

API SERIES NO. 249



# **SUGARCANE POLICY ANALYSIS FOR 2014-15 CROP**



**AGRICULTURE POLICY INSTITUTE  
MINISTRY OF NATIONAL FOOD SECURITY AND RESEARCH  
GOVERNMENT OF PAKISTAN  
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# ***SUMMARY OF FINDINGS AND RECOMMENDATIONS***

There are no significant changes in the sugarcane area and production registered in Pakistan during 2013-14. At national level, sugarcane area was almost stagnant with a marginal increase of 0.1%, it is mainly because of 17.3% growth in Sindh and 0.9% in KPK. In Punjab sugarcane area was squeezed by 5.7% in 2013-14. At national level, Production of sugarcane slightly declined by 1.1% due to sharp decline of 5.0% in Punjab. In Sindh, KPK and Baluchistan production has shown improvement of 8.8%, 1.1% and 2.2% respectively.

2. Sugar production in the year 2013-14 reported by PSMA is 5.58 million tons against 5.03 million tons in 2012-13. Stocks of sugar as on 12 July 2014 are 1.6 million tons. Net available sugar on 1<sup>st</sup> April 2014 was 7.50 million tons. Ministry of Industries reported that these stocks are sufficient till the beginning of next crushing season. The sugar industry has been allowed to export 0.5 million tons of sugar but the actual shipment made by the industry is less than the target. Domestic sugar consumption during 2013-14 (1<sup>st</sup> October 2013 – 30<sup>th</sup> to September 2014) is estimated at 4.3 million tons which can easily be met and surplus sugar 3.26 million tons will be available for export if not consumed domestically.

3. Pakistan Bureau of Statistics reported that both retail and wholesale prices of sugar in the country are quite stable. However international Price of white sugar has declined from US \$ 607 per ton in 2011-12 and \$ 528 per ton in 2012-13 to US \$ 467 per ton in 2013-14. During the current year of 2013-14, the monthly prices have dipped to US \$ 431 per ton in January 2014 from \$ 495 per ton in October 2013 and improved to US \$ 454 in July 2014. Due to declining trend of international sugar prices further export of sugar is a difficult option which will help to keep sugar prices stable in the domestic market.

## **Important determinants**

4. Important determinants of indicative price of sugarcane for 2014-15 crop are summarized below. The prices once announced after due consideration of relevant factors must be ensured to the growers by the Provincial Governments through their Sugarcane Commissioners. There is also a dire need to ensure timely payments to the growers by the sugarmills for their optimal future plans regarding crop production.

Important Determinants of Indicative Price Based on	Estimated Sugarcane price at mill gate (Rs. per 40 Kgs)	
	Punjab and KPK	Sindh
1. Cost of production of sugarcane (Annex I to III)	162.42 (Punjab) 164.43 (KPK)	161.57
2. Sugarcane Prices derived from average wholesale prices of sugar as under:	<u>127</u>	<u>131</u>
a) Rs 50,000 per ton		
b) Rs 55,000 per ton	115	119
c) Rs 60,000 per ton	127	131
3. Prices received by cane growers during the crushing season 2013-14	138	142
	170	172
4. Average fob London prices of white sugar per ton (Annex-IV-V)	Sugarcane prices (Rs/40 kgs)	
	Punjab	Sindh
Import parity		
US \$ 453.95 ( July 2014)	145.55	150.13
US \$ 464.33 (Oct 2013 to July 2014)	148.32	152.99
US \$ 615.76 ( 2010-11 to 2012-13)	188.68	194.62
Export parity		
US \$ 453.95 (July 2014)	108.48	111.90
US \$ 464.33 (Oct 2013 to July 2014)	111.12	114.61
US \$ 615.76 ( 2010-11 to 2012-13)	149.57	154.28

### PRICE RECOMMENDATION

5. Important determinants as listed above do not support for further increase in Indicative Price of Sugarcane for 2014-15 Crop. Although the cost of production for sugarcane 2014-15 crop is estimated at 5-6 percent higher than the last year but still retains a profit margin of 5-6 percent in view of the prevailing indicative prices of Rs 170-172 per 40 kgs in major sugarcane producing provinces of Punjab and Sindh. In the wake of declining trend in world sugar prices, comfortable domestic supply/demand/price situation and surplus stock of sugar at home, the Agriculture Policy Institute is of the view that the Indicative Price of sugarcane for 2014-15 crop may be retained at the last year level. It will not only help contain the food inflation

in the economy but also help release the costly surplus stocks of sugar and probably timely payments to growers by the sugar mills.

## **NON PRICE RECOMMENDATIONS**

### **Price/Supply of Sugarcane**

There was comfortable supply of sugarcane to the sugar mills in the Punjab and Sindh during 2013-14 crushing season. No shortage of cane supply to any sugar mills in the survey area has been reported. As price of sugarcane is concerned, the growers received Rs 170 per 40 kgs in the Punjab and Rs 172 per 40 kgs in Sindh at the mill gate. However, farmers were not satisfied with the indicative price fixed by the Provincial governments of the Punjab and Sindh. They demanded as prices of all inputs are increasing due to 17 per cent GST imposed by the Federal Government, price for the next sugarcane crop should be fixed at Rs 200 per 40 kgs.

### **Under-weighment**

The under-weighment and undue deductions on the part of the sugar mills and their agents at purchase centers have been widely reported. The private purchase centers and the mills agents reportedly have no good repute in this respect. The weighbridges and scales installed at the purchase centers do not record the correct weighment. Mostly the farmers bringing cane remained unaware about the readings of these scales. The under-weighment varies from place to place and in each mill area. In order to check under weighment at weighbridges, the supervisory committees should be made more effective. Moreover, the use of private, temporary weighbridges may be banned and district governments should install their own weighbridges in the sugarcane producing areas at reasonable distances.

### **Undue deductions**

The sugar mills normally follow a practice of deductions on the plea that poor quality cane with high trash content is supplied by the farmers. In some places these deductions go upto 10 per cent. For improving the situation, the growers should be educated for properly cleaning the trash before supply to mills and the Cane Commissioners should check for such undue deductions.

### **Delayed payments**

In the beginning of the season, the payments are generally made within two weeks but as the season progress to the end, the payments are delayed by months and in some cases by seasons. The mills are of the view that this happens due to liquidity crunch. Thus, there is a need to impose penalties on late payments as laid down in the Sugar Factories Control Act and also to enhance the liquidity of the sugar mills by lifting sugar at a certain pre-determined price by the public sector.



### **Presence of middlemen**

The importance of middlemen in sugarcane marketing cannot be denied as they facilitate market transactions between buyers and sellers. But in case the middlemen delay the supply of cane to mills, it harms the sugar manufacturing process by making reductions in the sugar recovery. Therefore in such cases the role of middlemen needs to be eliminated by putting restrictions on their involvement through the use of proper administrative legal measures.

### **Purchase of CPRs**

Since growers are in need of immediate payments for their sale proceeds, in order to avoid the delayed payments they are compelled to sell their CPRs at discount rates varying from area to area. This inflicts heavy financial loss to the sugarcane growers. It is, therefore, stressed that this practice of selling CPRs at discount rates may be discontinued or stopped altogether. In order to improve the situation, the mills may be compelled to make payments promptly, so that the need for selling CPRs may not arise.

### **Use of sugarcane Cess fund**

The sugarcane Cess Fund is to be utilized for the construction and improvement of roads in the sugar mills areas. It can also be utilized for research and development of sugarcane crop. Reportedly, huge amounts of sugarcane Cess Fund are lying unutilized with the Provincial Governments, due to lack of proper planning and decision. It is, therefore, recommended that the unutilized amounts may be used for the improvement of roads and for research.

### **Amendments in Sugar Factories Control Act**

Presently many changes have occurred in the cane marketing system and the functioning of Sugar Factories Control Act, 1950 has become less effective. Keeping in view the current situation of all stakeholders demand and effectiveness of Act it is suggested that Sugar Factories Control Act, 1950 must be revised.

### **Efforts for the Export of Sugar**

For the last three consecutive years, the country has sufficient surplus sugar stock and due to high cost of sugar production and depressed international prices of sugar, there is need that Ministry of Commerce should do strenuous efforts at commercial and economic diplomacy fronts to promote sugar export from Pakistan. It is suggested that private sector may be allowed to export sugar without any restriction and limitation. In this regard, a sustainable policy approach may be followed.

## INTRODUCTION

Sugarcane is a traditional crop of Pakistan. In view of its multiple uses it is well established in the cropping pattern of the country as a major crop. It provides raw material for manufacturing sugar primarily for domestic needs. Sugarcane tops provide dry fodder for animals in the winter while baggase and trash are used as fuel. A number of industrial products are also derived from sugarcane. A vast majority of farmers are engaged in sugarcane cultivation and significant proportion of labour is employed at the farm level and in the allied industries. Above all it helps save a lot of foreign exchange by providing indigenous sugar rather than imported in lieu of much needed foreign exchange.

2. In view of importance of sugarcane crop, it becomes imperative to maintain a necessary level of the produce in the country. For this, it is necessary to ensure reasonable returns to the sugarcane growers. Accordingly the crop is included in the indicative price system. Agriculture Policy Institute (API) annually reviews different dimensions of the crop and a rigorous analysis is conducted to assess a minimum price for the next crop. This policy report presents analysis of different aspects of the crop and recommends indicative price for the 2014-15 crop.
3. Performance of the 2013-14 sugarcane crop fell against the 2012-13 level as sugarcane production in 2014 decreased at the national level by 1.1% due to decline in per acre yield @ 1.2%. This primarily happened due to contraction in sugarcane area in Punjab by 5.7%. The phenomenon was supplemented by yield decline of 7.2% in the Sindh province. Seemingly these changes appeared in response to stagnant price of sugarcane in 2014. Even then sugar industry considers this price high and some of the sugar mills have launched complaint against the government for setting indicative price at this level.
4. To make a rational recommendation of the indicative price for the 2014-15 sugarcane crop, this report carries analysis on potential determinants that may bear on sustainability of the crop in the country. These are trends in sugarcane cultivation, shortfall in achieving sugarcane targets, sugar manufactured in 2014, changes in costs of inputs used in the production of sugarcane, general inflationary rise in the country, economics of sugarcane relative to competing crops, impact of increase in price of sugar on the household budget, domestic and world supply of sugar, international prices, import and export parity prices of sugarcane, domestic price of sugar and economic efficiency of sugarcane production in Pakistan.
5. This analysis is based to suggest indicative price for 2014-15 crop for consideration of the decision makers at the Federal and Provincial levels.

## 2. SUGARCANE PLANTING AND HARVESTING SEASONS

6. Sugarcane is a tropical crop, which requires more than 20C° temperature for proper germination and growth and two months dry and cool weather towards maturity. The climatic conditions in Pakistan generally provide a growing season of 8 to 10 months for sugarcane in a year. Recommended times of planting spring and autumn crops of sugarcane by province are given in Table-1.

**Table-1: Planting and Harvesting Times of Sugarcane by Province**

Province	Planting Time	
	Spring crop	Autumn crop
Punjab	15 <sup>th</sup> February to 3 <sup>rd</sup> week of March	September
Sindh	1 <sup>st</sup> February to 15 <sup>th</sup> March	September to 15 <sup>th</sup> October
NWFP	15 <sup>th</sup> February to 3 <sup>rd</sup> week of March	September
	Harvesting Time	
Punjab, Sindh, KPK	15 <sup>th</sup> October to 1 <sup>st</sup> March	

Source: Sugarcane Coordinator, NARC, Islamabad.

## 3. PROVINCIAL SHARES

7. Provincial shares in area and production of sugarcane are discussed below and details of provinces wise area, yield and production are given in Annex I.

### 3.1 Area and Production

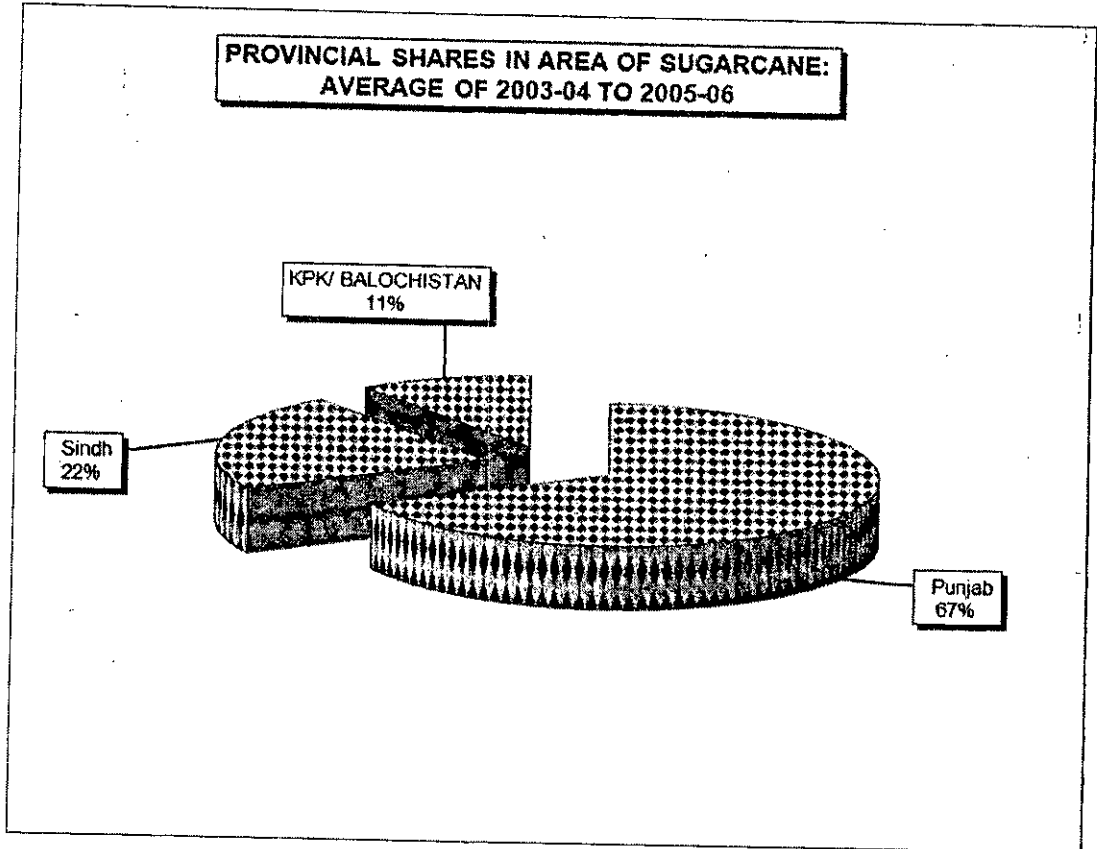
8. Shares of area and production of sugarcane during the periods 2003-04 to 2005-06 and 2011-12 to 2013-14 and changes therein are presented in Table-2.

