

PSST AGRICULTURE WORKSHOP 2023



Sustainability of Sugar Cane Production

Challenges , Ground realities & Way forward strategies

Presented by

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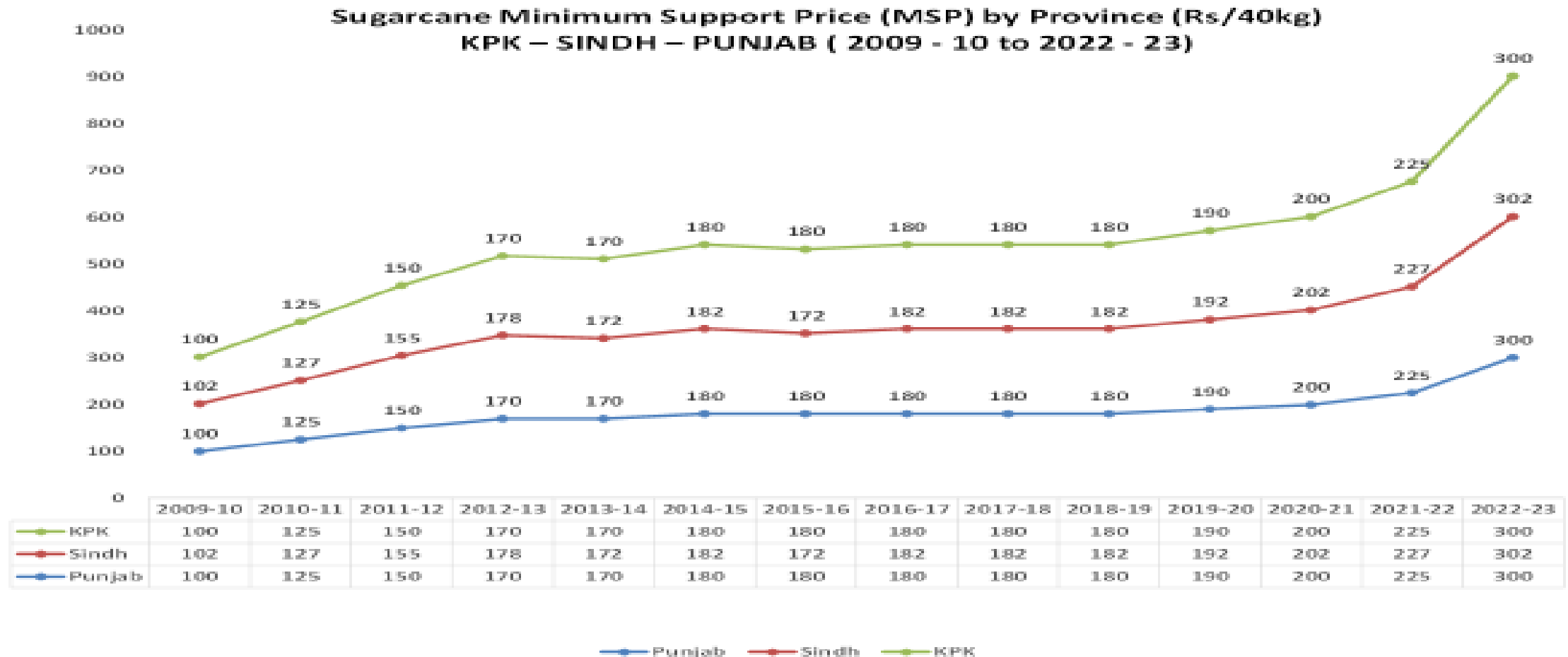
Former Vice President PSST (2017-19)

Introduction

1. Sustainability of sugar cane crop is the core perspective in the country wide sugar industry. However, certain realistic approach is need of hour to make it sustainable by keeping input use efficiently leads to improve profits and set goal to win-win situation.
2. Its sole industry whose product is always matter of govern in our country while other commodities always enjoy the soft corner to grown up by leaps and bounds. Therefore, by & large, we have to address core challenges, their remedies & sustainable way forward.

PROJECTIONS (SEASON 2023-24)

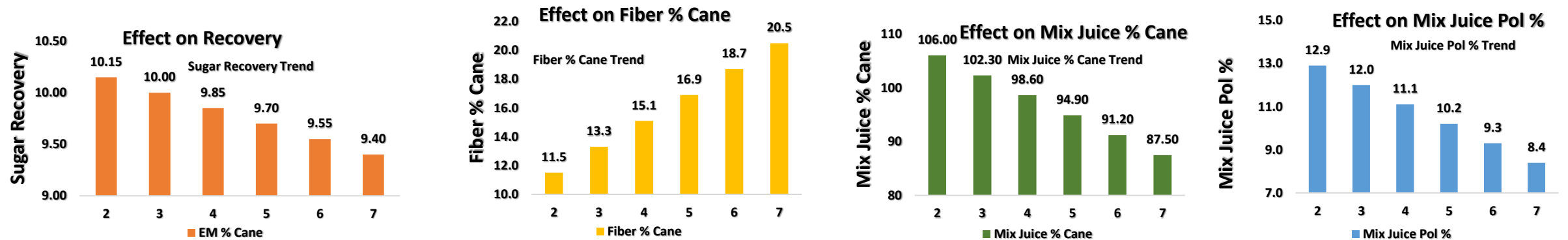
1. Cane crop projection 83.4 MMT with MSP $\pm$ Rs. 400 / (40Kg). However, it can further translate to 32 - 40% with 80% share of cane cost. Incidentally, 32% rise in support price 2022-23 which is highest since 10 years to promote its production to gear up agriculture sector.



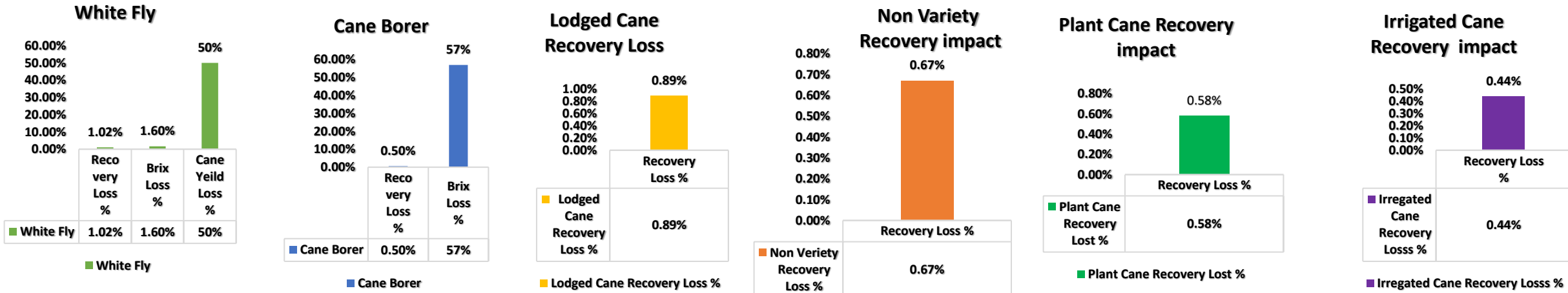
FACTS, COMPULSIONS & GROUND REALITIES (SEASON 2023-24)

1. Price war amongst mills would rise MSP due to extreme competition. Incidentally, after 50% crushing campaign, its reflected 26.82% an extra cost of cane purchasing with procurement share of 33.86%.
2. Cane payments always made on weight bases. Although, various factors contributing recovery drop at different stages of cane procurement. However, this severely impacts the break even. Therefore, quality premium @ recovery base is an opportunity to evenly poised the dual stakes and leads to sustainability.

