Management Discussion and Analysis

SUGAR BUSINESS

Indian Sugar Industry

Indian Sugar Industry Overview

A major industrial crop of India, sugarcane is the key source of sugar for the country. India is the largest consumer, and had, historically, been the second largest sugar producer of the world. However, in the previous sugar season, i.e. SS 2021-22, the country emerged both, the world's largest producer and consumer of sugar, as well as the world's second largest exporter of sugar. During SS 2021-22, India exported 11.1 million tonnes of sugar, which earned ~₹ 40,000 crore worth of foreign exchange for the country. The Indian sugar industry provides employment to over 50 million farmers associated and fair remuneration with a price-support system. As a crop, sugarcane is an ecologically sustainable crop that produces sugar and generates a variety of by-products, such as bagasse, molasses, filter cake (commonly known as press mud) etc., which have economic value along with the potential of being a feedstock for the production of biofuels/bioenergy such as power, bioethanol, biogas, etc.

Government initiatives have eradicated the cyclicality of the Indian sugar industry

In the last decade, various Government initiatives have led the Indian sugar industry to emerge as a self-sufficient industry by enabling sugar mills to stand on their own, without having to depend on grants from the Government. Accordingly, during SS 2021-22 and 2022-23, sugar mills completed their export quota without any subsidy.

The cyclicality in the sugar industry in earlier years led to either surplus or short production of sugar, based on the climatic factors and on whether the payment of sugarcane price was delayed or paid in a timely manner. In the case of delayed sugarcane payments, farmers tended to move away from sugarcane crop, leading to lower sugar production in the country and high sugar prices. Improved financial condition of the sugar mills due to firm sugar prices would rectify the delays in payments, encouraging the farmers to again patronise sugarcane crop, which would gradually result in surplus sugar production accompanied with fall in sugar prices. Typically, in a period of five years, there were some years of surplus sugar production and some years of shortage. With measures such as promotion of ethanol production from B-heavy molasses / sugarcane juice, timely and well managed export schemes, sugar release quota mechanism, introduction of Minimum Selling Price of sugar (MSP) etc., the Government has been able to largely overcome the cyclicality, leading to better productivity and improved financial condition of the sugar mills.

Ethanol Blended Petrol (EBP) programme has given a further boost to the sector in the last decade

The Government launched the Ethanol Blended Petrol (EBP) programme in January 2003 for sale of 5% ethanol-blended petrol in nine States and four Union Territories. The programme, however, saw limited success. It was reinvigorated in 2014, and has been a game changer for the industry in recent years, with the nation progressively diverting more sugar to produce ethanol. The Government has been encouraging sugar mills to divert sugar to ethanol, and to export surplus sugar with a view to improving their financial health so that they are able to make timely payment of sugarcane dues to farmers. The growth of ethanol as a biofuel in recent years has amply supported the sugar sector, with the diversion of sugar for production of ethanol minimising the country's surplus sugar position.

DOMESTIC SUGAR INDUSTRY BALANCE SHEET

As per the Agriculture Department, sugarcane area increased 6% year-on-year to 59 lakh hectares during SS 2022-23.

On April 26, 2023, ISMA revised its all-India sugar production estimate for SS 2022-23 (after diversion to ethanol) to 32.8 million tonnes. This took into account the diversion of about 4.0 million tonnes of sugar equivalent to ethanol. In the previous sugar season of SS 2021-22, India's sugar production was 35.8 million tonnes after considering diversion of 3.4 million tonnes, thus implying a decline of 8% on a net basis year-on-year.

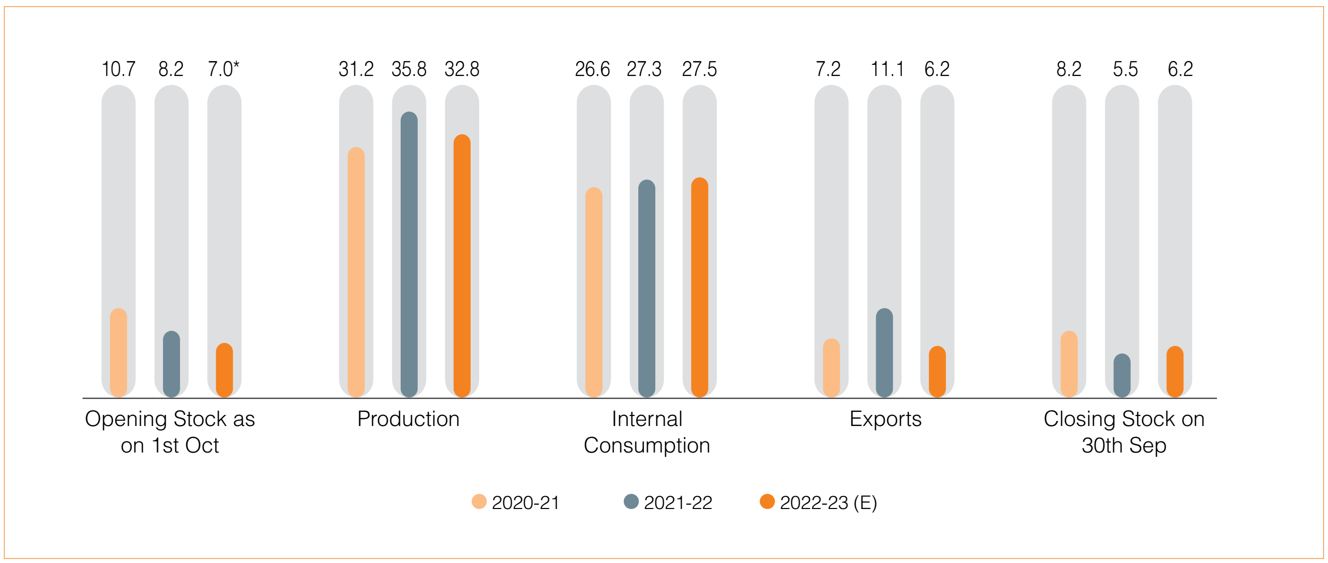
In SS 2022-23, the crushing season in Maharashtra ended at around 10.5 million tonnes, which was lower than estimates, due to unexpectedly lower sugarcane yields owing to higher ratoon crop share and uneven distribution of rainfall. These sugar production figures are after diversion of sugar to ethanol.

Sugarcane yield in Uttar Pradesh has been slightly better than expected, and the state has produced around 10.5 million tonnes of sugar after diversion towards production of ethanol. The main season in Karnataka has produced around 5.5 million tonnes. However, the special season is likely to operate in Karnataka from June/July 2023, leading to increase in the quantum.

The estimated all-India gross sugar production in SS 2022-23 of 36.8 million tonnes marks a decline of 6% from 39.2 million tonnes produced in SS 2021-22.

Accordingly, we estimate the closing stock of ~6.2 million tonnes of sugar at the end of Sugar Season 2022-23, which is sufficient to meet more than two months' consumption.

India Sugar Balance Sheet (million tonnes)



Source: Triveni Estimates

* As per Government data

DOMESTIC SUGAR POLICY AND MARKET DEVELOPMENTS

- Hike in Fair and Remunerative Price (FRP):
  - The Central Government fixed the Fair and Remunerative Price (FRP) of sugarcane for SS 2022-23 at ₹ 305 per quintal, linked to a basic recovery of 10.25% and subject to a premium of ₹ 3.05 per quintal for every 0.1% increase of recovery, over and above 10.25%, 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 ₹ 282.125 per quintal for sugarcane in the current season. The FRP for sugar season 2022-23 was 2.6% higher than the previous sugar season.

- No hike announced in the State Advised Price (SAP):
  - The Government of Uttar Pradesh did not announce any hike in the State Advised Price (SAP) for SS 2022-23 over the SS 2021-22 prices. In Uttar Pradesh, there are three varieties (categories) of sugarcane - early, ordinary (general) 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 (for SS 2021-22 & SS 2022-23) of the early variety was ₹ 350 per quintal, while for ordinary variety it was ₹ 340 per quintal, and the SAP of the rejected variety was ₹ 335 per quintal.

- Curbs on further sugar exports:
  - During the year, the Directorate General of Foreign Trade (DGFT) had notified extension for the inclusion of sugar exports under 'Restricted' category up to October 31, 2023.
  - Earlier, Sugar had moved from the 'open category', which requires no government intervention, to 'restricted' category. Export of sugar was allowed only with specific permission from the Directorate of Sugar, Department of Food and Public Distribution (DFPD), Ministry of Consumer Affairs, Food & Public Distribution.

- Exports of 6.15 million tonnes of sugar in SS 2022-23:
  - The Government of India announces sugar exports from time to time. This is aimed at balancing the price stability of sugar and the financial positions of sugar mills in the country while ensuring availability of sufficient sugarcane to produce sufficient sugar to meet domestic consumption and molasses for ethanol production.
  - In the sugar export policy for SS 2022-23, based on initial estimates of sugarcane and sugar production, the Government, in November 2022, allowed initial export of sugar up to 6 million tonnes for the sugar season. With the announcement of additional quota of 0.15 million tonnes, total export quota approved for the season stood at 6.15 million tonnes, with option to swap export quota with other sugar mills.

- The Government had announced sugar mill-wise export quota for all sugar mills in the country, with an objective system based on average production of sugar mills and average sugar production of the country in the last three years.
- Further, to expedite the sugar exports and to ensure flexibility to sugar mills in execution of the export quota, mills had the option to decide to surrender the quota partially or fully within 60 days of the date of issue of order OR to swap the export quota with domestic quota within 60 days. This would reduce transportation costs involved in export of sugar and movement of sugar from one state to another for domestic consumption.
- This move would also protect the interest of sugarcane farmers and sugar mills, as the mills could benefit from the favourable international sugar price scenario.

DOMESTIC SUGAR PRICES

Sugar prices in India moved up by 1-2% on an average in FY 23. However, the increase has not been commensurate to the increase in the price of sugarcane, thus leading to lower profitability. Since April 2023, the domestic prices have inched up 4-5%, given the expectations of lower sugar production and higher demand during the peak summer season.

With the upcoming Lok Sabha elections in 2024, sugarcane prices may be hiked in the state of Uttar Pradesh, and it is hoped that the Government would simultaneously initiate an increase in the MSP of sugar prices adequately to mitigate the impact of the increase in sugarcane prices, if any. These measures would ensure that sugar mills are in a position to pay sugarcane dues in a timely manner as otherwise, the very purpose of increasing the sugarcane price would be defeated.