**Table-2: Comparison of Provincial Shares in Area and Production of Sugarcane: 2003-04 to 2005-06 and 2011-12 to 2013-14**

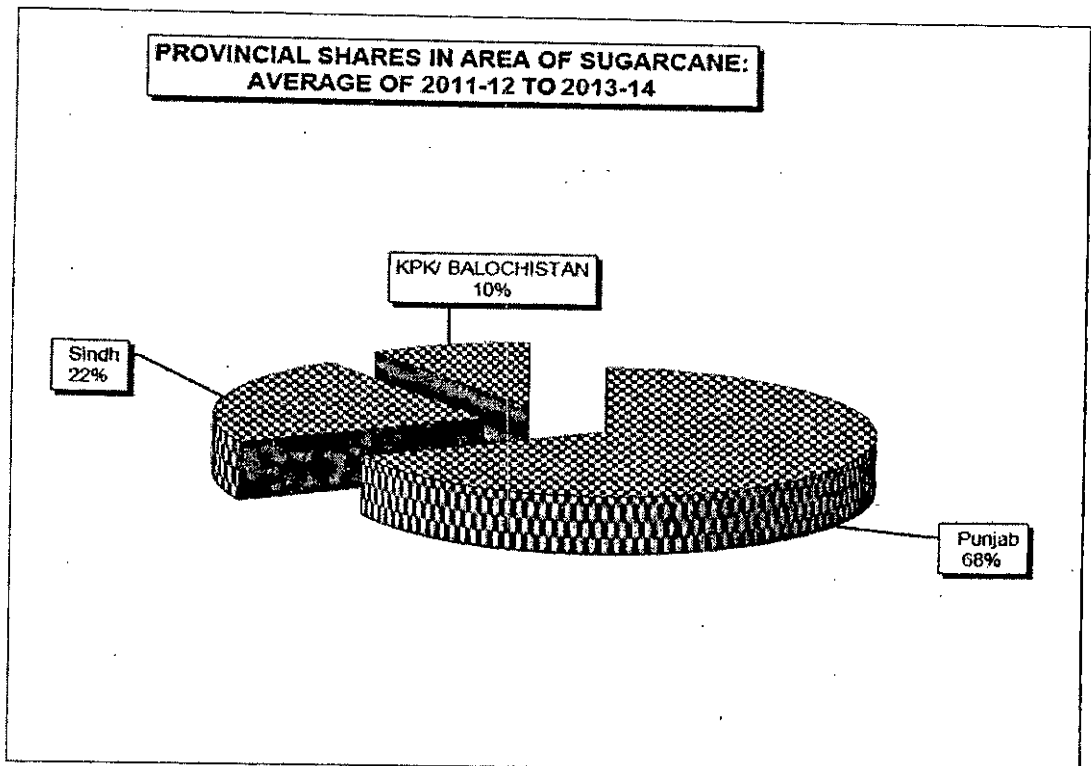
Country/Province	Area			Production		
	2003-04 to 2005-06	2011-12 to 2013-14	Change	2003-04 to 2005-06	2011-12 to 2013-14	Change
	-----Percent-----					
<b>Pakistan</b>	<b>100.0</b>	<b>100.0</b>	-	<b>100.0</b>	<b>100.0</b>	-
Punjab	67.1	67.9	1.2	66.1	68.4	3.5
Sindh	22.3	22.3	0.1	24.2	23.8	-1.7
KPK/Baluchistan	10.6	9.7	-8.0	9.7	7.8	-19.9

Source: Annex-I

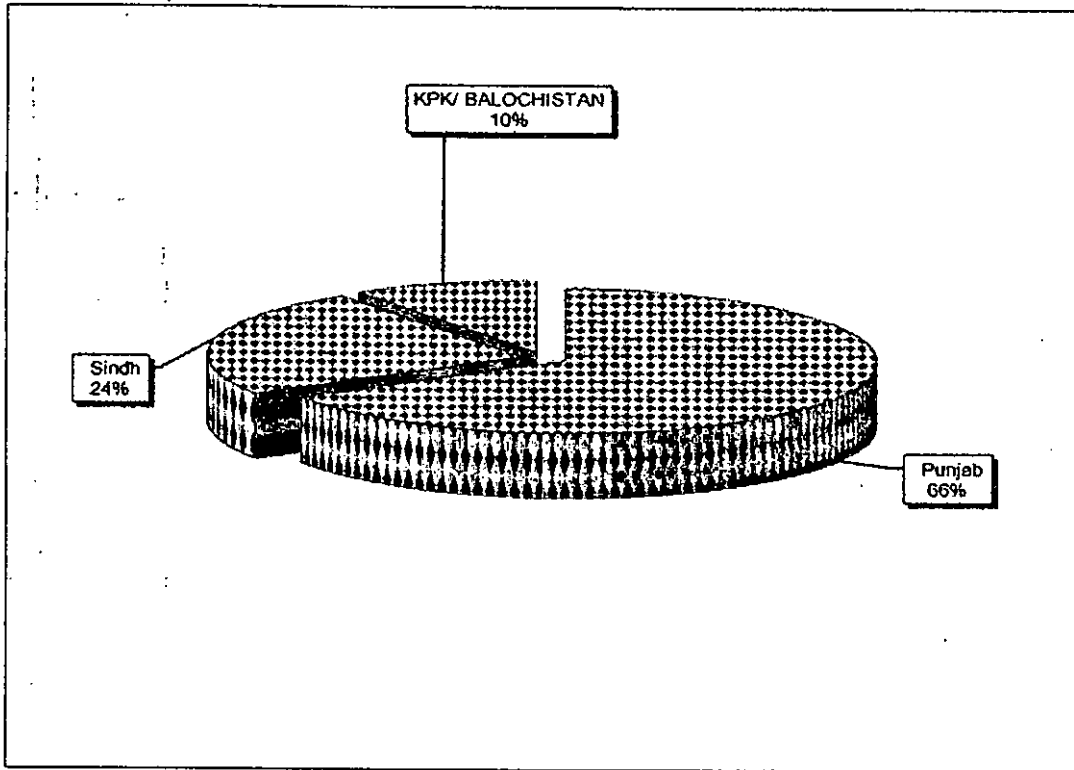
9. It is clear from Table-2 that Punjab, Sindh and KPK share 67.9, 22.3 and 9.7 percent in area and 68.4, 23.8 and 7.7 percent in production. Over time share of Punjab has gone up by 1.2 percent in area and 3.5 percent in production. In case of Sindh area share is also slightly gone up by 0.1 percent and that of production is down by 1.7 percent. In the KPK area share is down by 8.1 percent and production share by 20 percent. Provincial shares are also depicted in Figures 1 to 4.



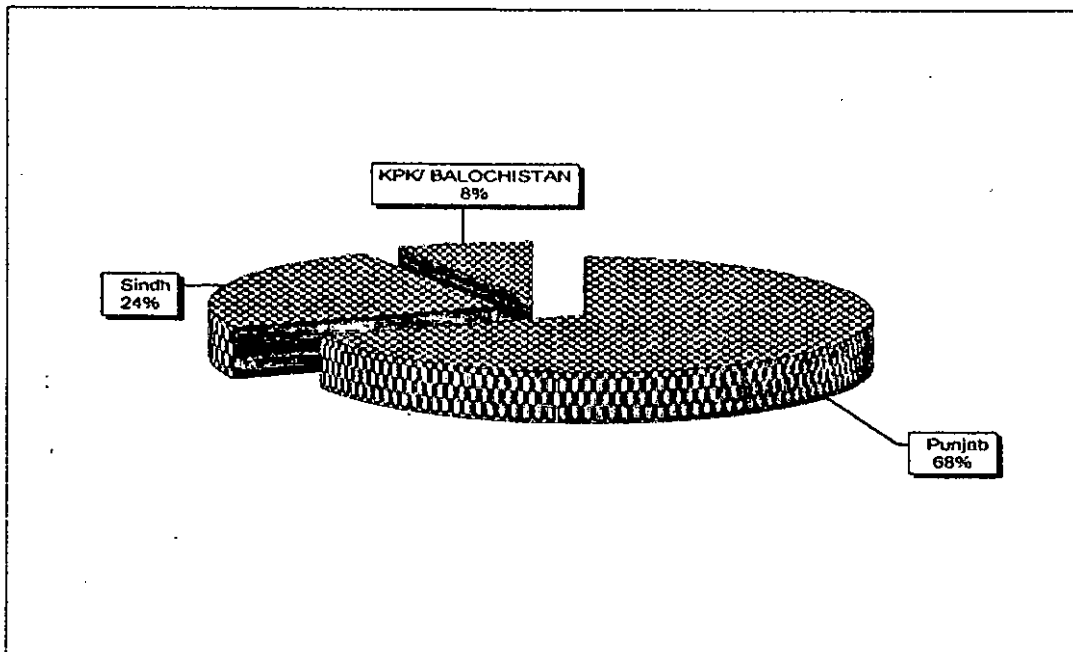
**FIG-1: AVERAGE SHARES IN AREA 2003-04 to 2005-06**



**FIG-2: AVERAGE SHARES IN AREA 2011-12 to 2013-14**



**FIG-3: AVERAGE PROVINCIAL SHARES IN PRODUCTION 2003-04 To 2004-05**  
SOURCE: TABLE-2



**FIG-4: PROVINCIAL AVERAGE SHARES IN PRODUCTION 2011-12 To 2013-14**  
SOURCE: TABLE-2

#### 4. IMPORTANT SUGARCANE PRODUCING DISTRICTS

10. Sugarcane is a high delta crop. It is grown in irrigated conditions. Districts which grow 100 thousand tonnes or more of sugarcane are R.Y.Khan, Faisalabad, Sargodha, Jhang, Chiniot, Muzaffargarh, T.T.Singh, Kasur, M.B.Din, Rajanpur, Bahawalnagar, Vehari, Nankana Sahib, Bahawalpur, Bhakkar, Okara, Layyah, Khanewal, Khushab, Sahiwal, D.G.Khan, Hafizabad, Pakpattan, Mianwali, Multan, Sheikhpura, Lodhran, and Gujrat, in the Punjab; Nawabshah, Badin, Thatta, Tando Muhammad Khan, N.Feroze, Khairpur, Tando Allahyar, Mirpur Khas, Matiari, Ghotki, Sanghar, Hyderabad, Sukkur, and Dadu, from Sindh; Charsadda, Mardan, Peshawar, D.I.Khan, Nowshera, Malakand and Swabi from KPK. These 49 districts; 28 from the Punjab, 14 from Sindh and 7 from KPK collectively account for 99 per cent of the sugarcane's area and production (Annex-II).

11. However, 23 districts, namely, R.Y.Khan, Faisalabad, Sargodha, Jhang, Chiniot, Muzaffargarh, T.T.Singh, Kasur, M.B.Din, Rajanpur, Bahawalnagar, Vehari, Nankana Sahib, Bahawalpur, Nawabshah, Badin, Thatta, Tando Muhammad Khan, N.Feroze, Khairpur, Tando Allahyar, Charsadda and Mardan collectively produce 81 per cent of the total sugarcane produced in the country.

#### 5. CHANGES IN AREA, YIELD AND PRODUCTION

12. During the decade ending 2013-14 area under sugarcane at country level ranged between 907.5 to 1241.3 thousand hectares (2242.4 to 3067.4 thousand acres), production from 44.666 to 63.920 million tones and yield oscillated between 48.62 to 56.48 tones per hectare (Annex-I).

13. Long-term and short-term changes in area, yield and production of sugarcane are discussed below:

##### 5.1 Long-term Changes: 2003-04 to 2013-14

14. Growth rates depicted Table 3 show progress of crop during a period of ten years. It may be seen that during this period sugarcane production increased @ 2.4 per cent per annum mainly due to improvement in yield @ 1.5 per cent and expansion in area @ 0.9 per cent per annum (Table-3).

**Table-3: Average Annual Growth Rates of Area, Yield and Production of Sugarcane: 2003-04 to 2013-14**

Country/Province	Area	Percent per annum	
		Yield	Production
Pakistan	0.9	1.5	2.4
Punjab	0.9	1.8	2.7
Sindh	1.2	1.3	2.5
KPK	0.04	-0.2	-0.1
Balochistan	2.4	0.7	3.1

**Note:** The growth rates have been worked out by estimating the equation,  $Y=(1+r)^x$ , through ordinary least square method (OLS) from the data given in Annex-I.

15. During the referred period sugarcane production in the Punjab increased @ 2.7 percent per annum, as a result of 1.8 per cent improvement in yield and 0.9 per cent expansion in area. Sugarcane production in Sindh increased @ 2.5 per cent due to 1.2 percent per annum expansion in area and 1.3 per cent improvement in yield.

16. In the KPK sugarcane production slightly decreased @ 0.1 per cent per annum mainly due to decrease in yield.

## 5.2 Short-term Changes: 2012-13 and 2013-14 Crops

17. According to the estimates of Provincial Agriculture Departments sugarcane production at country level for 2013-14 crop is reported at 63.072 million tones reflecting a decrease of 1.1 percent over last year's production of 63.750 million tones. The decrease in production is mainly due to 1.2 percent contraction in yield while area increased by 0.1% in the country (Table-4).

**Table-4: Area, Yield and Production of Sugarcane: Comparison of 2012-13 and 2013-14 Crops**

Country/ Province	Area (000 ha)		Change In %	Yield (tonnes per ha)		Change In %	Production (000 tonnes)		Change In %
	2012- 13	2013- 14		2012- 13	2013- 14		2012- 13	2013- 14	
Pakistan	1128.8	1129.6	0.1	56.5	55.8	-1.2	63750.0	63071.9	-1.1
Punjab	767.7	723.6	-5.7	56.0	56.4	0.7	42982.1	40846.0	-5.0
Sindh	253.7	297.6	17.3	62.9	58.4	-7.2	15966.2	17371.4	8.8
KPK	106.7	107.7	0.9	44.7	44.8	0.2	4770.2	4822.3	1.1
Baluchistan	0.7	0.7	0	48.5	48.8	0.6	31.5	32.2	2.2

Source: Annex-I.

18. : In the Punjab Province, sugarcane production in 2013-14 declined by 5% against the production in 2012-13 which is the net effect of 5.7% contraction in area and 0.7% increase in yield. In Sindh province production performance of the crop improved. Sugarcane production in this Province increased by 8.8% in contrast to the last year level. This is ascribed to 17.3% increase in sugarcane area and 7.2% decline in yield of the crop. Change in production of sugarcane in KPK and Baluchistan provinces are also in line with Sindh. In KPK, production increased by 1.1% which is the net effect of 0.9% increase in area and 0.2% increase in yield. Likewise, sugarcane production in Baluchistan was increased by 2.2% as a result of stagnant area in the province and yield enhancement @ 0.6%. Provincial Departments of Agriculture have advanced following reasons for these changes.

### Punjab

#### Area and Production

- Shifting of sugarcane area to Maize and Rice crops due to better economic returns.
- Difficulties faced in disposal of the sugarcane crop and delayed payments from the sugar mills during last year discouraged the growers to cultivate more sugarcane.
- Production in Punjab decreased due to corresponding decrease in area.

**Sindh****Area and Production**

- a) Due to havoc floods and heavy monsoon rains, during last few years most of the kharif crops were damaged but sugarcane crop survived so the growers preferred to bring more area under the sugarcane crop.
- b) Due to establishment of four Sugar Mills in Ghotki District, the growers of Ghotki and adjacent districts replaced other crops with sugarcane, hence sugarcane area increased.
- c) Production increased due to increase in area.

**6. TARGETS VS ACHIEVEMENTS: 2013-14 CROP**

19. Respective Provincial Agriculture Departments fixed sugarcane production target for 2013-14 crop at 60.696 million tonnes at the national level. As per Second estimates of the Provincial Agriculture Departments sugarcane production is reported at 63.072 million tones (3.9 percent more) against the target due to over achievement of 2.5% area and 1.4 percent yield (Table-5). In the Punjab province production target fell short of the target by 0.4% while in Sindh, KPK and Baluchistan respective productions exceeded the targets by 14.5, 7.3 and 3.2 percent.

**Table-5: Targets and Estimated Achievements in Area, Yield and Production of Sugarcane: 2013-14 Crop**

Country/ Province	Area		Deviation from the target	Yield		Deviation from the target	Production		Deviation from the target
	Target	Achieve- ment		Target	Achieve- ment		Target	Achieve- ment	
	--- 000 ha ---		Per cent	Tonnes/ha		Per cent	-- 000 tonnes --		Per cent
Pakistan	1102.5	1129.6	2.5	55.1	55.8	1.3	60696.2	63071.9	3.9
Punjab	732.5	723.6	-1.2	56.0	56.4	0.7	41000.0	40846.0	-0.4
Sindh	269.0	297.6	10.6	56.4	58.4	3.5	15170.0	17371.4	14.5
KPK	100.3	107.7	7.4	44.8	44.8	0	4494.9	4822.3	7.3
Baluchistan	0.7	0.7	0	48.1	48.8	1.5	31.2	32.2	3.2

**Sources:**

1. For targets respective Provincial Agriculture Departments
2. For achievements: Annex-I.

**5. SUGARCANE AREA, PRODUCTION AND YIELD OF 15 MAJOR COMPETING COUNTRIES**

20. Globally sugarcane occupied an area of around 26089 thousand hectares with a total production of 1832.541 million tones in 2012. The world top 15 sugarcane producing countries contributed 87.54 per cent of total area and 88.92 per cent of total production as indicated in Table-6. In terms of sugarcane area Brazil is on the top with 9705 thousand hectares followed by India with 5090 thousand hectares and China with 1795 thousand hectares. Pakistan lies at 5<sup>th</sup> number in this regard with 4 per cent share.



**Table-6: Sugarcane Area in 15 Major Producing Countries**

S.No.	Country	Area (000)ha	Per cent Share in World area
1	Brazil	9705.4	37.20
2	India	5090.0	19.51
3	China	1794.5	6.88
4	Thailand	1300.0	4.98
5	Pakistan	1046.0	4.01
6	Mexico	735.1	2.82
7	Philippines	350.0	1.34
8	United States of America	433.3	1.66
9	Australia	370.0	1.42
10	Argentina	456.7	1.75
11	Indonesia	338.6	1.30
12	Colombia	350.0	1.34
13	Guatemala	250.0	0.96
14	Viet Nam	297.5	1.14
15	South Africa	320.0	1.23
	Total of 15 countries	22837.2	87.54
	World Total	26088.6	100.00

Source: World statistics year book 2012

Note: Data at the international level not available beyond 2012 so confined to 2012.

