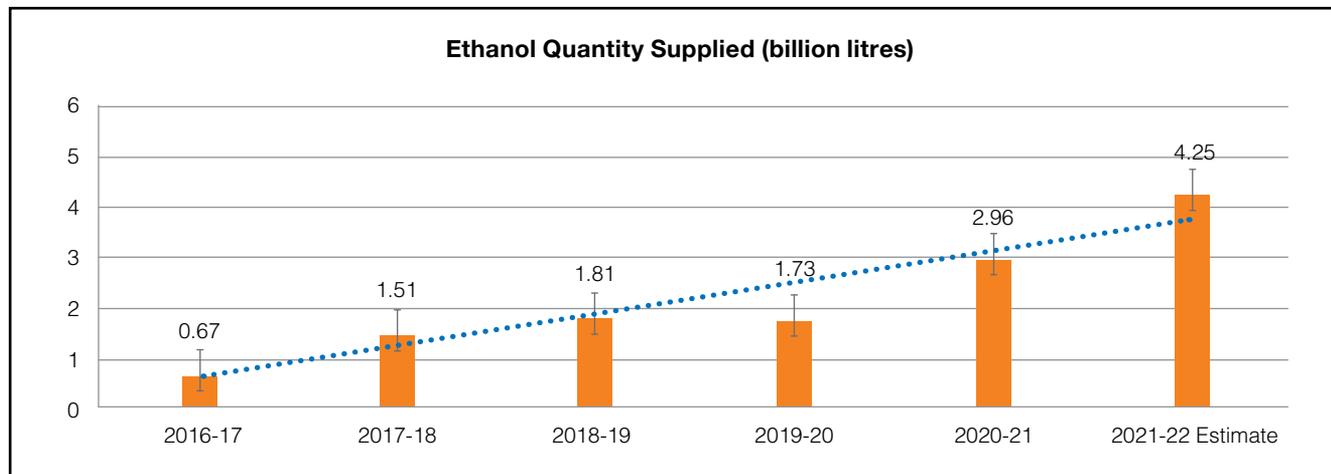
India's ethanol blending roadmap ESY 2025-26: Ethanol production projections (in million litres)



Source: Roadmap for Ethanol Blending in India 2020-25 by Niti Aayog, Ministry of Petroleum and Natural Gas

For the Ethanol Supply Year 2021-22, the total LOI issued by Oil Marketing Companies (OMCs) has been 4.25 billion litres, of which 4.10 billion litres had been contracted till April 24, 2022.

Ethanol Supply as on April 24 - ESY 21-22			All India Blending %
Pan India Quantity Billion Litres			
Total LOI	Contracted	Supplied	
4.252	4.103	1.687	9.82



ALCOHOL BUSINESS PERFORMANCE

Overview

Our growing presence in the Alcohol business is powered by our focus on being an active partner in India's self-reliance journey, and is driven by our passion for premium quality production at all our manufacturing facilities. During the year, we had two well-equipped ultra-modern distilleries, at Muzaffarnagar and Sabitgarh (MZN & SBT), engaged in the production of quality Ethanol. They had a combined capacity of 320 Kilo Litre Per Day (KLPD), with the flexibility of MZN distillery to also produce Extra Neutral Alcohol (ENA). Subsequent to the year, we enhanced operations at Sabitgarh from 160 KLPD to 200 KLPD and commissioned a new 160 KLPD Multi Feed Distillery at Milak Narayanpur (MNP) to further augment the total distillation capacity to 520 KLPD. This distillery at MNP is capable of being operated on molasses / sugarcane juice / syrup and grains. It is among the largest new multi-feed distilleries being set up in India. One more grain-based distillery of 60 KLPD is in the final stage of establishment at the Muzaffarnagar Distillery complex, where superior quality of Extra Neutral Alcohol (ENA) / Ethanol will be produced.

We plan to enhance the total distillation capacity to 660 KLPD by July 2022, with expansion / debottlenecking of existing distilleries and establishment of the new grain-based facility as mentioned. Apart from this, we are also bottling Indian Made Indian Liquor at our bottling facility in the premises of our

existing distillery in Muzaffarnagar, Uttar Pradesh, to effectively use molasses reserved to be sold to country liquor units, and to facilitate forward integration of our distillery operations.

The Muzaffarnagar distillery has flexible operations to produce Ethanol, Extra Neutral Alcohol (ENA), Rectified Spirit (RS) and Special Denatured Spirit (SDS); Milak Narayanpur is one of the largest multi feed distillery units with flexibility to operate on molasses / syrup and grains; and Sabitgarh operates on B-heavy molasses to manufacture high quality ethanol. All the distilleries have assured access to consistent supply of captive raw material (molasses) - C-heavy, B-heavy molasses as well as Syrup.

As an environmentally conscious and responsible corporate, we follow the highest standards in Environment, Health and Safety (EHS), with stringent compliance to environmental and pollution norms. We have set up concentrated spent wash (termed as SLOP) fired incineration boilers at all the distilleries, as per the Indian Government's directives and guidelines for effluent treatment.

How we responded proactively in FY 22

During the pandemic period, we pushed our strengths to meet the COVID-19 challenge head-on through a dynamic and futuristic approach. We surged actively forward to implement our plans and stay on track with our targets.



Construction work started for MNP and MZN distilleries, and we also stayed firmly on course to further strengthen our operational and cost efficiencies. We focussed on leveraging our experience and expertise, responding effectively to the evolving needs of our customers, and delivered an excellent performance in the midst of the unprecedented circumstances.

