



# Sugar

## Sector Study

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## Introduction

According to the International Sugar Organization (ISO) - "Sugar" means sugar in any of its recognized commercial forms derived from sugarcane or sugar beet, including edible and fancy molasses, syrups and any other form of liquid sugar, but does not include final molasses or low-grade types of non-centrifugal sugar produced by primitive methods."

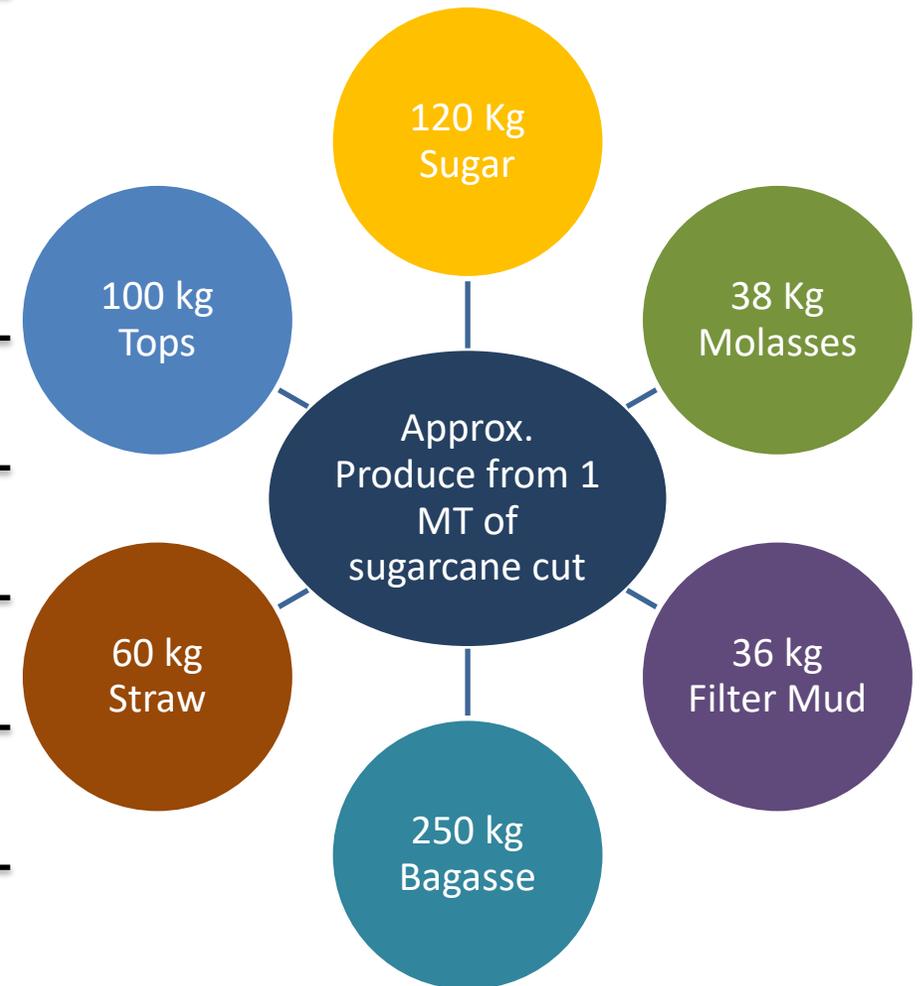
Sugarcane is a crop primarily grown in tropical countries.

It serves as a source of food and is a key biofuel feedstock (ethanol).

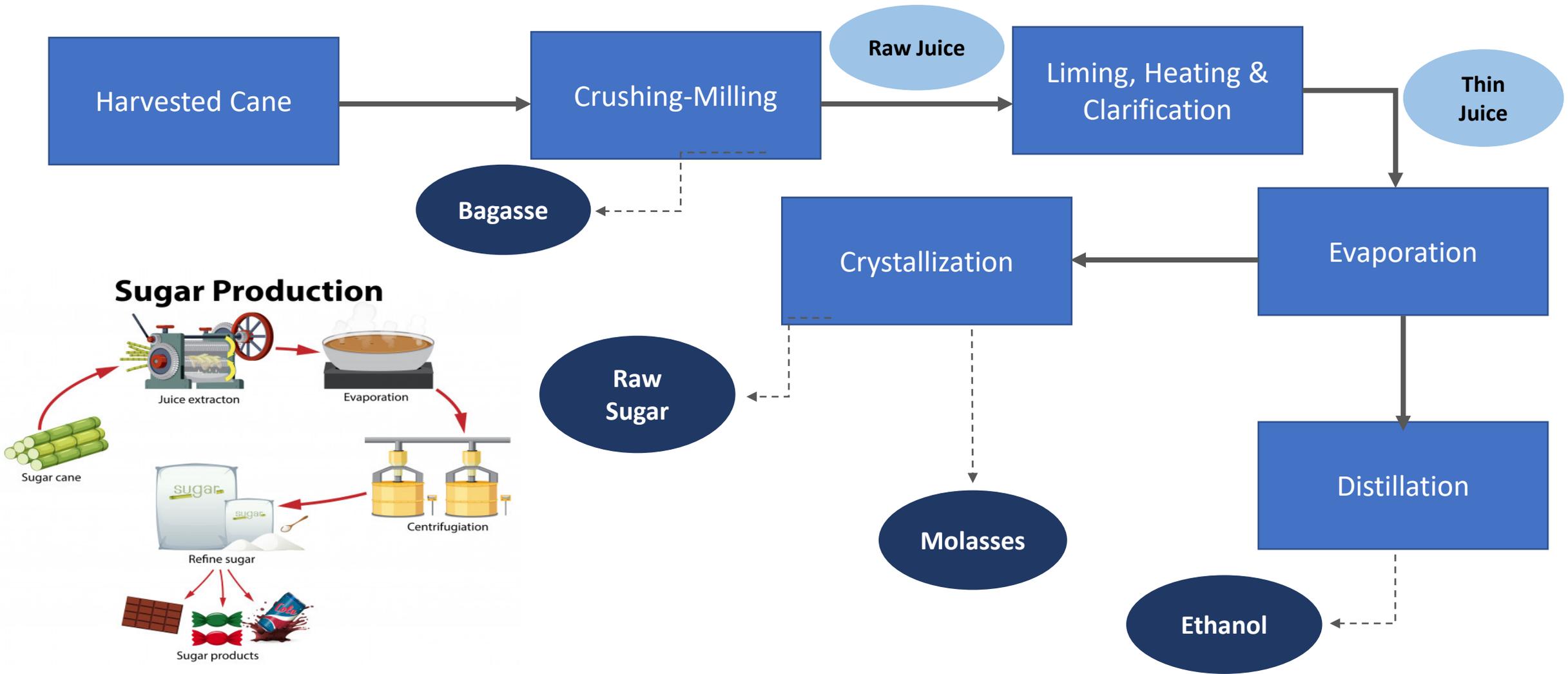
Sugarcane supplies ~80% of the globe's sugar (the remaining coming from beet).

~75% of the sugarcane produced globally is consumed by the food manufacturing sector and households; the balance is used in biofuel production.

Sugarcane cultivation and processing currently provide employments for 100 million people across the world.



## Production Process



# Sugar | Global Overview

## Production & Consumption

- Global sugar production clocked in at ~180.3mln MT in MY22, rising 0.05% YoY.
- Meanwhile, global consumption is also seen on a higher trend of ~184.2mln MT in MY22 (MY21: ~179.5mln MT), a growth of ~2.6% YoY in MY22.
- Production and consumption levels got restored from MY20 (COVID-19) to MY22 with a CAGR of ~2.7% and ~2.4% in MY21 and MY22, respectively.
- Historically, world production of sugar grew at a CAGR of ~0.2% from MY19-22.
- During MY22, ~37.6% of the total sugar produced was traded worldwide (MY21: ~34.8%), while ~62.4% is consumed in the country of production (MY21: ~65.2%).
- Global Sugar production is expected to rise in MY23, surge to ~183.2mln MT due to increase production in India and Brazil.

World Sugar Balance (mln MT)						
	MY18	MY19	MY20	MY21	MY22	MY23*
World Opening Stock	46.5	51.9	53.2	48.1	48.8	44.5
Production	194.2	179.2	166.5	180.2	180.3	183.2
Imports	65.8	57.8	53.1	62.7	63.4	69.3
<b>World Sugar Supply</b>	<b>306.5</b>	<b>288.8</b>	<b>272.8</b>	<b>291.0</b>	<b>292.5</b>	<b>296.9</b>
<i>Less:</i>						
Exports	65.8	57.8	53.1	62.7	63.4	69.3
Consumption	188.8	177.9	171.6	179.5	184.2	189.1
<b>World Sugar Demand</b>	<b>254.6</b>	<b>235.6</b>	<b>224.8</b>	<b>242.2</b>	<b>247.6</b>	<b>258.3</b>
<b>World Closing Stock</b>	<b>51.9</b>	<b>53.2</b>	<b>48.1</b>	<b>48.8</b>	<b>44.9</b>	<b>38.6</b>

**Note:** MY refers to "Marketing Year" – Brazil MY "April to March", India, China, USA & Pakistan MY "Oct-Sep".  
\*Estimated.

## Production | Regional Share

- Asia is the largest producer of sugar with a share of ~38% in MY22 (~35.0% in MY21), followed by South America with a share of ~23% in MY22 (~26.4% in MY21), which has been witnessing severe drought since 2021.
- On a country level, India and Brazil were the largest producers of sugar during MY22, with the highest shares of ~20% in Asia and South America, respectively. The production of India and Brazil for MY22 stood at ~35.8mln MT (MY21: ~33.7mln MT) and ~36.4mln MT (MY21: ~42.1mln MT) respectively.
- India's share in global production of sugar has traced an upward trajectory, growing from ~18% in MY18 to ~20% in MY22 with the exception of MY20, where India's share dropped to ~17% due to overall disrupted supply chain.
- Together, Brazil and India accounted for ~72.2mln MT which is ~40% of the global sugar production in MY22 (MY21: ~75.8mln MT: ~42%), representing concentration at the global level.
- Brazil is likely to regain its crown as the world's largest producer in 2023, will contribute ~21% in total global Sugar Production.

Sugar Production (% Share)						
Region	MY18	MY19	MY20	MY21	MY22	MY23*
India	18%	19%	17%	19%	20%	20%
China	5%	6%	6%	6%	5%	5%
Thailand	8%	8%	5%	4%	6%	6%
Pakistan	4%	3%	3%	3%	4%	4%
Other Asia	3%	3%	3%	3%	3%	3%
<b>Total Asia</b>	<b>37%</b>	<b>39%</b>	<b>35%</b>	<b>35%</b>	<b>38%</b>	<b>37%</b>
Brazil	20%	16%	18%	23%	20%	21%
Other South America	3%	3%	3%	3%	3%	3%
<b>Total South America</b>	<b>23%</b>	<b>19%</b>	<b>21%</b>	<b>26%</b>	<b>23%</b>	<b>24%</b>
North America	8%	8%	8%	8%	8%	8%
Central America	2%	2%	2%	2%	2%	2%
Europe	11%	10%	11%	9%	9%	9%
Russia	3%	3%	5%	3%	4%	4%
Oceania	2%	3%	3%	2%	2%	2%
Other Regions	14%	14%	15%	14%	14%	14%
<b>Total World</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

## Consumption | Regional Share

- The top five sugar-consuming countries accounted for ~46.5% of total global consumption during MY22 (~45.3% in MY21).
- India is the largest sugar-consuming country with a share of ~16.5% in MY22 (~15.6% in MY21). India also witnessed a slight growth YoY in its total consumption (local plus exports) of ~3.6% in MY22 (~17.1% in MY21) far higher than any year due to population growth in the region.
- Despite being the largest producer of sugar, Brazil ranks fifth in terms of sugar consumption. This reflects the fact the Brazil is the largest exporter of sugar globally. During MY22, Brazil's consumption went down by ~3.92% YoY basis This is probably due to increased consumer awareness of sugar intake and surge in export.
- According to OECD-FAO Agricultural Outlook 2021-30, Malaysia is the largest consuming country with regards to the average per capita consumption, both in Asia as well as globally, with average consumption of ~61kgs per capita. The average levels of top five sugar consuming countries per capita consumption stands at ~49kgs.