21. In terms of sugarcane production, Brazil is again on top with 721077 thousand tones followed by India with 347870 thousand tones and China with 123461 thousand tones, and Pakistan retains 5<sup>th</sup> position (Table-7).

**Table-7: Sugarcane Production in 15 Major Producing Countries**

S. No.	Country	Production in (000) tones	Per cent Share in World Production
1	Brazil	721077.3	39.35
2	India	347870.0	18.98
3	China	123460.5	6.74
4	Thailand	96500.0	5.27
5	Pakistan	58397.0	3.19
6	Mexico	50946.5	2.78
7	Philippines	38000.0	2.07
8	United States of America	30000.0	1.64
9	Australia	27900.0	1.52
10	Argentina	26341.6	1.44
11	Indonesia	25957.1	1.42
12	Colombia	25000.0	1.36
13	Guatemala	21800.0	1.19
14	Viet Nam	19040.8	1.04
15	South Africa	17278.0	0.94
	Total of 15 countries	1629568.8	88.92
	World Total	1832541.2	100.00

Source: World statistics year book 2012

Note: Data at the international level not available beyond 2012 so confined to 2012.

22 In terms of yield per hectare, Pakistan is at the bottom of 15 major sugarcane producing countries. Cuba is on top with 114.98 tones per hectare followed by Philippines

with 108.57 and Guatemala with 87.20 per hectare. It is an alarming situation that Pakistan ranks at 53 in terms of yield at 56 tones per hectare while India lies at 42 positions with 68 tones per hectare. The world average yield of sugarcane is 70 tones per hectare. Table 8.

**Table-8: Sugarcane Yield per Hectare in 15 Major Producing Countries**

S. No.	Country	Yield (tones) ha
1	Cuba	114.98
2	Philippines	108.57
3	Guatemala	87.20
4	Indonesia	76.65
5	Australia	75.41
6	Brazil	74.30
7	Thailand	74.23
8	Colombia	71.43
9	Mexico	69.30
10	United States of America	69.24
11	China	68.80
12	India	68.34
13	Viet Nam	64.00
14	Argentina	57.68
15	Pakistan	55.83
	<b>World average</b>	<b>70.24</b>

Source: World statistics year book 2012.

## 8. SUGARCANE CRUSHED AND SUGAR MADE IN PAKISTAN

23 It is evident from Table-9 that total sugarcane production, sugar recovery rate and sugar manufacturing have significantly increased in the country. On the country level during 2012-13 total sugarcane crushing stood at 50.09 mill. Tons - higher by 3.81%, against 48.25 mill. tons during the previous year level. In the same year 5.03 mill. tone sugar was manufactured which was 7.7% more than the last year. Likewise sugar recovery rate rose to 10% from 9.64% in 2011-12. Main reason for yield enhancement was cultivation of improved varieties of sugarcane. Irrespective of traditional differences between farmers and millers, the overall sugar sector scenario was better than the previous year.

**Table-9: -Sugarcane and Sugar Produced and Cane Utilization in Pakistan**

Year	Sugarcane Production Mil. Tons	Cane Crushed Mil. Tons	Sugar Made Mil. Tons	Utilization of Cane by Sugar Mills %	Sugar Recovery Rate %	No. of Mills
2002-03	52.05	41.79	3.65	80.28	8.74	71
2003-04	53.80	43.66	4.00	81.19	9.15	71
2004-05	43.53	32.10	2.92	73.74	9.10	71
2005-06	44.28	30.09	2.59	67.94	8.60	74
2006-07	54.87	40.48	3.52	73.78	8.69	77
2007-08	63.92	52.78	4.74	82.60	8.98	78
2008-09	50.05	33.14	3.13	66.21	9.46	82
2009-10	49.37	34.61	3.13	70.09	9.05	83
2010-11	55.44	44.53	4.17	80.47	9.37	84
2011-12	58.04	48.25	4.67	83.13	9.64	86
2012-13	63.72	50.09	5.03	79.00	10.00	86

Source: Pakistan Sugar Mills Associations

## 9. COST OF PRODUCTION OF SUGARCANE

24 The cost of production (COP) is one of the important considerations in formulating price proposals for farm produces. However, its empirical estimation involves various problems and practical impediments on account of wide variations in agro-climatic conditions and farming systems under which the crop is grown. In case of sugarcane, the problem is further intricate as fresh and ratoon crops i.e. spring and autumn are raised with different duration and farming practices resulting in varying use of inputs and yield level.

### 9.1 Cost of Production of Sugarcane by Provinces

25 The cost of production of sugarcane for the 2014-15 Crop in the Punjab, Sindh and Khyber Pakhtunkhwa have been analysed by adopting the input-output parameters as used in calculating COP estimates for the 2013-14 crop and the latest prices of various farm inputs and custom hiring rates of cultural operations. These rates were collected through annual field survey conducted by the Agriculture Policy Institute (API) in the major sugarcane producing areas of the Punjab and Sindh during March 2014. The detailed cost estimates are presented in Annex III to V, while summary of the results is given in Table- 10.

**Table-10 Average Farmers' Cost of Production of Sugarcane: 2013-14 and 2014-15 Crops**

Items	Unit	Cost estimates		Increase in 2014-15 over 2013-14
		2013-14 Crop	2014-15 Crop	
<b>Punjab</b>				
1. Cost of cultivation	Rs/acre	79160	83313	4153
2. Yield	40 kgs/acre	565.15	565.15	-
3. Cost of production at farm level	Rs/40 kgs	140.07	147.42	7.35
4. Marketing cost	"	15.00	15.00	-
5. Cost of production at mill-gate	"	155.07	162.42	7.35
<b>Sindh</b>				
1. Cost of cultivation	Rs/acre	93128	99541	6413
2. Yield	40 kgs/acre	676.02	676.02	-
3. Cost of production at farm level	Rs/40 kgs	137.76	147.25	9.49
4. Marketing cost	"	14.32	14.32	-
5. Cost of production at mill-gate	"	152.08	161.57	9.49
<b>KPK</b>				
1. Cost of cultivation	Rs/acre	80856	87757	6901
2. Yield	40 kgs/acre	585.46	585.46	-
3. Cost of production at farm level	Rs/40 kgs	138.11	149.89	11.78
4. Marketing cost	"	14.54	14.54	-
5. Cost of production at mill-gate	"	152.65	164.43	11.78

Source: Annex III to V.

### Punjab

26 The cost of rising one acre of sugarcane in the Punjab during 2014-2015 crop season is likely to be Rs. 88313, including land rent (Table 9). Based on the average yield of 565 maunds (40 kgs) per acre, the cost of production at farm level comes to Rs 147.42 per 40 kgs.

Adding up marketing expenses @ Rs 15.00 per 40 kgs, the cost of sugarcane at mill-gate would be Rs 162.49 per 40 kgs, higher by Rs 7.35 (4.74 per cent) than the analogous cost estimates of 2013-14 crop.

### **Sindh**

27 During 2014-15 crop season, the cost of cultivation of sugarcane in Sindh works out to Rs. 99541 per acre, including land rent. The farm level cost of production of sugarcane is estimated at Rs 147.25 per 40 kgs, based on an average yield of 676 maunds per acre. Accounting for marketing expenses including cane development cess @ Rs 14.32 per 40 kgs, the mill-gate cost of production would be Rs 161.57 per 40 kgs, higher by Rs 9.42 (6.24 per cent) than the corresponding cost of Rs. 152.08/40 kgs of previous year.

### **Khyber Pakhtunkhwa**

28 Growing cost of sugarcane in KPK during 2014-15 crop year is estimated at Rs 87757 per acre, including land rent. Given that an average yield of 585 maunds (40 kgs) per acre, the cost of production works out at Rs 149.89 per 40 kgs. Adding transportation charges and sugarcane development cess @ Rs 14.54 per 40 kgs, the mills-gate cost would come to Rs 164.43, showing an increase of Rs 11.79 per 40 kgs or 7.72 per cent over last year's corresponding cost of Rs 152.65/40 kgs.

29 The crucial factors causing increase in the likely cost of production of sugarcane for the 2014-15 crop year in the Punjab, Sindh and KPK are higher hiring rates of farm operations on account of soaring diesel prices, power tariff and land rental charges.

## **9.2 Cost of major operations/inputs**

30 The shares of major operations and farm inputs in the total cost of cultivation of sugarcane for 2013-14 and 2014-15 crops in the Punjab, Sindh and KPK are shown in the Table-11.

### **Punjab**

31 Land rent is the foremost component of the cost of cultivation of sugarcane in the Punjab for 2014-15 crop, contributing 30 per cent. The other major ingredients are: fertilizers including FYM (14 %), land preparation (11 %), irrigation (10 %), seed/sowing operations & harvesting and stripping (9 % each).

### **Sindh**

32 In Sindh the major components of the cost of cultivation of sugarcane during 2014-15 crop year are: land rent (24 %), fertilizer including FYM (17 %), seed and sowing operations (13 %), land preparation (11 %), harvesting and stripping (9 %).

## **Khyber Pakhtunkhwa**

33 Land rent is the most important constituent of the cost of cultivation of sugarcane for the 2014-15 crop in KPK, contributing 40 per cent. The other constituents are: fertilizer including FYM (13 %), seed & sowing operation (12 %), irrigation (7 %) land preparation (6 %) and inter-culture (5 %).

**Table -11 Cost of major operations/inputs of Sugarcane: 2013-14 and 2014-15 Crops**

Operations/inputs	2013-14 crop	2014-15 crop	Share in the increased cost
	Rs/acre		Per cent
<b>Punjab</b>			
1. Land preparation	8189 (10)	8835 (11)	15.5
2. Seed and sowing operations	7215 (9)	7455 (9)	5.8
3. Intercultural and earthing-up	2036 (2)	2258 (3)	5.3
4. Plant protection	305 (1)	331 (1)	0.6
5. Irrigation	7953 (10)	8371 (10)	10.1
6. Fertilizer including FYM	11613 (15)	11639 (14)	0.6
7. Land rent	22750 (29)	24917 (30)	52.2
8. Harvesting and stripping	7273 (9)	7273 (9)	-
9. Others	11826 (15)	12235 (15)	9.4
10. Total Cost	79160 (100)	83313 (100)	100.0
<b>Sindh</b>			
1. Land preparation	10176 (11)	11174 (11)	15.6
2. Seed and sowing operations	13006 (14)	13379 (13)	5.8
3. Intercultural and earthing-up	3972 (4)	4541 (5)	8.9
4. Plant protection	393 (1)	448 (1)	0.9
5. Irrigation	3618 (4)	4070 (4)	7.1
6. Fertilizer including FYM	16320 (18)	16686 (17)	5.7
7. Land rent	21333 (23)	24000 (24)	41.6
8. Harvesting and stripping	8788 (9)	8788 (9)	-
9. Others	15522 (17)	16455 (17)	14.5
10. Total Cost	93123 (100)	99541 (100)	100.0
<b>KPK</b>			
1. Land preparation	4885 (6)	5437 (6)	8.6
2. Seed and sowing operations	10545 (13)	10847 (12)	4.4
3. Intercultural and earthing-up	4177 (5)	4815 (5)	9.2
4. Plant protection	494 (1)	569 (1)	1.1
5. Irrigation	5154 (6)	5717 (7)	8.2
6. Fertilizer including FYM	10931 (14)	11141 (13)	3.0
7. Land rent	31875 (39)	35000 (40)	45.3
8. Harvesting and stripping	1751 (2)	1751 (2)	-
9. Others	11046 (14)	12480 (14)	20.8
10. Total Cost	80856 (100)	87577 (100)	100.0

### **Notes:**

1. "Others" include mark-up, management, land tax, drainage cess and expected escalation in the cost of selected items.
2. Figures in parenthesis are percent shares in total cost.
3. Rounding off figures may result in slight differences.

## **10. Nominal and Real Indicative / Market Prices of Sugarcane**

34 The Real price of a commodity is estimated by removing the inflationary effect from its nominal price. The resultant price of that commodity reflects its real value. It represents

increase or decrease in purchasing power of the respective commodity against the base year level. In the following lines, an analysis of the indicative and market prices of sugarcane has been carried out. This analysis is based on the prices of sugarcane in 2007-08 to 2013-14 period. Elaboration of province-wise price (nominal/ real) trends is as below:

## Punjab

### 10.1 Nominal and Real Indicative Prices of Sugarcane in Punjab

35 The analysis of indicative and market prices of sugarcane for the Punjab province during 2007-08 to 2013-14 is given in the Table 12 and portrayed in Figure-5 below:

**Table-12 : Nominal and Real Indicative & Market Prices of Sugarcane Realized by the Growers in Punjab Province: 2007-08 to 2013-14**

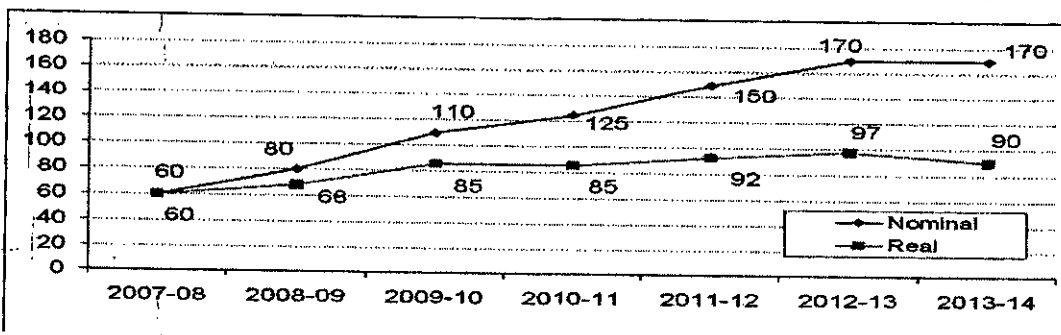
Crop year	Nominal Prices		Consumer Price Index (CPI)	Real Prices	
	Indicative *	Market **		Indicative	Market
	---- Rs per 40 kgs ----		2007-08=100	---- Rs per 40 kgs ----	
1	2	3	4	5=(2/4)×100	6=(3/4)×100
2007-08	60	60	100.00	60.00	60.00
2008-09	80	100	117.03	68.36	85.44
2009-10	100	150	128.85	77.60	116.41
2010-11	125	175	146.45	85.35	119.49
2011-12	150	148	162.57	92.27	91.04
2012-13	170	170	174.53	97.40	97.40
2013-14	170	170	189.72	89.61	89.61

Notes:  
 \* Indicative price of sugarcane at mill-gate fixed by the Provincial Government.  
 \*\* Prices of sugarcane realized by the growers as reported during the API field survey.

Sources:  
 1. Price Policy Report for Sugarcane by API (various issues)  
 2. Pakistan Economic Survey, 2013-14

36 It is illustrated in the figure 5 that the nominal indicative price of sugarcane in Punjab increased by 183.3 per cent i.e from Rs 60 per 40 kgs to Rs 170, during the analysis period. During the same period, Consumer Price Index (CPI), the most commonly used measure of inflation in the economy, escalated by 89.72 per cent. Thus a consistent growth is observed in real indicative prices of sugarcane. For the last year (2013-14) real indicative price of sugarcane works out to be Rs 89.61 per 40 kgs.

**Figure 5. Nominal and Real Indicative & Market Prices of Sugarcane Realized by the Growers in Punjab Province: 2007-08 to 2013-14**



## 10.2 Nominal and Real Market Prices of Sugarcane in Punjab

37 So far as nominal market price of sugarcane is concerned, it increased from Rs. 60/40 Kg in 2007-08 to Rs. 170/40 Kg in 2013-14. However, they moved contrary to nominal price in 2011-12. In this year it dropped against 2010-11 level which may be due to more supply of sugarcane during this particular year. Otherwise indicative nominal and market prices consistently increased during rest of the period under study.