In the Alcohol business, where operations continued uninterrupted even amid the lockdown, we delivered strong performance in a difficult pandemic-induced environment. We not just maintained business continuity in these difficult times but went on to expand our Alcohol segment with increased capacities and foray into the Indian Made Indian Liquor (IMIL) and a tie-up in the Indian Made Foreign Liquor (IMFL) business.

We also moved forward with plans of expansion of the existing distilleries to aggressively harness the opportunity triggered by the National Policy on Biofuels.

The focus, at Triveni, was not simply on reacting to the transforming environment, but on pre-empting and preparing for future demands and needs.

BUSINESS AT A GLANCE

Alcohol

- Producers of ENA (which is used to manufacture Potable Alcohol) and Fuel-Grade Ethanol
- 3 state-of-the-art distilleries at Muzaffarnagar (MZN), Sabitgarh (SBT) & Milak Narayanpur (MNP)
- 520 KLPD current capacity – 330 average operating days a year
- MZN has flexible product manufacturing capability - Ethanol, Extra Neutral Alcohol (ENA), Rectified Spirit (RS) and Denatured Spirit (SDS)

- High-quality Ethanol is manufactured at SBT distillery
- MNP is a Multi Feed Distillery that will provide flexibility to use the feedstock which gives the highest contribution
- New 60 KLPD Grain Based Distillery, to be commissioned shortly at MZN, will be manufacturing superior quality ENA with broken/damaged rice as a feedstock that can be supplied to IMFL manufacturers, and can be utilised for captive consumption as well as for Ethanol which is used for blending with petrol, based on the product economics
- Producer of Indian Made Indian Liquor (IMIL) using reserved molasses
- Commenced bottling operations for a major IMFL brand. There is potential to use our captive ENA produced from the grain-based distillery at MZN under this tie-up
- Zero Liquid Discharge and stringent environmental norms followed at all distilleries
- Plan to enhance the total distillation capacity to 660 KLPD by July 2022

IMIL (Indian Made Indian Liquor)

- As per the molasses policy of the UP state, sugar units are required to sell a prescribed percentage of molasses produced to country liquor units at a price which is much lower than the market price
- To meet the regulatory guidelines, we have decided to use substantial reserved molasses to produce ENA and use such ENA in the production of IMIL as part of our forward integration plans and strategies

- We have launched IMIL under multiple brands with attractive packaging, for enhanced and superior market penetration in this segment
- Approval in hand to process ENA up to 80 lakh litres for manufacture of IMIL

IMFL (India Made Foreign Liquor)

- Based on the long-term strategy of expanding our distilleries capacity from 320 KLPD to 660 KLPD, as a part of this expansion proposal, we are putting up a Grain based distillery unit in our Muzaffarnagar Alcobev complex
- The plant capacity will be 60 KLPD and can produce superior grade Extra Neutral Alcohol with Broken/Damaged Rice as a feedstock
- The Grain ENA produced will be supplied to IMFL manufacturers across UP as well as will be utilised for captive consumption provided cost economics of ENA is better than Ethanol

ETHANOL INDUSTRY OUTLOOK

As per estimates, at 20% blending level, ethanol distillation capacity is estimated to grow by more than three times to 15.00 billion litres annually, supported by the financial assistance scheme introduced by DFPD during 2018-2021 to increase ethanol production capacity.

The Ethanol Blended Petrol Programme would also have the following impact on the economy:

- It would benefit maize and paddy farmers, addressing their surplus grain problem; about 16.5 million tonnes of grains will be utilised
- Diversion of 6.0 million tonnes of surplus sugar would address the problem of surplus sugar, bring about stability in sugar price, improve financials and liquidity of sugar mills, and ensure timely payment of cane dues to farmers
- It will bring new investment opportunities as about ₹ 41,000 crore, to set up new distilleries in rural areas and help in job creation in villages
- It will lead to improvement in air quality by reducing Carbon Monoxide emission by 30-50% and Hydrocarbon by 20%



In the Alcohol business, where operations continued uninterrupted even amid the lockdown, we delivered strong performance in a difficult pandemic-induced environment.

- It would help save foreign exchange of more than ₹ 40,000 crore on account of crude oil import bill, and would reduce dependence on imported fossil fuel, thus helping in achieving the goal of Atmanirbhar Bharat in the Petroleum sector

Further, the Government of India has announced that from April 2023 all new vehicles will be E20 compliant. The introduction of duty differential of ₹ 2 per litre, effective October 2022, between ethanol blended petrol and unblended petrol in the budget 2022-23 should further help reduce India's dependence on imported fuels. In view of the increasing crude oil prices globally, and the resultant petrol prices in the country, additional duty and resultant hike in prices to end users would encourage higher usage of blended fuel by OMCs and accelerate the movement towards achieving the targets of EBP20.

POWER TRANSMISSION BUSINESS (PTB)

As partners in India's journey of self-reliance, Triveni has structured its Power Transmission Business (PTB) around the three distinct segments of Gears, Built to Print and Defence, with comprehensive portfolios designed to make the country self-sufficient.

INDUSTRIAL GEARS INDUSTRY – OVERVIEW

The global industrial gearbox market is expected to grow at a CAGR of 4.2%, to reach USD 31.3 billion by 2026.