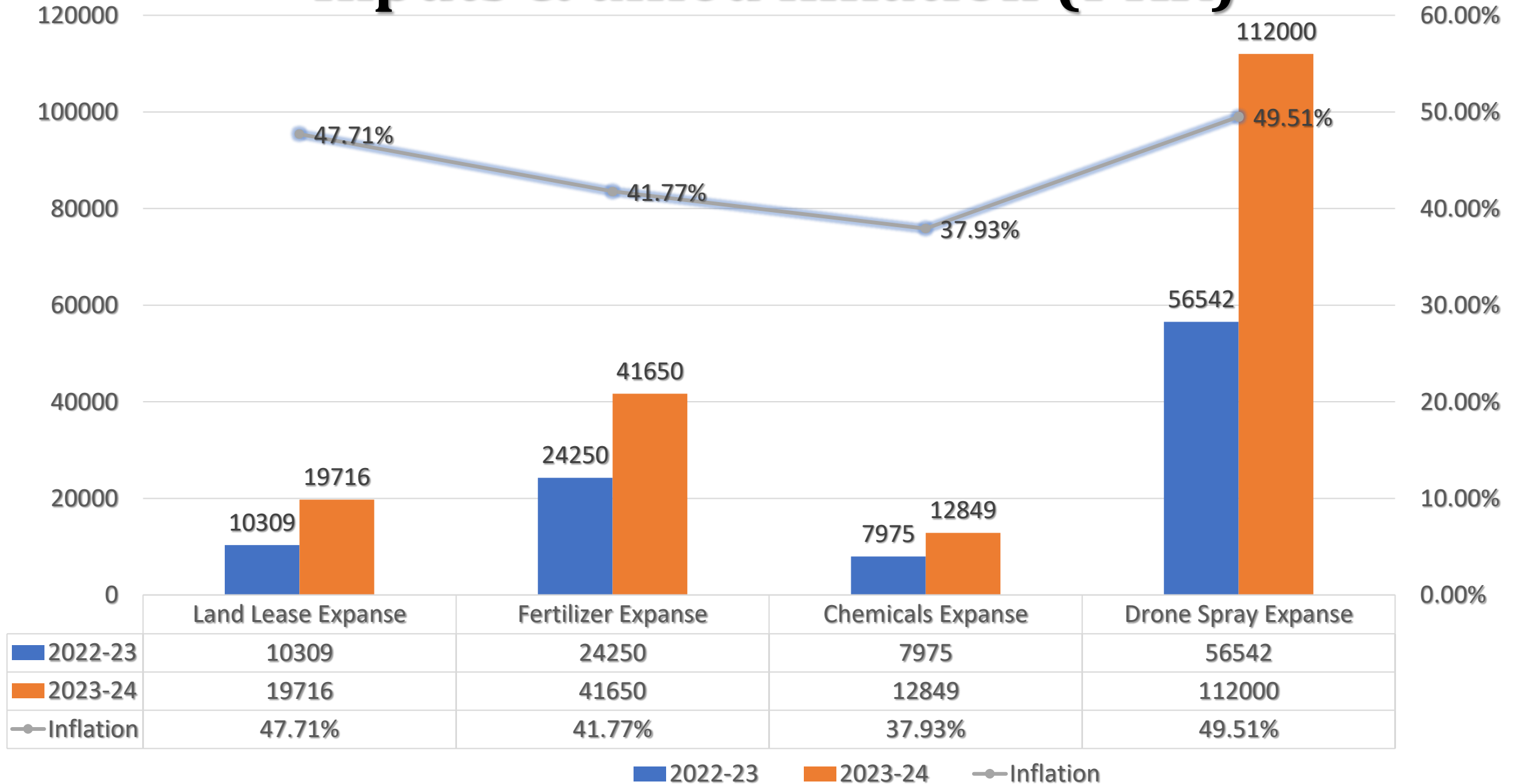
RECOVERY LOSS FROM FIELD TO CRUSH



Cane Crushing (TCD)	EM Vs Recovery		EM vs Fiber % Cane		EM Vs Mix Juice %		EM Vs Mix Juice Pol %	
	Extraneous Matters	Recovery % Cane	Extraneous Matters	Fiber % Cane	Extraneous Matters	Mix Juice % Cane	Extraneous Matters	Mix Juice Pol %
10,000	2	10.15	2	11.5	2	106.0	2	12.9
10,000	3	10.00	3	13.3	3	102.3	3	12.0
10,000	4	9.85	4	15.1	4	98.6	4	11.1
10,000	5	9.70	5	16.9	5	94.9	5	10.2
10,000	6	9.55	6	18.7	6	91.2	6	9.3
10,000	7	9.40	7	20.5	7	87.5	7	8.4



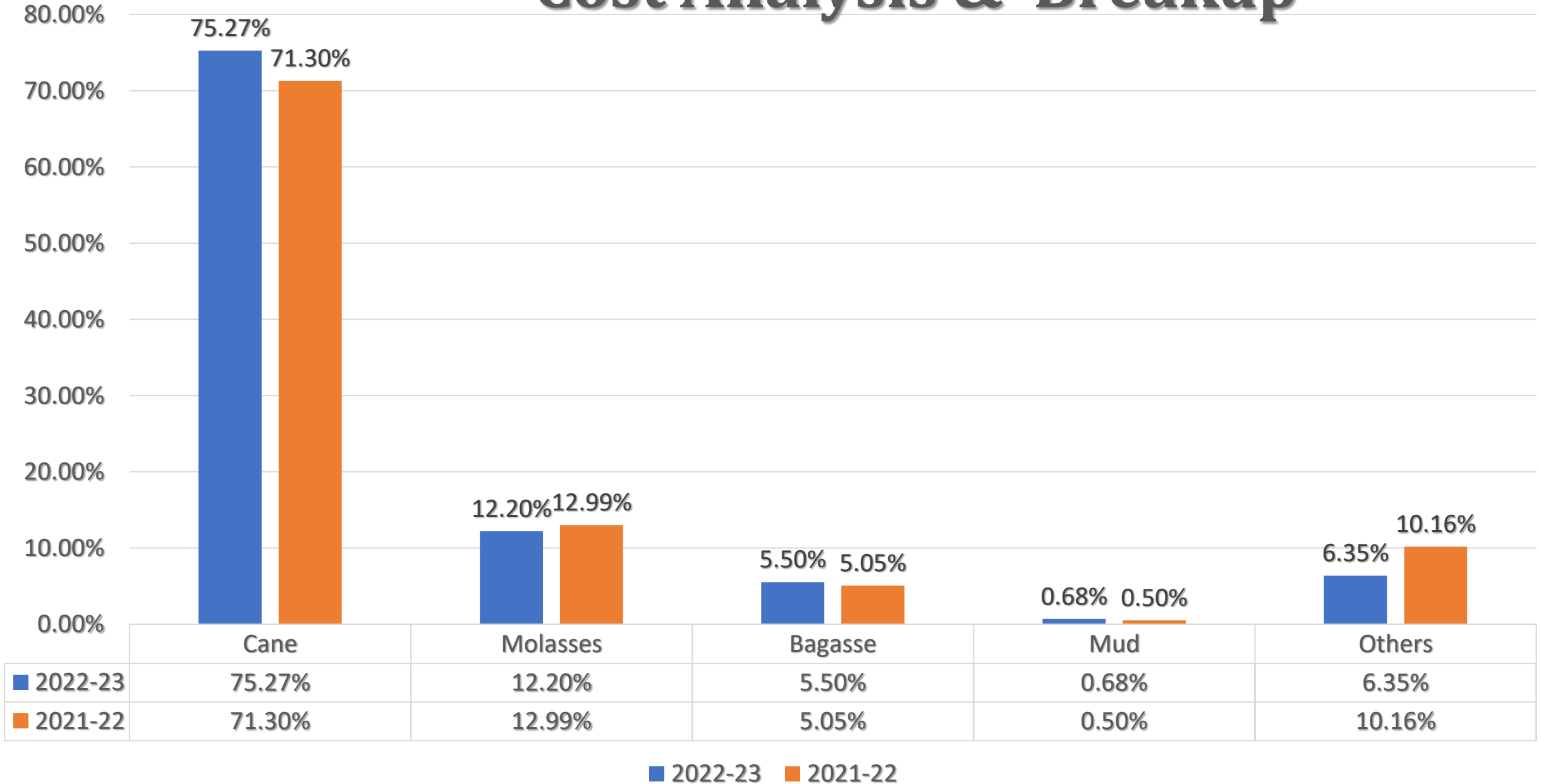
Inputs & allied inflation (PKR)