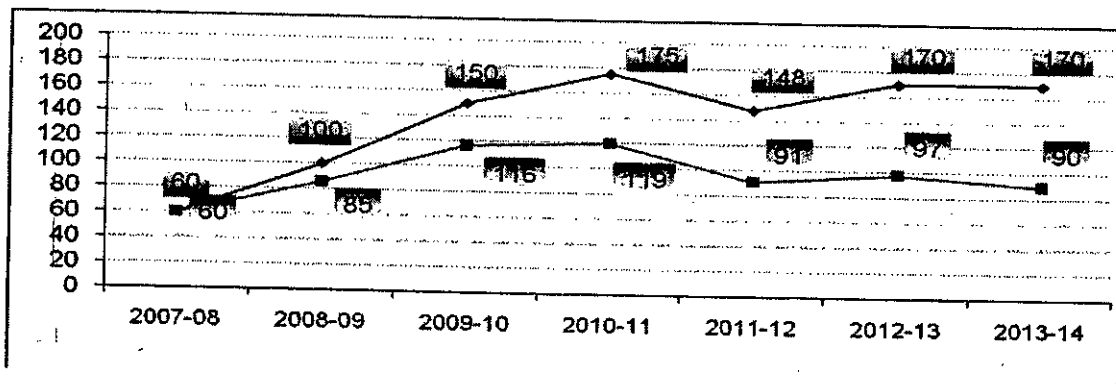
38 As revealed in Table -12 that market price always remained above the indicative price during 2007-08 to 2010-11. However, in 2011-12, the nominal market price in Punjab averaged at Rs 148 per 40 kgs marginally lower than the indicative price of Rs 150 per 40 kg and during the last three years it approximated with the indicative price.

39 The real market-price also presents depressing situation which remained below the nominal price throughout the period under review. Though, this price presents rising trend during 2007-08 to 2010-11 but it sharply declined to Rs 91.04 per 40 kgs in 2011-12 and could not regain a rewarding level in the next two years.

## 10.3 Gains from Sugarcane Cultivation in Real Terms

40 The Real indicative price has been lower than the nominal price since 2008-09 onwards. The major factor for this mismatch between the nominal and the real price is attributed to the higher CPI which has been increasing constantly, thus pushing the real value/return as lower than the indicative price. This indicates that sugarcane farmers have been getting less in real terms from the crop.

Fig-6 : Nominal/ Real Market Prices in Punjab during 2007-08 to 2013-14



## Sindh

## 10.4 Nominal and Real Indicative Prices of Sugarcane in Sindh

41 The nominal and real indicative & market prices of sugarcane in Sindh for the period 2007-08 to 2013-14 are produced in Table - 13 and depicted in Figure - 7 below.

**Table -13 Nominal and Real Indicative & Market Prices of Sugarcane Realized by the Growers in Sindh: 2007-08 to 2013-14**

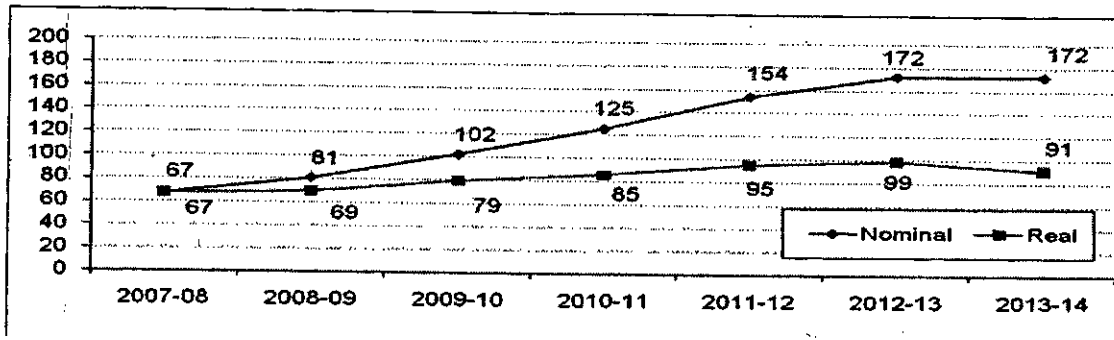
Crop year	Nominal Prices		Consumer Price Index (CPI)	Real Prices	
	Indicative *	Market**		Indicative	Market
	---- Rs per 40 kgs ----		2007-08=100	---- Rs per 40 kgs ----	
1	2	3	4	5=(2/4)x100	6=(3/4)x100
2007-08	67	67	100.00	67.00	67.00
2008-09	81	100	117.03	69.21	85.44
2009-10	102	160	128.85	79.16	124.17
2010-11	125	185	146.45	85.35	126.32
2011-12	154	154	162.57	94.72	94.72
2012-13	172	174	174.53	98.55	99.69
2013-14	172	169	188.07	90.66	91.71

**Notes:** \* Indicative price of sugarcane at the mill gate fixed by the Provincial Government.  
\*\* Prices of sugarcane actually realized by the growers collected through the API field survey.

**Sources:** - 1. Price Policy Report for Sugarcane by API (various issues).  
2. Pakistan Economic Survey, 2013-14.

42 The nominal indicative price of sugarcane in Sindh during the reference period has reflected a cumulative increase of 156.7 per cent from Rs 67 per 40 kgs in 2007-08 to Rs 172 in 2013-14.

**Fig-7 : Nominal/ Real Indicative Prices in Sindh during 2007-08 to 2013-14**



### 10.5 Nominal and Real Market Price of Sugarcane in Sindh

43 Market prices in nominal terms in Sindh increased from Rs. 67/ 40 Kg in 2007-08 to Rs. 169/40 Kg in 2013-14. This counts to 152.23% increase. Market price always remained higher than the indicative price except in the last year when it marginally fell against the indicative price. It indicates that indicative price of sugarcane is not a distortion in the market conditions.

### 10.6 Gains from Sugarcane Cultivation in Sindh in Real terms

44 It is clear from Table -13 that increase in CPI resulted the real indicative price of sugarcane in 2013-14 at Rs 91.71 per 40 kgs. The real indicative price of sugarcane during the period under study experienced relatively smooth increasing trend starting from the

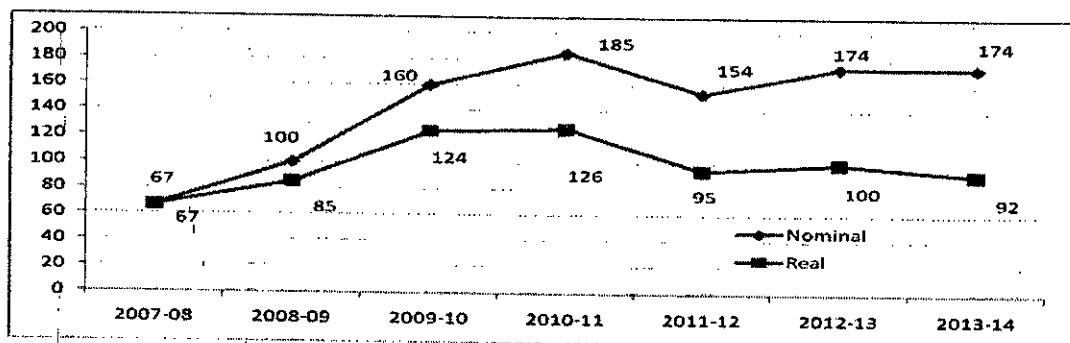


lowest level of Rs 67 per 40 kgs in base year and the highest level of Rs 98.55 in 2012-13 crop, however, it declined to Rs 91 in the last year.

45 As indicated above, the rising trend in CPI also impacted the real market price of sugarcane in Sindh which recorded at Rs 92 per 40 kgs in 2013-14, showing an increase of 36.89 per cent over the base year.

46 The real market prices during the period under consideration showed ups and down, starting from the lowest level of Rs. 67 in base year, reaching the highest level of Rs.126.32 in 2010-11 and evidenced a sharp decline in 2011-12, regaining to Rs 99.69 next year but again declined to Rs 91.71 in the last year. Figure 8.

**Fig -8 Nominal/ Real Market Prices of Sugarcane in Sindh during 2007-08 to 2013-14**



47 These fluctuations in the prices specifically in real prices reveal that sugarcane growers remain vulnerable to uncertain market forces and consequently their decisions/options are influenced unfavorably towards the crop

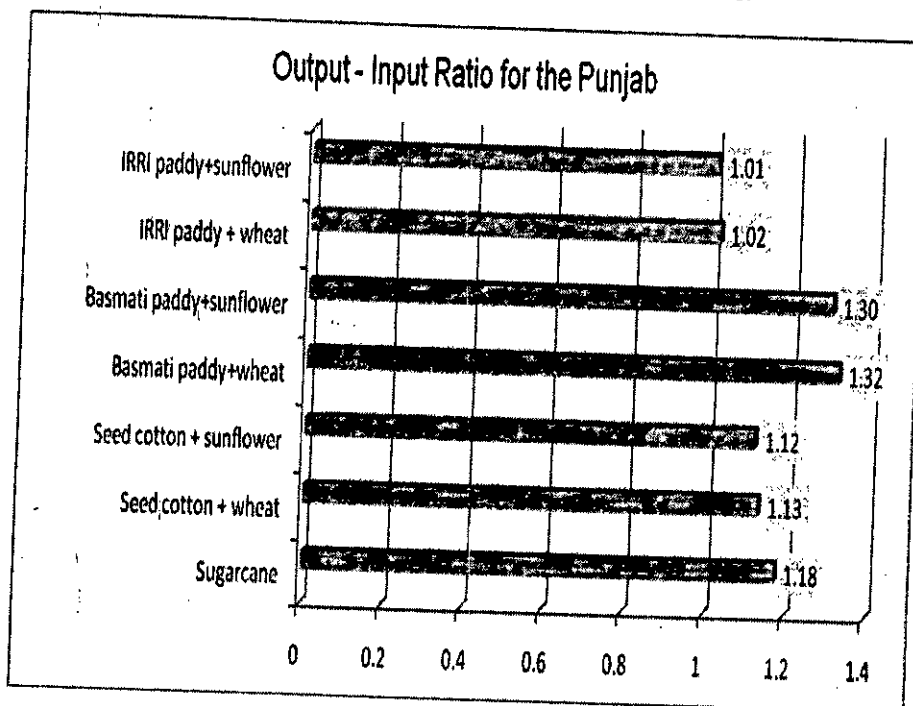
## 11. COMPARATIVE ECONOMICS OF SUGARCANE AND COMPETING CROPS

48 Resource allocation among the competing enterprises is primarily governed by the economic considerations reflected in their gross cost, gross income, gross margin, net income, output-input ratio, etc.

49 Sugarcane is planted in the irrigated regions of the country and being an annual crop, it competes for land, water and other farm resources with both 'kharif' and 'rabi' crops. Economics of sugarcane and competing crops/crop combinations has been analyzed in terms of output prices (received by growers) and input prices paid by growers during the 2013-14 crop year. Detail of the analysis is presented for the Punjab and Sindh provinces in Annex-VI. A summary of various economic indicators is provided in Table-14 and Table-15 and results of the analysis are briefly discussed in the following paragraphs.

## 11.1 Punjab

The API field survey revealed that sugarcane growers, on the whole, received the indicative price. In respect of returns to overall investment, the sugarcane performed better than cotton and IRRI rotations with wheat and sunflower. However, Basmati paddy rotations with wheat and sunflower out competed sugarcane significantly (Table-14). None of the combinations could compete Sugarcane in terms of returns to purchased inputs. In terms of revenue per crop day, return to all crop combinations found higher than sugarcane except cotton + wheat and IRRI + wheat rotations. Similarly, Sugarcane also out-competed IRRI combinations in terms of crop duration, while others performed better than sugarcane. In terms of return to irrigation water cotton + wheat and cotton + sunflower rotations performed better than sugarcane while the sugarcane out competed rest of the combinations.

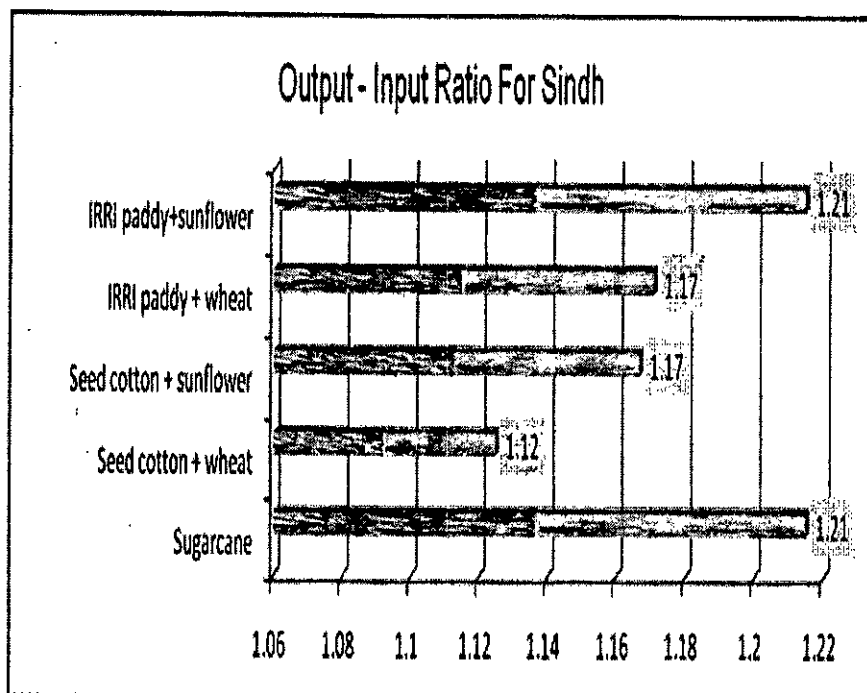


**Table - 14** Economics of Sugarcane and Competing Crops at Prices Realized by the Growers for 2013-14 crop in Punjab Province

Competing combinations	crops/ Output/input ratio	Gross revenue per		
		Rupee of purchased inputs cost	Day of crop duration	Acre inch of irrigation water used
----- Rupees -----				
1. Sugarcane	1.18	3.72	222	1825
2. Cotton + wheat	1.13	3.10	228	2811
3. Cotton + sunflower	1.12	2.91	232	2215
4. Basmati + wheat	1.32	3.07	288	1481
5. Basmati+ sunflower	1.30	2.90	293	1319
6. IRRI + wheat	1.02	2.41	209	1019
7. IRRI + sunflower	1.01	2.28	215	920

## 11.2 Sindh

50 Sugarcane growers, in Sindh, have also been reported receiving the indicative price during 2013-14. Output-input indicator shows that Sugarcane returned better than the competing crop in terms of output-input ratio and purchased inputs. However, IRRI-paddy + sunflower rotation equaled to sugarcane (Table- 15). In terms of return to crop day, Sugarcane performed low against all the combinations except cotton + wheat. Returns to irrigation water for cotton + wheat and cotton + sunflower combinations are found higher than sugarcane, while the later has outperformed IRRI combinations.



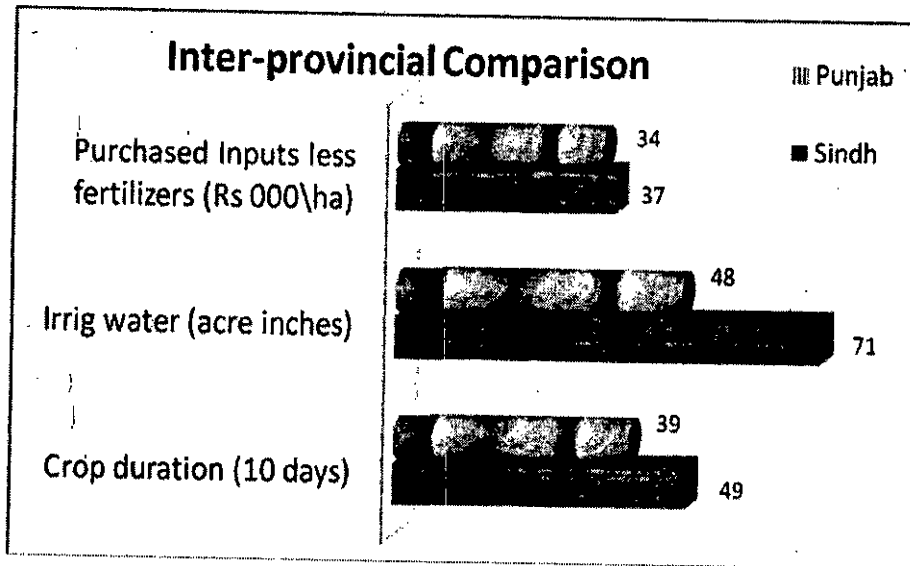
**Table - 15 Economics of Sugarcane and Competing Crops at Prices Realized by the Growers for 2013-14 Crop in Sindh**

Crop/crop combination	Output-input ratio	Gross revenue per		
		Rupee of purchased inputs' cost	Day of crop duration	Acre inch of irrigation water used
----- Rupees -----				
1. Sugarcane	1.21	3.70	221	1520
2. Cotton + wheat	1.12	3.22	211	2952
3. Cotton + sunflower	1.17	3.56	233	2445
4. IRRI + wheat	1.17	3.12	226	1198
5. IRRI + sunflower	1.21	3.08	252	1163

### 11.3 Economics of Sugarcane: Inter Provincial Comparison

51 In view of its longer duration, sugarcane crop in the Sindh province requires more water and other inputs as compared to Punjab. Chemical fertilizers in Sindh are used on higher side by 86 per cent in nitrogenous and by 15 per cent in phosphatic ingredients. Similarly, cost of purchased inputs is also higher in Sindh by about 22 per cent (Table-16).