Top 5 Sugar Consuming Countries (mln MT)						
	MY18	MY19	MY20	MY21	MY22	MY23*
India	26.6	27.5	23.9	28.0	29.5	29.0
EU	18.7	18.7	18.1	16.7	17.0	17.0
China	15.7	15.7	15.2	15.5	15.8	15.3
USA	11.4	11.4	10.9	11.0	11.3	11.3
Brazil	10.6	10.6	10.7	10.2	9.8	9.5
<b>Total   Top 5</b>	<b>83.0</b>	<b>83.9</b>	<b>78.8</b>	<b>81.3</b>	<b>83.4</b>	<b>82.1</b>
Others	105.8	94.0	92.8	98.2	100.8	107.0
<b>Total World Consumption</b>	<b>188.8</b>	<b>177.9</b>	<b>171.6</b>	<b>179.5</b>	<b>184.2</b>	<b>189.1</b>

## Global | Trade

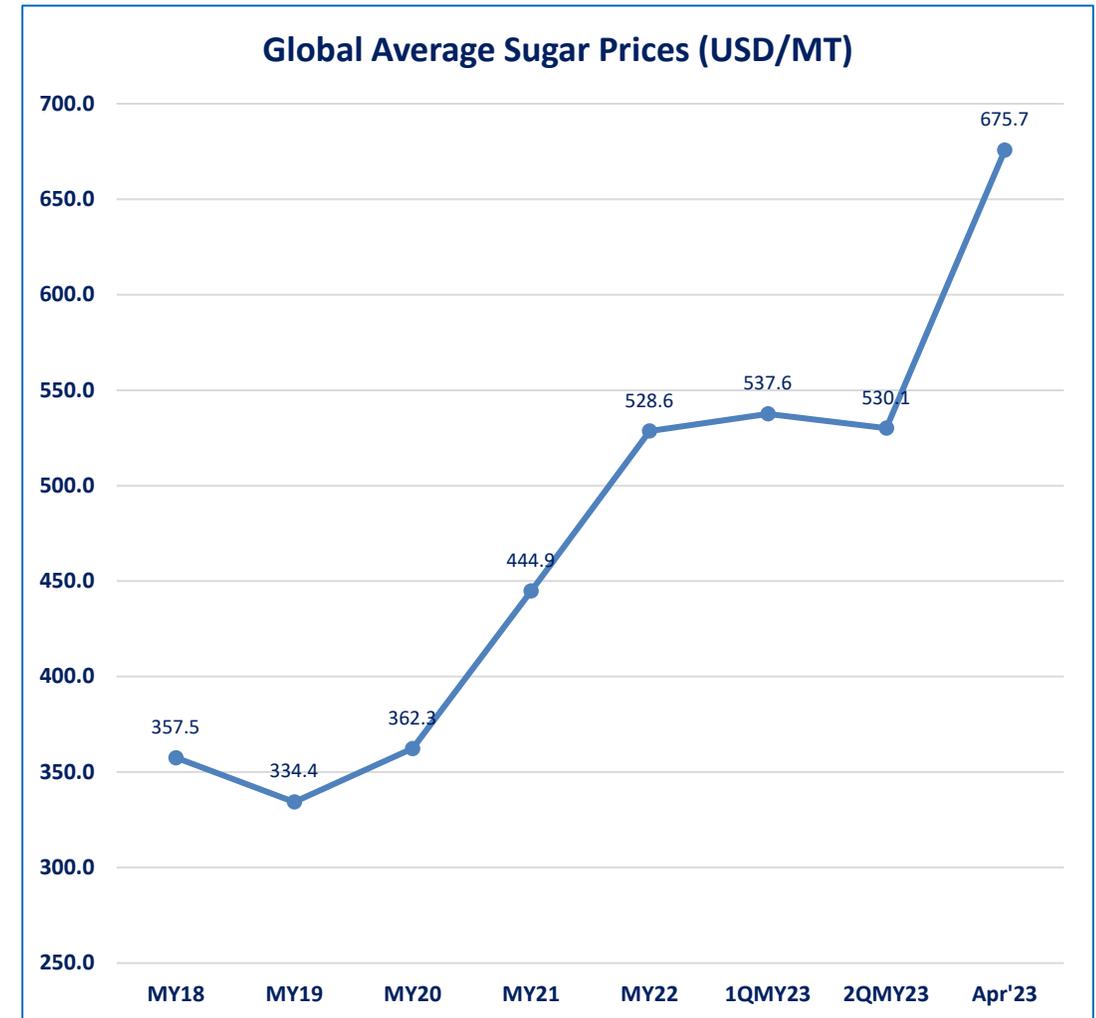
- Brazil, the largest producer of sugar, is also the largest exporting country of the commodity with a share of ~41.0% in MY22 (~51.3% in MY21), followed by India with a share of ~18.5% during the same period (~11.5% in MY21).
- With respect to exports, India ranks second on global level, leaving behind Thailand with a slight margin ~15.8% in MY22 (~6.4% in MY21). The significant change in the exports of Thailand is mainly due to larger exportable supplies in the country while stocks are expected to drop sharply following strong exports.
- China and Indonesia are the largest importers of sugar with ~9.7% and ~9.9% share in MY22, respectively. These were ~9.4% and ~8.3%, respectively, in MY21.
- Based on USDA's forecast, global exports of sugar are expected to increase in MY23 by ~2.9% due to increased exports of UAE, USA and China. Meanwhile, India's exports are expected to shrink by ~19.7% due to government-imposed ban on exports of sugar.
- Brazil's production is estimated up ~2.6mln MT to clock in at ~38.1mln MT for MY23, as higher sugarcane yields from favorable weather are expected to result in additional sugarcane available for crushing. Consumption is declining while exports are projected to rise with higher exportable supplies.

Global Sugar Exports (mln MT)						
	MY18	MY19	MY20	MY21	MY22	MY23*
Brazil	28.2	19.6	19.3	32.2	26.0	28.3
Thailand	10.9	10.6	6.7	4.0	10.0	11.0
India	2.2	4.7	5.8	7.2	11.7	9.4
Australia	3.6	3.7	3.6	3.4	3.1	3.6
Mexico	1.1	2.3	1.3	1.2	1.8	1.3
Guatemala	1.9	2.1	1.9	1.7	1.7	1.8
EU	4.3	2.4	1.5	1.3	1.3	1.3
Pakistan	1.6	1.1	0.1	0.0	0.5	1.0
Others	11.9	11.2	13.1	11.7	7.2	11.7
<b>Total</b>	<b>65.8</b>	<b>57.8</b>	<b>53.1</b>	<b>62.7</b>	<b>63.4</b>	<b>69.3</b>

Global Sugar Imports (mln MT)						
	MY18	MY19	MY20	MY21	MY22	MY23*
Indonesia	4.3	5.4	4.8	5.2	5.5	5.7
China	4.4	4.1	3.8	5.9	5.4	4.4
USA	3.0	2.8	3.8	2.9	3.3	3.1
Algeria	2.3	2.3	2.5	2.3	2.2	2.2
Bangladesh	2.7	2.4	2.4	2.4	2.8	2.9
Malaysia	2.0	2.1	2.0	2.1	2.2	2.2
EU	1.6	2.4	2.2	1.5	2.0	2.0
South Korea	1.9	2.0	1.9	1.9	2.0	2.0
Others	43.8	34.3	29.8	38.6	38.0	44.8
<b>Total</b>	<b>65.8</b>	<b>57.8</b>	<b>53.1</b>	<b>62.7</b>	<b>63.4</b>	<b>69.3</b>

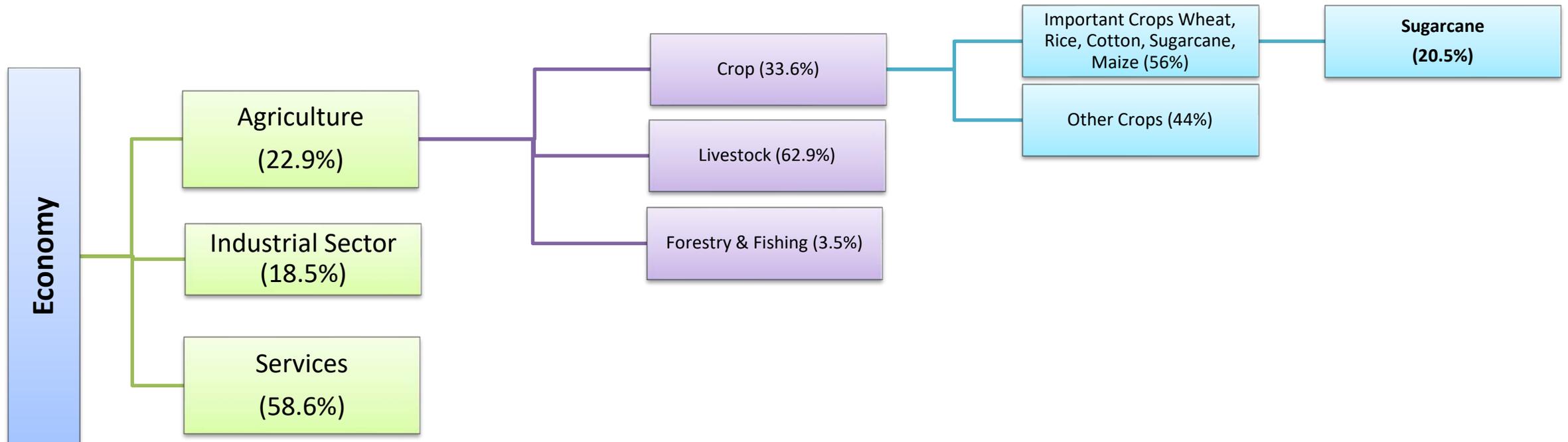
## Global | Prices

- Historically, global sugar prices have increased at a CAGR of ~8.1%. During MY22, these increased by ~18.8% YoY, registering at USD~528.6/MT. For the 2021-2022 season, the global sugar market was in deficit for a third year in a row at minus ~3.9MT, compared to the deficit of 1.4MT in 2020/21. This will be a stimulus for higher sugar prices.
- Prices have been on a rising trend since MY19 and have lately surged to USD~675.7/MT in Apr'23, a rise of ~24.5% YoY (Apr'22: USD~542.9/MT). This comes majorly on account of rising crude oil prices, global inflation and concerns over global sugar supply, seeing especially as India is expected to keep the export quotas in place during the ongoing MY23.
- The steep increase in prices from MY19-21 can be explained by high consumption levels across the globe, with levels reaching ~175mln MT during the same period.
- Global prices increased to USD~675.7/MT in Apr'23, on the back of India's trimmed sugar production for MY23 on account of unseasonal rainfall in the province of Maharashtra, which contributes ~33.3% of the country's total sugar production. Other regions including Pakistan and Thailand have also registered a downfall in sugar production for the ongoing MY23.



## Agriculture | Overview

- Pakistan’s economy is broadly classified into three segments: Agriculture, Industry and Services. During FY23, the agricultural sector shrank to ~1.55% (FY22: ~4.27%). The decline in important crops stood at ~3.20%. Two important crops, i.e., cotton and rice, were badly damaged by the floods.
- The important crops (Wheat, Rice, Cotton, **Sugarcane** and Maize) contributed ~18.3% to value addition in agriculture sector and ~4.2% to GDP. Other crops account for ~14.4% in value addition of agriculture sector and ~3.3% in GDP. . Sugarcane production increased by ~2.8% in FY23 and expected to increase to ~91.1mln MT (FY22: ~88.7mln MT). Others crops include pulses, oilseeds, vegetables and cotton ginning.