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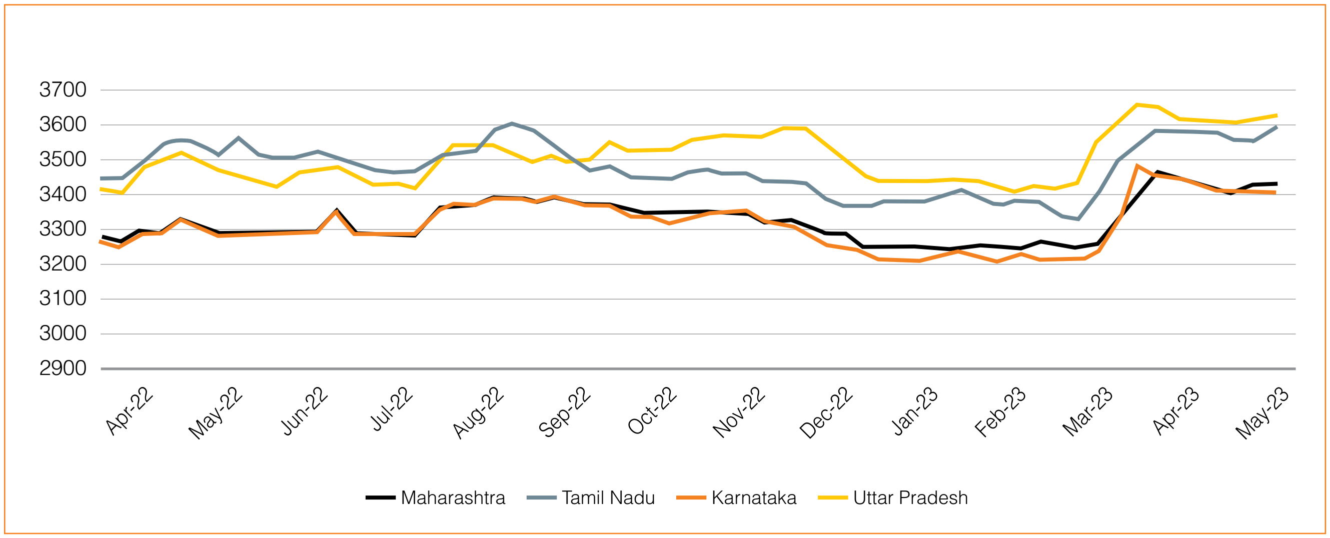
Average Ex-Mill Sugar Prices in Major States (₹/Quintal)



GLOBAL SUGAR INDUSTRY

Global Sugar Industry Balance Sheet

According to the International Sugar Organization (ISO), in view of the global supply/demand situation, the global 2022-23 sugar balance sees a substantially reduced surplus in the current season. It anticipates a global surplus (the difference between world consumption and production) of 0.852 million tonnes in 2022-23, down from 4.151 million tonnes in February 2023. Changes were driven by increase in production in Brazil. However, the smaller increase in Thailand and lower estimates for Indian and European production were the biggest negative contributors.

For the 2022-23 season that ended in March, the Centre-South Brazil region produced 33.73 million tonnes of sugar, up 5% from the year before. However, the outlook for 2023-24 is nearly 10% higher at 37.09 million tonnes. Production in Thailand in 2022-23 season is expected to be below expectations, at 12-13 million tonnes, due to lower than expected sugarcane yields.

Sugar Units	World Sugar Balance (October/September, in million tonnes)			
	2022-23	2021-22	Changes in million tonnes	in %
Production	177.365	172.503	4.862	2.82%
Consumption	176.513	174.773	1.740	1.00%
Surplus/Deficit	0.852	-2.270		
Import demand	63.559	63.968	-0.409	-0.64%
Export availability	63.898	64.001	-0.103	-0.16%
End Stocks	100.781	100.268	0.513	0.51%
Stocks/Consumption ratio in %	57.10%	57.37%		

Source: International Sugar Organisation, Quarterly Market Outlook, May 2023

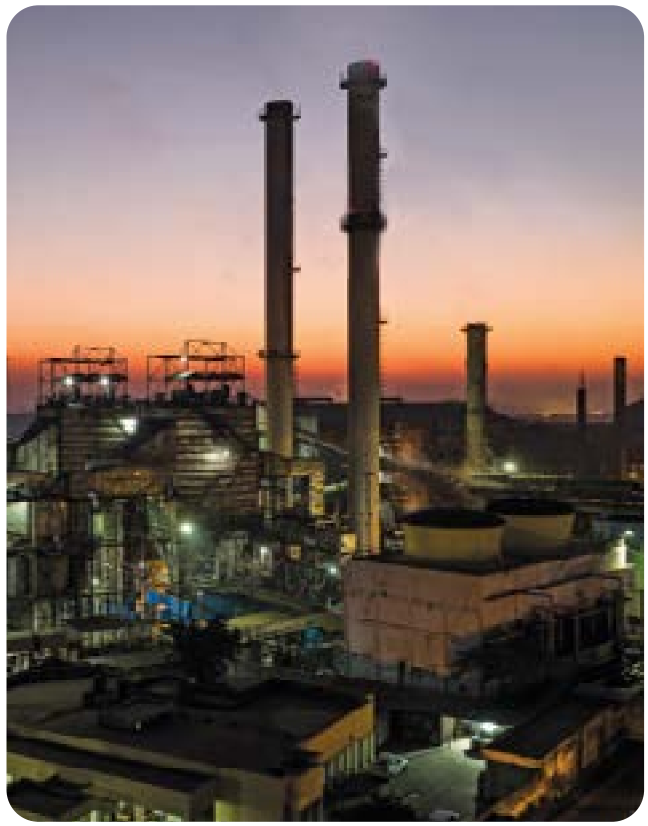
Global Sugar Prices

Notably, the global sugar prices have rallied to record highs recently. Prices surged 15-19% in FY 23 and have continued to increase thereafter, to hit the highest level in a decade.

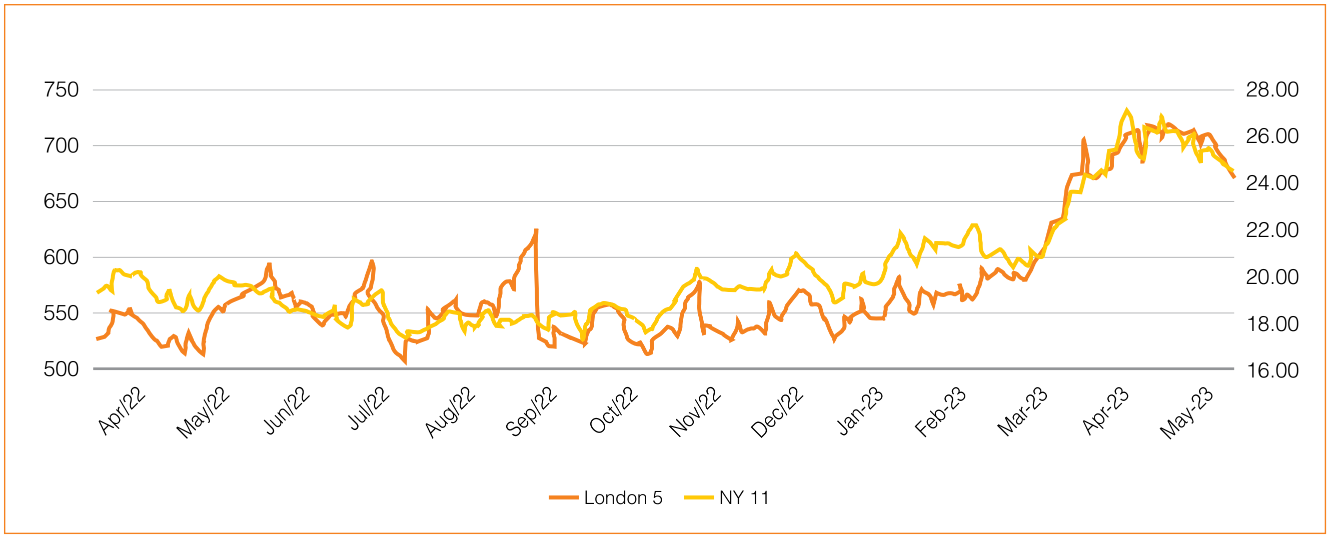
The 2023 NY #11 raw sugar futures nearly broke the US 27.00 cents/lb threshold, ultimately settling at US 26.99 cents/lb. This had been the highest front month price since April 2012.

The surges were driven by growing fears of a global supply shortage. The price increases intensified as the market anticipated that India, the largest exporter in the previous sugar season, is unlikely to increase exports during the current season due to lower production estimates. This, coupled with lower stockpiles in Brazil due to late commencement of harvesting caused by a significantly rainy season, and lagging supplies in Europe, Pakistan, Thailand, China and Mexico, have been creating further pressure on the sugar supplies. This has caused sugar prices to soar.

As on June 6, 2023, the New York #11 front month contract closed at US 24.58 cents/lb, an increase of 454 points since the beginning of 2023, while the London White Sugar #5 front month contract closed at USD 670.90/tonne, up USD 116.50 since the beginning of 2023.



New York #11 & London #5 Price Trend



Note: London #5 on left hand side (LHS) in USD/tonne; NY #11 on right hand side (RHS) in US cents/lb

TRIVENI SUGAR BUSINESS AT A GLANCE

Triveni operates seven sugar units spread strategically across the State of UP. All units are located in well irrigated and fertile areas suitable for sugarcane 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.

Apart from plantation white sugar, the Company also manufactures refined sugar, which currently constitutes approximately 60% of the total sugar production and realises a premium over normal crystal sugar realisation. The Company also produces different grades of pharmaceutical (pharma) sugar that can be customised as per the user requirements. Such refined and pharma sugar is supplied to high grade end-users, thereby creating a niche customer profile for Triveni. The Company also supplies high quality crystal sugar from some of its non-refinery units to large institutions, which fetches it a premium.

All the seven sugar units of the Company are FSSC 22000 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.

OUR SUGAR BUSINESS PERFORMANCE

Key highlights of our sugar business performance in SS 2022-23:

- Impact of CapEx programme undertaken: Planned CapEx related to the modernisation, debottlenecking, rationalisation of capacities and efficiency improvement activities at Khatauli, Deoband & Sabitgarh sugar units, process conversion at Deoband unit to produce refined sugar, and increase in pharma sugar production capacity at Sabitgarh unit. This resulted in:

  - A higher crush rate across all three units, which helped the Company record the highest-ever sugarcane crush in SS 2022-23 at 9.33 million tonnes, an increase of 11% over the previous season. The Company for the first time, crossed the 900 LQ total crush figure.
  - The refined sugar production increased from ~40% last year to ~60% in SS 2022-23. The quality of sugar produced at Deoband unit in SS 2022-23 improved significantly, fetching a premium over normal sugar.
  - The Sabitgarh sugar unit produced the highest pharmaceutical sugar quantity in its history.
  - Khatauli unit became the highest sugar production unit in the country.

- **Production of export quality S-grain sugar** was undertaken at Khatauli & Sabitgarh sugar units with superior realisations. Both the units together successfully produced approximately 12.5 lakh quintals of export quality S-grain sugar, which was well accepted.
- **Sugar exports contributed significantly to the profitability.** The Company achieved sugar exports of 1,90,337 tonnes (including sale of quota for 72,988 tonnes) during FY 23, out of the total export quota of 2,04,868 tonnes at record realisations.
- Due to climatic factors and late October rains, the recoveries were impacted across the States and also in our units. The Company reported net recovery of 10.23% with 92% of sugarcane crush with B-heavy diversion in SS 2022-23 vs. 84% in the previous season. **The Company is still among the leading performers in terms of recoveries** with B-heavy diversion.
- Six of the seven sugar units operated with the B-heavy diversion process from the very beginning of SS 2022-23.

Our sugar business performance over the years:
The Company has a demonstrated history of improvement in key operational metrics, such as area under sugarcane, sugarcane crush, yields, recovery etc. through structured sugarcane development initiatives, timely sugarcane payments, and close relationship with the farmer community to derive mutual benefits, etc.

Area under sugarcane: The Company has grown its area under sugarcane at a CAGR of 2.5% p.a. since 2014-15, driven by ground-level measures to increase sugarcane intensity through farmer education and awareness creation on the economic benefits of growing sugarcane relative to other crops.