52 The higher yield of Sindh by 20 percent over Punjab may be explained in terms of relatively greater use of inputs. Overall returns to purchased inputs and crop duration are relatively higher in Sindh. However, returns to water used for the crop in Sindh are less than Punjab. Thus it may be ascertained that water use efficiency in Sindh lags behind Punjab.



**Table 16. Input Use Level and Yield of Sugarcane in Sindh vs Punjab 2013-14 Crop**

Item	Unit	Sindh	Punjab	Difference of Sindh province over the Punjab (%)
Crop duration	Crop day	488	394	24 (+)
Irrigation water	Acre inch	71	48	48 (+)
Purchased inputs other than fertilizer	Rs./ acre	26,652	21,839	22 (+)
Fertilizer Use:				
N	Nutrients kg/acre	104	56	86 (+)
P	"	39	34	15 (+)
Crop yield	40 kg/ acre	676	565	20 (+)

### 12. IMPACT OF INCREASE IN SUGAR PRICE ON CONSUMER PRICE INDEX (CPI)

53 Expenditure on sugar is one of the important items in average household budget. Sugar is also included in the basket of goods used in estimating the Consumer Price Index (CPI). Any change in sugar price affects the household budget and CPI as well. A summary of the results is given in Table-17.

## 12.1 Impact on CPI

54. The Federal Bureau of Statistics (FBS) has estimated the changes in CPI as a result of increase in sugar price over the base price of Rs 50 per kg. The impact of increase in sugar price on CPI is given in Table-17.

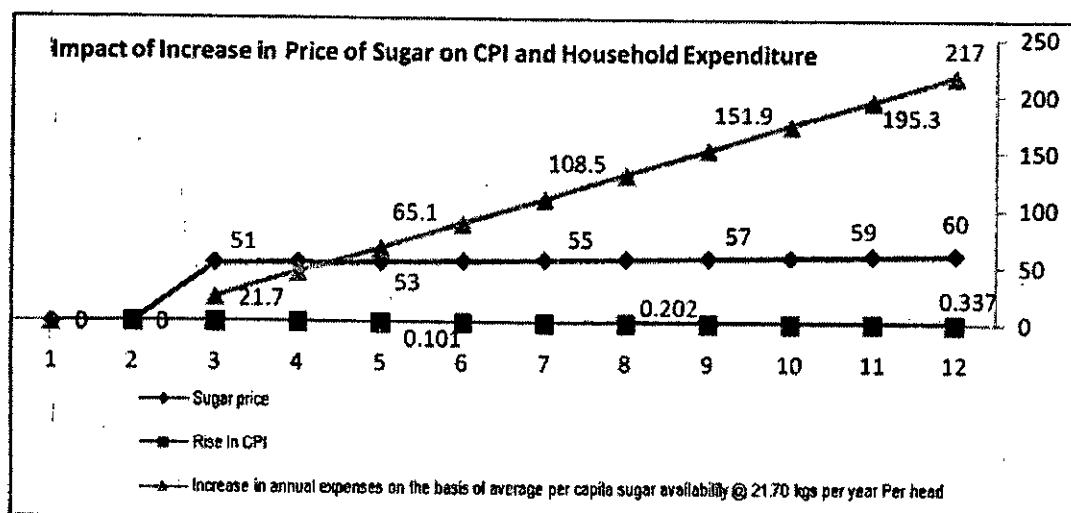
**Table – 17 Impact of Increase in Price of Sugar on CPI and Household Expenditure**

Sugar price Rs per kg	Rise in CPI Per cent	Increase in annual expenses on the basis of average per	
		Per head	Per household
50 (Base)		----- Rupees -----	
51	0.034	21.7	142.86
52	0.067	43.4	285.72
53	0.101	65.1	428.58
54	0.135	86.8	571.43
55	0.168	108.5	714.29
56	0.202	130.2	857.15
57	0.236	151.9	1,000.01
58	0.269	173.6	1,142.87
59	0.303	195.3	1,285.73
60	0.337	217.0	1,428.58

Note: Average size of household comprises 6.58 members.

Sources: Federal Bureau of Statistics (FBS), Karachi.

55. It is evident from the Table-17 that every increase of rupee 1 per kg over the base price of Rs 50 per kg is expected to raise the CPI by 0.034 per cent, other things remaining the same. Accordingly, the CPI is likely to increase by 0.067 and 0.168 per cent, if sugar price is increased by Rs 2 and Rs 5 per kgs.



## 12.2 Impact on Household Expenditure

56. The annual per capita availability of sugar based on the Balance Sheet Method has averaged at 21.70 kgs during last decade. In view of per capita sugar availability @ 21.70 kgs per annum and average household size of 6.58 members, the impact of selected increases in sugar price on the average household expenditure has been presented in Table- . It may be seen that every increase of Re 1 in sugar price over the base level of Rs 50 per kg would raise the CPI by 0.034 per cent. In addition, the per head and average household expenditure would increase by Rs 21.7 and Rs 142.86 per annum with rise in sugar price by Rs 1 per kg, other things remaining the same. Accordingly, an increase of Rs 2 and Rs 5 over the base level would increase the per head expenditure by Rs 43.4 and 108.5 per annum and average household expenditure by Rs 285.72 and Rs 714.29 per annum.

## 13. ECONOMIC EFFICIENCY OF SUGARCANE PRODUCTION IN PAKISTAN

### Under import situation

#### 13.1 Nominal Protection Coefficient (NPC)

56. NPC is the ratio of the market price to the social price of a commodity while social price is the import/ export price. It examines the impact of domestic market price of a crop without any consideration to the distortions in the input prices. As a rule of thumb if NPC is greater than one it means that local producers have price protection and if it is less than one it means that domestic producers are implicitly taxed. Implicit taxation to the growers of a particular crop means flow of resources from that particular crop. It is evident from Table-18 that NPC values for the Punjab province drastically changed during the period 2010-11 to 2013-14. These ranged between 0.78 and 1.28. It implies that sugarcane growers are gaining price protection in Pakistan while they were implicitly taxed in 2010 to 2012. Similar trend remained in the Sindh province.

Table-18: Nominal and Effective Protection Coefficients for Sugarcane in Pakistan

Year	Nominal Protection Coefficient (NPC)	Effective Protection Coefficient (EPC)	Nominal Protection Coefficient (NPC)	Effective Protection Coefficient (EPC)
	Punjab		Sindh	
2010-11	0.78	0.72	0.78	0.74
2011-12	0.90	0.83	0.93	0.89
2012-13	1.21	1.28	1.20	1.26
2013-14	1.28	1.39	1.21	1.28

Source: VII and VIII

### 13.2 Effective Protection Coefficient (EPC)

59 EPC is the ratio of the difference between the revenue and the cost of tradable inputs at the private prices and the difference between the revenue and the tradable inputs cost at social prices. Thus EPC is the indicator of the net incentive and disincentive effects of all policies affecting prices of tradable output and inputs. EPC greater than one means that private profit is higher than it could be without government intervention in the input/ output market. In contrast EPC less than one indicates that net effect of policies that net effect of input/ output pricing policies is reduction in private profits. In the former case there is domestically protection to the producers of the commodity while in the later case they are implicitly taxed which discourages domestic production.

57. The above referred Table 18 presents EPC estimates. EPC values for 2010-11 to 2013-14 show significant variations. In 2012-13 EPC value suddenly jumped to the level 1.28 from 0.83 in 2011-12 which further increased to 1.39 in 2013-14. The underlying reason is increase in domestic price of sugarcane in 2012-13 and onward.

### 13.3 Domestic Resource Cost Coefficient

61 DRC is the ratio of the social cost on domestic factors to value added at social prices. If DRC is less than one it implies comparative advantage as the domestic production can save foreign exchange at costs less than the corresponding cost of imports. When DRC is greater than one, it indicates comparative disadvantage in domestic production as in such situations import of a commodity is cheaper. However, it should be noted that DRC varies with changes in opportunity cost of non-tradable inputs as well as the social value of output. Based on cost of production of average farmer and import prices of sugar, DRCs for Punjab and Sindh are estimated and produced in Table-19. Data on private and social profitability for analysis period are produced in Annex- VII and VIII.

**Table-19: Domestic Resource Cost Coefficient (DRC) for Sugarcane in Punjab and Sindh Provinces**

Year	DRC Coefficient (Punjab)	DRC Coefficient (Sindh)
2010-11	0.29	0.27
2011-12	0.63	0.57
2012-13	0.87	0.77
2013-14	0.19	0.82

Source: VII and VIII.

62. It is visible from data in the above Table 19 that for most of the time Domestic Resource Cost Coefficients are substantially below one which indicate Pakistan's comparative advantage in sugarcane production under import situation. In other words domestic resource cost would be less than the corresponding import expenditure. There-fore, it would be an economic proposition to invest in wheat production and marketing at home rather to import.

### Under export situation

63 Economic efficiency indicators for sugarcane production in Pakistan under export scenario are presented in Table-20. It may be seen from the NPC and EPC estimates that almost all of them are above one which imply that resource use efficiency in sugarcane production for export purposes is low. The underlying explanation is that export parity price of sugarcane is less than the domestic price of sugarcane.

**Table-20: Nominal and Effective Protection Coefficients for Sugarcane in Pakistan**

Year	Nominal Protection Coefficient (NPC)	Effective Protection Coefficient (EPC)	Nominal Protection Coefficient (NPC)	Effective Protection Coefficient (EPC)
	Punjab		Sindh	
2010-11	0.96	0.93	0.94	0.92
2011-12	1.10	1.10	1.13	1.15
2012-13	1.56	1.98	1.51	1.78
2013-14	1.77	2.00	1.67	1.85

Source: Annex IX and X

64 So far as DRCs are concerned, if value of DRC is less than one it indicates that a particular crop has comparative advantage in the respective crop and the vice versa. DRC values under export scenario may also be observed in Table-21. It is clear that here DRC values are higher than one during 2011-12 and 2012-13 which means that for Pakistan export purpose production of sugarcane is not a viable option.

**Table-21 Domestic Resource Cost Coefficient (DRC) for Sugarcane in Punjab and Sindh Provinces**

Year	DRC Coefficient (Punjab)	DRC Coefficient (Sindh)
2010-11	0.37	0.34
2011-12	0.83	0.74
2012-13	1.30	1.08
2013-14	1.84	1.35

Source: Annex- IX & X

## **14. DOMESTIC DEMAND, SUPPLY, STOCK AND PRICES OF SUGAR**

### **14.1 Domestic demand, supply and stocks**

65 The sugar production from 2013-14 sugarcane crop was estimated at 5.58 million tones. Adding 1.92 thousand tons of leftover stocks from 2012-13, the total sugar supply for 2013-14 consumption year was estimated to 7.50 million tones. Based on average per capita availability of sugar estimated at 21.70 kgs during 2011-13, total domestic requirement for a population of 195.91 million was 4.245 million tones for 2013-14 consumption year. The sugar year ends on September 30 each year. Hence an estimated 3.26 million tones surplus sugar was available at country level. Annex-XI may be seen.



## 14.2 Behavior of sugar prices in domestic market

66. The monthly average wholesale prices of sugar in Karachi, Hyderabad, Lahore, Faisalabad and Peshawar market during 2013 and 2014 (Jan–April) are presented in Annex-XII, while for the last 13 years in Annex-XIII. During 2013, average monthly whole sale prices ranged between Rs.3823 per 100 kgs in Hyderabad during the month of July 2013 and Rs 5658 per 100 kgs in Lahore during November 2013. During 2013 (Jan-April), average monthly wholesale prices ranged between Rs 4810 per 100 kgs in Lahore market during February 2014 and Rs 5420 per 100 kgs in Hyderabad market during April 2014. The overall average of sugar price was Rs 4973 per 100 kgs during 2013 and Rs 5079 per 100 kgs during 2014 (Jan-April)

## 15. WORLD SUPPLY, DEMAND, STOCKS, TRADE AND PRICES OF SUGAR

### 15.1 Supply, demand, stocks and trade

67. The data on world balance sheet of sugar (raw equivalent) for the period of 2011-12 to 2013-14 are presented in Table-22:

68. The world sugar production is estimated at 184.15 million tonnes during 2012-13, 9.39 million tones (5.37 percent) higher than the last year level of 174.76 million tonnes. Accounting for the opening stocks of 66.53 million tonnes, global supply of sugar in 2012-13 was reported at 250.68 million tonnes (6.74 per cent) higher than 2011-12. The world consumption in 2012-13 is 2.82 per cent higher than the last year. End year stocks in 2012-13 are estimated at 75.77 million tonnes, 13.89 percent higher than last year.

69. World sugar production during 2013-14 is forecast at 181 million tones, 3.00 percent lower than last year production, (due to smaller production in India, Brazil, EU, Ukraine and Mexico by 1.51, 1.27, 1.09, 1.07 and 0.85 percent respectively but record harvest in Thailand and Pakistan 1.24 and 0.58 percent.). Accounting for the opening stocks of 75.77 million tonnes, global supply of sugar in 2013-14 has projected at 256.91 million tones 2.49 percent lower than 2012-13. The world consumption in 2013-14 projected is at 176.71 million tones, 2.18 per cent higher than last year. End year stocks remain high and are expected to grow further during 2013-14 at 77.79 million tonnes.

**Table-22: World Balance Sheet of Sugar (Raw Equivalent): 2011-12 to 2013-14 (Oct-Sept)**

S.No	Item	2011-12	2012-13 (Estimated)	2013-14 (Forecast)	Changes 2013-14 over 2012-13
		----- Million tonnes -----			Per cent
1.	Opening stocks	60.10	66.53	75.77	(+)13.89
2.	Production	174.76	184.15	181.14	(-)1.64
3.	Total supply (1+2)	234.86	250.68	256.91	(+)2.49
4.	Disappearance (consumption)	168.20	172.94	176.71	(+)2.18
5.	Stock Adjustment *	(+)0.13	(-)1.97	(-)2.41	
6.	Ending stocks	66.53	75.77	77.79	(+)2.67
7.	Trade (export)	56.43	58.40	57.25	(-)1.97

Note: Including adjustment for unknown net trade.

Source: Quarterly Market Outlook, International sugar Organization.

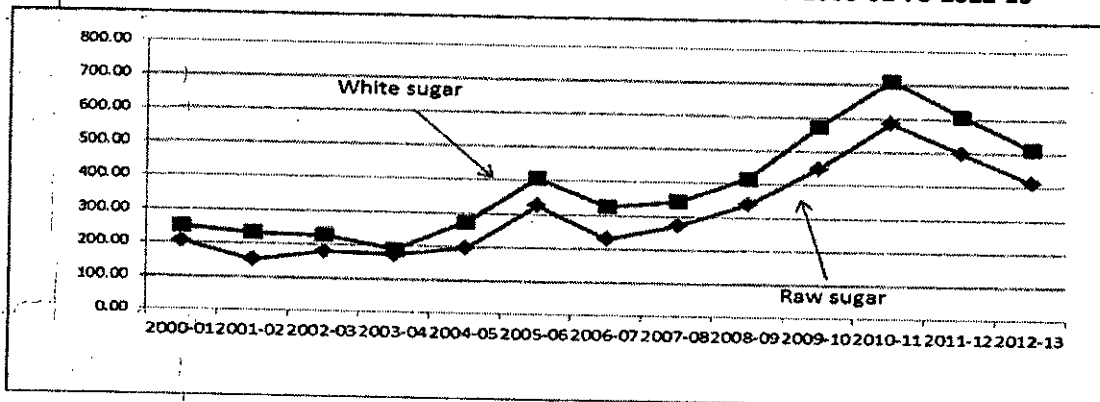
## 15.2 International Prices of Sugar

70. The international prices of raw (fob Caribbean ports) and white (fob London) sugar from 2001-02 to 2013-14 are presented in Annex-XIV while their graphical movement shown in fig 10.