## Domestic | Snapshot

- Sugarcane is an important agricultural and cash crop of Pakistan. It contributed ~20.5% to the “important crops” and ~3.7% to the overall Agriculture sector of the country. Sugar industry makes up ~3.4% of the manufacturing sector. Sugarcane crop alone contributed ~0.8% to the country’s GDP during FY22 (~0.7% in FY21).
- Pakistan’s total sugar production clocked in at ~7.9mln MT during MY22 (~5.7mln MT in MY21), a YoY growth of ~38.6% in MY22 (MY21: ~16.2% YoY growth).
- Sugar imports are expected to come down at ~0.01mln MT from ~0.31mln MT in MY23 due to sufficient local supply and biggest surplus of sugar stock. Consumption levels averaged at ~5.9mln MT for MY22 (~5.3mln MT in MY21).
- The sugarcane production is expected to increase ~91.1mln MT in 9MFY23 due to the recovery in sugarcane area harvested from the flood-damaged crop the year before. prices are encouraging farmers to maintain sugarcane area vis-à-vis planting other crops. Farmers’ preference to plant sugarcane is also due to the crop’s resiliency to weather hazards compared to alternative crops.

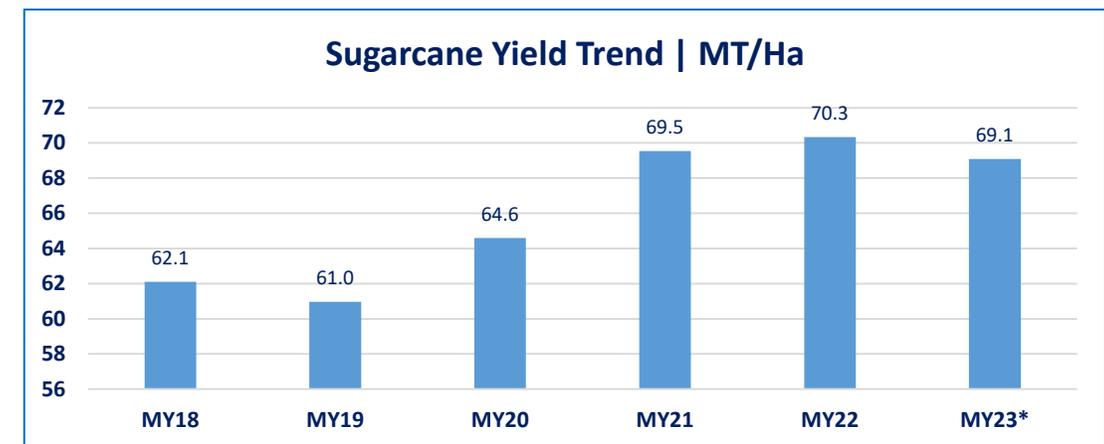
Particulars	MY20	MY21	MY22	MY23*
<b>Contribution to Nominal GDP</b>	0.6%	0.7%	0.8%	0.9%
<b>Value Added to Agriculture</b>	2.9%	3.4%	3.7%	3.7%
<b>Area Under Cultivation (mln Ha)</b>	1.0	1.2	1.3	1.3
<b>Production (mln MT)</b>	67.1	81.0	88.7	91.1
<b>Yield (MT/Ha)</b>	64.6	69.5	70.3	69.1
<b>Sugar</b>				
<b>Production (mln MT)</b>	4.9	5.7	7.9	6.1
<b>Total Imports (mln MT)</b>	0.0	0.3	0.3	0.01
<b>Consumption (mln MT)</b>	5.3	5.3	5.9	6.2
<b>Total Exports (mln MT)</b>	0.2	0.0	0.0	0.2
<b>Market Structure</b>	Fragmented			
<b>Association</b>	Pakistan Sugar Mills Association			

\*Based on 9 months data from Economic survey and PBS, assuming MY=FY.

## Domestic | Sugarcane Dynamics

- In Pakistan, fluctuations in sugarcane production witnessed during MY18-22 came on the back of government support to the farmers and on crop yields. Major reason for the ~17.5% increase in production in MY22 can be attributed to increase in yield (MT/Ha) which rose by ~4.7% during the same year.
- High domestic and better sugarcane procurement prices, favorable weather conditions, better management and timely availability of quality inputs incentivized growers to dedicate more area to sugarcane (~1.3mln Ha in MY22, compared with ~1.2mln Ha the previous year), which grew by ~8.3% YoY.
- During MY22, sugarcane farmers received fairly good prices at PKR~300/40Kgs (or USD~27.28/MT). The support price, therefore, went ~12.5% higher than the previous year (covered later). These prices encouraged farmers to maintain cane area vis-à-vis planting other crops. Farmers' preference to plant sugarcane can also be explained by the crop's resilience to weather hazards compared to alternative crops.

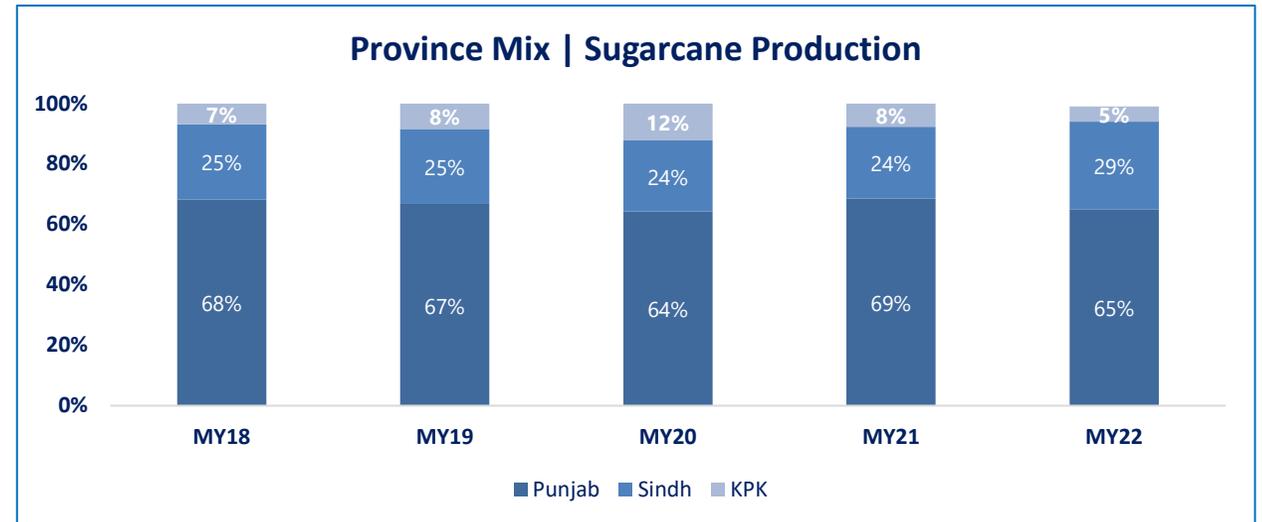
Sugarcane Crop   Cultivation and Production						
	MY18	MY19	MY20	MY21	MY22	MY23
<b>Cropped Area (mln Ha)</b>	23.5	23.5	23.5	23.5	23.3	23.3
<b>Cultivated Area (mln Ha)</b>	22.2	22.2	22.2	22.1	22.1	22.1
<b>Sugarcane Production (mln MT)</b>	83.3	67.1	67.1	75.5	88.7	91.1
<b>Area Under Cultivation (% of Total Cultivated Land)</b>	6.1%	5.0%	4.7%	5.3%	5.7%	5.7%
<b>Area Under Sugarcane ('000 Ha)</b>	1.3	1.1	1.0	1.2	1.3	1.3
<b>Yield (MT/Ha)</b>	62.1	61.0	63.9	64.3	70.3	69.1



\*Based on 9 months data from Economic survey and PBS, assuming MY=FY.

## Sugarcane Dynamics | Province-wise

- Pakistan has two planting seasons for sugar crop; Spring season (February-March) and Autumn season (September-November). Harvesting for each season is conducted after ~8-10 months of plantation. Planation in the provinces of Punjab and Sindh spans both seasons while, in the KPK region, plantation is carried out in the autumn season only.
- Province-wise, sugarcane is largely grown in Punjab, with a production share of ~65% in MY22 (~69% in MY21), followed by Sindh with a share of ~29% in MY22 (~24% in MY21). Compared to Punjab and Sindh, KPK has a smaller share of ~5% during both periods under discussion.
- Area under cultivation increased by ~8.3% during MY22 due to favorable crop conditions and currently stands at ~0.9mln Ha in Punjab, ~0.3mln Ha in Sindh and ~0.1mln Ha in KPK during the same period.



**Province-wise Sugar Mills | MY22**

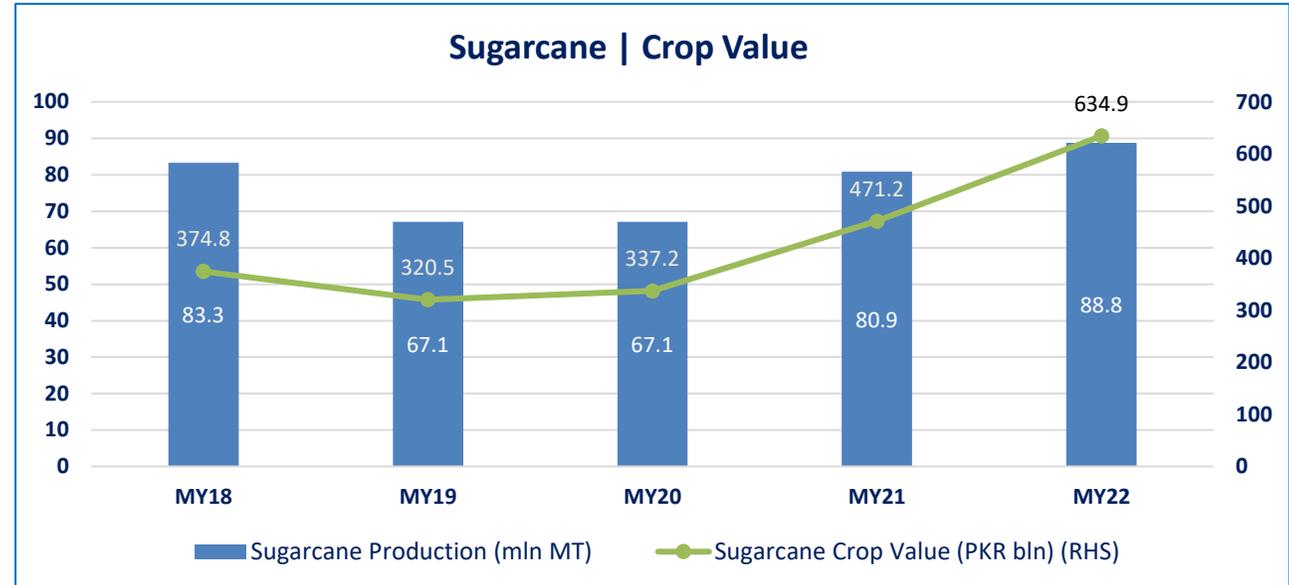
Provinces	No. of Sugar Mills	*Operational
Punjab	46	89%
Sindh	38	82%
KPK	6	86%
<b>Total</b>	<b>90</b>	<b>86%</b>

\*Data pertaining to Province-wise Operational Sugar Mills was subjected to PSMA's 2021 Annual Report.

## Sugarcane Prices | A High-Value Cash Crop

- Minimum price levels for sugarcane are set by the respective provincial governments, after considering the cost of production to farmers.
- For MY22, the Punjab and KPK Governments set sugarcane price at PKR~225/40Kg, an increase of ~12.5% YoY. For the same period, the Sindh government raised the prices to PKR~250/40Kg (up by ~24% YoY).
- Overall, sugarcane crop value increased at a CAGR of ~11% during the MY18-22 period. Due to low yields and production levels in MY19, sugarcane crop value declined substantially to PKR~321bln from PKR~375bln in MY18, a fall of ~19% in line with the production fall. The crop value increased to PKR~635bln in MY22 (MY21: PKR~471bln) majorly due to the rise in production levels of sugarcane. Moreover plant's resilience and good prices of sugarcane encouraged farmers to maintain cane area vis-à-vis planting other crops.