Gearboxes can be broadly classified into high speed and low speed. The next level of categorisation can be based on the type of gearbox:

- Single helical and double helical
- Spiral bevel
- Worm
- Planetary
- Combination of helical and spiral bevel
- Combination of helical and planetary

PTB is focussed on high-speed gears and gearboxes, and niche low speed gearboxes, predominantly Engineered-To-Order. High-speed applications include Steam Turbine Generator, Gas Turbine Generator, Blowers, Pumps, ID / FD Fans and Centrifugal compressors. Niche Low speed applications include: Extruders, Agitators, Select mill drives (HRM / CRM / Briquetting press, VRM).

Majority of the domestic players are into standard catalogue type gearboxes, and very few players are in customised gear manufacturing, which requires technological know-how, sophisticated infrastructure for manufacturing and quality assurance, along with stringent adherence to industrial standards, in addition to highly skilled and experienced manpower having the domain knowledge from the system and application perspective.

Triveni PTB, with its extensive high-speed gearbox portfolio and superior product quality, is well placed to benefit from the industry tail winds. However, the big boost is expected from the export business, which is likely to grow rapidly in the coming years.

Gears

This segment is divided into Products and Aftermarket, which can be further split into domestic and exports.

Products – Domestic:

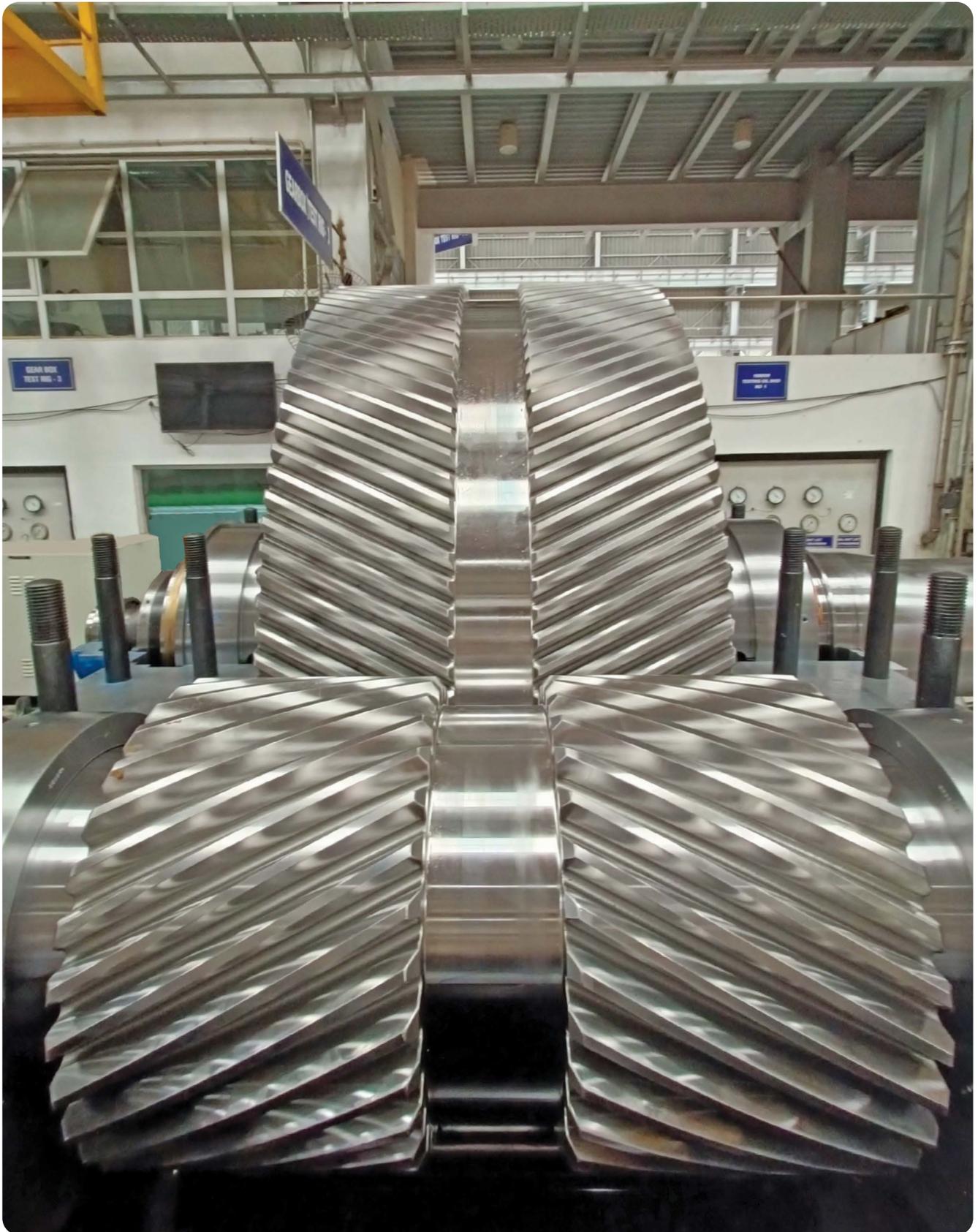
Power Transmission Business caters to the High Speed Gears segment, where the gears are used as speed reducers and increasers. It has a leadership position in this segment in India and consistently leads the market share across all major OEMs supplying Steam Turbines, Gas Turbines, Pumps, Compressors, FD and ID fans.

Major customers for the High Speed Gears segment include OEMs of these applications catering to Oil & Gas and Power generation segments, whereas in the Low Speed segment, the Company caters to the demand for gearboxes used in reciprocating compressors, pumps mainly used in Oil & Gas and Fertiliser plants. It also caters to the low head hydropower units, which require gearboxes for power generation.