71. The prices of both raw and white sugar have fluctuated widely during the period under review. During 2001-02, the prices of raw sugar averaging at US \$ 151.01 per tonne have increased to \$ 179.03 per tonne in 2002-03 but again declined to \$ 144.84 per tonne during the 2003-04. This was the lowest level of price during the period under review. The price recovered sharply and jumped at \$ 327.14 per tonne in 2005-06 but again declined to \$ 229.90 in next year. From 2007-08 prices started upward trend and touched the highest level during the period review at \$ 585.45 per tonne in 2010-11,. From 2011-12 prices started decreasing and reached at \$ 399.56 per tonne. In the current season 2013-14 (Oct- April) prices ranges between \$ 355.16 per tonne.

72. The prices of white sugar during the under reference have almost followed similar pattern to those of raw sugar.

**Figure No. 10 INTERNATIONAL PRICES OF RAW AND WHITE SUGAR: 2000-01 TO 2012-13**



73. **International Price behavior of refined sugar from the month of December 2013 till the completion of this document in July is given in table 23 below. Price in international market has been gradually increased from 16.54 cents/lb or \$ 364.640 recorded in December 2013 to 18.50 cents/lb or \$ 407.85 settled in July 2014.**

**Table 23. ISO Prices of Sugar from December 2013 to July 2014**

Month	Price cents/lb	Prices \$/Tonne
Dec 2013	16.54	364.64
Jan 2014	15.71	346.34
Feb 2014	16.89	372.36
Mar 2014	17.89	394.40
Apr 2014	18.21	401.46
May 2014	18.24	402.12
Jun 2014	18.13	399.69
July 2014	18.50	407.85

Source International Sugar Organization (ISO)

74. International Price behavior of sugar during the month of July 2014 is given in table 24 below. Price in international market has been declined from 18.72 cents/lb or \$ 412.70 recorded on 1<sup>st</sup> July 2014 to 18.11 cents/lb or \$ 399.25 settled on 16 July 2014. Prices of refined sugar have also been declined during the same dates from 470 \$ /tone to 451 \$ /tone. Average prices of 12 days for raw equivalent and refined sugar have been set at \$ 407.89 / tone and \$ 461.63 / tone respectively.

**Table 24. ISO Daily Prices of Sugar in July 2014**

Date	ISA Daily Price Raw Sugar cts/lb	ISA Daily Price Raw Sugar \$/T	ISA Daily Price White Sugar Price \$/T	ISA Daily Prices of White Sugar Price cts/lb
1/7/2014	18.72	412.70	470.00	21.32
2/7/2014	18.82	414.91	471.05	21.37
3/7/2014	18.77	413.80	471.40	21.38
4/7/2014	18.64	410.94	467.15	21.19
7/7/2014	18.51	408.07	470.25	21.33
8/7/2014	18.69	412.04	466.55	21.16
9/7/2014	18.47	407.19	460.70	20.9
10/7/2014	18.44	406.53	456.30	20.7
11/7/2014	18.32	403.88	451.30	20.47
14/07/2014	18.29	403.22	451.30	20.47
15/07/2014	18.24	402.12	452.00	20.50
16/07/2014	18.11	399.25	451.50	20.48
<b>Average</b>	<b>18.50</b>	<b>407.89</b>	<b>453.95</b>	<b>20.94</b>

Source International Sugar Organization (ISO)

## 16. IMPORT AND EXPORT PARITY PRICES OF SUGARCANE

75. Estimation of import parity price of a commodity is helpful in determining the opportunity cost of resources used in its domestic production while the export parity prices are helpful in ascertaining its competitiveness in international market. Since Pakistan has been importer of sugar in some years and exporters in the others, both the import and export parity prices of sugarcane have been worked out for analyzing price policy options for the next crop season.

76. Both the import and export parity prices have been calculated on the basis of white sugar price (fob London). Detailed calculations in this connection are given at Annexes-XI and XIII, while the results are summarized in Table-16.

**Table-25: Import/Export Parity Prices of Sugarcane as Worked Back from Average fob (London) Prices of Sugar**

Average fob London prices of white sugar per tonne	Sugarcane prices (Rs/40 kgs)	
	Punjab	Sindh
<b>Import parity</b>		
US \$ 453.95 (July 2014)	145.55	150.13
US \$ 464.39 (Oct 2013 to May 2014)	148.32	152.99
US \$ 615.76 (2010-11 to 2012-13)	188.68	194.62
<b>Export parity</b>		
US \$ 453.95 (May 2014)	108.48	111.90
US \$ 464.39 (Oct 2013 to May 2014)	111.12	114.61
US \$ 615.76 (2010-11 to 2012-13)	149.57	154.28

Source Annexes -XV and XVI

## 17. MILL-GATE PRICES OF SUGARCANE BASED ON DOMESTIC WHOLE SALE PRICES OF SUGAR DURING 2010-11 CONSUMPTION YEAR

77. Sugarcane prices have also been estimated from the wholesale prices of sugar during 2012-13 consumption year and presented in Table-26. This analyze is based on actual sucrose recovery as reported by the PSMA; processing cost of sugar and General Sales Tax @ 17 percent. A summary of sugarcane prices estimated under this scenario from various wholesale prices of sugar is presented in Table-26 while the details are given in Annex - XVII.

**Table- 26 Sugarcane Prices Estimated from Expected Wholesale Prices of Sugar During 2013-14**

Wholesale prices of sugar (Rs /Tonnes)	Sugarcane prices (Rs/40 Kgs)	
	Punjab	Sindh
Rs 50000	115.06	118.68
Rs 55000	126.57	130.55
Rs 60000	138.07	142.42

## 18. MARKETING OF SUGARCANE ----- ISSUES AND SOLUTIONS

78. As a perishable commodity sugarcane cannot be stored after harvesting and has to be processed either into gur at the farms or crushed by sugarmills for sugar manufacture. Its marketing plays an important role in this respect. To update information, API conducted an extensive field survey during March, 2014 in the provinces of Punjab and Sindh on the issues relating to the production and marketing of sugarcane 2013-14 crop. The survey teams interviewed cane growers, sugar mills management and crop experts. The meeting of API's Standing Committee on sugarcane, held on February, 24, 2014 also discussed matters relating to cane marketing. In the following paragraphs, salient observations of the field survey and the meeting of the API's Committee on sugarcane are summarized.

### Price/Supply of Sugarcane

79. There was comfortable supply of sugarcane to the sugar mills in the Punjab and Sindh during 2013-14 crushing season. No shortage of cane supply to any sugar mills in the survey area has been reported. As price of sugarcane is concerned, the growers received Rs 170 per 40 kgs in the Punjab and Rs 172 per 40 kgs in Sindh at the mill gate. However, farmers were not satisfied with the indicative price fixed by the Provincial governments of the Punjab and Sindh. They demanded that since prices of all inputs are increasing due to 17 per cent GST imposed by the Federal Government, price for the next sugarcane crop should be fixed at Rs 200 per 40 kgs.

### Under-weighment

80. The under-weighment and undue deductions on the part of mills and their agents at purchase centers have been widely reported. The private purchase centers and the mills agents reportedly have no good repute in this respect. The weighbridges and scales installed at the purchase centers do not record the correct weighment. Mostly the farmers bringing

cane remained unaware about the readings of these scales. The quantity of under weighed vary from place to place and for each mill area. In order to check the under weighment at weighbridges, the supervisory committees should be made more effective. Moreover the use of private, temporary weighbridges may be banned and district governments should install their own weighbridges in the producing areas at reasonable distances.

### **Undue deductions**

81. The sugar mills normally follow a practice of deductions on the plea that poor quality cane with high trash contents is being supplied by the farmers. In some places these deductions go upto 10 per cent. For improving the situation, the growers should be educated for properly cleaning the trash before supply to mills, and the Cane Commissioners should check against such high undue deductions.

### **Delayed payments**

82. In the beginning of the season, the payments are generally made within two weeks but as the season progress to the end, the payments are delayed by months and in some cases by seasons. The mills are of the view that this happens due to liquidity problem. Thus, there is a need to impose penalties on late payments as laid down in the Sugar Factories Control Act and also to enhance the liquidity of the sugar mills by lifting sugar at a certain pre-determined price by the public sector.

### **Presence of middlemen**

83. The importance of middlemen in sugarcane marketing cannot be denied as they facilitate the marketing transactions between buyers and sellers. But in case the middlemen delay the supply of cane to mills, it harms the sugar manufacturing process by making reductions in the sugar recovery. Therefore in such cases the role of middlemen needs to be eliminated by putting restrictions on their involvement through the use of administration/legal laws.

### **The Purchase of CPRs**

84. Since growers are in need of immediate payments for their sale proceeds, in order to avoid the delayed payments they are compelled to sell their CPRs at discount rates varying from area to area. This practice has caused loss to the farming sector. It is therefore stressed that this practice of selling CPRs at discount rates may be discontinued or stopped altogether. In order to improve the situation the mills may be compelled to make the payments for sale proceeds at the earliest, so that need for selling CPRs may be minimized.

### **Use of sugarcane Cess fund**

85. The sugarcane cess fund is to be utilized for the construction and improvement of roads in the sugar mills areas. It can also be utilized for research and development of sugarcane crop. Reportedly, huge amounts of sugarcane cess fund are lying unutilized with the Provincial Governments, due to lack of proper planning and decision . it is therefore

recommended that the unutilized amounts may be used for the improvement of roads and for research purpose.

### **Amendments in Sugar Factories Control Act**

86. Presently many changes have occurred in the cane marketing system and the functioning of Sugar Factories Control Act, 1950 has become less effective. Keeping in view the current situation of all stakeholders demand and effectiveness of Act it is suggested that Sugar Factories Control Act, 1950 must be revised.

## **19. PRODUCTIVITY OF SUGARCANE IN PAKISTAN**

87. Sugarcane is grown in Pakistan from the time immemorial attributed to the mighty river Indus and its tributaries. The region, known as Indus valley civilization historically had the knowledge of sugarcane production and the extraction of brown sugar cakes, even now locally known as Gur being produced traded and liked by the people. Traditionally sugarcane juice and pealed cut in small pieces for chewing used round the year.

88. The areas falling between latitude 24° and 34°N, which has been classified as irrigated sub-tropical zones with moderate temperature are suitable for the cultivation of the sugarcane. The region can be termed as frost free zone except for the area lying above 30° N which is occasionally hit by frosts.

89. Sugarcane occupies nearly 1.0 million hectares of the cultivated land out of the available 22.0 million hectares i.e. about 4.5% of the irrigated land. The crop needs about 10 MAF (million acre-feet) of water from the total availability of about 135 MAF in the present system and reservoirs. Known as high delta crop it has always been susceptible to the weather cycle, restricting its expansion outside this ecological zone.

90. This current low yield of 56 t/ha clearly exposes cane production as the weak link in the overall value chain. Combination of low cane price, rising input costs and lack of actionable research products from the local and national research institutes explain why there has not been significant growth in productivity, and also the challenges being faced by the industry. The growers need to have sufficient incentive in terms of the price they receive for their cane so that they will optimize the use of inputs to produce quality cane and high yields. The role of the government and the sugar industry has paramount importance.

## **20. MEASURES FOR IMPROVING PRODUCTIVITY**

91. The prime concern of cane growers and the sugar industry is to achieve higher sugarcane productivity and high sugar recovery both of which support maximum economic return. Since Sugarcane is high water delta crop and with increasing water shortages, horizontal expansion of this crop is neither feasible nor desirable. However, to maintain the regular supply of raw material (sugarcane) to 2<sup>nd</sup> largest agro-based (sugar) industry of Pakistan enhanced productivity is the only way forward. Therefore, API has recommended the following productivity enhancement measures.

## 20.1 Varietals Development

92. The government should pursue the PSMA and provincial Agricultural Research Institutes to emphasize on cane varietals development having character of low water requirement and high percentage of sugar recovery. To meet the expenditure on varietal development, Provincial Governments should take strict measures to implement the ECC decision regarding the release and utilization of "Cess Fund" in this regard.

## 20.2 Improved Cultural practices

93. Provincial Departments of Agriculture Extension should take the following steps in this regard:

- Sugarcane is a deep-rooted crop and proper land preparation plays an important role in the development of cane root system, and achieving optimal growth of the crop. Land should be prepared by deep ploughing at least after every two years. The soil should be disked.
- To increase yield proper attention should be paid towards the attack of plant diseases and pests. Such attack causes two fold effects.
- Cost effective and zone specific crop production technologies might be developed and disseminated through coordinated efforts.
- With the optimal use of fertilizer and water, the crop becomes tender and attracts pests and diseases. To have effective control, Chemicals and bio-control agents for the management of pests and diseases should be used.
- To conserve water, there is a need for improvement in efficiency and productivity of irrigation water
- Each fertilizer element plays its role in the development and production of a normal cane crop. Soil fertility and productivity significantly affect cane production, so for its optimal utilization soil analysis should be popularized
- Encourage Use for healthy seed of improved varieties of sugarcane and discourage cultivation of un-approved varieties.
- Sterilized seeds should be made available to the growers for sowing to get healthy crop.
- No of plants in the field plays a vital role in yield and seed of fresh crop 6 – 8 months old gives better results. This should be encouraged. Apprise the farmers for achieving the desirable plant population per acre
- The selection of an appropriate planting method and schedule greatly influences crop growth, maturity, and yield recommended Practice 'row to row' distance in sugarcane fields for effective weed control and less water requirement be popularized.
- Healthy seed gives better result in production of crop, to avoid disease and ensure healthy crop, motivate farmers for 'Hot Water Treatment' of sugarcane sets for disease control.

- For production of cost effective crop and to maintain desired level of organic matter in the soil, use of press mud to improve soil fertility be popularized in Addition to use different fertilizers in recommended dosage.
- Well rotten farmyard manure should be applied prior to land preparation.
- Apprise the growers about use of weedicides needs to be promoted for increasing quantity and quality of the crop .Good land preparation is a key factor in controlling weeds.

### **20.3 Biological Control**

94. The government should emphasize PSMA and Provincial Agriculture Depts to establish IPM labs for rearing predators for disease control in sugarcane crop. Awareness campaign to educate sugarcane growers about the benefits of IPM techniques.

### **20.4 Role of Sugar Industry in Cane Development**

95. To promote sugarcane crop, the sugar industry of Pakistan should:

- Take responsibilities for a campaign against pest and plant diseases, but on a limited scale.
- Take concrete measures to multiply and disseminate high sucrose varieties along with necessary extension work for development of sugarcane crop.
- Take immediate steps to increase supply of improved varieties of cane seed among the farmers in addition to government efforts in this regard
- Supply press mud free of cost or on subsidize rates to sugarcane growers to ensure adequate amounts of organic matter in the soil to sustain necessary fertility level to improve yield of the sugarcane crop.
- The Government and Sugar Mills may extend financial assistance to the growers.

### **20.5 Low Sugar Recovery**

96. Provincial Agricultural and PARC Research Institutes should determine the reasons for low sugar recovery. Comparison with the world sugar recovery rate, which on average is higher than 10 percent indicates that efforts are required to enhance this percentage in order to increase sugar production.

## **21. COMMERCIAL VARIETIES AND THEIR YIELD POTENTIAL IN THE PUNJAB, SINDH AND KPK**

97. Improved and high yielding of sugar varieties are one of the major sources through which cane and sugar yield per unit area cane be increased. Varieties should be cultivated according to the areas.

98. The yield potential of sugarcane varieties in the Punjab range between 80 and 130 tonnes per hectare. The highest yield potential of HSF-240, HSF-242 and CPF-243, varieties



is estimated at 130,108 and 102 tons per hectare and highest sugar recovery percentage are 12.7, 12.5 and 12.4 of the varieties CP-77-400, CPF-243, CPF-237, HSF-240, CPF-247. If these varieties are adopted for vast cultivation in their specified field areas with their recommended production technology and timely supply of inputs and application, the yield per hectare would definitely improve at the country level. List of the varieties have been presented in the (Annex-XVIII).

99. Yield of high yielding cane varieties evolved by Research Institutes in Sindh range between 170 and 200 tonnes per hectare and highest recovery varieties is Thatta-10 and LRK-2001 on the top with 11 per cent sugar recovery. The highest yield potential of Ghulabi-95 is estimated at 200 tonnes per hectare and in KPK high yielding variety is CP-77-400 estimated at 100 tonnes per hectare with 12.7 per cent sugar recovery.