Sugarcane Minimum Prices (at factory gate)   PKR/40Kg						
Province	MY18	MY19	MY20	MY21	MY22	MY23
Punjab	180	180	190	200	225	300
Sindh	180	180	192	202	250	302
KPK	180	180	190	200	225	300



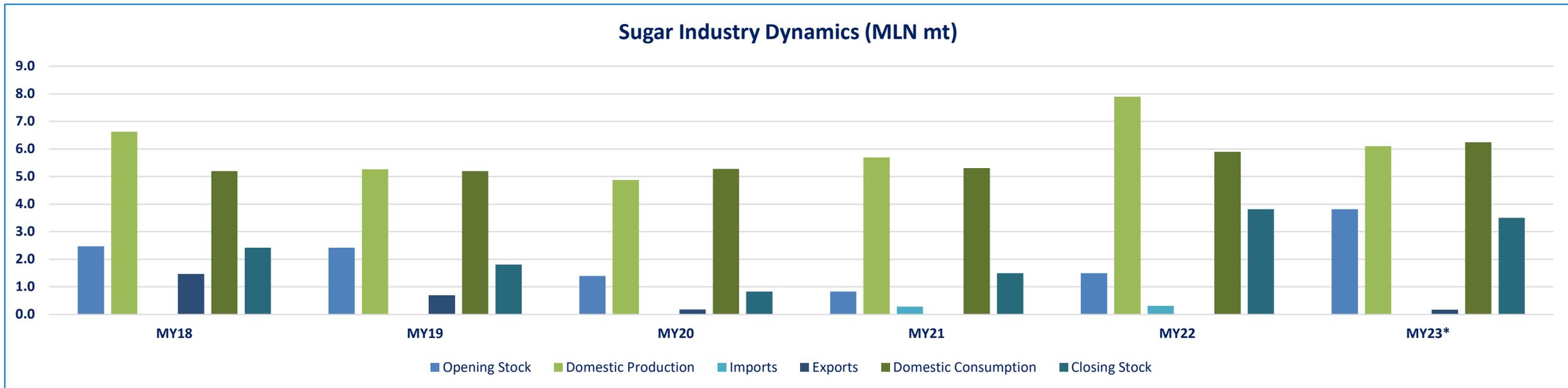
## Domestic | Production & Consumption

- Pakistan’s annual sugar consumption has increased from ~5.2mln MT in MY18 to ~5.9mln MT in MY22, at a CAGR of ~2.6%.
- In MY23, consumption level is expected to rise with ~6.2mln MT from ~5.9mln MT in MY22 as per USDA’s forecast. Consumption continues to grow modestly, largely because of a growing population.
- Bulk sugar consumers such as bakeries, candy, ice cream, and soft drink manufacturers account for ~60% of total sugar demand. The beverage industry annually consumes about ~1.2mln MT of sugar. Demand for sugar is mostly price inelastic.
- Exports are expected to rise further in MY23 after meeting domestic needs. For MY23, the government has approved export of ~1mln MT of sugar. The government is monitoring the market situation on fortnightly basis to decide on the timing and quantity of exports.

Sugar Production and Consumption (mln MT)						
Particulars	MY18	MY19	MY20	MY21	MY22	MY23*
Opening Stock	2.5	2.4	1.4	0.8	1.5	3.8
<b>Domestic Production</b>	<b>6.6</b>	<b>5.3</b>	<b>4.9</b>	<b>5.7</b>	<b>7.9</b>	<b>6.1</b>
Imports	0.00	0.01	0.01	0.28	0.31	0.01
Exports	1.5	0.7	0.2	0.0	0.0	0.2
<b>Domestic Consumption</b>	<b>5.2</b>	<b>5.2</b>	<b>5.3</b>	<b>5.3</b>	<b>5.9</b>	<b>6.2</b>
Closing Stock	2.4	1.8	0.8	1.5	3.8	3.5**

## Domestic | Sugar Industry Dynamics

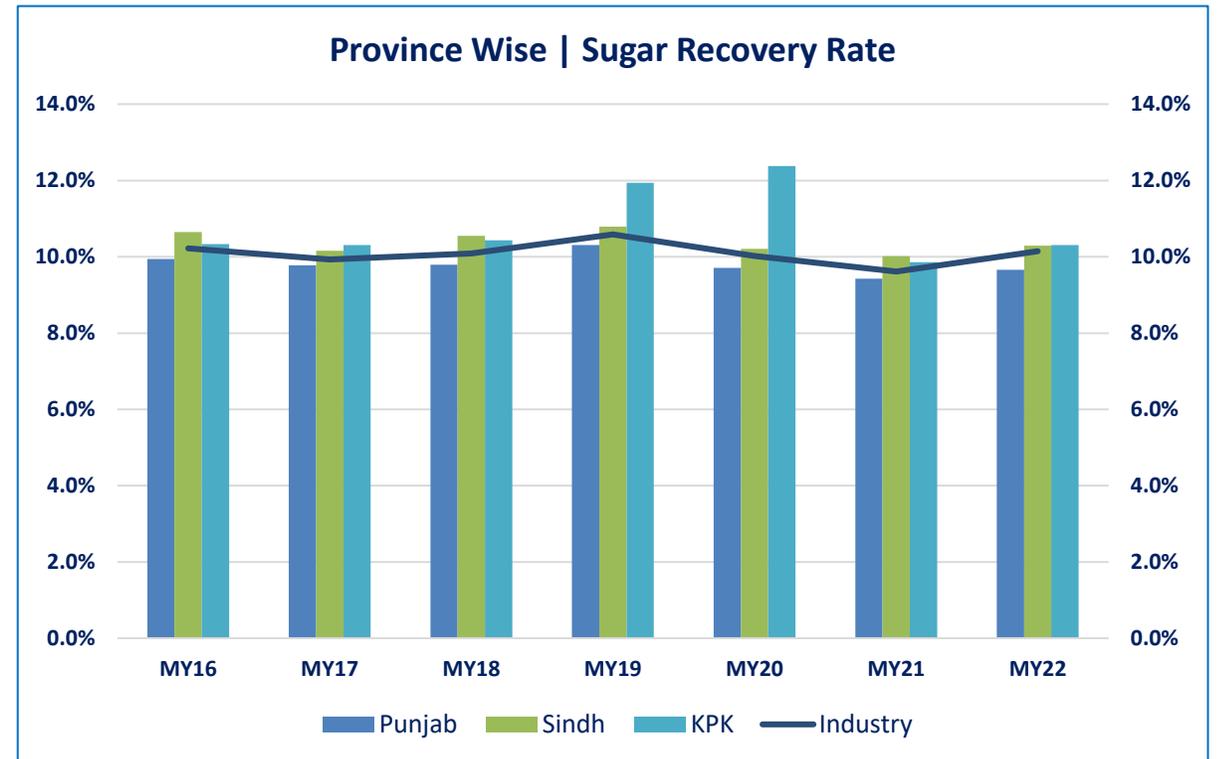
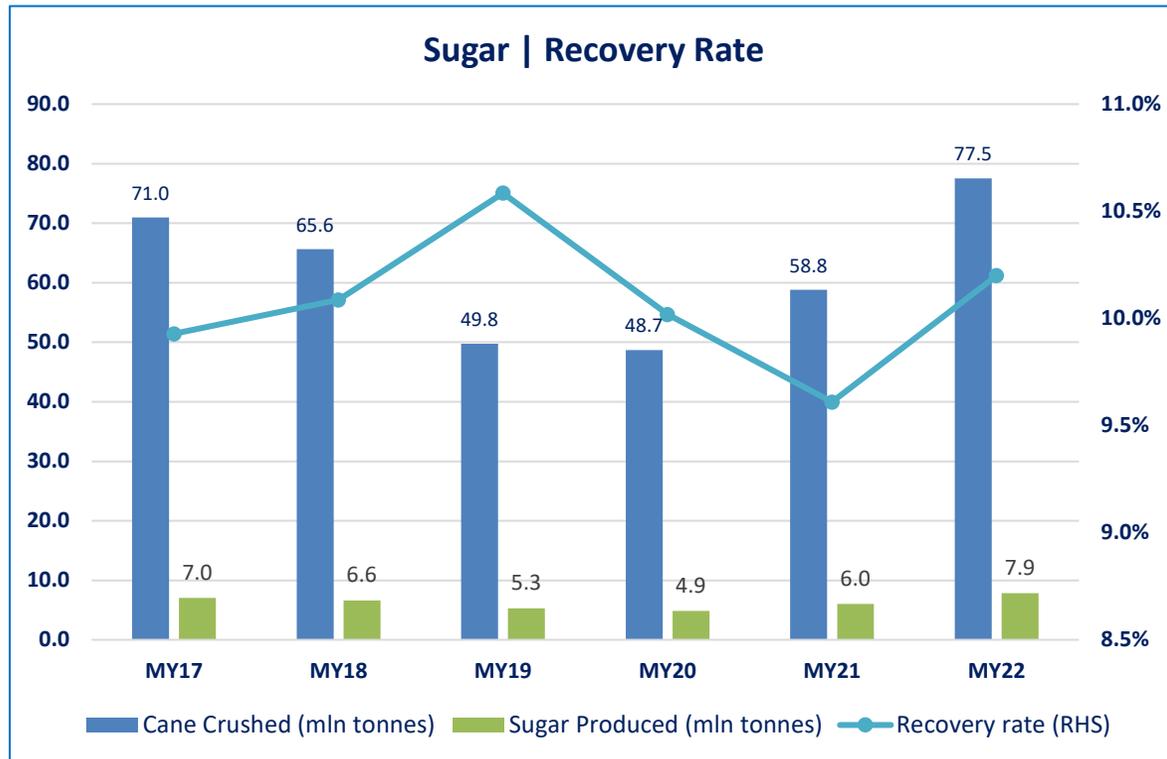
- Total supply of sugar (function of local production and imports) in Pakistan was recorded at ~7.9mln MT in MY22 (~6.0mln MT in MY21), depicting a growth of ~31.6% YoY. In 9MMY23, the production of refined sugar is recorded at ~6.1mln MT which is expected to rise ~7.1mln MT in MY23.
- The domestic consumption of sugar in Pakistan has traced a rising trend since MY18, growing at a CAGR of ~2.6% and clocking in at ~5.9mln MT in MY22. This increase can most likely be explained by the growing population and higher level of sugar supplies in the country. Population has increased at an average rate of ~2.0% over the last five years. The country did not export any sugar during MY22.
- According to USDA’s Estimates, domestic consumption, on the other hand, is forecast at ~6.2mln MT increasing by ~5% YoY, with ~3.5mln MT of closing stocks expected at the end of MY23. During the last two years, domestic sugar supplies have been sufficient, eventually a meager portion of sugar is imported. Similarly, a modest quantum of imports are forecasted for MY23.



\*Estimated.