Products – International:

Our Power Transmission Business is catering to the ever-changing demands of international OEMs in select geographies for varied applications. Off late, Power Transmission Business has enhanced focus in international markets leading to addition of new OEMs in new geographies.







Currently, the Power Transmission Business is supplying gearboxes to various OEMs in Japan, Korea, China, Malaysia, Indonesia and in Europe (Italy, France, Germany, and Spain), US and Latin America. During the year, the business also forayed into the UK region.

Currently, the Power Transmission Business is supplying gearboxes to various OEMs in Asia, Europe and the Americas. During the year, the business also forayed into a few new regions and our expectation is for larger quantum of business from these markets in the future.

The business is focussed on increasing the global market share and global footprint across various industrial segments through Domestic and Overseas OEMs. Sectors such as Power, Cement, Fertiliser, Petrochemicals, Steel, Paper, Sugar and Ethanol etc. are potential segments where the Company expects growth in the medium to long term.

Product Highlights:

- Overall product share in PTB business ranges around 55-60% of the total turnover
- Products – Domestic witnessed growth of 58-60% in both order booking and turnover during the year
- High potential global OEMs have been added during the year

Aftermarket Domestic:

Aftermarket encompasses high speed and niche low speed gearboxes, which include spares and services of Triveni make as well as other global brands of gearboxes across the industry spectrum. Service offerings include Diagnostic Study, Overhauling, Troubleshooting, Repair & Refurbishing and AMCs, providing full compliance to API and AGMA standards, combined with power upgrades and speed change.

PTB has been very proactive in devising strategies and action plans to be part of the Government's Make-In-India programme. It has taken steps in terms of resource allocation for shutdown tracking and creation of dimension ready sites, for offering products and services on short timeline, which gives it an edge over its competitors and enhances its chances for future business.

Over the last couple of years, PTB has forayed into highly critical areas of replacement, which include multiple stage integral rotor compressor drive gears and gearboxes, and is poised to grow at an accelerated pace in the coming years. There have been significant efforts to enter new stream of business in the Oil & Gas segment, which also has high business potential and is vital to India's self-reliance efforts.

Aftermarket Exports:

Middle East continues to be a high thrust and high potential area for PTB's growth. We have made significant inroads in the region, continuously expanding business with several high potential clientele. Southeast Asia and Africa are other focus areas for PTB and we have fared well in these three territories too, in spite of the pandemic triggered travel restrictions.

Aftermarket Highlights:

- Overall aftermarket share in PTB business ranges around 40-45% of the total turnover
- Major part of the growth was realised from exports, which grew at 150%
- While a decent number of new customers was added this year, there has been significant business from repeat customers as well, endorsing the high level of customer satisfaction and confidence in our products and services

Built To Print

PTB has partnered with global OEMs for precision manufacturing of components for wind gearboxes as well as industrial high-speed compressor gears, leading to enhanced capacity utilisation. The business has high potential to grow in the coming years.

Strategic alignment with select OEMs in India and overseas is expected to increase the share in FY 23.



DEFENCE BUSINESS

The Make in India policy of the Government of India has opened new avenues and opportunities for the industry, and Triveni, with its rich experience in the critical rotary machinery technology & systems engineering, along with its experience of supplying to defence and defence support organisations in the past, is poised to effectively capitalise on the same. Triveni is ideally positioned to expand its defence product profile, covering a range of naval marine equipment and systems. The Company has won a prestigious propulsion shafting order for a strategic project, to be completely designed and engineered indigenously. This is an important milestone in recognition of Triveni's technical capability in research & development of complex engineered products and systems.

The Government's Defence Procurement Policy 2020 focusses on self-reliance for various equipment in Design, Development and Manufacture. In order to boost indigenous design and development of defence equipment, most of the new requirements from Indian Navy are rapidly moving to promote Indian industry for major mission critical equipment, customised to specific requirements, as well as services. These

requirements offer substantial value to PTB's existing portfolio in engineered rotary products. The Power Transmission Business is focussing on expanding in the Naval Defence markets for new products, besides providing engineered replacement solutions for existing machinery. Triveni is actively engaged with Naval headquarters, Shipyards and other naval establishments to align with major upcoming projects on indigenous designs in the area of critical application products. Such products include Gas Turbine Generators for auxiliary power, critical application pumps and main propulsion shafting. Other examples include packaging agreements for propulsion gas turbines and technology agreements for stabiliser, steering gears and similar products.

Our Defence business segment also offers completely indigenous design and development of marine gearboxes, in line with the 'Atmanirbhar Bharat' mission of the Government of India. We are currently working in this segment on offering propulsion gearing solutions for several shipbuilding projects of the Indian Navy and Indian Coast Guard under the Make in India programme, along with other engineered equipment solution.

PTB has signed a long-term business agreement with GE AE for locally manufacturing Base, Enclosure and Lubricating skid for LM2500 engines. It is working towards expanding its relationship with GE AE for their upcoming Gas turbine projects.

The Defence business is also poised to grow horizontally and vertically, expanding its current portfolio in tandem with the Government of India's ambitious plans to spend on the country's defence, especially in the naval segments. This will also auger well for Triveni to achieve growth in the medium to long term.

POWER TRANSMISSION BUSINESS PERFORMANCE

PTB achieved a turnover of ₹ 184.6 crore in FY 22 - an increase of 42% over the previous year, with profitability (PBIT) of ₹ 64.2 crore (34.8% of turnover) which marks an increase of 57% over FY 21. The total order booking grew by 59% over last year, to ₹ 251.0 crore. Carry forward order book at the end of the financial year grew by 33%, and stood at ₹ 221.3 crore.