Projected comparison of MSP (PKR) Vs Yield (Mounds) & estimated earning (PKR) (Growers perspective)



Cost Analysis & Breakup

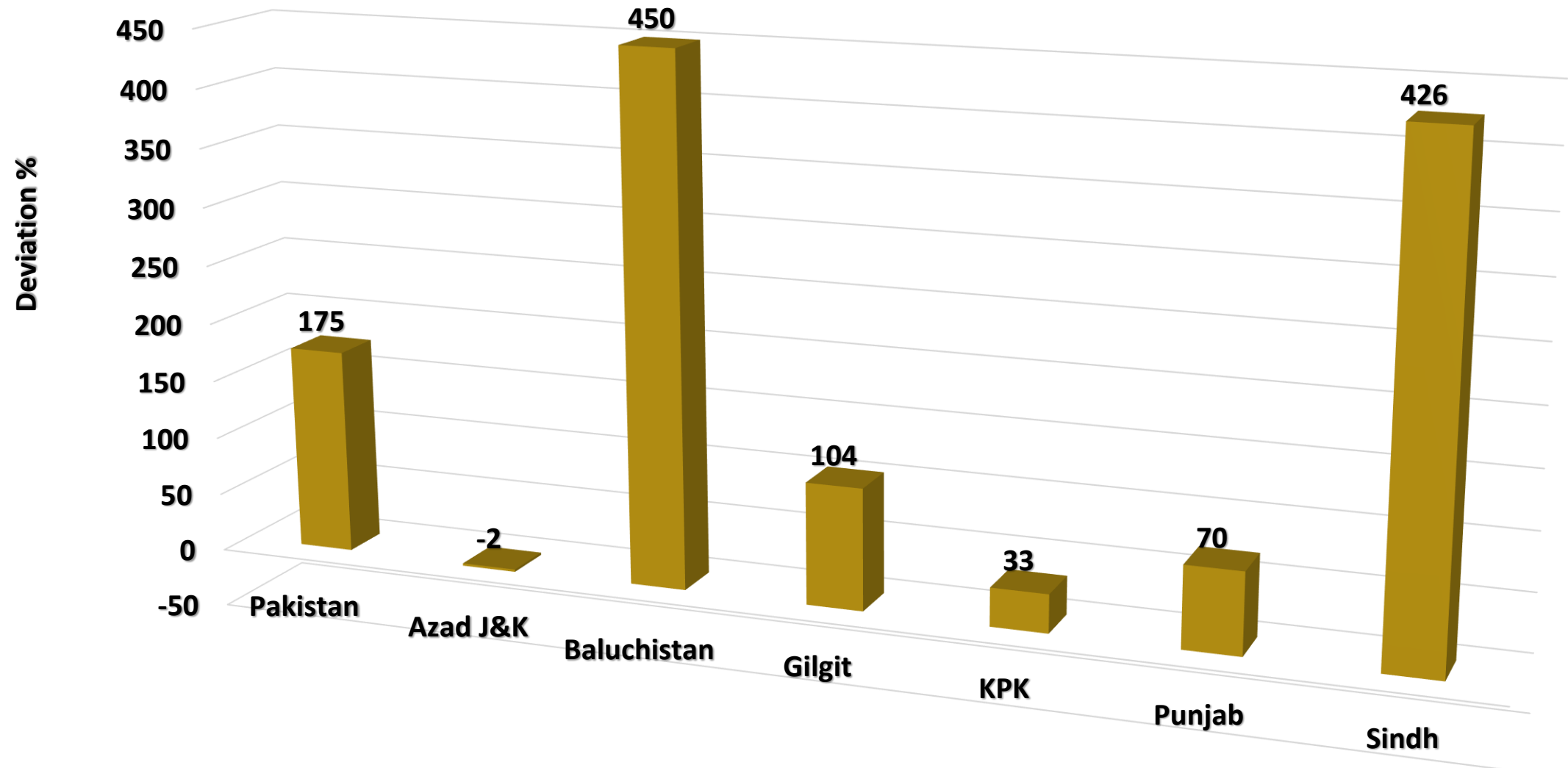


CROP SWITCHING

Growers switching to other crops also matter of great concerns. Therefore, certain investments are an acutely needed to make sustainable crop like;

1. Varietal development loaning,
2. Provisions of Solar tube wells,
3. Flat fertilizer supplies,
4. An application of spray through drones are the core realities

Climate Change (Rain intensity) 2022 Monsoon Vs 2021
10.5 Million ton sugar cane production loss in Sindh
33 Million people effected across Pakistan due to rains & subsequent floods
127% excess recorded in May 23 Vs May 2022



Pest Management challenges

Sugar Cane Yield

20 % declines

Inflict Considerable Loss

15 % loss in recovery

Pest Intensity

103 associated insects with Sugarcane crop

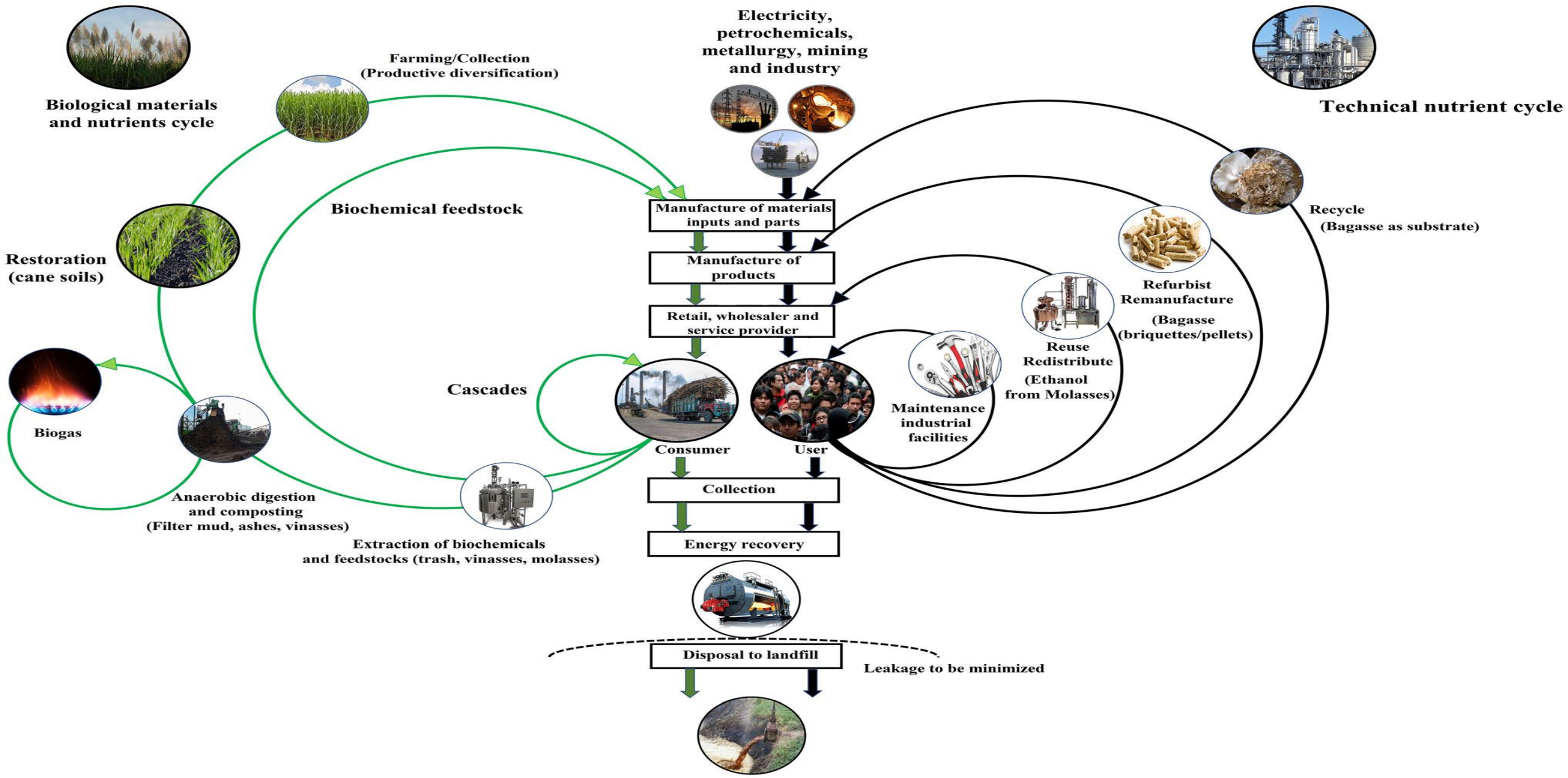
Integrated & committed coordination with growers from Mills management