Sugarcane crush: Sugarcane is the primary feedstock for production of sugar, alcohol and other by-products/final products. Enhancing sugarcane area and its availability for crush has been the key focus for the Company through its extensive sugarcane development programme. The quantum of sugarcane crushed has been improving continuously for the Company over the years, growing at an impressive CAGR of 7.8% p.a. since 2014-15. This is even more notable considering the recent trends of diseases such as red rot etc. which have plagued many sugar mills in Uttar Pradesh. The Company has been successful in mitigating those threats and recorded its highest ever crush of 9.33 million tonnes in SS 2022-23.

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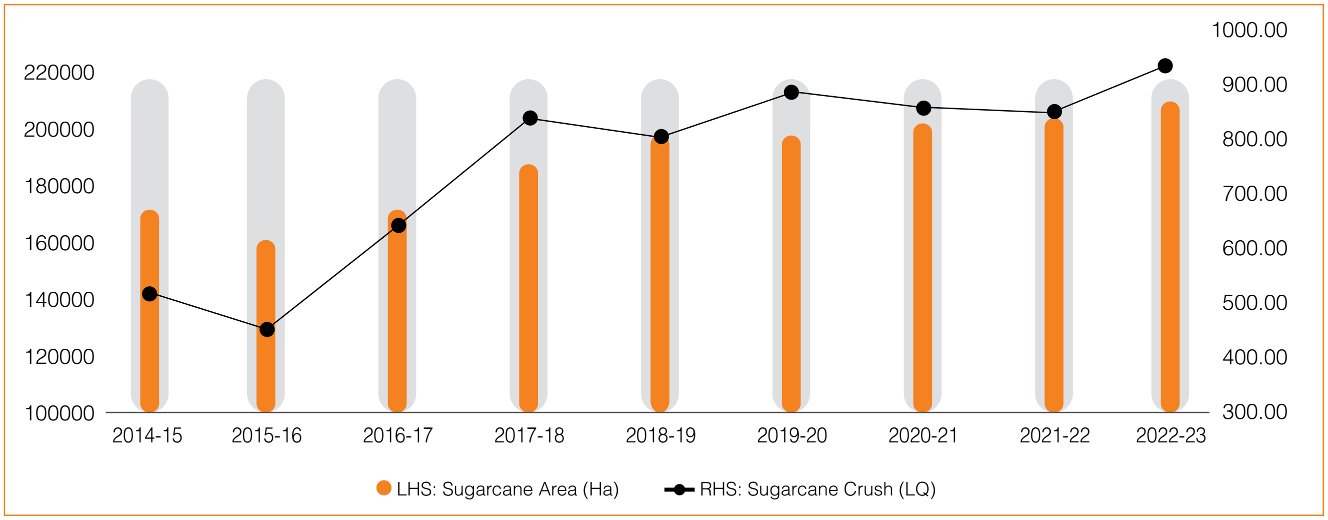
Recovery: Triveni is among the leading companies in the state of Uttar Pradesh in terms of recoveries, powered by its focus on high-sugar yielding sugarcane varieties, planting methodologies, crop management, yield improvement, shorter cut-to-crush time, etc. Gross recoveries have improved ~20% in the last 7-8 years, going from 9.57% in SS 2014-15 to 11.47% in SS 2022-23.

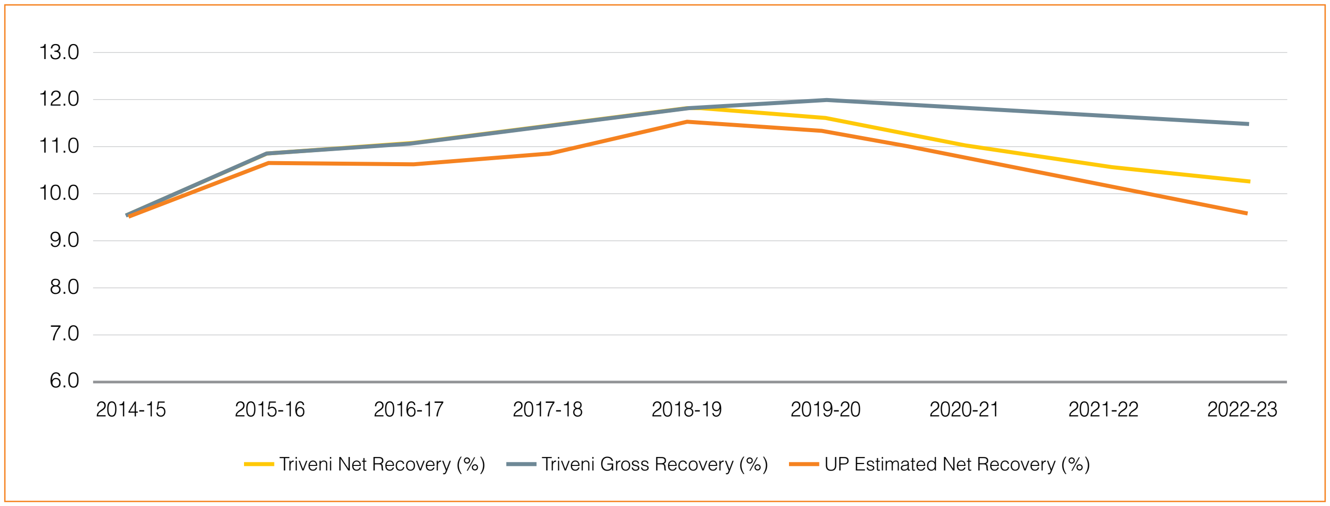
Sugar Production: Despite higher diversion towards ethanol production in recent years, sugar production for the Company has growth at a healthy 8.7% p.a. since 2014-15 due to higher sugarcane availability and a commensurate higher crush, along with improvement in recoveries.

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Area under sugarcane (Ha)	167068	156671	166675	183423	194159	191840	195537	198376	204092
Sugarcane crushed (LQ)	512.72	452.07	640.03	836.70	797.58	874.25	853.97	840.91	932.54
Sugar produced (LQ)	49.1	48.8	70.8	95.2	94.0	100.9	93.8	88.7	95.4
Net Recovery (%)	9.57	10.80	11.06	11.38	11.79	11.54	10.98	10.55	10.23
Gross Recovery (%)	9.57	10.80	11.06	11.38	11.79	11.97	11.86	11.70	11.47

Triveni Sugarcane Area and Total Crush



Triveni vs. UP Recoveries



Unit-wise Performance:

Units	%		(Million Tonnes)			
	Sugar Recovery		Sugarcane Crushed		Sugar Production	
	SS 2021-22	SS 2022-23	SS 2021-22	SS 2022-23	SS 2021-22	SS 2022-23
Khatauli	10.51	9.96	2.25	2.49	0.24	0.25
Deoband	10.33	10.17	1.66	1.85	0.17	0.19
Ramkola	11.44	10.64	0.67	0.78	0.08	0.08
Sabitgarh	10.79	10.53	1.08	1.23	0.12	0.13
Chandanpur	10.62	10.28	0.95	1.04	0.10	0.11
Rani Nangal	10.86	10.54	1.02	1.11	0.11	0.12
Milak Narayanpur	9.58	9.82	0.77	0.83	0.07	0.08
Group	**10.55**	**10.23**	**8.41**	**9.33**	**0.89**	**0.95**

Note: Net recovery of 10.23% with 92% of sugarcane crush with B-heavy diversion in SS 2022-23 vs. 84% in the previous season.

GROWTH THROUGH SUGARCANE DEVELOPMENT PROGRAMME

Triveni's sugarcane development programme is pivotal to its sustainable growth strategy, and the Company continuously engages with farmers to increase sugarcane productivity through its comprehensive sugarcane 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 relentlessly working on a six-pronged strategy aimed at the development of improved planting, cultivation, crop protection and harvesting techniques. The strategy also seeks to improve the quality of crop and land productivity, resulting in enhanced income in the hands of farmers. The pillars of this strategy are:

1. Significant focus on **yield improvement** through various agronomic interventions (e.g. wide spacing, trench planting, etc.). **Emphasis on before-wheat planting,** providing higher time in the field to the spring planted sugarcane, thus leading to higher yield.
2. **Active farmer engagement:** Development of a very large number of model demonstration (demo) plots, with yields 40-50% higher than normally being obtained by farmers in their sugarcane fields, to showcase to the farmers advanced practices. The plots are also helping educate the farmers to achieve yield enhancement for replication in their own plots for income enhancements.
3. **Soil Health Improvement:** Judicious application of balanced dosage of fertilisers and nutrients as per soil analysis reports and recommendations.
4. **Crop Protection** from various pests & diseases, using a structured and scientific surveillance programme.
5. **Improvement in farm implements and mechanisation,** to make farm activities less labour intensive and drive economic improvements.
6. **Structured Varietal Development Programme,** for identification, faster multiplication, and commercial use of desired high sugar and disease resistant varieties for the mutual benefit of the Company and the farmers.

Various digitalisation measures have been undertaken in the above initiatives to promote real-time information sharing and interventions, faster dissemination of best practices across units and among the farmer community.

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Key updates of the sugarcane development programme are as follows:

No. of member farmers: 3.29 lakh, up 3% over the previous season

Sugarcane area increased by ~3%, from ~198,000 hectares (Ha) in SS 2021-22 to ~204,000 Ha in SS 2022-23

Varietal replacement is being focussed on at all the units, as the leading sugarcane variety, Co 0238, has become susceptible to a fungal disease called red rot, which damages the crop yield and affects the quality of juice. Varieties being currently propagated are Co 118, Co 98014 & Co 15023 (new variety). Co P9301 is being propagated specifically at Ramkola in the low-lying areas. Co J88 is a high-sugar variety, and is being specifically propagated at Chandanpur. Total area under Co 0238 sugarcane variety is expected to drop to 74% as against 88% last year.

Special yield improvement interventions, e.g. wide spacing, were undertaken in 26,300 Ha this year, which is 36% higher than last year.

A large number of **demonstration plots** (~400- 500 plots across each unit), spread across our sugar units' command area, have been developed to show to the farmers the benefits of the recommended practices and interventions in the field. Farmer meetings are organised at these plots to create awareness on the benefits of the new/scientific cropping techniques over conventional practices adopted by the farmers of the area.

Crop protection – A structured disease & pest surveillance programme is in place at all the units, which helps us in timely detection of pest/disease attack, forecasting, and taking corrective control measures.

Integrated crop protection programme, which involves following and practising preventive/curative control measures through a combination of chemical, biological and mechanical means/techniques, is practised at all our sugar units. It has yielded good results in keeping the pest and disease incidence levels in control to a large extent over the years.

Biological measures involve usage of bio agents (e.g. Trichoderma to control red rot). **Mechanical control measures** on the other hand include rouging & destruction of diseased clumps, destruction of egg mass and moths, and collection and destruction of the pest-affected shoots.

Soil health improvement: Press mud is being provided on subsidised rates to the farmers to replenish the organic carbon content in soil. Another major focus is on application of micro element mixtures & Potash (macro element), which were earlier available in abundance but now have started declining. These too are provided on a subsidised rate.