Our strong business performance in this segment is driven by our continuous and deep-rooted training initiatives covering employees across the business. About 450 man days of training was imparted during the year, helping keep employee skill sets and domain knowledge on the cutting edge and at par with the best-in-class global industrial standards.

SUCCESS STORIES FROM FY 22

PTB bagged some qualification orders for Steam Turbine Generator Application from a prominent European OEM:

- PTB's qualification and acceptability in the market after successful execution of these orders will not only be a growth driver for the Company with respect to this OEM but will also have a cascading effect on other OEMs and segments
- The first order was a qualification order, having stringent and special quality plan for approving the sourcing and sub-vendor approval process to ensure global quality of raw materials meeting European standards and the manufacturing process
- Gearbox was successfully despatched and is currently installed in a European location, and subsequent orders have been received and are under execution

- PTB is now poised to increase the OEM base and subsequently gain acceptance in the European market as a quality supplier for gearboxes and gears



Leveraging Engineering capability in the Oil & Gas sector:

Triveni-PTB's domain expertise and agile engineering methodology was leveraged to carry out repair and refurbishing of casing through in situ boring, by carrying out design and development of special machining, fixtures and mandrels. This was in addition to replacement of gear parts in a span of 3 weeks, followed by load trial run for a 35MW load cum accessory Gas Turbine load gearbox supplied by a Japanese OEM, as mandated by the customer. This has resulted in saving of substantial downtime losses for the customer. This is one of its kind service offered in the Indian Rotary Engineering space.



Our strong business performance in this segment is driven by our continuous and deep-rooted training initiatives covering employees across the business.

Demonstrating experience and expertise of Engineering skills to an offshore Oil & Gas customer

Triveni PTB's robust experience and expertise, coupled with its deep domain knowledge on application and layout, was utilised to change the direction of rotation of a spiral bevel gearbox, driven by diesel engine for fire water pump application. The change had to be made keeping the same foundation footprint and synergising it with the site layout constraints. This has resulted in saving time and money for the customer.

NEW DEVELOPMENTS

Triveni PTB is set to inaugurate a new modern green and eco-friendly administration block, equipped with modern gadgets and systems, in Q1 FY 23. Further, the entire manufacturing facility has been revamped, matched to the latest architectural, environment and safety standards. This development will aid in attracting and retaining talent by providing world-class working environment and boosting employee morale.

The new block will house resources for Gears as well as Defence business.

High technology CNC machine tools are on the way to further enhance the existing modern plant infrastructure for augmenting the current manufacturing capacity and capability, aligned to meet customer requirements.

The Company has announced a capital investment of ₹ 80 crore in PTB towards expansion plans, including the abovementioned initiatives.

WAY FORWARD

Driven by its long-term sustained market leadership position in the domestic market of high-speed gears, Triveni PTB is now aggressively looking at achieving rapid growth in the exports markets to aid the achievement of overall business growth in the long run. PTB aims to strengthen its presence in power generation, compressors, pumps and Built to Print in industrial and Oil & Gas segments, majorly from western markets.

In the Defence business, the focus is on securing a foothold in multiple indigenous product categories through development of own technology as well as through technology collaborations, in line with the continuing thrust of the Company on promoting self-reliance for the nation. Part of the focus is also aimed at starting a new multi modal facility at Mysuru, dedicated to the development of Defence products as well as a pool of highly competent resources with required domain expertise.

POWER TRANSMISSION INDUSTRY OUTLOOK

- India's GDP is expected to grow at 8.5 – 9% in spite of adverse global geopolitical developments. Capital expenditure in Power, Steel, Refinery, Fertiliser, Cement, Sugar, Textile, Petrochemical, and Mining drives the requirement of industrial gearboxes
- The domestic economy is showing good signs of growth through increased order booking and sales revenue. The key growth segments are Cement, Low power STG based on Bio mass/Agri waste and Steel. Oil and Gas segment is also expected to post significant growth, led by a number of brownfield expansions from State-owned refineries and the upcoming Greenfield HRRL project
- Multiple initiatives are being taken by the Government of India under the Production Linked Incentive (PLI) scheme across 15 sectors, to boost domestic manufacturing under Atmanirbhar Bharat Abhiyan (Self-reliant India campaign). Introduction of production-linked incentives (PLI schemes) over 13 sectors will drive capex and higher efficiency across sectors. Implementation of Flue Gas Desulphurisation (FGD) systems are mandatory as per the notification of the Ministry of Environment Forest and Climate Change (MoEFCC) to curb Sulfur oxide (SO_x) emissions. Hence, it has become compulsory to install FGD system in the existing and upcoming thermal power plants to curb SO_x emissions. Gearboxes are used for FGD system for Slurry pumps and Oxy blowers, and PTB anticipates several projects, with good potential, to be finalised in the coming quarters
- India's consumption level should propel capacity utilisation above the crucial threshold of 75% beyond 2022, thereby expediting private sector investment activity in 2023
- Expanding trade network and expediting negotiation for bilateral trade agreements such as with UAE / Australia / UK will open plethora of opportunities for Indian industry
- Consumption across segments has witnessed uptick from Sugar to Steel to Cement to Oil & Gas to Fertiliser to Power, except Automobile wherein challenges were shortage of semiconductors
- Energy conservation drives, combined with reduction of CO₂ emission, is steering demand for Waste Heat Recovery Systems & Power upgrades in Steel & Cement plants, unveiling new streams of business opportunities