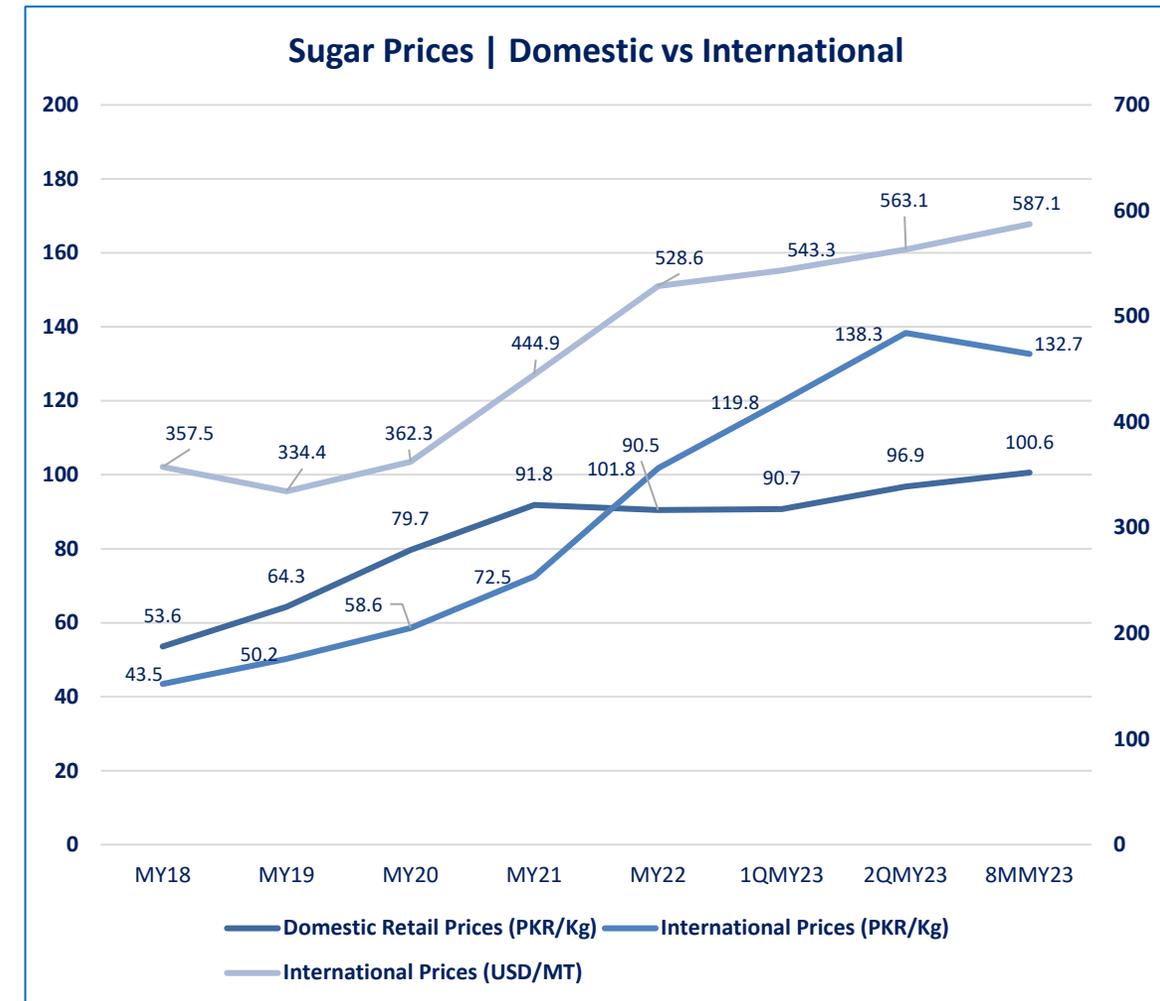
## Domestic | Recovery Rates

- In terms of sugar recovery rates, KPK leads the provinces with a recovery rate of ~10.3%. Recovery rate of Sindh (~10.2%) is greater than that of Punjab (~9.7%) as the Thatta region is ideal for sugarcane production due to its humid environment and higher water retention rate.
- Overall, sugar recovery rate for Pakistan was ~9.6% in MY21, which is in-line with its regional competitor India with a recovery rate of ~10.0%. In MY22; the recovery rate improved to ~10.2% for the overall industry.



## Domestic | Price Trend

- The graph on the right depicts prices of sugar in Pakistan and the levels prevailing in the international market. Domestic average prices of sugar registered a slight decrease of ~1.4%, clocking in at PKR~90.5/Kg, compared with PKR~91.5/Kg of the previous year.
- Domestic prices have, on average, hovered at PKR~76.0/Kg during the past five years (MY18-22). International prices, on the other hand, increased from USD~444.9/MT to USD~528.6/MT, an increase of ~18.8% YoY.
- Prior to MY22, domestic prices remained, on average (MY18-21) higher than international prices in terms of PKR/Kg, maintaining a delta of PKR~17.8/Kg, whereas domestic prices stood at PKR~72/kg and international prices was far lower at PKR~56/kg on average. However, during MY22, prices in the international market, in PKR terms, exceeded domestic prices. A delta of PKR~11.3/Kg was registered during this period between domestic and local prices in PKR/Kg terms. This difference can likely be explained by government intervention in the market, where retail prices are capped from time to time.
- As of May'23, international prices have surged to USD~587.1/MT, whereas in PKR terms, this figure clocked in at PKR~132.7/Kg, whereas domestic prices were recorded at PKR~101/kg. In comparison, domestic prices remained lower than international prices in PKR terms, maintaining a delta of almost PKR~32/kg.
- Going forward, sugar prices in the international market are expected to remain elevated amid fears surrounding global supply shortages, with India expected to keep export quotas in place.

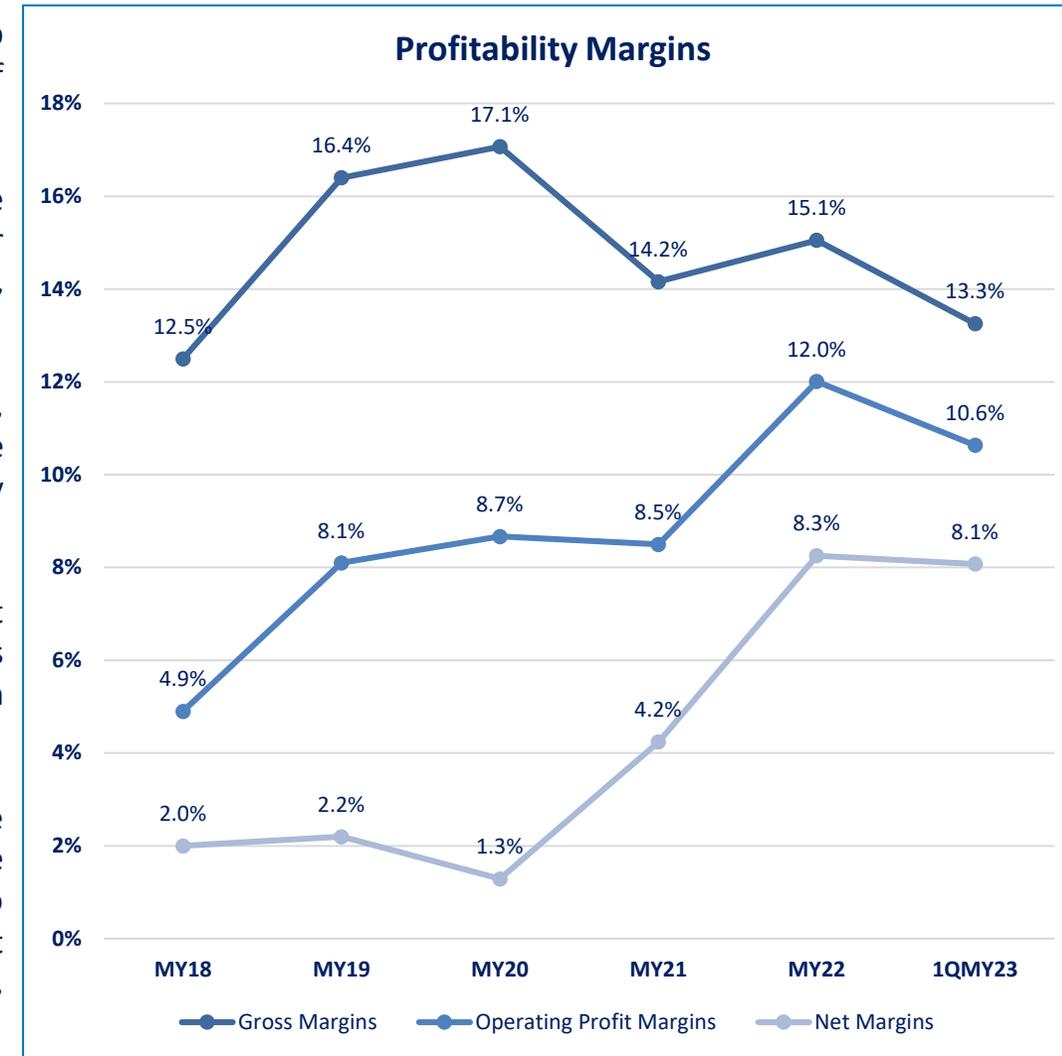


## Market share | Top players

Production Share - Top 20 Players - MY22					
Company	Cane Crushed (MT)	Sugar Production (MT)	Recovery Rate	Market Share	
1 JDW (Combined)	7,811,556	781,634	10.0%	9.9%	
2 Tandlianwala (Combined)	3,867,405	356,611	9.2%	4.5%	
3 Hamza	3,307,027	334,315	10.1%	4.2%	
4 RYK	2,447,393	243,965	10.0%	3.1%	
5 Etihad	2,336,469	241,830	10.4%	3.1%	
6 Hunza (Combined)	2,572,280	232,120	9.0%	3.0%	
7 Sheikho	2,255,524	231,387	10.3%	2.9%	
8 Al moiz	1,986,223	226,758	11.4%	2.9%	
9 AKT (JK/Golf )	2,188,002	218,590	10.0%	2.8%	
10 Madina	2,092,350	200,044	9.6%	2.5%	
11 Dehark-1	1,953,090	196,560	10.1%	2.5%	
12 Chashma (Combined)	1,886,076	195,218	10.4%	2.5%	
13 Layyah	1,785,947	189,336	10.6%	2.4%	
14 Two Star	1,923,195	183,737	9.6%	2.3%	
15 Fatima	1,769,587	178,115	10.1%	2.3%	
16 Ramzan	1,879,966	163,387	8.7%	2.1%	
17 Alliance	1,559,680	154,937	9.9%	2.0%	
18 Indus	1,492,104	151,635	10.2%	1.9%	
19 Ashraf	1,601,555	147,678	9.2%	1.9%	
20 Shakargan (Combined)	1,347,430	125,318	9.3%	1.6%	
Others	29,463,850	3,114,341	10.6%	39.6%	
<b>Total</b>	<b>77,526,710</b>	<b>7,867,514</b>	<b>10.1%</b>	<b>100.0%</b>	