Soil samples are collected every year from the Development Zones of the factory and sent for analysis to reputed soil laboratories. Based on the soil analysis reports, recommendations are worked out for each of the Development Circles (comprising a cluster of villages)

located in the command area. The recommendations are displayed through wall paintings in the villages. Pamphlets, posters etc. are also used for disseminating information amongst the farmers. Awareness on benefits of application of balanced dosage is created through village meetings, educational sessions, as well as expert visits & goshthies (large gathering of the farmers) to impart knowledge.

Focus on ratoon management: Farmers are being persuaded to treat the ratoon crop similar to the plant crop to maximise yields and reap maximum benefits. The farmers are educated to take up timely inter-culture operations and irrigation, apply balanced dosage of nutrients, and take timely preventive & curative pest/disease control measures to enable a good yield.

We have tied up with Regional Sugarcane Research Station, Karnal (Research Station of Sugarcane Breeding Institute, Coimbatore) for zonal varietal trials at our sugar units.

As part of the All India Coordinated Trial programme, an Inter-varietal Analysis Trial was laid out at the Company's Gagsona farm (in Khatauli), 10 pipeline varieties were planted during FY 23, along with the existing cultivated varieties, for a comparative analysis of yield & quality parameters. These arrangements will provide the Company early access to new varieties, especially in case any of the trial varieties get selected in the region.

Discussion with senior scientists from above institutes, to assist in propagation of best crop management practices, is an added advantage.

Farm Mechanisation is being encouraged on entrepreneurship model. Farm implements, e.g. small tractors, ratoon management devices, trench openers, power sprayers etc., are being made available on lower/competitive market rates. These initiatives lead to availability of tractors & farm implements on significant discounts to the farmers over and above the normally offered retail prices.

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Digitisation: Sugarcane area data is captured through hand held terminals; each circle supervisor is equipped with these machines. They feed data, e.g. progress of planting indents & planting, on a daily basis during the planting season, which is exported to our servers. Other important parameters, e.g. area of the sugarcane plots, type of the crop, sugarcane variety, condition of the plots (lowland/upland), irrigation source etc., are captured during the sugarcane area survey. Supply calendars are prepared on the basis of sugarcane area/type of the crop & sugarcane variety.

OUTLOOK FOR SUGAR INDUSTRY AND TRIVENI SUGAR BUSINESS

With an increased acreage and excellent rains in April and May 2023, there are increasing chances of an El Niño impact, as warned by various meteorological agencies. There are also palpable changes in weather patterns, with unseasonal cool weather across North India in April 2023 as compared to unseasonal hot weather in March last year. All these have an impact on sugarcane growth, recoveries, new forms of pests and disease that can potentially impact the sugarcane crop. While it is difficult to predict these and hence the sugar production of the country, we believe that overall, the industry has sufficient flexibility to meet domestic consumption demands, and meet ethanol blending requirements by diverting sugar for the production of ethanol. The Government decides on sugar exports based on the surplus sugar available in the country, after meeting domestic priorities and having regards to the demand and price prevalent in the international markets.

For Triveni, as majority of the sugarcane areas associated with our factories are located in regions with rivers & well-connected canal systems and supplemented by tube wells/ borewells based irrigation methods, the sugar operations are far less likely to get impacted due to scanty monsoon rains as compared to other sugarcane cultivating regions.

The Company continues to have robust and well-structured sugarcane development programmes across its seven sugar units, and is anticipating a higher crush and improvement in recovery in the upcoming sugar season. The focus is on substitution of 0238 variety by other promising, well proven and high yielding/high sucrose varieties in sugarcane command areas of the sugar units. Coupled with various yield enhancement measures, like spaced row planting, trench planting and autumn planting, sugarcane availability would be assured to meet higher sugarcane requirements at the sugar units.

During FY 23, the Company announced capital expenditure of ₹ 175 crore which would lead to increased crushing capacity (from 61,000 TCD to 63,000 TCD), modernisation, refurbishment, debottlenecking and efficiency improvements at various sugar units, to enable cost optimisation. The CapEx will also go into process conversion and a new pharma facility to enhance the refined sugar production.

Following is a summary of the upcoming planned activities:

- Expansion in crushing capacity of Sabitgarh sugar unit by 2000 TCD, thereby increasing the crushing capacity to 9000 TCD
- Process conversion at Milak Narayanpur unit to refinery process (DRP)
- Setting up of another pharma sugar facility at one of the sugar units, besides the existing facilities at the Sabitgarh unit

The proposed increase in distillation capacity to 1,110 KLPD would further enhance the integrated operation capabilities, value additions and profitability for the Company.

To support the financial health of the industry and to ensure timely payments to the farmers, we would look forward to the Government's help in increasing the Minimum Selling Price (MSP) of sugar, as the domestic sugar prices are stagnant and have not been able to offset the increased costs, including sugarcane price increase in SS 2021-22, or another such possible increase in the forthcoming season.

ALCOHOL BUSINESS

Indian Ethanol Industry

Indian Ethanol Industry Overview

The Central Government has 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.

EBP20 will lead to numerous benefits, such as saving of ₹ 30,000 crore of foreign exchange per year, lower carbon emissions, self-reliance, use of damaged food grains, increased farmers' incomes, and better investment opportunities.

FY 23 Industry – Domestic Outlook:

- Out of the 511.5 crore litres finalised by the OMCs for the Ethanol Supply Year 2022-23 (December 2022 to October 2023) against a total requirement of 600 crore litres, contracts for 505.2 crore litres have been executed
- Out of the 523.5 crore litres finalised by the OMCs for the Ethanol Supply Year 2022-23 (December 2022 – October 2023) against a total requirement of 600 crore litres, contracts for 519.9 crore litres have been executed till May 21, 2023
- Against the above, 268.6 crore litres have been lifted by the OMCs till May 21, 2023
- The total lifted quantity is 52% of the contracted quantity and 51% of the finalised quantity
- The average blending percentage is 11.67% till May 21, 2023

Raw Material Wise Ethanol Contracted and Supplied Quantities

Raw Material	Total LOI Quantity	% of Total LOI Quantity	Total Contracted Quantity	Receipt Quantity	% of Total Receipt Against Total Contracted Qty
Sugarcane Juice	143.02	27%	136.27	118	87%
B-Heavy Molasses	230.05	44%	235.14	101.16	43%
C-Heavy Molasses	6.29	1%	5.71	3.19	56%
Damaged Food Grains	21.45	4%	18.98	6.7	35%
Surplus Rice	122.73	23%	123.79	39.49	32%
Total	**523.54**	**100%**	**519.9**	**268.55**	**52%**

Note: Till May 21, 2023

Quantity of Ethanol Supplied and Amount of Sugar Diverted from December 2022 to May 2023

- Till May 21, 2023, out of total ethanol supply of 268.55 crore litres, 118 crore litres have been supplied from Sugarcane Juice and 101.16 crore litres have been supplied from B-Heavy Molasses. For 118 crore litres, 17.70 lakh metric tonnes of sugar have been diverted and for 101.16 crore litres, 8.09 lakh metric tonnes of sugar have been diverted.

- Till May 21, 2023, total contracted quantity from Sugarcane Juice and B-Heavy Molasses is 136.27 crore litres and 235.14 crore litres respectively. For 136.27 crore litres, 20.44 lakh metric tonnes of sugar shall be diverted, and for 235.14 crore litres, 18.81 lakh metric tonnes of sugar shall be diverted.

Indian Ethanol Policy and Market Developments

The Government has been incentivising the industry through supportive ethanol prices under the EBP Programme. There were two major developments on the pricing front in FY 23:

Ethanol Price Increase by Oil Marketing Companies (OMCs) for ESY 2021-22: In June 2022, the OMCs have declared monetary relief on despatch of ethanol for supplies made between June 1, 2022 and November 30, 2022 as below. This was to compensate for high energy costs and to boost biofuel production, and was in addition to previously declared ethanol prices by the Government.

Feedstock	Relief Amount (₹/KL)
Sugarcane Juice/Sugar/Sugar Syrup based Ethanol	1604
B-Heavy Molasses based Ethanol	1493
C-Heavy Molasses based Ethanol	1179
Damaged Food Grain based Ethanol	2337
Surplus Rice based Ethanol	1437

Ethanol Price Increase by the Government for ESY 2022-23: In November 2022, the Government announced higher ethanol prices under the EBP Programme for ESY 2022-23 as shown below. While prices have been increasing over the years, we believe that to meet the aggressive Ethanol Blended Petrol (EBP) target of 20%, the Government may need to rectify prices of ethanol produced from sugarcane juice and grain, to improve project viability to facilitate further additions in capacities.

Ethanol Supply Year (ESY) was also redefined as a period of ethanol supply from November 1 of a year to October 31 of next year, with effect from November 1, 2023. In view of the above change in ESY period, the ESY 2022-23 period will be considered from December 1, 2022 to October 31, 2023, i.e. 11 months

Feedstock	ESY 22-23 Basic Rate for Ethanol (₹ Per Ltr)	ESY 21-22 Basic Rate for Ethanol (₹ Per Ltr*)
Sugarcane Juice/Sugar/Sugar Syrup based Ethanol	65.61	63.45
B-Heavy Molasses based Ethanol	60.73	59.08
C-Heavy Molasses based Ethanol	49.41	46.66
Damaged Food Grain based Ethanol	55.54	52.92
Maize based Ethanol	56.35	53.45
Surplus Rice based Ethanol (Sourced from FCI)	58.50	56.87

* ESY 21-22 Basic Rates do not include relief amount

Incentives for maize production

In view of the limited scope for expansion of sugar and grain sectors to achieve the target of 20% ethanol blending and the decline in sugar production in SS 2022-23, the Government is also planning incentives for maize production. The Ministry of Agriculture, in collaboration with the Indian Institute of Maize Research, will boost maize production through the development of high-yielding varieties that have higher ethanol recovery. The distillery will work with farmers for assured procurement of maize on the lines of the sugar industry.

Automobile Sector updates on E20 and Flexible Fuel Vehicles (FFVs)

The progress and updates in the key end-user industry, i.e. automobiles, are important for achieving the targets of the Ethanol Blended Petrol (EBP) programme in a timely manner. Ethanol can be used in vehicles calibrated to that particular degree of ethanol blending (e.g., E20) or in Flexible Fuel Vehicles (FFVs) that can run on pure fossil fuel or fossil fuels blended with any degree of biofuels.

In India, with the adoption of BS6 Phase II norms, vehicles sold in the country need to be compatible with E20 fuel. The commercial launch of FFVs is expected to happen in the coming years. E20 dispensing commenced at more than 1,000 outlets in specified states from/before April 1, 2023, which will raise the demand further. There is an increased R&D investment in FFVs that are likely to roll over by 2025.

In India, new projects have commenced which will boost the demand for ethanol, such as FFVs, Ethanol Chulhas (Gas Stove), Ethanol Based Diesel Generators (DGs), Opening of Energy Hubs, Charging stations, Hydrogen, CBG, among others.

TRIVENI ALCOHOL BUSINESS AT A GLANCE

Our long-term strategy for growing the Alcohol business, and to be an active partner in India's E20 programme and self-reliance journey, is driven by our passion for manufacturing premium quality products at all our manufacturing facilities.

With an overall capacity of 660 Kilo Litre Per Day (KLPD), the Company has state-of-the-art distilleries spread across Muzaffarnagar (MZN) – two facilities with an aggregate of 260 KLPD capacity, a 200 KLPD facility at Sabitgarh (SBT) and another 200 KLPD facility at Milak Narayanpur (MNP) in Uttar Pradesh.