Awareness of IPM

Sustainability

Yield and recovery can improve with timely application of Pest management activities

SUSTAINABLE CLOSED LOOP & ECONOMIC MODEL FOR SUGAR CANE AGRO INDUSTRY



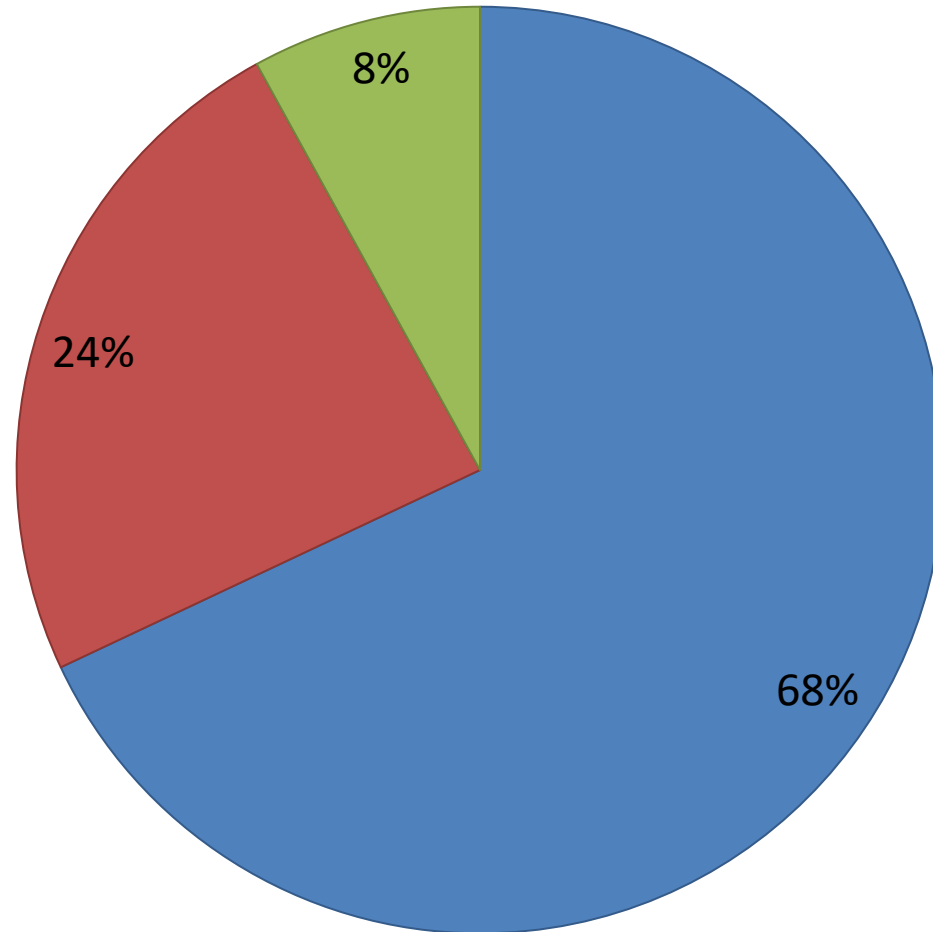
Sugarcane Production, Supply and Distribution (1000 HA), (1000 MT)

Sugarcane	2021/2022		2022/2023		2023/2024*	
Market Year Begins	Oct 2021		Oct 2022		Oct 2023	
Pakistan	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post * (Forecast)
Area Planted	1290	1230	1230	1280	0	1250
Area Harvested	1290	1230	1230	1230	0	1250
Production	89000	89000	82400	81000	0	83500
Total Supply	89000	89000	82400	81000	0	83500
Utilization for Sugar	89000	89000	82400	81000	0	83500
Utilization for Alcohol	0	0	0	0	0	0
Total Utilization <u>Ref: (USDA, GAIN)* Forecast</u>	89000	89000	82400	81000	0	83500

PROVINCE WISE SHARING OF CANE PRODUCTION (%)

Source: Provincial Agriculture Departments & (PSMA)