- Implementation of EBP (Ethanol Blended Petrol Programme) is directed at achieving a target of 20% EBP by 2025, from the present levels of ~10%. Many distilleries are being installed / commissioned / upgraded to implement this programme, which will lead to increase in power requirement and demand for small range STG projects
- Government of India's commitment to use clean power in India's energy will translate into more nuclear power plants being installed in the country in the next few years
- During June 2017, 12 nuclear power reactors were accorded administrative approval and financial sanction by the Government. In all, 21 nuclear power reactors, with an installed capacity of 15,700 MW, are under implementation, envisaged for progressive completion by the year 2031, thus paving the way for growth in high speed Pump drives
- India's oil demand is expected to grow at 8.2%, reflecting the pick-up in industrial activity and mobility after months of stagnation



Multiple initiatives are being taken by the Government of India under the Production Linked Incentive (PLI) scheme across 15 sectors, to boost domestic manufacturing under Atmanirbhar Bharat Abhiyan (Self-reliant India campaign).

- Revival of HURL – Gorakhpur, Sindhri & Barauni, by setting up new gas-based urea plant with installed capacity of 12.7 lakh MT per annum, will boost domestic urea production
- Indian fertiliser market is projected to register a CAGR of 11.9% in the next 5 years



- India is planning to double its refining capacity by 2030 through both Brownfield & Greenfield expansions, as the fuel demand is expected to reach 458 MT by 2040. More than 10 refineries have announced expansion plans, and latest expansion is of 9 MT by CPCL
- Oil and Gas segment's growth is in line with the Government of India's investment plan for expansion and increasing refining capacities
- Crude steel production is estimated to increase by 18%. Cement & Steel industry is expected to benefit largely from GOI's push towards infrastructure development and housing plans. Furthermore, since Russia is the major exporter of steel to European Union (EU), restrictions on the export from Russia to EU will create export opportunity for India. Capacity utilisation is expected to improve in the Steel segment in the coming years
- The Union Budget has proposed an increase in capex outlay by 35.4%, expansion of national highways network by 15%, and addition of 25,000 km of roads, along with development of four multi-modal logistics parks in the coming year. The resultant spending on infrastructure, housing, defence and agriculture is expected to have a multiplier effect on the economy
- A better infrastructure connectivity will provide significant impetus to oil and gas projects, with refineries being set up in south India, and pipelines and city gas projects across the country
- As a part of indigenisation drive for the creation of self-reliant India, the Government of India has issued three negative lists in the defence sector, which will give strong impetus to the domestic defence sector and open up a plethora of opportunities. The Government's Make in India programme thrust is complemented by import restraints imposed on public sector enterprises, which will push import substitution projects
- Recent policies to further liberalise FDI in sectors in Insurance, Defence, Agriculture, Tele-communication, coupled with India's market size, local talent base and trade infrastructure, have attracted foreign investors towards India

- Under the GATI Shakti national master plan, various regulatory improvements to optimise business climate in India led to its 'ease of doing business' ranking leapfrog from 142 in 2014 to 63 in 2020

WATER BUSINESS

Indian Water Industry - Overview

India is one of the world's most water-stressed countries. It has also remained backward in treatment and re-use of household wastewater. Water is a State subject in India, and the sector has been largely underfunded. A Niti Aayog report released in 2019 predicts Day Zero for 21 Indian cities in the next few years. Day Zero refers to the day when a place is likely to have no drinking water of its own.

The situation is clearly critical and the need for India to take urgent and adequate measures to prevent potential water scarcity cannot be overemphasised. This urgency is expected to drive significant growth for the country's water and wastewater treatment markets.

The Government has been laying emphasis on capacity building and infrastructure development through programmes such as AMRUT, Smart Cities, Namami Gange & Swash Bharat, and on moving to one city and one operator model, where one agency will be responsible for all water needs and waste water management systems in a city. Going forward, investments in the sector will be directed towards providing 24x7 water supply, improving industrial water use efficiency, deploying cost-effective seawater desalination technologies, and encouraging wastewater recycling and reuse. By 2030, the water demand from the municipal and industrial segments is expected to reach 1,500 cubic km.

Due to the revision of discharge standards of STPs in metropolitan and other areas by NGT, which has become more stringent, all older STPs have become non-compliant and there is need for retrofitting and 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; and stricter vigil by the National Green Tribunal will be key demand drivers.



WATER BUSINESS GROUP PERFORMANCE

The Triveni water business is playing an important role in boosting India's self-reliance efforts. On a consolidated basis, WBG recorded annual turnover of ₹ 270.21 crore during the year, with a PBIT of ₹ 31.01 crore. The business has shown a significant overall improvement. WBG has a total current manpower strength of 350+ employees. The average age of employees is 38, and the median is 37, which indicates a healthy workforce.

Our Water business was largely hit by two waves of COVID-19 pandemic during Q1 and Q4 of the year, which affected its revenue, profitability and cash flows. Water Business offices were closed for 1.5 months to safeguard our employees. There was a major disruption with our contractors, vendors and clients during this period. Efficiency of operations also slowed down due to COVID-19 protocols. Despite subdued turnover due to the COVID impact, profitability (PBIT) is still healthy, suggesting that operational efficiency had actually improved during the year.

Going forward, major of investments in this business are expected from the NMCG, BWSSB, DJB, Gujarat and Rajasthan. WBG is well positioned to undertake more jobs in

its chosen area of expertise. It has secured two ZLD projects i.e. Pali ZLD HAM job & Bhiwadi ZLD project. After our success in Maldives, we are targeting overseas markets such as South Asia, East Asia and Eastern Europe for new opportunities.