SBT distillery produces high quality ethanol from molasses, the distillery at MNP is a multi-feed stock plant having the ability to use molasses and sugarcane juice/syrup, as well as grains to produce high-quality ethanol. This distillery at MNP is among the largest new multi-feed distilleries being set up in India.

MZN houses two facilities, with the latest being a grain-based distillery. The existing 200 KLPD distillery at MZN boasts of flexible product manufacturing capability - Ethanol, Extra Neutral Alcohol (ENA), Rectified Spirit (RS) and Denatured Spirit (SDS) from molasses, while the recently commissioned 60 KLPD grain-based facility at MZN produces both Ethanol and ENA. Dried Distillers Grain with Solubles (DDGS), a by-product produced in grain plants, is sold to premium institutions and has been well accepted in market. The Company also manufactures Indian Made Indian Liquor (IMIL) at this complex.

In FY 23, the Company embarked on capacity expansion and enhanced the total distillation capacity from 320 KLPD to 660 KLPD through augmentation of capacity at Sabitgarh distillery to 200 KLPD Ethanol, commissioning of the 200 KLPD Multi Feed Distillery at Milak Narayanpur (MNP) and a 60 KLPD grain-based distillery at Muzaffarnagar Distillery complex, where superior quality Ethanol / ENA is produced.

In the next phase of expansion, overall capacity will be further enhanced through two new dual-feed stock distilleries with an aggregate capacity of 450 KLPD (each having 225 KLPD capacity), at Rani Nangal and Sabitgarh, U.P, at a cost of ₹ 460 crore. This will take the total distillation capacity up to 1,110 KLPD. Accordingly, the Company has started setting up a 225 KLPD Multi-feed distillery unit in its Rani Nangal sugar complex and the second 225 KLPD distillery is proposed to be set up in its Sabitgarh distillery complex, for which the process of obtaining clearances is underway.

SBT distillery produces high quality ethanol from molasses, the distillery at MNP is a multi-feed stock plant having the ability to use molasses and sugarcane juice/syrup, as well as grains to produce high-quality ethanol.

We are also producing Indian Made Indian Liquor (IMIL) at its bottling facility in the distillery complex at Muzaffarnagar, Uttar Pradesh, to effectively use molasses that are reserved to be sold to country liquor units at a price much lower than the market price, and to facilitate forward integration of its distillery operations.

While ethanol is currently produced using grains as feedstock at the distillery at Milak Narayanpur, all the distilleries, except the 60 KLPD distillery at Muzaffarnagar which exclusively operates on grain, have assured access to a consistent supply of captive raw material derived from sugarcane.

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 SLOP) fired incineration boilers at all the distilleries, as per the prescribed directives and guidelines for effluent treatment, ensuring Zero Liquid Discharge (ZLD).

OUR ALCOHOL BUSINESS PERFORMANCE

- Achieved highest-ever production of 18.12 crore litres & sales of 18.04 crore litres during FY 23, growing significantly year-on-year by 68.4% and 53.1% respectively.
- Additional capacities of 340 KLPD, new as well expansion, as commissioned in FY 23 resulted in increased sales volumes - aggregate distillation capacity 660 KLPD.
- During the year, revenues from the distilleries contributed 21% of TEIL's net turnover and it will further rise with our proposed increase in distillery capacity from the present 660 KLPD to 1,110 KLPD.
- Higher average realisation due to increase in ethanol prices prescribed by the Government as well as Oil Marketing Companies (OMCs).

- Ethanol constituted 93% of alcohol sales during FY 23.
- Sale of Ethanol / ENA produced from sugarcane-based feedstocks (majorly B-heavy) constituted 75% of the total alcohol sales for FY 23, while Ethanol / ENA produced from grain contributed to the balance 25%.

Our Ethanol business highlights in FY 23

- Milak Narayanpur (MNP) distillery unit was commissioned in time, and the production capacity ramped up to 100% in a short span of time.
- MNP grain plant was also commissioned in time and the capacity was augmented in a very short span of time.
- MNP distillery was operated with all feedstocks – B-heavy Molasses, Syrup, Grains, in FY 23.
- MZN grain distillery has been producing ENA and Ethanol. MZN grain distillery has been approved by UP Excise to produce 75% Ethanol and 25% ENA out of its total production capacity.
- MZN grain distillery manufactured superior quality ENA, which was supplied to IMFL manufacturers across UP besides being utilised for captive consumption.
- Efficient supply chain logistics were established for the procurement of grain from open market as well as from FCI, which helped accelerate the production targets and streamline the plant operations in multi-feed sector.
- The Triveni DDGS quality is well accepted in the market and is being sold to marquee institutional customers contributing to 25% of sales volumes.
- Efficient water treatment & recycle system reduced our ground water consumption far below the norms
- Zero Liquid Discharge & meeting stringent Environmental norms at distilleries.

Outlook for Ethanol Industry and our Alcohol Business

OMCs have started E20 at more than 1,000 outlets across the country from April 1, 2023. We believe the continued enhancement in ethanol blending percentages will lead to robust demand.

According to the Food and Consumer Affairs Ministry, the ethanol production capacity in India currently is ~1,000 crore litres, which is expected to go up by 25% to 1,250 crore litres by the end of 2023. In order to achieve the target of 20% blending by 2025, ~1,000+ crore litres of ethanol will be required. With ~300+ crore litres for other usage, there is need to create capacity of ~1,700 crore litres, assuming plants operate at 80% efficiency. This provides visibility to the industry for incremental investments in distillation capacities.

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 sugar to the production of ethanol would help in mitigating surplus sugar situations, bring down dependence on imported crude, provide stability in sugar prices, improve financials and liquidity of sugar mills, and ensure timely payment of sugarcane dues to farmers
- It will bring new investment opportunities 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%
- It would help save foreign exchange 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

At Triveni, we expect to produce ~21 crore litres of alcohol in FY 24. Of the two new dual-feedstock distilleries, we expect the Rani Nangal distillery to be commissioned by Q4 FY 24 and the Sabitgarh distillery thereafter. The Company has decided to commission these sequentially, and this also meets the strategic objectives of the business where the Company retains some flexibility based on the relative pricing and margins of each of its raw material. Depending on the timing of the Sabitgarh distillery, the Company expects production ranging between 28-32 crore litres in the following year, i.e. FY 25.

POWER TRANSMISSION BUSINESS (PTB)

Industrial Gears Industry

Global Industrial Gears Industry Overview

The Global Industrial Gearbox Market is valued at USD 27.01 billion in the year 2022 and is projected to reach a value of USD 36.69 billion by the year 2030. The Global Market is forecasted to grow at a Compound Annual Growth Rate (CAGR) of 3.90% over the forecast period.

Asia Pacific is projected to acquire the largest market share of ~38%, because of the growing demand for gearboxes in various industries, such as manufacturing, power generation, and so on. India, China, Japan, Korea and Australia are among the region's most important contributors.

The global market for industrial gearbox is led by the parallel axis, which is likely to maintain its lead during the forecast period owing to the parallel axis design used in the manufacture of helical and planetary gearboxes.

By 2033, the United States is likely to rule the industrial gearbox market, with a CAGR of 5.1%. Japan's industrial gearbox market is expected to expand significantly, with a CAGR of 4.5% in this period.

Based on type, the helical industrial gearbox led the market share in 2022, and will continue to dominate the sector during the forecast period. Based on the end user, the power generation sector led the market share in 2022, and will continue to dominate the sector during the forecast period.

The growth of power transmission gearbox market can be attributed to several drivers, as listed below:

- Increasing demand for energy-efficient systems
- Growing industrialisation and urbanisation
- Increasing demand for high-speed machines
- Growing infrastructure development

The Global Industrial Gearbox market can be primarily divided into the slow-speed and the high-speed segments. The slow-speed segment is largely catalogue and standardised products, while the high-speed segment consists of engineered gear solutions for critical applications for steam turbine drives, gas turbine drives, centrifugal pumps and compressors, etc.

Indian Industrial Gears Industry Overview

We estimate the Indian industrial gear industry at ~USD 500 million, of which the high-speed gear market is estimated at ~USD 30 million. The industry is primarily driven by Government policies on infrastructure, ethanol blending, revival of fertiliser units, and greenfield and brownfield expansion of refineries. The market is expected to grow around 6-7% across all segments. The high-speed gear industry growth is fuelled by Ethanol Blended Petrol (EBP) programme, capacity enhancement of refineries, and investments in Petrochemical complexes attached to refinery, along with captive power requirements across all segments. Higher capacity utilisation is expected to drive higher maintenance spend, propelling the growth of the Aftermarket business. The geopolitical environment with the neighbouring countries is driving higher defence budget spending, leading to self-reliance in the defence sector.

INDIAN DEFENCE INDUSTRY

Defence Industry Overview

Indian Defence Policy and Market Developments

- Make in India Policy of the Government is driving the Indian defence industry to develop indigenous capability and technology in a wide spectrum, including critical areas, to minimise import dependence.
- Ministry of Defence (MoD) has been allocated ~₹ 5,93,538 crore, which is 13.18% of the total budget for FY 24, and is a 13% enhancement over the previous year.
- The allocation to DRDO for Research and Development in Defence, has been enhanced by 9%, with a total allocation of ₹ 23,264 crore in FY 24 Budget.
- MoD is proactive in identifying and encouraging competent and capable vendors.

TRIVENI POWER TRANSMISSION BUSINESS AT A GLANCE

- Triveni's Power Transmission business (PTB) is divided into two streams - Gears & Defence. Within gears, the business segments include Original Equipment Manufacturer (OEM), Built to Print (which together are referred as Product), and Aftermarket.
- PTB was founded in 1976 to meet the increasing demand for high-speed gears for Steam Turbine Generator (STG) applications. Today, this business is synonymous with cutting-edge technology, knowledge, and expertise, covering installations in 70 countries across a wide range of applications. The business has extensive expertise in the design and development of all sorts of gears and gearboxes, as well as a modern, globally benchmarked manufacturing facility.
- PTB has grown to become one of the largest & leading gear manufacturing companies in India with a 46-year track record and a rich history. It has carved a niche for itself by being ubiquitous across industry segments and application spectrums.

OEM Segment:

- PTB caters to international OEMs for their new product requirements, provides durable aftermarket solutions across all brands, and also manufactures built to print gears for some of the world's leading OEMs.
- The Power Transmission business is world-class, with an unwavering dedication to research & development, product excellence, technological superiority, and customer care.
- PTB is being patronised by all the major global OEMs in India, Southeast Asia and other parts of the world, offering power transmission solutions to various applications like Steam Turbine Generators / Gas Turbine Generators / Rotary & Reciprocating Compressor / Centrifugal and Reciprocating Pumps / Blowers, Hydro Turbine Generator / ID-FD Fans.
- PTB gearboxes are compliant to API and AGMA standards, and cater to various industry segments like Thermal, Oil & Gas, Petrochemicals, IPPs, Fertilisers,

Steel, Cement, Sugar, Rubber & Plastics, spanning all geographies.

- PTB gearboxes are optimally designed to comply with stringent API and AGMA standards for installations in extreme ambient conditions of sub-zero or high temperatures. The gearboxes are engineered to various configurations, such as multiple outputs, vertical and horizontal offset, quill shaft. Accessories include in-built and skid mounted lubrication system and temperature, and vibration instrumentation package suitable for hazardous area applications, meeting stringent noise and vibration limits.