■ Punjab ■ Sindh ■ KPK

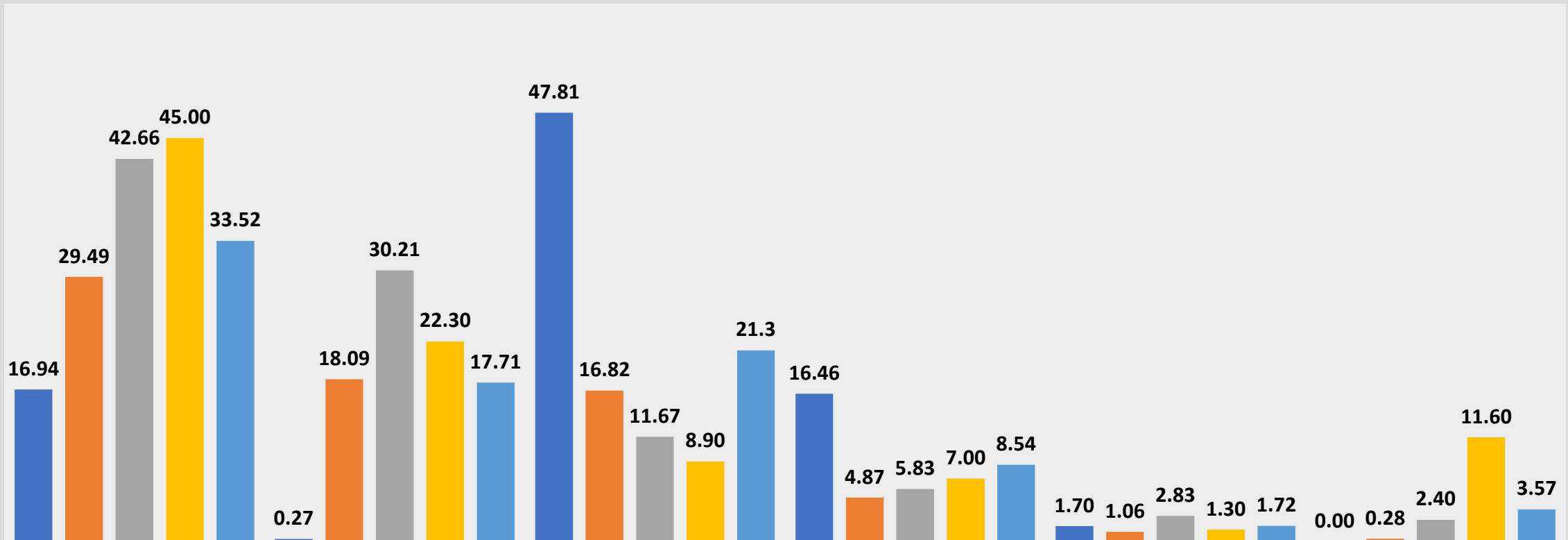


Comparison of Sugarcane yield, Recovery & Sugar yield

Country	Cane yield (t/ha)	Recovery (%)	Sugar yield (t/ha)
Australia	100.4	13.8	13.85
Egypt	110.8	11.5	12.74
Brazil	68.4	14.5	9.91
U.S.A.	80.2	11.7	9.38
Colombia	80.5	11.5	9.26
Mexico	79.5	11.6	9.22
India	66.9	9.9	6.62
Pakistan	50.3	9.2	4.63
World Avg.	64.4	10.6	6.82

Lower amongst entire countries, however, even from India with a difference of 16.6 t/ha, 0.7 % recovery and 1.99 t/ha. (Ref: FAO Production Yearbook)

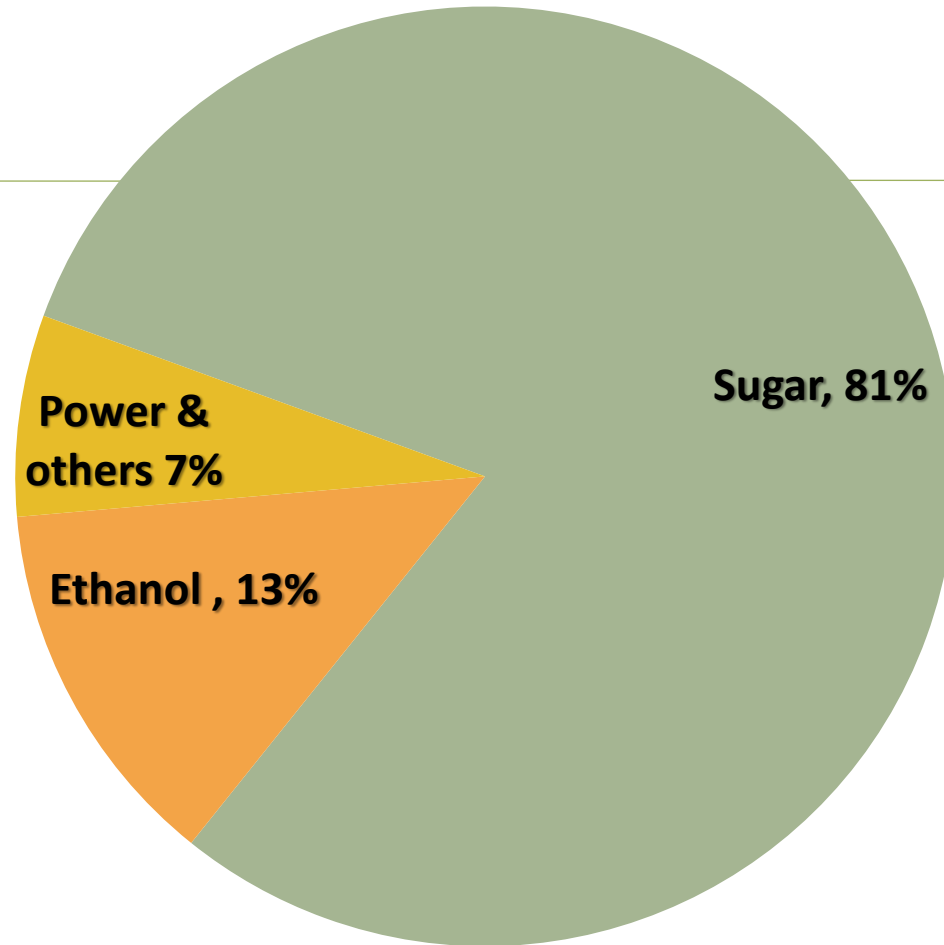
COMPARISON OF VARIETAL SCOPE & PROJECTED PROCUREMENT (%)



Season	CP -77400	NSG-59	CPF-246	SPF-234	HSF-240	CPF-253
2019-20	16.94	0.27	47.81	16.46	1.70	0.00
2020-21	29.49	18.09	16.82	4.87	1.06	0.28
2021-22	42.66	30.21	11.67	5.83	2.83	2.40
2022-23	45.00	22.30	8.90	7.00	1.30	11.60
Average	33.52	17.71	21.3	8.54	1.72	3.57