## **22. SUGAR EXPORT POLICY OF THE GOVERNMENT OF PAKISTAN**

100. The sugar mills commenced the crushing season 2013-14 as another surplus sugar year in the wake of higher global supply and lower sugar prices. In 2013-14 provincial crop reporting departments have reported crop area of Sugarcane at 1.129.6 mill hectares with 63.072 mill tones production. The sugar from 63.72 mill tones cane produced 5.58 mill tones almost 1% more than previous year and above the domestic needs of 4.3 mill tones.

### **22.1 Sugar Position 2014-15**

Sugarcane plantation area in 2013-14	= 1,130 "000" hectares
Sugarcane produced in 2013-14	= 63.72 million tones
Sugarcane Crushed (With 79% utilization)	= 50,34 million tones
Sugar produced in 2013-14	= 5,58
Carryover stocks (Mills & TCP)	= <u>1.92</u>
Total Availability for 2014	= 7.50
Expected surplus in 2014	= 3.26

101. The likely sugar production reported by PSMA in 2013-14 and carryover stock of the previous year created a glut-like situation, which kept the ex-mill sugar prices at very depressed levels and could not move out of its lowest ebb. The prime and foremost responsibility which Ministry of Commerce should carried out, is to make arrangements for disposal of surplus sugar during 2014.

102. The Government of Pakistan realizing the surplus stocks of sugar, constituted a committee in 2012 under Special Secretary to Prime Minister to negotiate and encourage the sugar mills to utilize the approved quota. Due to slow phase of export the quota system was abolished and export allowed on first cum first serve basis with timeframe of ninety days. But the export was quite slow. The major impediment in the export was the lower trend in the international prices compared with the higher cost of production of the Pakistani Sugar due to high cost of cane production.

103. To address this problem and to put sugar export on fast track, the issue was again discussed in the ECC on January 10, 2013 and the ECC allowed an inland freight subsidy of RS 1.75/kg of sugar on exported sugar.

104. To arrest the lower trend in the ex-mill price and to enable the sugar mills to pay off the growers dues, in the light of the Sugar Advisory Board's recommendations, the ECC again allowed the sugar mills to export a total of 500,000 MT of sugar, out of which 250,000 tonnes was to be exported up to 31st October, 2013; and the rest 250,000 tonnes from 1st November, 2013 onward on first come served basis. State Bank of Pakistan to facilitate export of sugar through registration of contract announced a time frame of 45 days for shipment instead of 90 days. In return Mills were directed to clear the outstanding arrears of Rs. 1.7 billion to be paid to the growers and to start crushing sugarcane in Sindh and Punjab by 1st November and 15th November 2014, respectively. The above export was decided to be against irrevocable letter of credit or a contract with 25% non-refundable advance payment to be forfeited in favour of Government of Pakistan in case of non-performance. To encourage the mills for export inland subsidy @ Rs. 1/- kg instead of the entire quantity of 500,000 MT of sugar was also agreed.

### **23.2 Prospects for 2014-15**

105. In 2014-15 although the world production is expected to shrink by 2.119 mln tonnes but despite this projected fall, the world total supply, at 180.837 mln tonnes, raw value, will be the second largest in the history. The expected shortfall has been partly mitigated by further gains in Brazil (+0.8 mln tonnes) and Thailand (+0.691 mln tonnes). Production levels in these leading exporting countries are expected to reach new records. Record high production is also anticipated for a number of smaller producers including Ecuador, Ethiopia, Indonesia, Mozambique, Nicaragua, Pakistan, Sudan, Swaziland and Zambia (ISO).

## 24. ACKNOWLEDGEMENT

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### Officers

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10. Mr. Muhammad Altaf, Assistant Private Secretary (*Composer*)
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13. Hafiz Ghulam Mustafa N/Q

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**Chairman, API**

PROVINCE-WISE AREA , PRODUCTION AND YIELD OF SUGARCANE  
IN PAKISTAN : 2003-04 TO 2013-14

YEAR	PUNJAB	SINDH	KPK	BALUCHISTAN	PAKISTAN
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AREA	----- 000 hectares -----				
2003-04	709.0	259.9	104.8	0.80	1074.5
2004-05	644.7	214.9	106.4	0.44	966.4
2005-06	625.2	183.2	98.6	0.45	907.5
2006-07	711.8	214.7	101.8	0.50	1028.8
2007-08	827.2	308.8	104.8	0.50	1241.3
2008-09	666.5	263.9	98.2	0.77	1029.4
2009-10	607.4	233.9	100.8	0.70	942.8
2010-11	672.2	226.5	88.4	0.60	987.7
2011-12	761.2	189.7	105.9	0.70	1057.5
2012-13	767.7	253.7	106.7	0.65	1128.8
2013-14	723.6	297.6	107.7	0.66	1129.6

YIELD	----- Tonnes per hectare -----				
2003-04	47.99	56.22	45.28	48.25	49.72
2004-05	51.26	43.54	45.27	51.20	48.88
2005-06	46.33	61.38	45.02	32.22	49.22
2006-07	52.74	58.36	45.63	50.60	53.21
2007-08	48.73	60.86	45.73	56.20	51.49
2008-09	48.45	50.41	44.89	49.22	48.62
2009-10	51.57	57.74	44.72	50.86	52.37
2010-11	55.76	60.78	45.59	51.33	56.00
2011-12	56.35	56.87	44.23	44.86	55.22
2012-13	55.99	62.93	44.71	48.46	56.48
2013-14	56.45	58.37	44.78	48.79	55.84

PRODUCTION	----- 000 Tonnes -----				
2003-04	34023.0	14611.8	4745.6	38.6	53419.0
2004-05	33048.0	9357.4	4816.2	22.5	47244.1
2005-06	28968.6	11243.4	4439.0	14.5	44665.5
2006-07	37541.9	12529.2	4645.0	25.3	54741.4
2007-08	40306.0	18793.9	4792.0	28.1	63920.0
2008-09	32294.7	13304.3	4408.5	37.9	50045.4
2009-10	31324.0	13505.4	4507.9	35.6	49372.9
2010-11	37481.0	13766.4	4030.3	30.8	55308.5
2011-12	42893.0	10788.3	4684.3	31.4	58397.0
2012-13	42982.1	15966.2	4770.2	31.5	63750.0
2013-14	40846.0	17371.4	4822.3	32.2	63071.9

- Sources:**
- 1- For 2003-04 to 2011-12 : Agricultural Statistics of Pakistan 2009-10, MINFA, Islamabad.
  - 2- For 2012-13: Final estimates provided by Pakistan Bureau of Statistics, Islamabad
  - 3- For 2013-14: Second estimates of Punjab, Sindh, Balochistan and KPK provided by concerned Provincial Agriculture Departments

**PROVINCE-WISE AREA , PRODUCTION AND YIELD OF SUGARCANE  
IN PAKISTAN : 2003-04 TO 2013-14**

YEAR	PUNJAB	SINDH	KPK	BALUCHISTAN	PAKISTAN
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**AREA**

----- 000 acres -----

2003-04	1752.0	642.2	259.0	2.0	2655.2
2004-05	1593.1	531.0	262.9	1.1	2388.2
2005-06	1545.0	452.7	243.7	1.1	2242.4
2006-07	1758.9	530.5	251.6	1.2	2542.3
2007-08	2044.1	763.1	259.0	1.2	3067.4
2008-09	1647.0	652.1	242.7	1.9	2543.7
2009-10	1500.9	578.0	249.1	1.7	2329.8
2010-11	1661.1	559.7	218.4	1.5	2440.7
2011-12	1881.0	468.8	261.7	1.7	2613.2
2012-13	1897.1	626.9	263.7	1.6	2789.3
2013-14	1788.1	735.4	266.1	1.6	2791.3

**YIELD**

----- Tonnes per acre -----

2003-04	19.42	22.75	18.32	19.53	20.12
2004-05	20.74	17.62	18.32	20.72	19.78
2005-06	18.75	24.84	18.22	13.04	19.92
2006-07	21.34	23.62	18.46	20.48	21.53
2007-08	19.72	24.63	18.50	22.74	20.84
2008-09	19.61	20.40	18.17	19.92	19.67
2009-10	20.87	23.37	18.10	20.58	21.19
2010-11	22.56	24.60	18.45	20.77	22.66
2011-12	22.80	23.01	17.90	18.15	22.35
2012-13	22.66	25.47	18.09	19.61	22.86
2013-14	22.84	23.62	18.12	19.74	22.60

**PRODUCTION**

----- 000 Tonnes -----

2003-04	34023.0	14611.8	4745.6	38.6	53419.0
2004-05	33048.0	9357.4	4816.2	22.5	47244.1
2005-06	28968.6	11243.4	4439.0	14.5	44665.5
2006-07	37541.9	12529.2	4645.0	25.3	54741.4
2007-08	40306.0	18793.9	4792.0	28.1	63920.0
2008-09	32294.7	13304.3	4408.5	37.9	50045.4
2009-10	31324.0	13505.4	4507.9	35.6	49372.9
2010-11	37481.0	13766.4	4030.3	30.8	55308.5
2011-12	42893.0	10788.3	4684.3	31.4	58397.0
2012-13	42982.1	15966.2	4770.2	31.5	63750.0
2013-14	40846.0	17371.4	4822.3	32.2	63071.9

**Sources:**

- 1- For 2003-04 to 2011-12 : Agricultural Statistics of Pakistan 2009-10, MINFA, Islamabad.
- 2- For 2012-13: Final estimates provided by Pakistan Bureau of Statistics, Islamabad
- 3- For 2013-14: Second estimates of Punjab, Sindh, Balochistan and KPK provided by concerned Provincial Agriculture Departments

**DISTRICT- WISE AREA, YIELD AND PRODUCTION OF SUGARCANE**  
**AVERAGE OF 2011-12 TO 2013-14**

Area: 000 ha  
 Production: 000 tonnes  
 Yield: Tonnes/hectare

S.No	Province/ District/ Agency	Area	Production	Share in total production	Yield	S.No	Province/ District/ Agency	Area	Production	Share in total production	Yield
<b>PUNJAB</b>						<b>KHYBER PAKHTUNKHWA</b>					
1	R.Y.Khan	114.39	8403.54	13.61	73.46	1	Charsadda	33.67	1465.80	2.37	43.53
2	Faisalabad	105.76	5468.92	8.86	51.71	2	Mardan	30.91	1452.76	2.35	46.99
3	Sargodha	67.45	3503.67	5.67	51.95	3	Peshawar	11.10	576.37	0.93	51.94
4	Jhang	54.36	2970.23	4.81	54.64	4	D.I.Khan	13.50	571.38	0.93	42.33
5	Chinot	48.16	2486.94	4.03	51.64	5	Nowshera	5.22	265.51	0.43	50.88
6	Muzaffargarh	42.49	2442.00	3.96	57.47	6	Malakand	4.71	178.30	0.29	37.87
7	T.T.Singh	41.95	2419.75	3.92	57.68	7	Swabi	4.37	171.32	0.28	39.24
8	Kasur	42.63	2053.30	3.33	48.17	8	Bannu	0.75	20.81	0.03	27.87
9	M.B.Din	37.91	1826.07	2.96	48.17	9	Khyber AG.	0.66	15.19	0.02	23.19
10	Rajanpur	16.86	1208.20	1.96	71.65	10	Mohmand AG.	0.36	9.83	0.02	27.45
11	Bahawalnagar	18.62	1067.73	1.73	57.35	11	Tank	0.22	5.18	0.01	23.71
12	Vehari	16.60	1017.22	1.65	61.29	12	Lakki Marwat	0.13	4.99	0.01	37.97
13	Nankana Sahib	21.59	1015.80	1.65	47.06	13	Kohat	0.13	4.64	0.01	34.86
14	Bahawalpur	16.32	1012.21	1.64	62.02	14	Dir Lower	0.16	4.28	0.01	26.76
15	Bhakkar	19.02	990.52	1.60	52.08	15	Haripur	0.10	3.14	0.01	31.49
16	Okara	15.11	739.97	1.20	48.98	16	Bunir	0.53	2.95	0.00	5.53
17	Layyah	13.22	708.84	1.15	53.62	17	F.R.D.I.Khan	0.10	2.19	0.00	22.68
18	Khanewal	7.28	384.50	0.62	52.79	18	N.Waziristan	0.04	1.65	0.00	41.65
19	Khushab	8.23	380.97	0.62	46.31	19	F.R.Bannu	0.07	1.19	0.00	16.16
20	Sahiwal	7.42	357.71	0.58	48.21	20	Mansehra	0.03	0.59	0.00	22.72
21	D.G.Khan	5.53	313.57	0.51	56.74	21	Hangu	0.01	0.45	0.00	32.59
22	Hafizabad	5.26	238.08	0.39	45.23	22	F.R.Peshawar	0.01	0.43	0.00	29.59
23	Pakpattan	3.91	205.10	0.33	52.46	23	Karak	0.00	0.01	0.00	21.00
24	Mianwali	3.37	199.16	0.32	59.04						
25	Multan	3.78	191.49	0.31	50.70						
26	Sheikhupura	3.37	184.12	0.30	54.64						
27	Lodhran	2.02	110.63	0.18	54.68						
28	Gujrat	2.43	108.31	0.18	44.57						
29	Gujranwala	1.89	89.21	0.14	47.28						
30	Narowal	1.48	56.88	0.09	38.35						
31	Sialkot	1.62	51.76	0.08	31.95						
32	Lahore	0.40	18.43	0.03	46.07						
33	Jhelum	0.33	13.05	0.02	39.16						
34	Attock	0.07	2.49	0.00	37.30						
	<b>Sub Total</b>	<b>750.81</b>	<b>42240.36</b>	<b>68.42</b>	<b>56.26</b>		<b>Sub Total</b>	<b>106.78</b>	<b>4758.94</b>	<b>7.71</b>	<b>44.57</b>
	<b>SINDH</b>						<b>BALUCHISTAN</b>				
1	Nawabshah	32.85	2063.83	3.34	62.82	1	Sibi	0.60	28.96	0.05	48.07
2	Badin	37.09	2033.59	3.29	54.84	2	Lasbela	0.05	2.73	0.00	31.22
3	Thatta	28.58	1545.64	2.50	54.08						
4	Tando Muhammad	24.12	1468.42	2.38	60.88						
5	N.Feroze	19.93	1219.54	1.98	61.21						
6	Khairpur	18.38	1093.59	1.77	59.49						
7	Tando Allahyar	17.82	1063.84	1.72	59.70						
8	Mirpurkhas	14.34	884.87	1.43	61.71						
9	Matiari	12.06	820.09	1.33	68.01						
10	Ghotki	12.29	732.83	1.19	59.63						
11	Sanghar	11.55	721.45	1.17	62.48						
12	Hyderabad	6.18	398.07	0.64	64.38						
13	Sukkur	4.30	246.74	0.40	57.34						
14	Dadu	3.65	204.68	0.33	56.12						
15	Unerkot	1.45	83.87	0.14	57.95						
16	Tharparkar	0.95	48.73	0.08	51.17						
17	Jamshoro	0.73	39.74	0.06	54.49						
18	Larkana	0.39	21.72	0.04	55.17						
19	Shadadkot	0.18	9.28	0.02	52.55						
20	Shikarpur	0.10	5.34	0.01	54.09						
21	Kashmore	0.05	2.78	0.00	54.54						
	<b>Sub Total</b>	<b>246.98</b>	<b>14708.66</b>	<b>23.82</b>	<b>59.55</b>		<b>Sub Total</b>	<b>0.66</b>	<b>31.69</b>	<b>0.05</b>	<b>48.33</b>
	<b>Pak Total</b>						<b>Pak Total</b>	<b>1105.23</b>	<b>61739.64</b>	<b>100.00</b>	<b>55.86</b>

- Notes: 1. Data have been arranged in descending order of production.  
 2. Percentage shares are calculated on the basis of country total.
- Sources: 1- MINIFAL, Islamabad and Respected Provincial Agriculture Departments