- Reliability, built through superior technology, manufacturing and product quality, coupled with with four and half decade of rich experience in high technology gears, is our key strength, which leads to the development of customised gear drives, meeting tough demands of Industries across high-speed as well as niche slow-speed applications.

Built to Print Segment:

PTB has ventured into built to print gears of high quality for select global customers, leveraging its high-precision specialised manufacturing capability. The precision quality requirements for these select customers resonates well with PTB's forte in high-speed gearing.

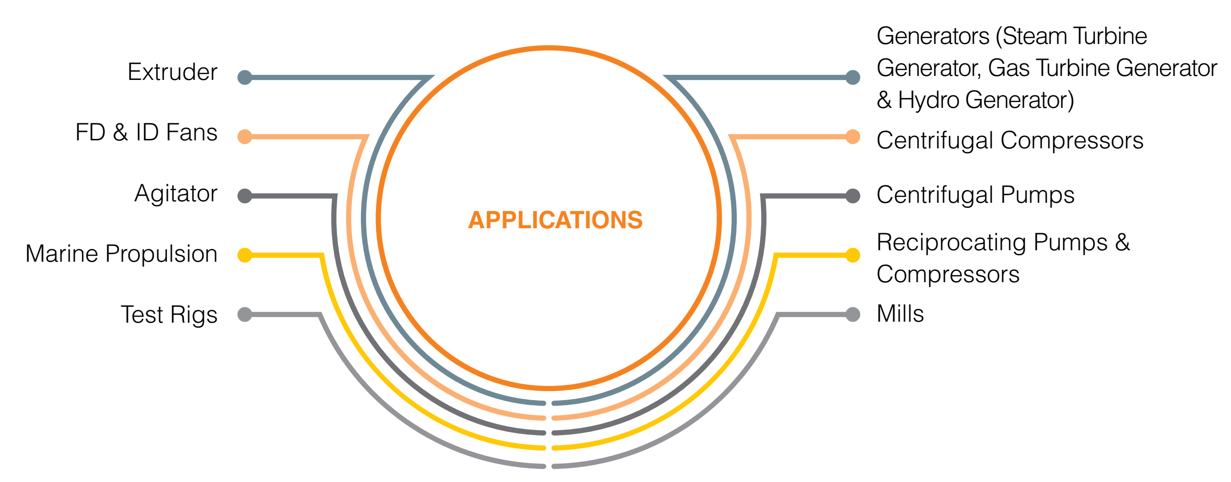
Aftermarket Segment:

- Aftermarket services are integral to the industry. PTB undertakes repair & refurbishment predominantly of world-renowned brands followed by local brands as well.

- A two-pronged strategy is adopted in the event of failure - short-term & long-term solutions. Short-term solution would include minor repair with least lead time to maximise the uptime of the equipment whereas long-term solution is aimed at creating higher order of reliability which includes major repair and replacement of parts.

- PTB's current product portfolio - OEM as well as repair & refurbishing - is supplemented by its service portfolio, which includes:
  - o Diagnostic study and health check-up
  - o Overhauling
  - o Upgradation and automation of existing plants
  - o Installation and commissioning
  - o On-site training and assistance

- Triveni PTB provides reliable 360-degree customised services throughout the product life cycle at lowest cost, thus maximising uptime and performance. Major end customers include Global O&G companies and Refineries, Cement, Sugar, Steel, Fertiliser, IPP, Thermal, Hydro, Paper and Pulp, Petrochemical and Chemical industries.



TRIVENI DEFENCE BUSINESS AT A GLANCE

Triveni's Defence business has emerged as a trusted and reliable supplier for the Indian Navy within a short span of our foray into this niche segment. Triveni is also an approved supplier for the Indian Coast Guard, underlining the sharp technological and innovation edge of our products.

Triveni is an OEM for a host of important products for the Indian Navy and Indian Coast Guard. The Indian Navy has chosen Triveni as its reliable supplier for propulsion shafting and turbopumps for its indigenous sub-surface project. As part of this relationship, we are providing reverse engineering and fully indigenous solutions for the motor & turbo driven auxiliaries for various projects.

Triveni offerings in this segment are backed by:

- Research & development expertise on critical turbo products
- Fully equipped design, engineering and analysis capability
- Best-in-class manufacturing infrastructure
- Compliance with the dynamic defence market demands in India
- Stringent adherence to quality requirements
- Vast experience in reverse engineering, retrofitting, and customisation

Triveni Defence business solutions include:

- Above and below the deck mechanical equipment
- Platform level support, propulsion systems equipment, gas turbine generator for auxiliary power generation and individual equipment such as pumps, etc.

Products

- Propulsion gearboxes and other critical gearboxes
- Gas turbine generators for auxiliary power
- Critical turbo and motor-driven pumps
- Propulsion shafting

State-of-the-art Infrastructure

Triveni manufactures quality products, benchmarked to the highest standards, in this segment at its state-of-the-art manufacturing facilities. The facilities have the most advanced world-class multi-axis CNC machinery and equipment-handling capacity of 80 tonnes, and are ideally suited to support the manufacturing of technologically superior products for the Indian Defence sector.

Triveni is an OEM for a host of important products for the Indian Navy and Indian Coast Guard. The Indian Navy has chosen Triveni as its reliable supplier for propulsion shafting and turbopumps for its indigenous sub-surface project.

Given the potential for further expansion and growth in this segment, Triveni is poised to establish a large dedicated multi-modal manufacturing, assembly and testing facility at Mysuru for defence products. This will have 80-100 tonnes handling capability and large-scale machining facility, in addition to dedicated test benches for a range of equipment and system integration capability.

OUR POWER TRANSMISSION BUSINESS PERFORMANCE

- PTB order booking stood at ₹ 263.88 crore, registering a growth of 5% & revenues stood at ₹ 225.25 crore, registering a growth of 22%.
- The Gears business registered a growth of 18% over FY 22, from ₹ 209 crore to ₹ 247 crore in terms of order booking.
- The Gears business registered a growth of 20% over FY 22, from ₹ 185 crore to ₹ 223 crore in terms of revenues.
- Within gears, Product stood at ₹ 147 crore in order booking registering a growth of 24%, and at ₹ 132 crore in terms of revenue, registering a growth of 36%.
- Aftermarket business stood at ₹ 100 crore in order booking, registering a growth of 10%, and at ₹ 91 crore in terms of revenue, registering a growth of 5%.
- Aftermarket contributes ~40% to overall revenue from the Power Transmission Business.
- In FY 23, the business added 18 new customers, driven by the Aftermarket.
- Repeat customers in the Aftermarket segment stood at 85% by value (₹ 77 crore) and 92% by numbers (301).
- Exports' share in order booking stood at ₹ 43 crore, registering a growth of 53%, and at ₹ 35 crore in terms of revenue, registering a growth of 10%.

Gears: Updates from FY 23

Achievements:

- Received the largest order from Latin America for gas turbine driven pump application for a gas pipeline project.
- Multiple orders received from OEMs for high-speed STG segment, to be installed in ethanol projects in India.
- Development of complete gearbox for Seal Gas Compressor as replacement to a European brand.
- Development of volute casing parts for Seal Gas and Cooling Gas compressors as replacement to a European brand, as a separate stream of business.
- Development of gear internals for Oxygen Turbo Compressor for a European brand.
- Development of 15MW gearbox as replacement to a European brand.
- Repair, refurbishment and supply of 9.2MW & 25MW gearboxes as replacement to a Chinese brand.
- Repair & refurbishing of extruder gearbox as replacement to an Italian brand.
- Repair & development of parts for Gas Turbine accessory gearboxes of a European brand.

New Developments

- Gearbox efficiency improvements for high-speed & high-power gearboxes are in progress.
- Capability built across all functions for the business to approach opportunities for global gas turbine accessory gearboxes.
- Providing solutions for complete Integrally Geared Compressor (IGC) gearbox units through reverse engineering and expanding the scope to compressor parts has opened new avenues of growth in refineries, fertilisers and petrochemical complexes.
- New avenue of growth identified for aftermarket repair of shafts using special coating technique, which reduces downtime of customers.
- Increase in shutdown tracking, coupled with site data management with clear correlation, has resulted in increased revenue over the years.

New References

- Entry into new series of Integrally Geared Compressor (IGC) internals with high precision accuracies for a renowned European customer to enhance market share in critical high-speed integrally geared market.
- Breakthrough order for a high-power compressor gearbox, which opens opportunities in domestic & global market to increase market share and installation base.

- Design, development, refurbishing & commissioning of high-speed Double Helical Planetary Gearbox as replacement to a European brand for a fertiliser complex through reverse engineering route has created a good reference, and can be used to secure similar business in the same industry or other industries with similar design configuration.
- Successful repair of gearbox of critical gas turbine application in situ at one of the largest refineries in India has created a distinguishing reference for horizontal deployment of this solution to other refineries.
- Entry into mud pump & draw-works gearbox used in onshore oil rigs through Built To Print.
- Providing maintenance support and troubleshooting through AMCs to multiple upstream & downstream refineries and gas complexes, enabling references and replication in different sectors.
- Overhauling of twin-screw extruder gearbox at one of the leading petrochemical complexes in India has provided valuable experience and expertise, which can be leveraged to other industries for similar applications not only for service but also for development of spares.

Defence: Updates of FY 23

- A new multi-modal facility is being set up, with large-scale infrastructure for testing of various naval marine equipment.
- PTB has ventured into a specialised vertical of propulsion shafting post winning an order for main propulsions shafting for sub-surface platform with in-house design & engineering. The technology developed will enable participation in various other shafting projects for Navy.
- Design, engineering, development & delivery of special application pump for Navy, which will pave way for similar requirements in future.
- Venturing into propulsion shafting, coupled with in-house capability to design & develop a wide range of rotary equipment and machinery and capability acquired through collaboration with Indian & overseas partners, will facilitate participation in shafting projects and machinery systems. This would be a pioneering initiative aligned to the Atmanirbhar Bharat policy of the Government of India

Power Transmission Business strengths

Product:

- Triveni Power Transmission Business (PTB) is one of the top five high-speed gear companies globally.
- 46 years of rich history of producing high-speed gearboxes.
- Population of 12,000+ high speed gearbox installations globally.
- Enjoys majority domestic market share across OEMs, and patronised by global OEMs across the application spectrum, spanning STGs / GTGs / Compressors / Pumps / Blowers / ID-FD Fans.
- Products are supplied across industry segments like Steel / Sugar / Cement / Fertiliser / Refineries / Gas Complexes, etc.
- Capability to design and manufacture high-power, high PLV gearboxes for all high-speed applications.
- Triveni is one of the few companies globally catering to AGMA & API standards and supplying gearboxes for hazardous and sub-zero temperatures.
- Highly experienced team with exceptional troubleshooting capability and sound understanding of system dynamics, including vibration analysis expertise.

Aftermarket:

- Triveni-PTB is one of the few companies operating globally in this segment, having replaced and refurbished 1200+ gearboxes of 80+ global brands across the application spectrum and across industry segments.
- It is highly responsive and is able to comprehend solutions (short-term & long-term) aligned to the demands of the industry.
- It has contributed immensely to energy conservation projects, which include power enhancements and speed change, which has a positive impact on plant production in some of the petro-chemical applications.
- It offers comprehensive solutions, including analysis, supply and services, in the aftermarket space, leading to drastic reduction in product lifecycle cost from the time of engagement.