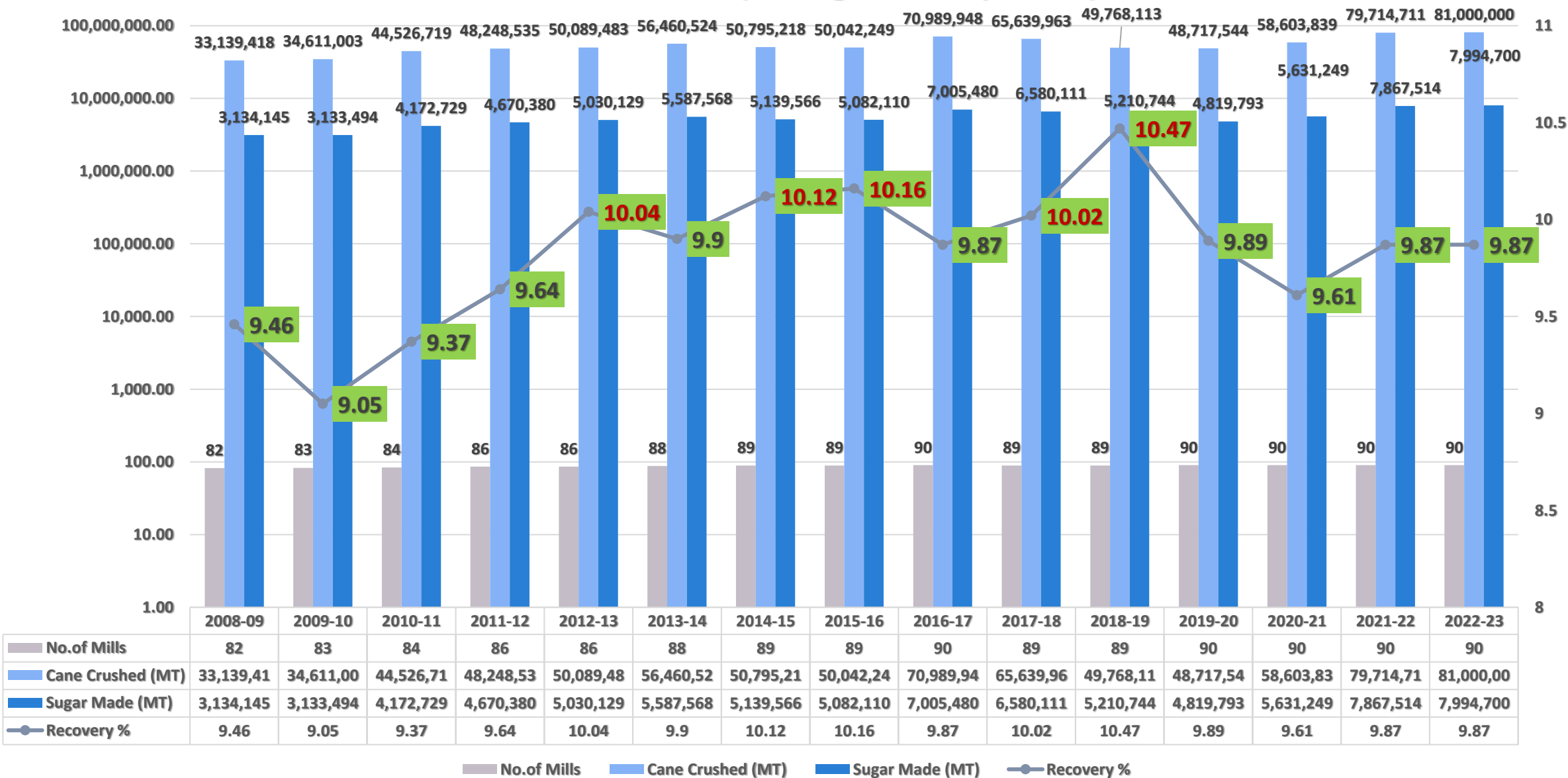
2019-20 2020-21 2021-22 2022-23 Average

REVENUE GENERATION SHARE



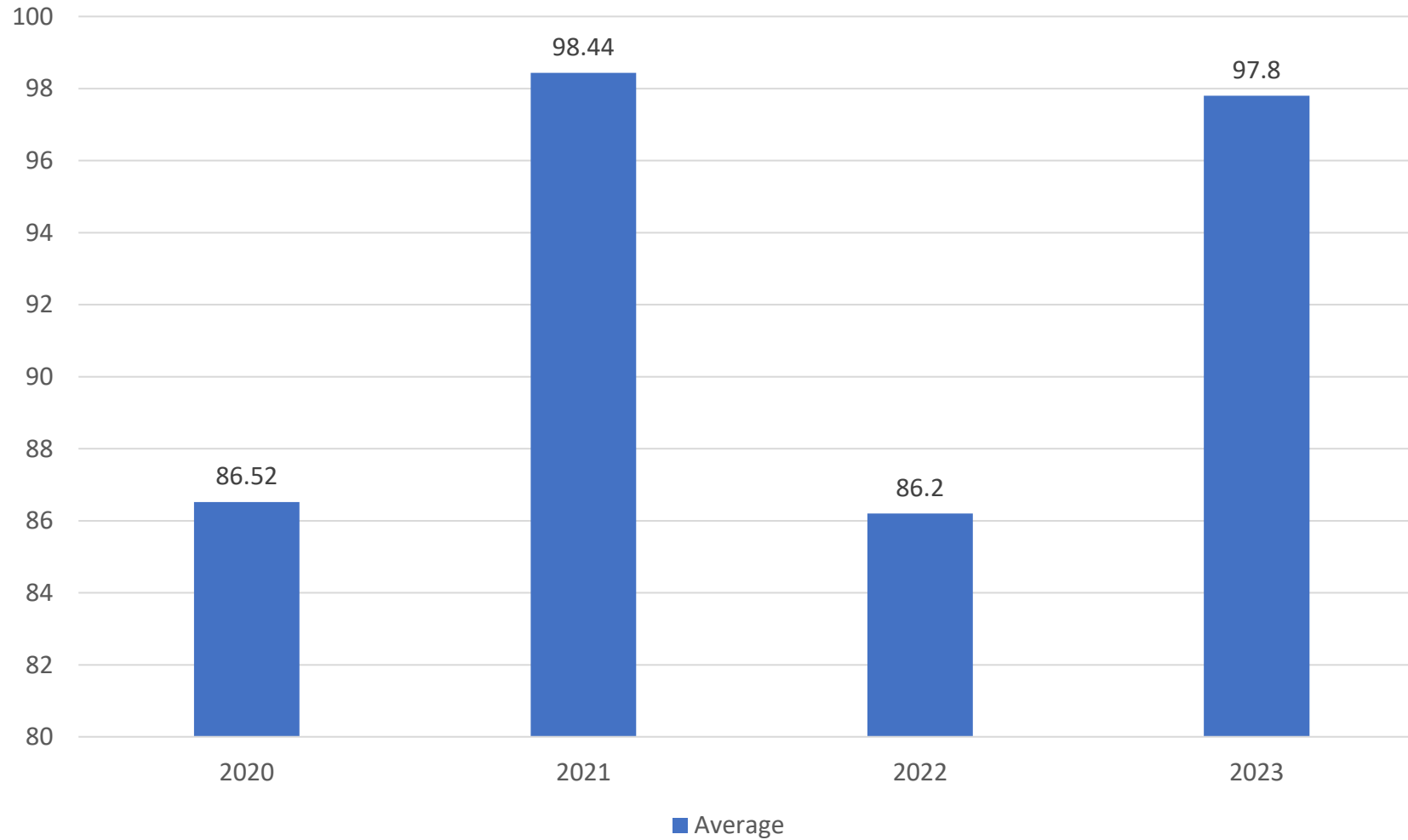
■ Sugar ■ Ethanol ■ Power & others 7%

Sugarcane Crushing, Sugar Production & Recovery 2008-2023 (Pakistan Scenario)
(Average recovery 9.8%)