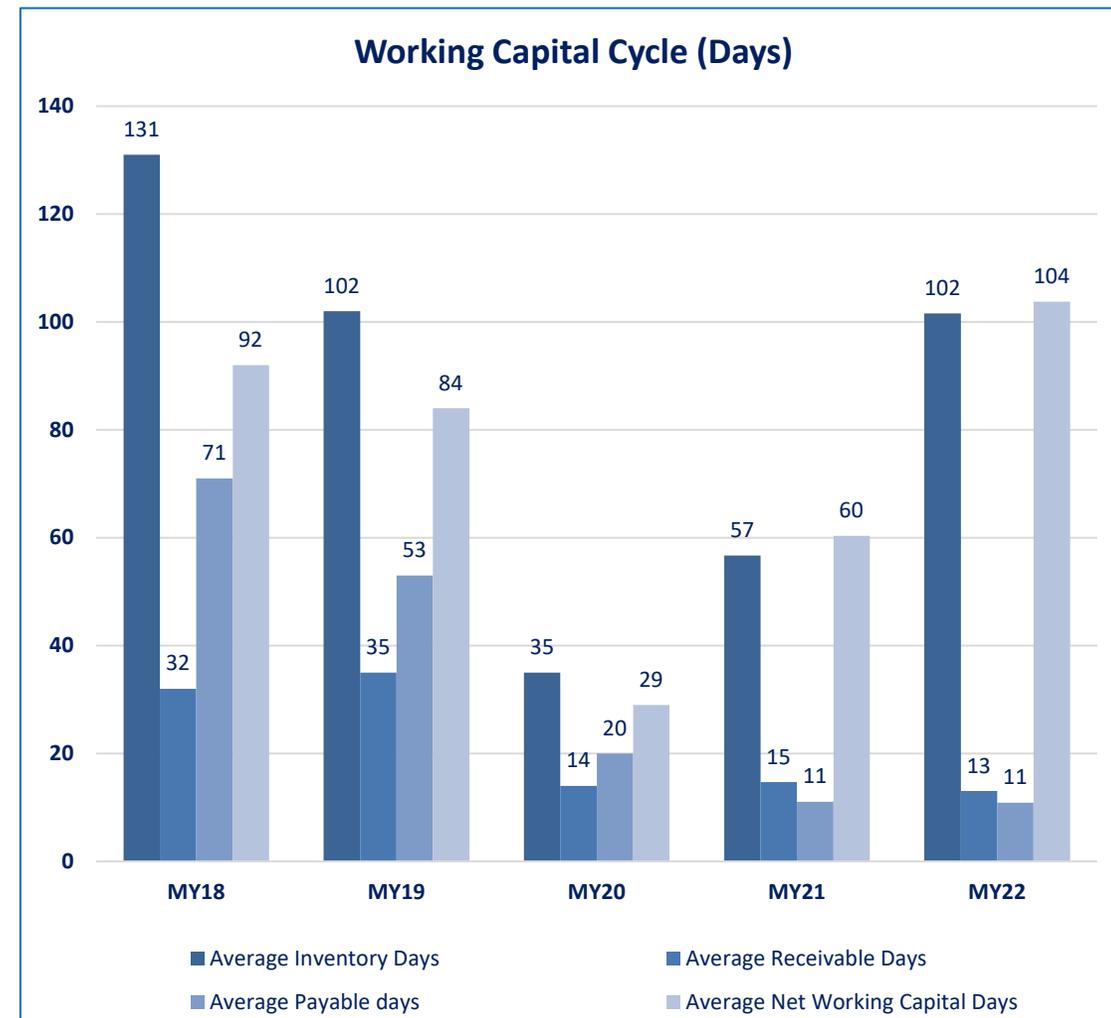
## Business Risk | Margins

- Pakistan’s sugar market size increased to PKR~536bln during MY22 (PKR~501bln in MY21), up ~6.9% YoY majorly supported by better prices which resulted in higher revenues on the back of strong economic performance (country’s GDP grew by ~6.0% during the same period).
- Demand for sugar remains largely price inelastic as it is one of the essential food items. The country’s total sugar demand hovers in the range ~5.8-6mln MT per year, while sugar consumption clocked in at ~5.9mln MT in MY22, compared with ~5.8mln MT the previous year, increasing by ~3.5% YoY.
- The sector’s average gross profit margins clocked in at ~15.1% during MY22 (~14.2% in MY21), the increase being likely explained by elevated prices and consumption levels. Average operating margins reached 5-year high level of ~12.0% in MY22 (~8.5% in MY21), owing mainly to recurring income of a major player in the sample\*.
- Overall, average net profit margins of the sector almost doubled during MY22, clocking in at ~8.3% (~4.2% in MY21) due to the trickle down effect of the gross margins. However, it is expected that going forward, higher finance costs may reflect in lower net profit margins, given the recent interest rate hikes in the country.
- During 1QMY23 period, despite inflationary pressure and a rise in the Minimum Support Price (MSP), sugar prices held steady. This, in turn, contributed to a heightened cost of sugarcane production during the same period. Additionally, the operating margin exhibited a decline to ~10.6% in 1QMY23. This decrease can be attributed to a substantial drop in the operating profit of a key player, which holds a significant ~40% contribution within the sector. Despite this, average net profits margins managed to remain stable, remaining at ~8.1% for the said quarter.



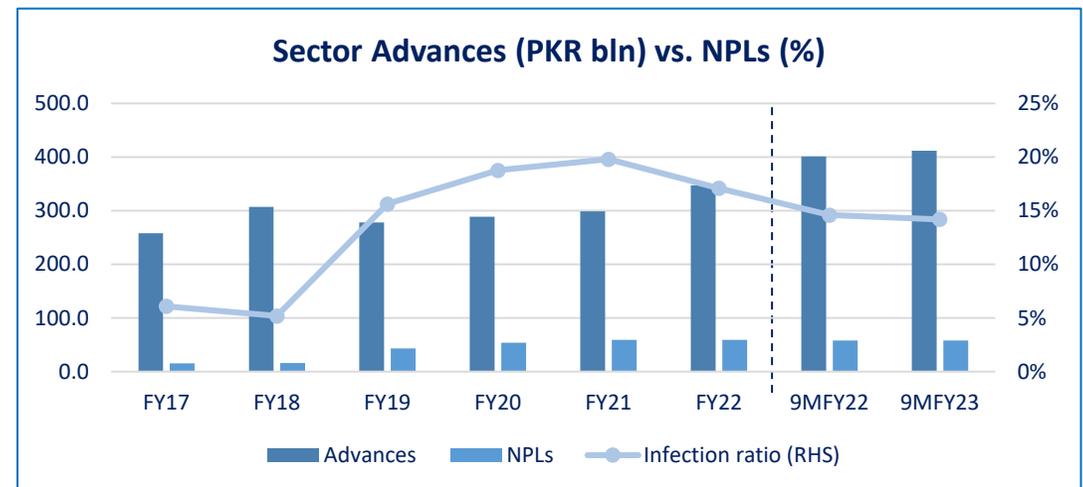
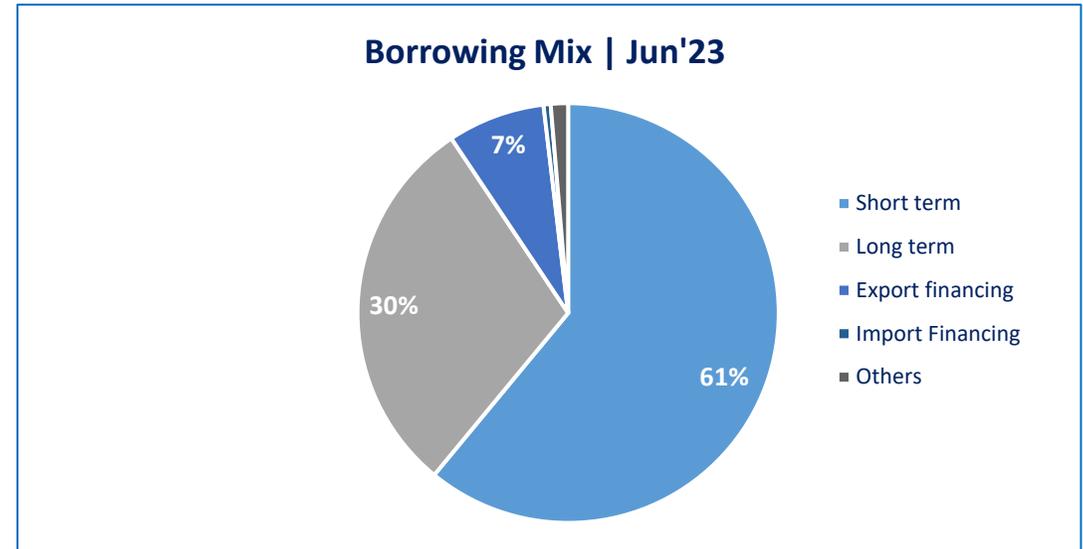
## Financial Risk | Working Capital Management

- While sugar offtake continues across the year, sugar production takes place over ~102 days during the crushing season. This results in a cyclical inventory pattern for sugar mills. Inventory levels of sugar mills are at peak during the crushing season i.e. Dec-Feb and Apr-May. As soon as Pakistan hits summer season-June, sales start to energize (cold drinks and beverages) and inventory levels begin to reduce.
- There is a mismatch in sugar offtake period, i.e., inelastic throughout the year and sugarcane procurement time span i.e., the crushing season. Timely payment requirements to sugar mills and inventory management can place the sugar mills in financial stress.
- The Average Net Working Cycle condition of sugar industry has exhibited an inconsistent trend over the last five years (MY18-22). Average inventory days increased to ~104 days for the period MY22 (~60 days in MY21). This likely resulted from an increase in inventory costs.
- On the other hand, average receivable days have decreased to ~13 days in MY22 (~15 days in MY21), while average payable days remained constant at ~11 days in MY22.
- In 1QMY23, the sector exhibited a notable increase in average inventory days, that reached ~560 days. This prolonged period is the result of peak sugarcane harvesting season during this quarter. The surge in sugarcane harvest exerts pressure on processing facilities, leading to slower sugar crushing and production.

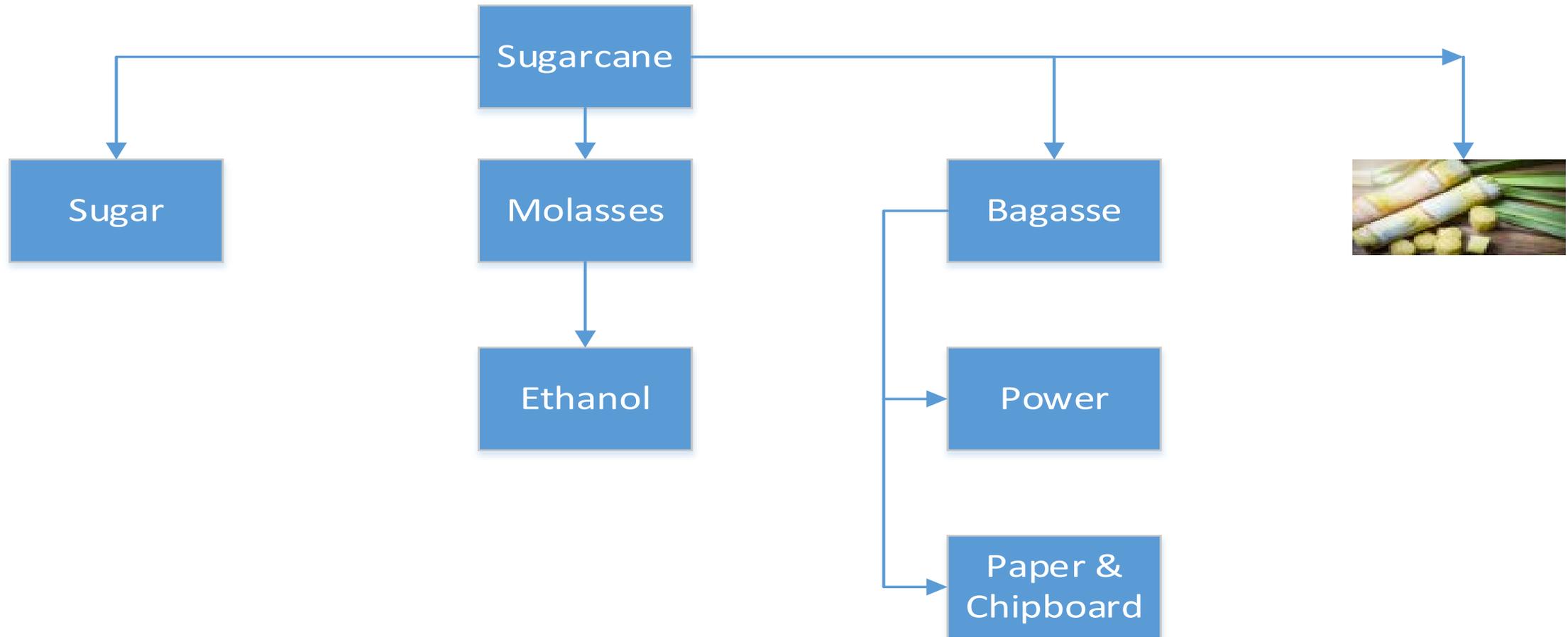


## Financial Risk | Borrowing

- The sugar sector’s borrowing book amounted to PKR~355.5bln as at End-Jun’23 (End-Jun’22: PKR~367.9bln), down by ~3.3% YoY.
- A break-down of the cost structure reveals that short-term borrowings comprised ~61% of the total borrowing mix and stood at PKR~216.8bln as at End-Jun’23 (End-Jun’22: PKR~220.1bln), registering a decline of ~1.6% YoY.
- For the said time period, the sector’s total long-term borrowings clocked in at PKR~105.5bln (End-Jun’22: PKR~116.9bln), and accounted for ~30% of the total borrowing mix (these made up for ~32% of total borrowings as at End-Jun’22).
- The industry is moderately leveraged. Leverage ratio during MY22 clocked in at ~57.6% (MY21: ~54.0%).
- With respect to commercial banks’ private sector credit, share of sugar sector stood at ~3.2% with PKR~412bln in 9MFY23 (9MFY22: PKR~401bln). Sugar sectors accounts for the highest share in NPLs, with sugar sector’s infection ratio averaging at ~22.4% during FY20-22. For the period 9MFY23, the figure registered at ~14.2%, as against ~15% during the SPLY.