Defence:

- Ab-initio design capability of critical machinery for marine application, leveraging existing expertise & experience in rotary engineering.
- In-house capability to design & develop a wide range of rotary equipment and machinery, coupled with capability acquired through collaboration with Indian & overseas partners.
- In-house precision manufacturing capability.
- A new multi-modal facility is being set up, with large-scale infrastructure for testing of various naval marine equipment.

CASE STUDIES - AFTERMARKET

Case Study 1:

Problem statement:

Damage to casing bore on barring and starting device idler shaft of 35MW gas turbine gearbox (combined load & accessory).

Site constraint:

The casing was grouted in concrete and removal would have caused destruction of the foundation.

Solution:

PTB provided a comprehensive in situ solution, where the gearbox casing bore was rectified in its original position by using special fixtures and in situ boring arrangement. Bore axis parallelism with existing bore was maintained within 0.05mm. New idler shaft with gears integrated with clutch arrangements and tooth contact with barring and starting shaft lines. Unit was put back into operation within three months.

Case Study 2:

Problem statement:

Diesel engine supplier has gone wrong in the direction of rotation and it would have been a costly affair to replace engines with reverse directions & that too in a short span of time.

Site constraint:

Fire pump bevel helical gearbox needed direction of rotation change without altering the foundation elevation and footprint to match the newly procured diesel engine in off-shore oil rig.

Solution:

PTB provided a solution of new gearbox casing, using existing parts of gearbox to maintain moment of inertia from the torsional compliance perspective of the system. PTB shifted mesh location of the input shaft to ensure direction change on output shaft. The bearing location in casing was suitably optimised to ensure mesh consistency during load operations.

OUTLOOK FOR INDUSTRIAL GEARS & DEFENCE INDUSTRY AND OUR POWER TRANSMISSION BUSINESS

Gears Industry and Triveni Gears Business Outlook

- Outlook for domestic product segment within high-speed gears is promising across key sectors:
  - **Sugar and Distillery:** The Steam Turbine Generator (STG) market is expected to grow in the smaller power range for Sugar and Distillery sector. The ethanol production capacity in India currently is ~1,000 crore litres, which is expected to go up by 25% to 1,250 crore litres by the end of 2023. In order to achieve the target of 20% blending by 2025, ~1,000+ crore litres of ethanol will be required. With ~300+ crore litres for other usage, there is need to create capacity of ~1,700 crore litres, assuming that the plants operate at 80% efficiency.
  - **Oil & Gas:** The domestic Oil & Gas sector is doubling the refining capacity by 2030, leading to gearbox requirements for Steam Turbines, Gas Turbines, Pumps and Compressors. India's oil consumption is forecast to rise from 4.05 MBPD in FY 22 to 7.2 MBPD in 2030. Consumption of natural gas in India is expected to grow by 25 billion cubic metres (BCM), registering an average annual growth of 9% until 2024.
  - **Steel and Cement:** Infrastructure growth is providing stimulus for expansion of Steel and Cement for Waste Heat Recovery (WHR). Cement companies are on an expansion spree and are expected to add 80-100 million tonnes (mt) of fresh capacity by FY 25 despite the looming challenges of rising input cost and uncertainty on the demand front. The Union Cabinet approved a ₹ 6,322-crore PLI scheme in July 2022, to boost the production of speciality steel in India. The Government aims to double the country's annual crude steel making capacity to 300 million tonnes from 150 million tonnes at present.
  - Growing potential is seen in the **Waste-to-Energy (WtE)** through agricultural and municipal waste.
- Focus on market share gains in product segment, especially from the international market through greater promotion of technology and thrust on new and existing customer relationships.
- Increasing footprint to capture high-growth opportunities for Aftermarket segment through a combination of own efforts and expanding the agents' network.

Collaborating with global technology OEMs in select areas for participation in marine propulsion gearboxes aligned to the naval & coastguard requirements

- In the Defence segment, the business expects increased order booking from key segments of Gas Turbines packaging, gearboxes and special application pumps, where the key activities of qualifications and Request For Proposal (RFP) have progressed considerably in the last couple of years.

Defence Industry and our Defence Business Outlook

- Development of in-house technology, engineering & design for propulsion shafting, for marine application, is under way.
- Collaborating with global technology OEMs in select areas for participation in marine propulsion gearboxes aligned to the naval & coastguard requirements.
- Expanding portfolio of special application pumps with indigenous design and development.
- Indigenous manufacturing and assembly of Base Frame and Acoustics Enclosure for propulsion gas turbines for naval marine application.
- New multi-modal Defence facility is planned to be commissioned by early 2024 in Mysuru, and will cater to the assembly and testing needs for a wide range of defence equipment, starting with the ones for Naval marine application. The modern facility shall cater to all the current and future development programmes that the Company is venturing into. The master plan shall cater for expansion in future into Army and Air Force projects as well.
- Triveni-PTB is developing multiple product lines for Naval applications, like Stabilizers, Light Weight Gearboxes, Propulsion Shafting & System, Steering Gear and Special Application Pumps for a range of marine platforms. Aggressive efforts are on for enlistment with Navy & Coast Guard as approved vendor.
- Triveni-PTB is foraying into small power Gas Turbine Generators for Naval Marine application in collaboration with world renowned OEMs.

WATER BUSINESS

Indian Water Industry

Indian Water Industry Overview

The Indian market for water and wastewater treatment is anticipated to expand as the nation sees an increase in private investments, as well as the government's implementation of new business models drawing in remote market participants and hastening the industry's expansion.

The Indian government has launched several programmes to promote the development of wastewater treatment infrastructure, such as the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) which aims to provide basic services like water supply and sewerage to households in urban areas. Additionally, the Namami Gange programme focusses on the cleaning of the Ganga River and its tributaries, which involves the construction of wastewater treatment plants along the river.

The private sector has also been investing in wastewater treatment, particularly in the industrial sector and also in Municipal sector wherever Recycle & Reuse opportunities exists for treated wastewater. Many large industries have set up their own wastewater treatment plants to comply with environmental regulations and reduce their water footprint.

Despite the growth in the industry, there are still challenges that need to be addressed, such as lack of skilled manpower, inadequate funding and inefficient regulatory frameworks. However, the Indian government and private sector are working towards overcoming these challenges and building a more sustainable and efficient wastewater treatment industry.

The Triveni Water Business Group (WBG) is pursuing opportunities with various 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.

Current Water Opportunities

The water industry in India has seen significant growth in recent years, driven by increasing awareness of water scarcity and pollution. The industry includes a wide range of technologies and services, such as wastewater treatment, desalination, water purification, and distribution.

To address the water crisis, the Indian government has launched several initiatives and policies to promote water conservation, reuse, and treatment. The government's flagship programmes, the National Rural Drinking Water Program (NRDWP) and Jal Jeevan Mission (JJM), aim to provide safe drinking water to all rural households by 2024. The National Mission for Clean Ganga (NMCG) is another initiative aimed at cleaning the Ganga River and its tributaries.

This presents significant opportunities for growth and investment, driven by the country's growing water crisis and increasing demand for water treatment services. The new opportunities are expected to come from all over India, as various projects are in planning stage and several are undergoing tendering.

We are also exploring opportunities in international markets.

GLOBAL WATER INDUSTRY

Global Water Industry Overview

The global water treatment industry is expected to grow at a CAGR of 7.1% from 2022 to 2029, reaching a market size of USD 489.07 billion by 2029. The growth of the market is driven by a number of factors, including increasing population, rising urbanisation, and growing environmental concerns.

- **Increasing population:** The global population is expected to reach 9.7 billion by 2050, putting a strain on the world's water resources. This will lead to an increased demand for water treatment services, as more and more people will need access to safe and clean water.
- **Rising urbanisation:** The world is becoming increasingly urbanised, with more and more people living in cities. This is leading to increased pollution of water resources, as urban areas generate more wastewater than rural areas. Water treatment will be essential to ensure that the growing urban population has access to safe and clean water.
- **Growing environmental concerns:** There is growing awareness of the environmental impact of water pollution. This is leading to increased regulations on water quality, which will require more water treatment facilities to be built.
- **Increasing demand:** The demand for water treatment solutions continues to rise due to factors such as population growth, urbanisation, industrialisation, and climate change. This demand growth is observed across various sectors, including municipal, industrial, and commercial.
- **Water scarcity:** Water scarcity remains a significant global concern, with many regions experiencing water stress or facing Water Management practices and shortages. This situation drives the need for effective water treatment technologies to optimise water use, recycle and reuse wastewater, and develop alternative water sources.
- **Stringent regulations:** Governments and environmental agencies worldwide are implementing stricter regulations to address water pollution and ensure safe drinking water standards. These regulations require industries and municipalities to adopt advanced water treatment technologies and adhere to stringent water quality standards.
- **Advancements in technology:** The water treatment industry is witnessing rapid technological advancements. Innovations include membrane filtration, advanced oxidation processes, desalination, biological treatment methods, smart monitoring systems, and

data analytics. These technologies enhance treatment efficiency, reduce energy consumption, and improve the overall effectiveness of water treatment processes.

- **Wastewater management and reuse:** There is an increasing focus on wastewater management and reuse to alleviate water scarcity and reduce environmental pollution. Advanced treatment processes, such as membrane bioreactors (MBRs) and reverse osmosis (RO), are employed to treat wastewater to high-quality standards, making it suitable for various non-potable uses like irrigation, industrial processes, and groundwater recharge.

- **Desalination:** With freshwater sources becoming limited, desalination has gained prominence as a viable solution in regions with access to seawater. Reverse osmosis (RO) and other desalination technologies are being widely adopted to convert seawater into potable water. However, desalination is energy-intensive and poses environmental challenges related to brine discharge.

- **Decentralised and modular systems:** There is a growing shift towards decentralised and modular water treatment systems, particularly in rural and remote areas. These systems offer flexibility, scalability, and cost-effectiveness, enabling localised water treatment solutions tailored to specific needs, and reducing the dependence on centralised infrastructure.

- **Public-Private Partnerships:** Collaborations between the public and private sectors are increasingly common in the water treatment industry. These partnerships facilitate investment in water infrastructure, technology development, and knowledge sharing, leading to improved access to clean water and enhanced water management practices.

- **Sustainability and Circular Economy:** The industry is shifting towards sustainable practices and adopting the principles of circular economy. These include resource recovery from wastewater, such as extracting energy, nutrients, and valuable by-products from the treatment process, promoting resource efficiency and minimising environmental impact.

- **Emerging markets:** Developing countries, particularly in Asia and Africa, are witnessing rapid urbanisation and industrial growth. This creates a significant demand for water treatment infrastructure and solutions to address water pollution and provide safe drinking water to expanding populations.

The global water treatment industry is segmented by technology, application, end-user, and region. By technology, the market is segmented into membrane filtration, chemical treatment, biological treatment, and others. Membrane filtration is the fastest-growing segment of the market, due to its high efficiency and optimal operating costs.

By application, the market is segmented into municipal water treatment, industrial water treatment, and others. Municipal water treatment is the largest segment of the market, accounting for majority and focus both of the market share. This is due to the increasing demand for safe and clean drinking water from municipal water treatment plants.