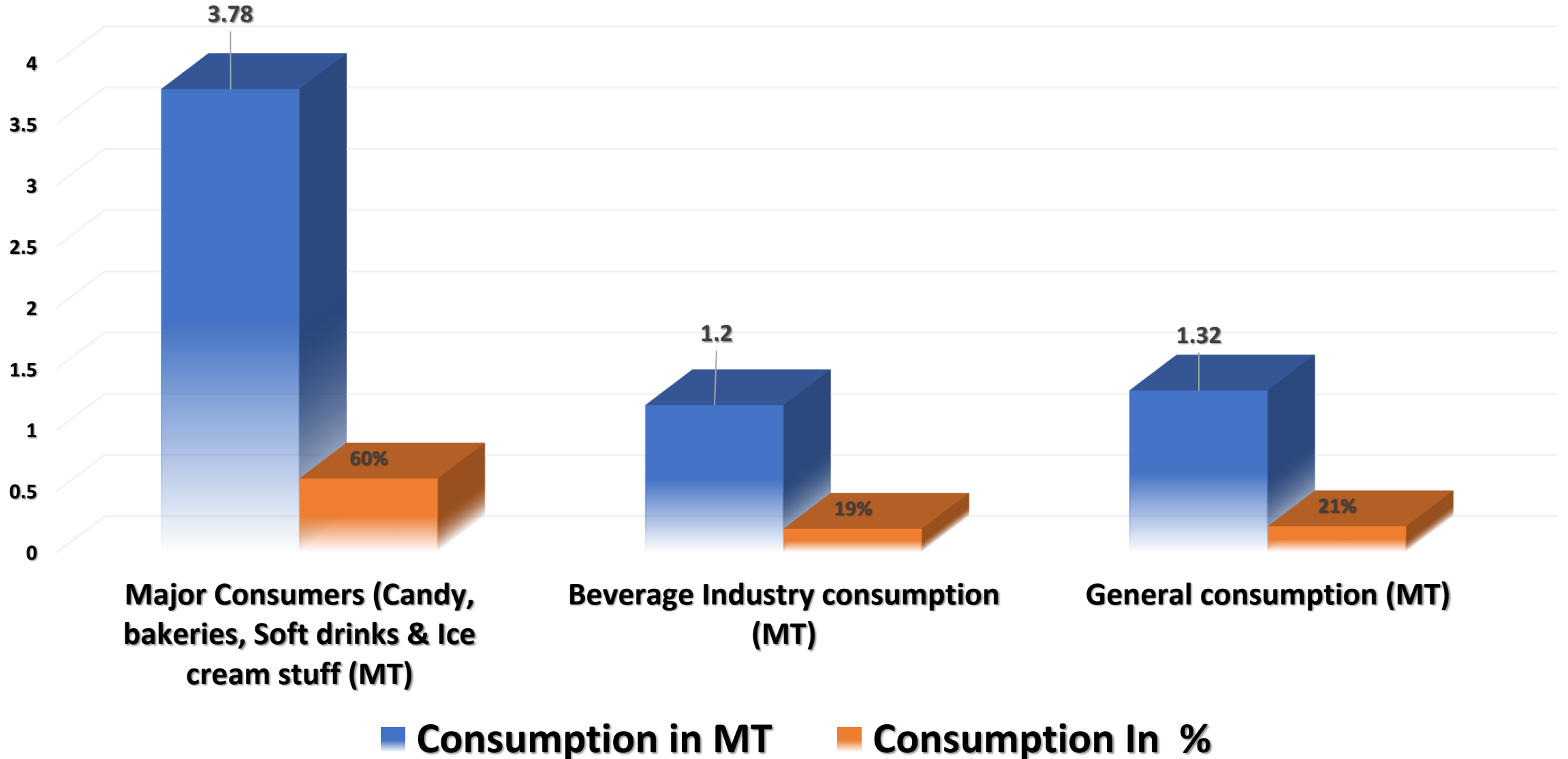
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Sugarcane	2021/2022		2022/2023		2023/2024	
Market Year Begins	Oct 2021		Oct 2022		Oct 2023	
Pakistan Projected Sugar Cane production	USDA Official 89000	New Post 89000	USDA Official 82400	New Post 81000	USDA Official	New Post 83500
Bagging Stocks	2752	2752	3392	3812	0	3352
Beet Sugar Production	60	60	60	60	0	60
Cane Sugar Production	7080	7500	7000	6800	0	7050
Total Sugar Production	7140	7560	7060	6860	0	7110
Raw Imports	0	0	0	0	0	0
Refined Lamp	0	0	0	0	0	0
Total Imports	0	0	0	0	0	0
Total Supply	9892	10312	10452	10672	0	10632
Raw Exports	0	0	0	0	0	0
Refined Exp. (Raw Val)	500	500	1000	1000	0	800
Total Exports	500	500	1000	1000	0	800
Human Dom. Consumption	6000	6000	6100	6150	0	6300
Other Disappearance	0	0	0	0	0	0
Total Use	6000	6000	6100	6150	0	6300
Ending Stocks (Carry forward)	3392	3812	3352	3522	0	3532
Total Distribution Ref: (USDA, GAIN)	9892	10312	10452	10672	0	10632

Yearly average Retail sugar price Rs/Kg



Production Cost
Rs.104 - 108/Kg
(Season 2022-23)

**SUGAR CONSUMPTION 6.3 MILLION TONS
WITH 2 % YEARLY INCREASE IN POPULATION GROWTH
@ 26.23 KG/CAPITA**

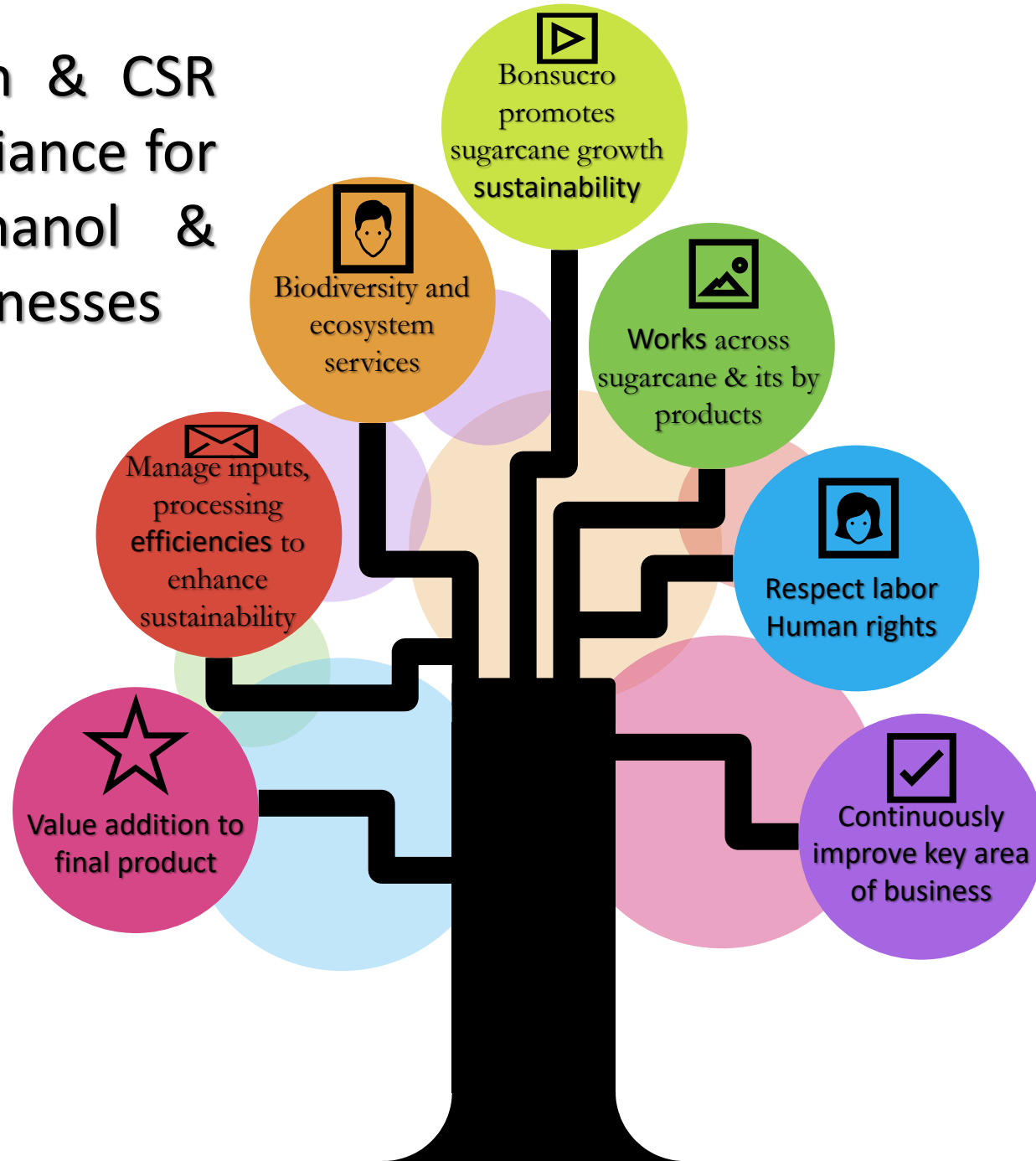


Bonsucro Integration for Sustainability

1. Inception 2008 by group of stakeholders
2. To support the sugarcane sector for sustainable performance
3. To provide reference tool to Farm & Mill operators
4. Defines sustainable conditions to produce sugarcane & its derived products
5. Projected pillars
 - I. Environment responsibility
 - II. Economic return
 - III. Social wellbeing

BONSUCRO

A sustainable, value addition & CSR perspective mandatory compliance for supplies to Beverages, Ethanol & molasses based premium businesses