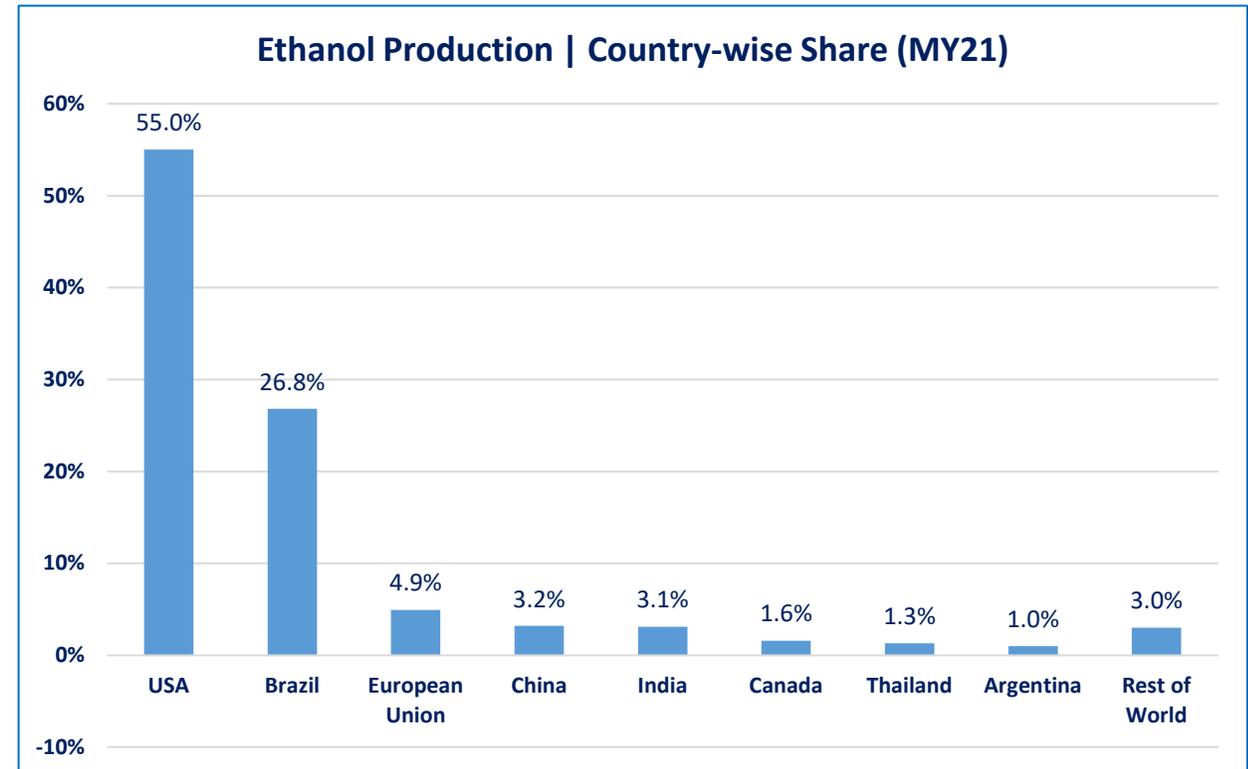
## By-Products | Process Flow



## By-Products | Ethanol | Global

- USA is the world leader in the production and export of ethanol. ~10% of the ethanol produced in the country is exported, whereas ~90% is consumed locally.
- USA produced ~15bln gallons of ethanol during MY21, which represents ~55.0% of global output. In comparison, Brazil's share of total world production decreased to ~26.8% in MY21, compared with ~30.5% the year before.

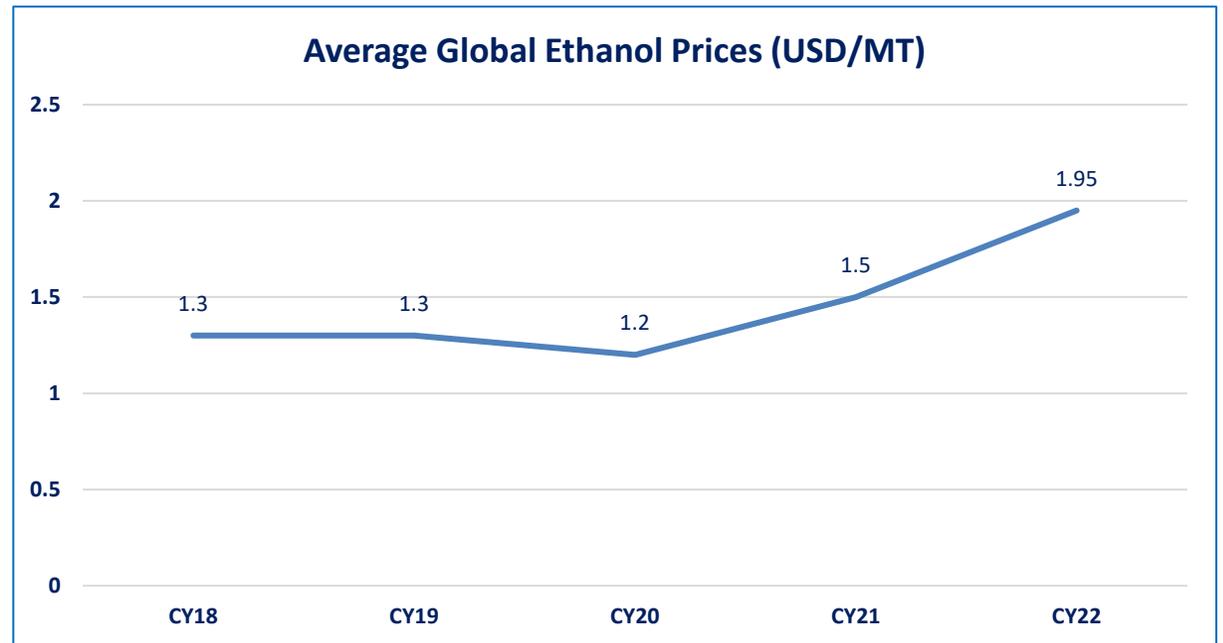
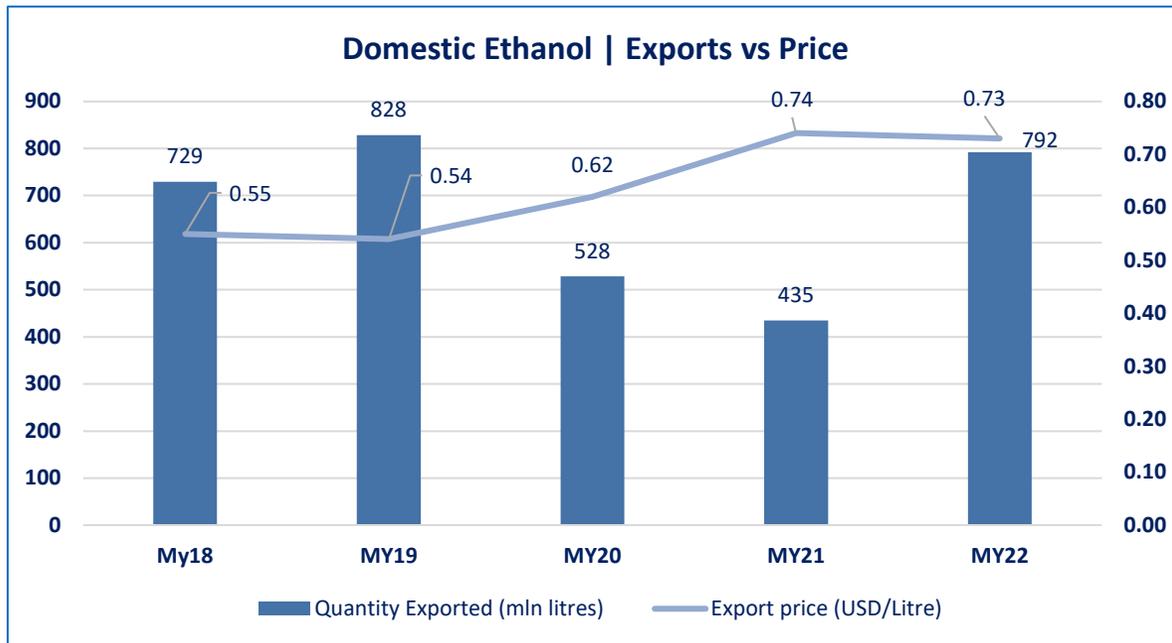
Global Ethanol Production (mln gallons)				
	MY18	MY19	MY20	MY21
<b>USA</b>	16,091	15,778	13,941	15,016
<b>Brazil</b>	8,080	8,790	8,080	7,320
<b>European Union</b>	1,360	1,380	1,260	1,350
<b>China</b>	810	1,010	930	870
<b>India</b>	420	470	510	850
<b>Canada</b>	460	500	430	434
<b>Thailand</b>	390	430	390	360
<b>Argentina</b>	290	290	210	270
<b>Rest of the World</b>	729	682	659	820
<b>Total</b>	<b>28,630</b>	<b>29,330</b>	<b>26,410</b>	<b>27,290</b>



*Note: Figures for MY21 are latest-available and have been revised since our previous report.*

## By-Products | Ethanol | Trade

- Ethanol prices and margins are heavily dependent upon cane yield. This segment is highly sensitive to rupee fluctuations as ~50%-70% of ethanol produced in Pakistan is exported.
- The average global price of ethanol recorded at USD~1.95/liter. However, in the case of Pakistan, export prices of ethanol have remained lower than the international average prices. During FY22, Pakistan's ethanol exports increased by ~82.1% YoY and clocked in at USD~0.73/liter (or PKR~101,588mln).



**Note:** Data for Global Prices pertains to average export prices of USA and Brazil. Domestic data on Ethanol Exports pertains to HS Codes 2207.1000 and 2207.2000.

## By-Products | Bagasse & Mud

### Bagasse

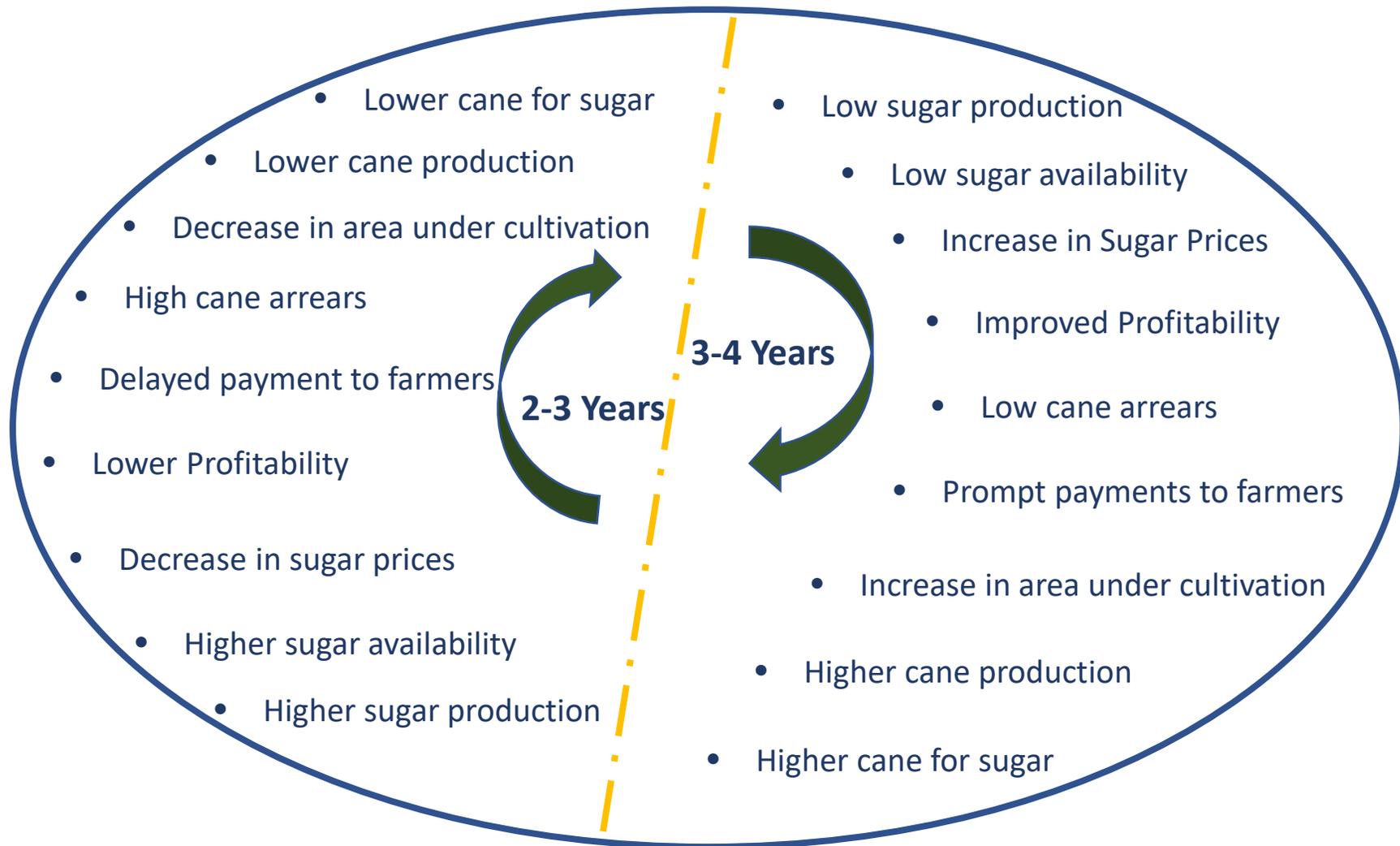
- Bagasse is sugarcane fiber pulp left after the juice has been extracted from the sugarcane stable.
- Bagasse is an excellent raw material for power generation. It provides a stable and reliable source of electricity and steam to power the sugar mills.
- As of MY22, recovery rate for bagasse recorded at ~4.7% of the sugarcane crushed.