By end-user, the market is segmented into residential, commercial, and industrial. The industrial segment is the fastest-growing segment of the market, due to the increasing demand for water treatment services from industrial companies.

The global water treatment industry is expected to continue to grow in the coming years, due to the factors mentioned above. The market is expected to be driven by the increasing demand for safe and clean water, as well as the growing environmental concerns.

TRIVENI WATER BUSINESS AT A GLANCE

Water Business Group (WBG) of Triveni is an industry leader today in the complete range of Water & Wastewater solutions, offering innovative technology and the latest equipment range. Triveni has strong management and innovation skills in handling EPC projects of any scale across sectors and regions. Triveni provides turnkey execution and operation of water and wastewater treatment plants for both the municipal and industrial sectors.

We have engineering roots and constantly invest in new technology to ensure premium quality with faster deliveries at an optimised cost for our products & services. We have carried out successful execution of more than 100 projects in municipal and industrial projects with quality and commitment to timely delivery.

Cost Management & Efficiencies are in our DNA which helps us to maintain leadership.

Current Water Crisis and What We Offer

- Global urban population facing water scarcity is projected to increase to 2.4 billion people in 2050, with India projected to be the most severely affected. Two billion people of the world do not have safe drinking water.
- Over-consumption and over-development, unsustainable water use, pollution and unchecked global warming are draining humanity's lifeblood.
- Aggressively growing middle class is creating a huge demand for clean and safe water.
- The Indian government and all the state governments have 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.

Our Water Solutions

Water Business Group offers complete Turnkey/ Engineering Procurement and Construction (EPC) solutions for:

- Water Treatment (Conventional, Ultra Filtration, Reverse Osmosis, Demineralisation, and Sea Water Reverse Osmosis)
- Wastewater/Sewage Treatment (based on advanced technologies like Sequencing Batch Reactor (SBR), Moving Bed Biofilm Reactor (MBBR), etc. both for Municipal and Industrial effluents)
- Design, Build, and Operate Water and Wastewater treatment plant based on Zero Liquid Discharge and reuse.

Water Business Group (WBG) of Triveni is an industry leader today in the complete range of Water & Wastewater solutions, offering innovative technology and the latest equipment range.

- Water and wastewater collection and distribution networks, including their design, construction, operation and management.
- Manufacturing of equipment for the entire spectrum of water and wastewater treatment industry.
- Operations and maintenance of water and wastewater treatment plants.
- Design Built and Operate Water and Wastewater management systems on Engineering Procurement and Construction (EPC)/ Public Private Partnership (PPP)/ Hybrid Annuity Model (HAM)/ Build Own Operate Transfer (BOOT) models.

Water Treatment, Wastewater Treatment, Tertiary Treatment, Recycle & Reuse and Zero Liquid Discharge

Water Business Group's objective is to provide a growing number of people with access to clean drinking water, and to secure environmentally-compatible disposal of municipal and industrial wastewater. We are committed to contributing sustainable solutions for Water Treatment, Wastewater Treatment, Tertiary Treatment, Recycle & Reuse and Zero Liquid Discharge and Environmental Protection with enhanced quality of life. This drives us towards the development of new technologies and optimisation of existing processes with a focus on emerging markets.

The wide range of water & wastewater treatment plants supplied by us in India includes:

- Municipal Water Treatment Plants
- Sea Water Desalination Plants
- Processing Water Treatment Plants
- Sewage Water Treatment Plants
- Common Effluent Treatment Plants
- Tertiary Treatment Plants
- Recycle and Reuse of Wastewater
- Zero Liquid Discharge

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

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

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 PPP/ HAM mode, as part of the Namami Gange programme of the Ministry of Jal Shakti, Government of India

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

Our Mathura project subsidiary, MWMPL has undertaken an Integrated Sewerage Management project for the holy city of Mathura (Uttar Pradesh) under one-city-one-operator framework in PPP/ HAM mode, as part of the Namami Gange programme of the Ministry of Jal Shakti, Government of India

One of the key components of the project is recycling of treated sewage after 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 were physically completed during the year, and after completing the ongoing trials for demonstrating mandated KPIs (Key Process Indicators), Commercial Operation date (COD) of Mathura project has been achieved and MWMPL has started 15 years of comprehensive operation & maintenance (O&M) of the facilities.

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 designated agencies/departments.

The project includes comprehensive upgradation of the existing Common Effluent Treatment Plant (CETP), 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 a truly Zero Liquid Discharge (ZLD) system.

Sludge generated from the plant will be minimised through extensive dewatering, drying, heating & incineration processes within the plant facilities and, post treatment, the sludge will be disposed of in 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 from sources in the neighbouring area, thus sparing them from further extraction.

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

Operations and Maintenance

Operation and Maintenance (O&M) of Water and Wastewater Systems forms an integral part of the business as WBG conducts various water and wastewater system activities to ensure their effective functioning and compliance with various regulatory and technical requirements.

Triveni provides O&M to keep the water supply safe. We achieve the following outcomes related to operations and maintenance, and ensure that the client's system remains sustainable and costs are reasonable:

- Be knowledgeable of the water system's infrastructure (assets) and their locations.
- Be knowledgeable of the condition of the water system.
- Maintain an adequate disinfection residual in all parts of the system.
- Maintain positive water pressure under foreseeable operating conditions.
- Implement a backflow prevention and cross-connection control programme.
- Ensure proper disinfection and flushing procedures are used for repairs and new construction.
- Monitor for internal and external corrosion of piping and equipment and, if necessary, implement measures to reduce the rate of corrosion.
- Metre water supply and consumption to estimate water usage and losses and, if necessary, implement a leak detection programme.
- Maintain the source water intake, dam, raw water reservoir, or well-head site.
- Keep the treatment plant, pumping stations and reservoirs in good working order.
- Keep the distribution system's valves and hydrants in good working order.
- Swab and/or flush the watermains.
- Maintain a spare parts inventory.

Water Business Group of Triveni has significant experience in the Operations & Maintenance space of business for water and wastewater treatment plants, and offers the following services to customers:

- Operations and maintenance
- Annual maintenance contracts
- Product and process audits, health check-ups, and overhauls
- Pilot experiments
- Refurbishment, up-gradation and automation of existing plants
- Spares, service consumables, and chemicals
- On-site training and assistance

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 have received several Water Awards for innovative project designs.
- In FY 23, we secured Bangladesh (Construction of two sewerage treatment plants for Khulna Water Supply and Sewerage Authority), funded by ADB
- In FY 22, we secured the PALI HAM/PPP project
- In FY 22, we secured the Bhiwadi 6 MLD Zero Liquid Discharge (ZLD) project.
- In FY 21, we secured Maldives project of water and sanitation of six islands.

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)
- Sequential Batch Reactor (SBR)
- Activated Sludge Process (ASP)
- Conventional technologies
- Filters: Sand or Membranes
- High Rate Clarifiers
- Membranes and Anaerobic-anoxic-aerobic method (A2O) and nitrification / de-nitrification
- Recycling and Reuse
- Zero Liquid Discharge (ZLD)

OUR WATER BUSINESS PERFORMANCE

The Water business has achieved historically its highest annual turnover of ₹ 352.17 crore vs ₹ 270.21 crore in the previous year (+30.3%) with a PBIT of ₹ 24.28 crore vs ₹ 31.01 crore in FY 22. The higher revenues were the result of more focussed approach in execution.

WBG has a total current manpower strength of 339 employees. The average age of employees is 39, and the median is 38, which indicates a healthy workforce.

The historic high turnover and improving PBIT over the years is an indication that operational efficiency has improved during this time.

WBG is well positioned to undertake more jobs in its chosen area of expertise.

Key Highlights

- 80 MLD (52+28) Sewerage Treatment Plants at Khulna for KWASA, Bangladesh, funded by ADB
- WBG achieved a turnover of ₹ 352.17 crore in FY 23 and PBIT of ₹ 24.28 crore
- The orders received in FY 23 stood at ₹ 192.08 crore, excluding O&M orders
- WBG achieved COD of Mathura HAM project for NMCG/UPJN
- WBG's regular participation in new bids has given it market recognition and WBG is recognised as a major force in this business

New developments & achievements in FY 23

WBG, in FY 23, was successful in securing ADB funded STPs project at Khulna, Bangladesh. On Execution front, WBG achieved Commercial Operation Date (COD) for Mathura HAM project funded by NMCG which entitles it to receive HAM payments over the O&M period.

Business strengths

WBG's inhouse design & engineering and project execution teams are the core strength of our business. The sound financial health of the Company is leveraged for participating in PPP/HAM concession projects. WBG has pan India presence, besides operations in Maldives and Bangladesh. Our in-house Equipment vertical sharpens our skills and knowledge base, and adds to our strength.

OUTLOOK FOR WATER INDUSTRY AND OUR WATER BUSINESS

By 2030, the water demand from the municipal and industrial segments is expected to reach 1,500 cubic km. 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.

- Government is continuously imposing stricter regulations related to industrial effluent, which catalyses opportunities in CETPs, Recycle & Reuse and ZLDs.
- Central and state governments in India are increasingly implementing environmental policies to ensure ecological balance and reduce water contamination in rivers, sea, lakes, and others.
- They are also emphasising on water conservation and wastewater treatment to maintain ecological balance in the face of shrinking freshwater sources.
- The strict governmental norms and the shortage of water in many regions of India are anticipated to increase the demand for wastewater treatment services.
- Government has started laying emphasis on capacity building and infrastructure development through programmes such as AMRUT, Smart Cities, Namami Gange & Swachh Bharat, and moving to one-city-one-operator model, where one agency will be responsible for all water needs and waste water management system 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.

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.

The Water business has achieved historically its highest annual turnover of ₹ 352.17 crore vs ₹ 270.21 crore in the previous year (+30.3%) with a PBIT of ₹ 24.28 crore vs ₹ 31.01 crore in FY 22. The higher revenues were the result of more focussed approach in execution.

Business Opportunities

New opportunities are emerging in recycle, reuse and Zero Liquid Discharge kind of business on EPC as HAM model. Sewage recycling is a new area of business and wherever Industries are available as off-takers for buying treated sewage, this model will emerge significantly.

NMCG will focus on Ganga tributaries and STP opportunities will emerge on EPC/HAM basis, besides opportunities in schemes like AMRUT, JJM, etc.

As the Water sector is a State subject and it is dealt with by the third layer of governance, it is historically under-funded, and therefore, more PPP/HAM opportunities will arise from Water Boards and ULBs. At present, the Delhi Jal Board is announcing several refurbishment/new STP projects on PPP/HAM formats.

Exim Bank of India is providing significant funding in Asia and Africa, and it is expected that opportunities in the Water sector will increase.

Outlook for FY 24

We are likely to see a surge in business opportunities and new funding flow from Government of India and various State Governments in the next few years. 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. Urban Local Bodies (ULBs) also need to build financial and operational capacity.

The outlook for FY 24 is positive. With good visibility on bids, we expect to book significant orders in FY 24 to maintain our growth journey, including EPC and HAM projects.

Opportunities for HAM in the Water industry

Many water boards and ULBs which are starved for funds are planning to structure projects on PPP/HAM basis. The market is also responding to HAM bidding and more than a dozen bidders have shown appetite to invest money in HAM concessions, which shows confidence in the Water sector. Triveni Water Business 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 strong financials, the Company can invest in PPP/HAM concession projects and increase EPC opportunities.