WBG is also actively pursuing opportunities with NMCG, UP Jal Nigam, Delhi Jal Board, BWSSB, Pali, PCMC, and various other clients in Engineering Procurement Construction (EPC) and Hybrid Annuity Mode (HAM)/Public Private Partnership (PPP) projects. We are also exploring PPP opportunities for STP recycling in PPP format. Triveni Water is in discussion with several municipal corporations and water boards to catalyse PPP and HAM opportunities, and we are trying to create a business niche for ourselves. With its robust financials, Triveni Triveni is equipped to invest in PPP/HAM Concession projects and increase EPC opportunities.

The outlook for the Water business seems positive and new opportunities are expected to arise from Central and State funded schemes. Wastewater recycling and reuse is going to be a significant business going forward.

Triveni, as a responsible company, provides efficient and sustainable solutions to meet the water requirements of a





large section of the industry and Government. It has been our constant endeavour to bring in advanced technological solutions to contribute towards the growing needs of the society.

With the COVID-19 pandemic efforts largely behind us, we expect the coming years to see a surge in business opportunities, and new funding is expected to flow from Government of India and various State Governments. The private sector is ready to take investment position in PPP/HAM Concessions and there is a need to structure the projects properly. Equally important is the need to focus on mobilising new funding sources. ULBs also need to build financial and operational capacities.

The outlook for FY 23 is optimistic, and WBG sees a good bidding opportunity, including in EPC and HAM projects.

KEY HIGHLIGHTS

- On a consolidated basis, WBG achieved a turnover of ₹ 270.21 crore in FY 22 and PBIT was ₹ 31.01 crore
- WBG has completed construction of various facilities of company's Mathura HAM project for NMCG/UPJN. Part of these facilities have already passed through performance guarantee (PG) tests successfully and balance ones are undergoing the same

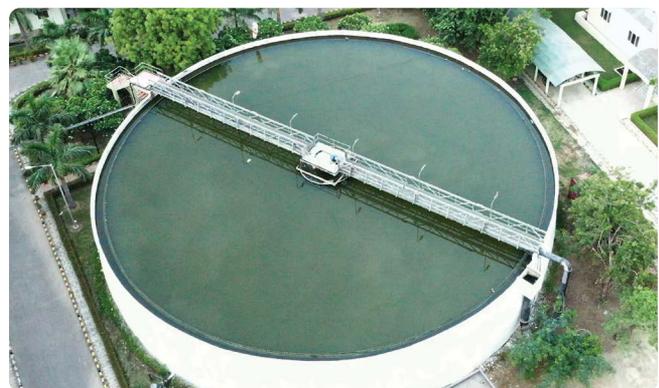


The outlook for FY 23 is optimistic, and WBG sees a good bidding opportunity, including in EPC and HAM projects.

- WBG completed 210 MLD WTP at Greater Noida for GNIDA (Govt. of Uttar Pradesh)
- WBG's regular participation in new bids has given it market recognition

Key Projects:

- 205 MLD Sewerage Treatment Plant (integration of 3 Phases) at Kondli, based upon new NGT norms for Delhi Jal Board funded by JICA, under YAP(III) package K3
- 210 MLD Water Treatment Plant (WTP) at Greater Noida for Greater Noida Industrial Development Authority
- 50 MLD CETP for Textile Dyeing Industries at Ludhiana for PDA
- 30 MLD STP based upon Sequencing Batch Reactor (SBR) and 20 MLD TTRO (UF + RO) at Mathura under NMCG on HAM basis
- 40 MLD STP based upon SBR at Bangalore for BWSSB
- Water & Sewerage system for 6 Islands in Maldives including RO for Govt of Maldives funded by Exim Bank of India
- 15 MLD Desalination plant (RO) at Barmer for BLMCL
- 18 MLD ZLD Plant (Including UF/RO) at Balotra (Rajasthan) for Textile Dyeing Industries
- 12 MLD Zero Liquid Discharge (ZLD) Plant (Including UF/RO) at PALI (Rajasthan) on Hybrid Annuity Model HAM/ Public Private Partnership PPP basis
- Ultra-Filtration UF-Reverse Osmosis RO-MB Plant for JSPL (6X135 MW)





WBG has completed construction of various facilities of company's Mathura HAM project for NMCG/UPJN. Part of these facilities have already passed through performance guarantee (PG) tests successfully and balance ones are undergoing the same.

- Plant Water System for 3X800 MW NTPC Kudgi TPP 3 X 2800 M3/Hr.
- Water Treatment Plant (WTP) for Darlipali Super Thermal Power Project, 2X800 MW, 2.8 MLD
- Water Treatment Plant (WTP) for BPCL Kochi Refinery 2000 M3/Hr.
- 6 MLD Zero Liquid Discharge (ZLD) Plant at Bhiwadi (Rajasthan) for RIICO

Achievements:

- Across India, over 1,200 installations are successfully operating in various segments - infrastructure, industrial, and municipal
- Through our projects and equipment, over 10,000 MLD of water is treated
- We received several Water Awards for innovative project designs
- In 2022, we received a 12 MLD Zero Liquid Discharge project at PALI (Rajasthan) in HAM/PPP mode
- During the year, we also got the Bhiwadi 6 MLD Zero Liquid Discharge (ZLD) project



Hybrid Annuity Model (HAM)/ Public-Private-Partnership (PPP) Business

Triveni is executing the following two projects in Hybrid Annuity Model (HAM) format:

1. Mathura Wastewater Management Private Limited (MWMPL) – a 100% subsidiary of TEIL

MWMPL has undertaken an Integrated Sewerage Management project for the holy city of Mathura (Uttar Pradesh) under one-city-one-operator framework in the PPP/HAM mode, a noble concept under Namami Gange program of Ministry of Jal Shakti, Government of India.