### Press Mud

- Press mud is the residue of the filtration of sugarcane juice. The clarification process separates the juice into a clear juice that rises to the top and goes for manufacture, and a mud that collects at the bottom.
- The soil application of press mud as organic fertilizer is widely practiced in Pakistan. It may be due to the fact that it has got sufficient amount of crop nutrients and improves soil chemical properties.
- Recovery rates for press mud was recorded at ~3.6% of the sugarcane crushed during MY22.

Bagasse and Mud Production (mln MT)					
	MY18	MY19	MY20	MY21	MY22
Bagasse	1.9	1.5	1.4	1.4	3.5
<b>Recovery Rate</b>	<b>2.9%</b>	<b>2.9%</b>	<b>2.9%</b>	<b>2.5%</b>	<b>4.7%</b>
Mud	1.97	1.49	1.45	1.47	2.7
<b>Recovery Rate</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>2.6%</b>	<b>3.6%</b>

## Cycle Nutshell



- Farmers in Pakistan enjoy limited power. Their cash cycle is mainly influenced by large sugar mills.
- Even in the current scenario of price spurs and high profitability margins, many farmers are paid much less than the minimum price levels set by the government.
- Payments of farmers are long deferred by some of the strong sugar mills.

# Sugar

## Porter's Five Forces Model

### POTENTIAL NEW ENTRY



- Medium level of threat
- No governments restrictions on entry
- Cost of entry relatively low
- Many inefficient mills operating in market

### BUYERS



- Low power
- Consumers will purchase, no matter what the price levels are
- Possibilities and history of producer cartels



### SUBSTITUTES

- Low threat of substitutes (artificial sugar)
- Basic Necessity

### SUPPLIERS



- Large number of suppliers (farmers) - Limited power
- Farmers are protected through minimum price policy of government
- Farmers tend to easily switch between crops if they do not find favorable terms

### COMPETITIVE RIVALRY



- High Rivalry
- ~90 Players
- No differentiation on price basis
- Differentiated on the basis of quality, availability and delivery

## SWOT Analysis



## Tax and Regulatory Structure

PCT Code	Description	Custom Duty		Additional Custom Duty		Regulatory Duty		Total	
		FY22	FY23	FY22	FY23	FY22	FY23	FY22	FY23
<b>17.01</b>	Cane or beet sugar and chemically pure sucrose, in solid form.	11-20%	11-20%	4%	2-6%	0%	0%	11-24%	11-26%
<b>17.03</b>	Molasses resulting from the extraction or refining of sugar.	3%	3%	2%	2%	0%	10%	5%	2-10%
<b>23.03</b>	Residues of starch manufacture and similar residues, beet- pulp, bagasse and other waste of sugar manufacture, brewing or distilling dregs and waste, whether or not in the form of pellets.	11%	11%	2%	2%	0%	0%	2-11%	2-11%

## Regulatory Framework

### Federal Government

- Export Policy Order, 2020
- 2020, Removal of Sales Tax on imported sugar supply by TCP

### Provincial Government

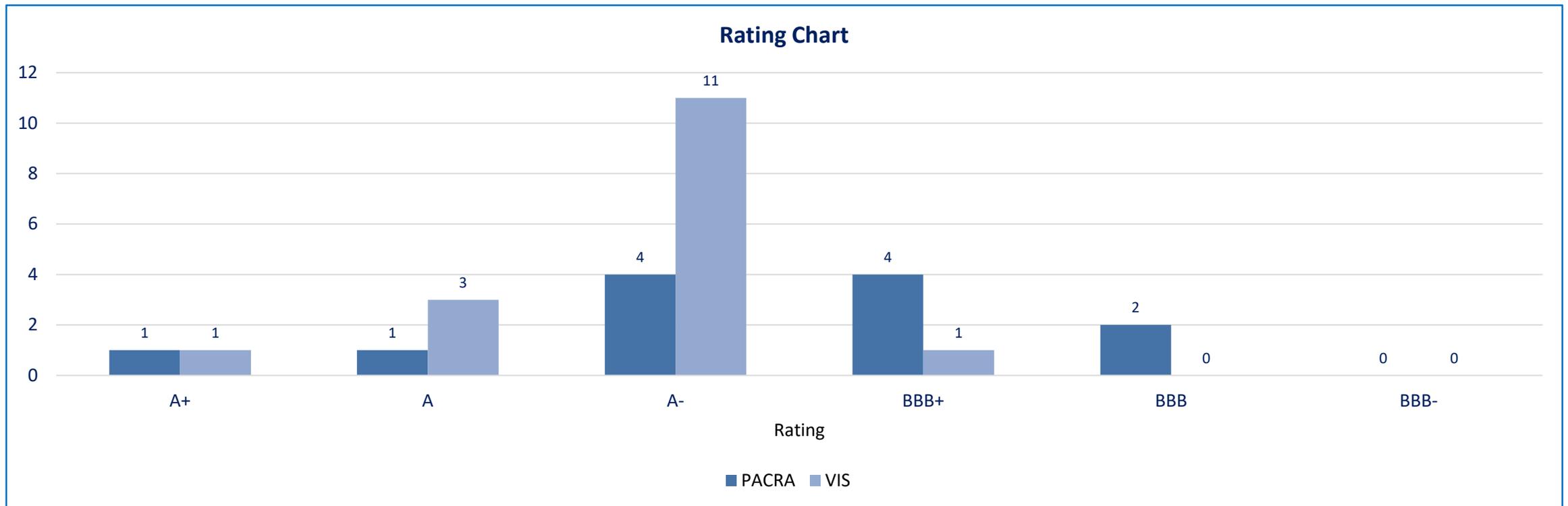
- Sugar Act 1934 – Price regulation of sugarcane
- Sugar Factory Control Act 1950- regulation of sugarcane supply and price to factories.
- Punjab Sugarcane Control Order 1972- regulating and prohibiting the movement, transport, supply, distribution and use or consumption of sugarcane and trade and commerce therein.
- Punjab Foodstuff Act 1958- continuance of powers to control the supply, distribution and movement of, and trade and commerce in, foodstuffs in Punjab.
- Sindh Foodstuff (Control) Act 1958 – an enactment made in public interest to provide for the continuance of powers to control the supply, distribution and movement of, and trade and commerce in, foodstuffs in Sindh.
- Price Control and Prevention of Profiteering and Hoarding Act 1977 – an enactment to provide for price control and prevention of profiteering and hoarding.
- Punjab Registration of Godowns Act 2014 – an enactment to register godowns, provide for a comprehensive system regarding stable supply and availability of essential articles, and deal with ancillary matters.

### Competition Commission

- Control over non-competitive strategies of the producers.
- Competition Act 2010ns that regardless of whether the sugar industry is heavily regulated by the provincial governments, it is still susceptible to being monitored by the CCP. Not only can the sugar mills and other private parties be looked at by the CCP, governmental bodies, such as the Sugarcane Control Board, can also be monitored.

## Rating Chart

- PACRA rates 12 players in the sugar sector, with a rating bandwidth ranging from BBB to A+.
- Total Market Cap for the Sugar sector stands at PKR~54.2bln.



## Outlook: Stable

- Sugarcane serves as an important cash crop for Pakistan. Its production accounted for ~3.7% in agriculture's value addition and ~0.8% to the country's GDP in FY22. Additionally, it formed ~20.5% of the country's important crops during the same period.
- For MY22, the country's sugarcane production clocked in at ~88.7mln MT, increasing ~17.5% YoY (MY21: ~75.5mln MT). The increase can be attributed to higher domestic prices and better sugarcane procurement prices, which incentivized farmers to dedicate more area to sugarcane. During the same period, area under cultivation increased by ~8.3% to register at ~1.3mln hectares, whereas yields improved to ~70.3MT/Ha, against ~69.5MT/Ha during the SPLY, an increase of ~1.15% YoY. Simultaneously, sugar production increased by ~31.7% YoY to ~7.9mln MT during MY22 (MY21: ~6.0mln MT).
- Consumption in MY22 registered at ~5.9mln MT (MY21: ~5.8mln MT), reflecting in improved profitability of sector players, seeing as average gross margins increased to ~15.1% during the same period (SPLY: ~14.2%). Improved performance of the players can also be attributed to better local prices, where domestic prices for MY22 clocked in at PKR~90.5/Kg, increasing by ~6.8% YoY. However, keeping in line with historic trend, domestic prices remain lower than international prices, maintaining a delta of PKR~17/Kg till MY22. The difference can be largely associated with government intervention from time to time. The minimum support price of sugarcane is expected to increase to PKR~450/40Kg, leading to an eventual surge in retail prices of sugar to PKR~150/Kg.
- Moreover, average operating margins reached a 5-year high of ~12.1% in MY22 (~8.5% in MY21) due to gain on disposable income. On the other hand, average net margins exhibited an improvement likely due to better management of expenses. However, going forward, these are expected to trace a downward movement given steep interest rate spikes during FY23.
- A breakdown of the working capital cycle reveals that the average Net WC Days increased to ~104 days during MY22 (MY21: ~60 days), mostly on the back of increased average inventory days, which resulted from ban on exports. The sector remains moderate to highly leveraged with leverage ratio increasing to ~57.6% during MY22 as against ~54.0% during the SPLY.
- Despite the extreme supply shock in the form of flash floods of Aug'22, Pakistan's sugarcane production is expected to increase to ~91.1mln MT for MY23, rising by ~2.7% YoY, with area under cultivation reducing to ~1.2mln hectares (MY22: ~1.3mln hectares). Naturally, sugar production is also forecast to increase to ~7.1mln MT in MY23.
- Sugar, being an essential commodity, has an inelastic demand therefore the sector is expected to fare well, even in the face of increasing finance and operating expenses. However, the sector remains distorted due to significant political intervention, especially in the form of government setting prices at both the input (raw material procurement) as well as the output stage (retail price).

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- Competition Commission of Pakistan (CCP)
- Pakistan Ethanol Manufacturers Association (PEMA)
- Renewable Fuels Association (RFA)
- International Sugar Organization (ISO)
- PACRA In-house Database

<b>Research Team</b>	<b>Saniya Tauseef</b> <i>Senior Manager</i> <a href="mailto:saniya.tauseef@pacra.com">saniya.tauseef@pacra.com</a>	<b>Ayesha Wajih</b> <i>Supervising Senior</i> <a href="mailto:ayesha.wajih@pacra.com">ayesha.wajih@pacra.com</a>	<b>Saba Farooq</b> <i>Research Analyst</i> <a href="mailto:saba.farooq@pacra.com">saba.farooq@pacra.com</a>
<b>Contact Number: +92 42-35869504</b>			

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