Bonsucro road map

Top Management



Gap Analysis Report

Production
Standard

Small holder
Standard

Chain of Custody
Standard



Resources



Plant



Foundation Training



Diagnostic Audit



Improvement Plan & Corrective Action



Field



Foundation Training



Diagnostic Audit



Improvement Plan & Corrective Action



Bonsucro Certified Client

1. Can sale Bonsucro certified;
2. Molasses
3. Yeast
4. CO₂
5. Fusel Oil
6. Condensed molasses solubles
7. Bagasse
8. Vinasse
9. Filter cake
- 10.Boiler Ash
- 11.2nd generation Ethanol

AGENDA 2030 FOR SUSTAINABLE DEVELOPMENT & CIRCULAR ECONOMY OF SUGARCANE



Eradicating poverty in all its forms remains one of the greatest challenges facing humanity. Sugarcane is a C4 plant with high photosynthetic activity that generates biomass. Increasing productivity with sustainable techniques could improve diversifying the supply of sugars and other foods traditional medicines and industrial goods for commercial changer



Many developing countries producing sugarcane could carry out the diversification of cane farms with the intercropping The sugarcane biomass is used as livestock feed and with the products of the sugar mills distillery and biorefinery to produce manures to restore degraded soils and produce cereals, vegetables, legumes and fruits



The sustainable and diversified use of sugarcane elimination of the harvest by burning reduction of the use of agrochemicals and best agricultural management practices, would contribute to improving the health of workers and sugarcane growers and neighboring population increasing their productivity and therefore their income.



The owners of sugar mills, distilleries and bio refinery could contribute as corporate social relationship (CSR) to establish communities and strategies for the education and training of farms worker and factories and their families as well as neighboring population.



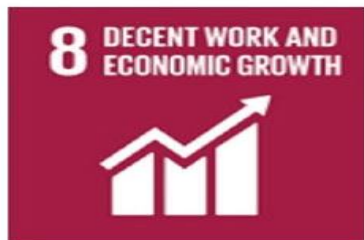
The owners of sugar mills, distilleries and bio refinery could contribute with training programs for managers and personnel with the responsibilities to eliminate racial gender and others discrimination when hiring their personnel.



The owners of sugar mills, distilleries and bio refinery could contribute to ensure safe and affordable drinking water in the future by investing in technician irrigation infrastructure, significantly reducing water consumption in industrial process. Using water from the cane itself provide sanitation facilities for process waters and protecting and restoring water released ecosystems near fields.



The sugarcane agribusiness can contribute in all producing countries with green energy through cogeneration process with trash and bagasse and the production of various biofuels such as 1G and 2G ethanol biogas etc.



The sugarcane agribusiness through sustainable production and administrative process innovation and the participation of expert form universities can contribute to improving the working condition of its employees without reducing economic profits.



Sugar cane is a crop that when proceed with innovative and sustainable technique can contribute to well being reduce the effective of climate change and the industrialization of poor communities by generation food feed biofuel bioproducts



Sugarcane and its processing can be a generator of wealth in developing countries that produce this crop by producing various derivatives numerous domestic applications and for export

11 SUSTAINABLE CITIES AND COMMUNITIES



Sugarcane especially in the developing world, can making cities sustainable means business opportunities in public transport with the production of 1G and 2G biofuel and the generation of green electrical energy for these cities reducing dependence on fossil fuels

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



The sugarcane industry with sustainable production strategies especially in the management of water natural resources the use of input derived from fossil sources and the quality of its final products will contribute to a responsible production.

13 CLIMATE ACTION



The sugarcane industry is strategic to carry out action against climate change and the decarbonization goal in the 2015 Paris Agreement since the plant is a carbon store and by reducing the use of water agrichemicals and the harvest with burning will drastically reduce the emission of greenhouse gases

14 LIFE
BELOW WATER



The cultivation of Sugarcane can carry out actions against the deterioration of water source through modernization irrigation and the reduction of agrochemicals to reduce runoff and leachate with polluting substances that would impact the health of water tables and finally the ocean

15 LIFE
ON LAND



The world area of sugarcane cultivation can increase its productivity without the need for further deforestation or in land use change through actions such as agroecological zoning, agriculture 4.0 and precision agriculture

16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS



The Sugarcane industry must establish strategies to avoid any form of labor exploitation discrimination among all stakeholders and promote an environment of peace, stability, human rights and effective governance.

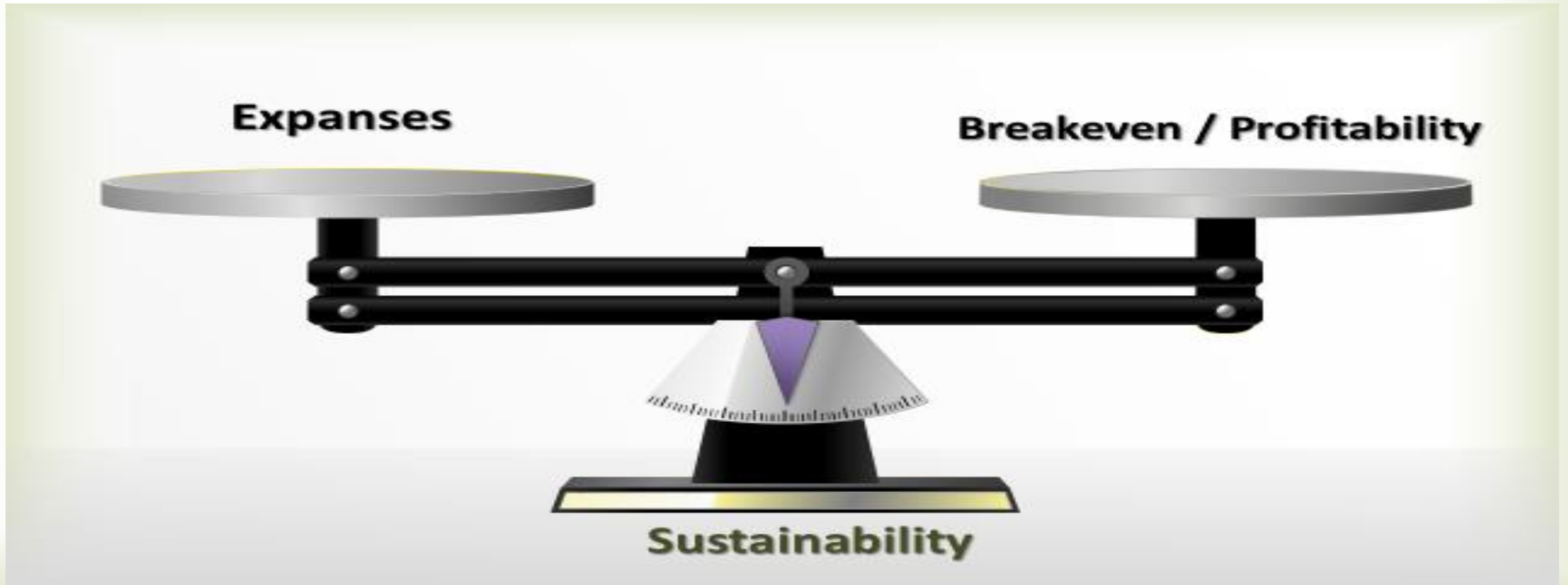
17 PARTNERSHIPS
FOR THE GOALS



The world sugar cane industry must establish alliance between counties and their government, scientific and productive sector to help & solve the urgent problems posed by the 2030 sustainable development agenda

Recommendations

1. CRRS (Challenges, Realities, Resources & Strategies) are the four characteristics of an organizational road map. However, term sustainability can manage them in one aspiration which is an ultimate choice to proceed profitability.



Thank You