With the objective of enabling a pollution-free Yamuna river flow through Mathura city, sewage from the designed areas has been intercepted from the drains and diverted through pumping to various Sewage Treatment Plants (STPs) before letting into the river.

One of the key components of the project is recycling of treated sewage through the membrane-based (Ultrafiltration followed by Reverse Osmosis – UF/RO) advanced treatment process to a crude oil refinery of IOCL (Indian Oil Corporation Limited) near Mathura city for their process water needs.

Various components of the Mathura project have been physically completed during the year, and after completing the ongoing trials for demonstrating mandated KPIs (Key

Process Indicators), MWMPL will undertake 15 years of comprehensive operation and maintenance (O&M) of the facilities.

2. Pali ZLD Private Limited (PZPL) – a 100% subsidiary of TEIL

PZPL is executing a 12,000 M3 per day (12 MLD) capacity Textile wastewater treatment plant for effluent being generated by over 500 industrial units in one of the industrial clusters of Pali district in Rajasthan. The project was awarded by the industry association through their CETP Foundation, a Special Purpose Vehicle (SPV) created for the purpose. The project is being executed in PPP/HAM mode with part capital funding as Capital grant being provided by the CETP Foundation and also by Rajasthan Government through their designed agencies/ departments.

The project includes upgradation of existing Common Effluent Treatment Plant (CETP) in major ways, followed by state-of-the-art advanced tertiary level treatment plant (TTP), to make the treated water fit for use by the same industries, thus making the plant truly a Zero Liquid Discharge (ZLD) system.

Sludge generated from the plant will be minimised with extensive dewatering, drying, heating & incineration processes within the plant facilities and, post treatment, the sludge will be disposed of at a secured landfill site.





For Pali-based industries, this will be a unique scheme to get assured supply of recycled wastewater for their process water needs. The recycled water will be of much better quality compared to currently used groundwater sources in neighbouring areas, thus sparing them from further extraction.

For PZPL, project scope includes comprehensive operation & maintenance (O&M) for 15 years after its physical completion.

Water Business at a Glance

Water Business Group (WBG) of Triveni offers complete range of Water & Wastewater solutions, utilising innovative and the latest equipment and technology across a wide spectrum of applications. As tighter water and wastewater quality regulations are challenging the limits of conventional treatment systems, we provide cost effective systems and services to optimise operational efficiency and lower the life-cycle costs.

Processes and Technologies

Triveni Water has access to the latest technologies in water and wastewater treatment plants, and has gained sufficient experience in the following technologies:

- Moving Bed-Bio Reactor (MBBR): We have a commercial arrangement with Aqwise of Israel
- Sequential Batch Reactor (SBR): We have a commercial agreement with GAA of Germany
- Activated Sludge Process (ASP)
- Conventional technologies
- Filters: Sand or Membranes
- High Rate Clarifiers
- Membranes and Anaerobic-anoxic-aerobic method (A2O)
- Recycling and Reuse
- Zero Liquid Discharge (ZLD)

The Current Water Opportunities

- Rapid urbanisation, expanding economies, and shifting consumption patterns have increased demand for water resources
- Water pollution damages health, and negatively impacts the economy and the environment, while further endangering the sustainability of water supplies
- Water is undervalued, and proper incentives are not in place to use water resources efficiently
- In the last six years, the Indian Government, along with all State Governments, has taken a series of initiatives to make our country's water secure. Government programmes like Amrut schemes, Namami Gange, Jal Jeevan Mission, State water and sanitation missions, etc., are yielding the desired results



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WATER INDUSTRY OUTLOOK

The water and wastewater treatment technologies market is expected to register a CAGR of over 7% during 2022–2027. In view of the Government's depleting funding resources, the PPP model is gaining popularity and more State Governments are coming forward in structuring concession Agreements. It is anticipated that States like Delhi, UP, Karnataka, Telangana, Tamil Nadu, Rajasthan will be coming up with more opportunities in Water & Wastewater treatment projects.

Due to water scarcity, new opportunities are emerging in recycle, reuse and Zero Liquid Discharge types of businesses. Sewage recycling is a new area of business, and this model is expected to emerge wherever industries are available for buying treated sewage.

The Government of India is cognisant of the water situation and has launched funding schemes like AMRUT, JJM, Namami Gange programme, Swachh Bharat Mission, etc. Over the past two or three 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 ULBs.

As the Water sector is traditionally underfunded, more PPP/HAM opportunities will arise from Water Boards and ULBs. At present, Delhi Jal Board is planning to structure projects on PPP/HAM formats. There has been a surge in the competitive landscape of Namami Gange HAM bidders and more than a dozen firms have shown interest.

Exim Bank of India is providing significant funding in Asia and Africa, and it is expected that opportunities in the Water sector will increase, going forward. There are upcoming opportunities also in South Asia, East Asia and Eastern Europe in Water & Wastewater management.

The new concept of District Metered Areas (DMAs) is getting popularity and it is expected that new business will flow in next few years.

Thus, the water sector has a positive outlook and offers significant opportunities for various stakeholders, including EPC players, private developers, consultants, and technology and equipment suppliers.