## AVERAGE FARMERS' COST OF PRODUCTION OF SUGARCANE IN THE PUNJAB: 2013-14 AND 2014-15 CROPS

Sr. No.	Operations / inputs	Avg No. of oprs/units/acre	2013 - 14 Crop		2014 - 15 Crop		Change in 2014-15 over 2013-14
			Cost per unit	Cost per acre	Cost per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
-----Rupees-----							
1	Land preparation:						
1.1	Deep ploughing	0.476	1400.00	666.40	1500.00	714.00	47.60
1.2	Rotavator	0.152	1500.00	228.00	1600.00	243.20	15.20
1.3	Ploughing	7.847	650.00	5100.55	700.00	5492.90	392.35
1.4	Planking	3.309	325.00	1075.43	350.00	1158.15	82.73
1.5	Levelling	0.561	700.00	392.70	750.00	420.75	28.05
2	Seed bed preparation:						
2.1	Ploughing/Furrow making	0.467	650.00	151.78	700.00	163.45	11.68
2.2	Planking	0.193	325.00	31.36	350.00	33.78	2.41
2.3	Trench/Ridge making						
2.3.1	Manual (m.days)	0.106	300.00	15.90	350.00	18.55	2.65
2.3.2	Tractor	0.7	650.00	227.50	700.00	245.00	17.50
2.4	Bund making						
2.4.1	Manual (m.days)	1.655	300.00	248.25	350.00	289.63	41.38
2.4.2	Tractor	0.158	650.00	51.35	700.00	55.30	3.95
3	Seed and Sowing operations:						
3.1	40 kg units	6.578	190.00	624.91	190.00	624.91	0.00
3.2	Marlas	10.64	950.00	5054.00	950.00	5054.00	0.00
3.3	Harvesting, stripping and making of set (m.days)	4.796	300.00	719.40	350.00	839.30	119.90
3.4	Transport	-	-	350.00	-	400.00	50.00
3.5	Sowing of sets (m.days)	0.781	300.00	117.15	350.00	136.68	19.53
3.6	Contract sowing	-	-	350.00	-	400.00	50.00
4	Interculture and Earthing up:						
4.1	Manual/binding of plants	0.609	1200.00	730.80	1400.00	852.60	121.80
4.2	Bullock/tractor	2.008	650.00	1305.20	700.00	1405.60	100.40
5	Plant Protection:						
5.1	Weedicides	0.124	550.00	68.20	600.00	74.40	6.20
5.2	Granules	0.120	500.00	60.00	550.00	66.00	6.00
5.3	Sparys	0.305	580.00	176.90	625.00	190.63	13.73
6	Irrigation:						
6.1	Canal	8.9	-	250.00	-	250.00	0.00
6.2	Private tubewell	4.44	1280.00	5683.20	1300.00	5772.00	88.80
6.3	Mixed	2.16	260.00	561.60	300.00	648.00	86.40
6.4	Labour for irrigation and water course cleaning (m.days)	4.86	300.00	1458.00	350.00	1701.00	243.00
7	Farm Yard Manure:						
7.1	Material	-	-	1100.00	-	1200.00	100.00
7.2	Transport & application	-	-	1050.00	-	1100.00	50.00
8	Fertilizers: (bags)						
8.1	DAP	1.28	3905.00	4998.40	3587.00	4591.36	-407.04
8.2	Urea	1.73	1693.00	2928.89	1824.00	3155.52	226.63
8.3	Nitrophos	0.35	2548.00	891.80	2462.00	861.70	-30.10
8.4	SSP	0.01	1100.00	11.00	967.00	9.67	-1.33
8.5	CAN	0.01	1674.00	16.74	1547.00	15.47	-1.27
8.6	SOP	0.07	3965.00	277.55	4367.00	305.69	28.14
8.7	Gypsum	0.44	150.00	66.00	200.00	88.00	22.00
8.8	Fert. transport and application	3.89	70.00	272.30	80.00	311.20	38.90
9	Mark up @ 15.0 % per annum for 13 months on items 1 to 8 minus item 6.1	-	-	4817.96	-	6278.74	1460.78
10	Land rent for 13 months	-	21000.00	22750.00	23000.00	24916.67	2166.67
11	Average weighted land tax @ Rs 132/acre/ annum for 13 months	-	-	143.00	-	143.00	0.00
12	Management charges for 13 months	-	-	2103.00	-	2235.00	132.00
13	Harvesting & stripping (40 kg units)	565.15	13.00	7273.48	13.00	7273.48	0.00
14	Expected escalation in cost of selected items	-	-	4761.00	-	3578.00	-1183.00
15	Total cost (items 1 to 14)	-	-	79159.70	-	83819.31	4659.61
16	Yield (40 kg units)	-	-	565.15	-	565.15	0.00
17	Cost of production at farm level: (Rs/40 kgs)						
17.1	Including land rent	-	-	140.07	-	147.42	7.35
17.2	Excluding land rent	-	-	99.81	-	103.33	3.52
18	Marketing expenses: (Rs/40 kgs)						
18.1	Transport, etc.	-	-	14.00	-	14.00	0.00
18.2	Development cess	-	-	1.00	-	1.00	0.00
19	Cost of production at mill-gate: (Rs/40 kgs)						
19.1	Including land rent	-	-	155.07	-	162.42	7.35
19.2	Excluding land rent	-	-	114.81	-	118.33	3.52

Note: In view of changes in mark-up rates by different agriculture credit disbursing agencies, mark-up for 2014-15 crop has changed from 12 to 15 % accordingly

## AVERAGE FARMERS' COST OF PRODUCTION OF SUGARCANE IN SINDH: 2013-14 AND 2014-15 CROPS

Sr. No.	Operations / inputs	Avg No. of oprs./units/acre	2013 - 14 Crop		2014 - 15 Crop		Change in 2014-15 over 2013-14
			Cost per unit	Cost per acre	Cost per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
-----Rupees-----							
1	Land preparation :						
	1.1 Deep ploughing	0.523	1500.00	784.50	1600.00	836.80	52.30
	1.2 Ploughing	5.606	1000.00	5606.00	1100.00	6166.60	560.60
	1.3 Planking	1.577	500.00	788.50	550.00	867.35	78.85
	1.4 Levelling	0.972	1000.00	972.00	1100.00	1069.20	97.20
2	Seed bed preparation:						
	2.1 Ploughing/Furrow making	1.136	1000.00	783.84	1100.00	862.22	78.38
	2.2 Planking	1.34	500.00	462.30	550.00	508.53	46.23
	2.3 Trench/ridge making						
	2.3.1 Manual (m.days)	0.074	300.00	15.32	350.00	17.87	2.55
	2.3.2 Tractor (hrs)	0.174	1000.00	120.06	1100.00	132.07	12.01
	2.4 Bund making (m.days)						
	2.4.1 Manual (m.days)	0.403	300.00	83.42	350.00	97.32	13.90
	2.4.2 Tractor (hrs)	0.812	1000.00	560.28	1100.00	616.31	56.03
3	Seed and Sowing operations:						
	3.1 40 kg units	64.118	190.00	8405.87	190.00	8405.87	0.00
	3.2 Ghuntas	0.685	5000.00	2363.25	5000.00	2363.25	0.00
	3.3 Harvesting, stripping and making of set (m.days)	4.42	300.00	914.94	350.00	1067.43	152.49
	3.4 Transportation	-	-	600.00	-	700.00	100.00
	3.5 Sowing of sets (m.days)	0.588	300.00	121.72	350.00	142.00	20.29
	3.6 Contract sowing	-	-	600.00	-	700.00	100.00
4	Interculture and Earthing up:						
	4.1 Manual	1.762	1275.00	2246.55	1500.00	2643.00	396.45
	4.2 Bullock/tractor	1.725	1000.00	1725.00	1100.00	1897.50	172.50
5	Plant Protection :						
	5.1 Weedicides	0.300	500.00	150.00	600.00	180.00	30.00
	5.2 Granules	0.245	450.00	110.25	500.00	122.50	12.25
	5.3 Sprays	0.265	500.00	132.50	550.00	145.75	13.25
6	Irrigation						
	6.1 Canal	20.88	-	181.87	-	181.87	0.00
	6.2 Private tubewell	2.45	685.00	1678.25	750.00	1837.50	159.25
	6.3 Labour for Irrigation and water course cleaning (m.days)	5.859	300.00	1757.70	350.00	2050.65	292.95
7	Farm Yard Manure:						
	7.1 Material	-	-	1700.00	-	1800.00	100.00
	7.2 Transport & application	-	-	950.00	-	1000.00	50.00
8	Fertilizers: (bags)						
	8.1 DAP	1.512	3817.00	5771.30	3467.00	5242.10	-529.20
	8.2 Urea	3.625	1614.00	5850.75	1805.00	6543.13	692.38
	8.3 Nitrophos	0.376	2567.00	965.19	2385.00	896.78	-68.43
	8.4 CAN	0.239	1435.00	342.97	1533.00	366.39	23.42
	8.5 SOP	0.085	3900.00	331.50	4367.00	371.20	39.70
	8.6 Fert. transport and application	5.829	70.00	408.03	80.00	466.32	58.29
9	Mark up @ 15.0 % per annum for 16 months on item 1 to 8 minus item 6.1	-	-	7568.32	-	10023.12	2454.81
10	Land rent for 16 months	-	16000.00	21333.33	18000.00	24000.00	2666.67
11	Land tax @ Rs 200/acre/annum for 16 months	-	-	267.00	-	267.00	0.00
12	Drainage cess	-	-	24.00	-	24.00	0.00
13	Management charges for 16 months	-	-	2589.00	-	2589.00	0.00
14	Harvesting & stripping (40 kg units)	676.02	13.00	8788.26	13.00	8788.26	0.00
15	Expected escalation in cost of selected items	-	-	5074.00	-	3552.00	-1522.00
16	Total cost (Items 1 to 15)	-	-	93127.77	-	95640.87	6413.10
17	Yield (40 kg Units)	-	-	676.02	-	676.02	0.00
18	Cost of production at farm level: (Rs/40 kgs)						
	18.1 Including land rent	-	-	137.76	-	147.25	9.49
	18.2 Excluding land rent	-	-	106.20	-	111.74	5.54
19	Marketing expenses: (Rs/40 kgs)						
	19.1 Transport, etc.	-	-	14.00	-	14.00	0.00
	19.2 Development cess	-	-	0.32	-	0.32	0.00
20	Cost of production at mill-gate: (Rs/40 kgs)						
	20.1 Including land rent	-	-	152.06	-	161.97	9.91
	20.2 Excluding land rent	-	-	120.52	-	126.06	5.54

Note: In view of changes in mark-up rates by different agriculture credit disbursing agencies, mark-up for 2014-15 crop has changed from

12 to 15 % accordingly



## AVERAGE FARMERS' COST OF PRODUCTION OF SUGARCANE IN KPK: 2013-14 AND 2014-15 CROPS

Sr. No.	Operations / inputs	Avg No. of oprs/units/acre	2013 - 14 Crop		2014 - 15 Crop		Change in 2014-15 over 2013-14
			Cost per unit	Cost per acre	Cost per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
-----Rupees-----							
1	Land preparation:						
	1.1 Deep ploughing/Rotavator	0.665	1800.00	1197.00	2000.00	1330.00	133.00
	1.2 Ploughing	2.776	900.00	2498.40	1000.00	2776.00	277.60
	1.3 Planking	0.435	450.00	195.75	500.00	217.50	21.75
	1.4 Levelling	0.344	900.00	309.60	1000.00	344.00	34.40
2	Seed bed preparation:						
	2.1 Ploughing/Furrow making	0.982	900.00	459.58	1000.00	510.64	51.06
	2.2 Planking	0.027	450.00	6.32	500.00	7.02	0.70
	2.3 Trech/Ridge making (tractor hrs)	0.039	900.00	18.25	1000.00	20.28	2.03
	2.4 Bund making (m.days)	1.274	300.00	198.74	350.00	231.87	33.12
3	Seed and Sowing operations:						
	3.1 40 kg units	76.337	220.00	8732.95	220.00	8732.95	0.00
	3.2 Harvesting, stripping and making of set (m.days)	3.671	300.00	572.68	350.00	668.12	95.45
	3.3 Transport	-	-	600.00	-	700.00	100.00
	3.4 Sowing of sets (m.days)	4.097	300.00	639.13	350.00	745.65	106.52
4	Interculture and Earthing up :						
	4.1 Manual/binding of plants	1.642	1525.00	2504.05	1800.00	2955.60	451.55
	4.2 Bullock/tractor	1.859	900.00	1673.10	1000.00	1859.00	185.90
5	Plant Protection:						
	5.1 Weedicides	0.360	600.00	216.00	700.00	252.00	36.00
	5.2 Granules	0.240	500.00	120.00	575.00	138.00	18.00
	5.3 Sprays	0.275	575.00	158.13	650.00	178.75	20.63
6	Irrigation:						
	6.1 Canal	15.19	-	863.00	-	863.00	0.00
	6.2 Private tubewell	2.61	660.00	1722.60	700.00	1827.00	104.40
	6.3 Private canal (manual labour)	2.43	75.00	182.25	100.00	243.00	60.75
	6.4 Labour for irrigation and water course cleaning (m.days)	7.953	300.00	2385.90	350.00	2783.55	397.65
7	Farm Yard Manure:						
	7.1 Material	-	-	1700.00	-	1800.00	100.00
	7.2 Transport & application	-	-	1400.00	-	1500.00	100.00
8	Fertilizers: (bags)						
	8.1 DAP	0.83	3900.00	3237.00	3625.00	3008.75	-228.25
	8.2 Urea	1.97	1690.00	3329.30	1808.00	3561.76	232.46
	8.3 Nitrophos	0.33	2550.00	841.50	2450.00	808.50	-33.00
	8.4 CAN	0.13	1500.00	195.00	1547.00	201.11	6.11
	8.5 Fert. transport and application	3.26	70.00	228.20	80.00	260.80	32.60
9	Mark up @ 15.0 % per annum for 15 months months on Item 1 to 8 minus item 6.1	-	-	5298.21	-	7061.60	1763.38
10	Land rent for 15 months	-	25500.00	31875.00	28000.00	35000.00	3125.00
11	Average weighed land tax @ Rs 75/acre/ annum for 15 months	-	-	94.00	-	94.00	0.00
12	Management charges for 15 months	-	-	2427.00	-	2578.00	151.00
13	Harvesting & stripping (40 kg units)	585.46	13.00	1750.53	13.00	1750.53	0.00
14	Expected escalation in cost of selected items	-	-	3227.00	-	2748.00	-479.00
15	Total cost (Items 1 to 14)	-	-	80856.17	-	87758.58	6902.41
16	Yield (40 kg units)	-	-	68546	-	58546	0.00
17	Cost of production at farm level: (Rs/40 kgs)						
	17.1 Including land rent	-	-	138.11	-	149.89	11.79
	17.2 Excluding land rent	-	-	83.66	-	90.11	6.45
18	Marketing expenses: (Rs/40 kgs)						
	18.1 Transport, etc.	-	-	14.00	-	14.00	0.00
	18.2 Development cess	-	-	0.54	-	0.54	0.00
19	Cost of production at mill-gate: (Rs/40 kgs)						
	19.1 Including land rent	-	-	152.65	-	164.43	11.79
	19.2 Excluding land rent	-	-	98.20	-	104.65	6.45

Note: In view of changes in mark-up rates by different agriculture credit disbursing agencies, mark-up for 2014-15 crop has changed from 12 to 15 % accordingly

### Notes for Annex- III to V

1. The input-output parameters for estimating cost of production for sugarcane 2014-15 Crop have been adopted from the Price Policy Report for sugarcane 2013-14 Crop, API's Series No. 246.
2. The hiring rates of farm operations, input prices, wage rates, land rentals and charges for harvesting and stripping have been revised/adjusted in light of the Standing Committee meeting on Sugarcane in API, held on 24<sup>th</sup> February 2014 and data obtained through annual field survey conducted by the API in the major sugarcane growing districts area of the Punjab and Sindh during March 2014 and other sources as described below:
3. Seed and related costs (items 2 and 3) for the fresh planted crop have been estimated @ 50, 69 and 52 per cent of their original values for the Punjab, Sindh and KPK respectively in view of the incidence of ratooning reported @ 50, 31 and 48 per cent during sugarcane's large field survey for 1999-00 crop.
4. The cost of supplementary irrigation has been adjusted in view of changing in the prices of diesel from Rs 106.06 to Rs 109.34/lt during May 2013 to May 2014 and power tariff rates from Rs 6.77 to Rs 10.35/kwh, based on the ratios of electric and diesel tube-wells of 13:87 in the Punjab, 23:77 in Sindh and 73:27 in KPK as reported in the Agriculture Statistics of Pakistan, 2011-12, Pakistan Bureau of Statistics Islamabad.
5. The prices of chemical fertilizers have been revised in view of the fertilizers prices published by the Federal Bureau of Statistics, Islamabad for the week ending on 8<sup>th</sup> May 2014.
6. In view of the 1999-00 Crop survey, about 1 per cent of the acreage under sugarcane was harvested in lieu of sugarcane tops in the Punjab and 77 per cent in KPK. The expenditure on account of harvesting and stripping has been adjusted accordingly.
7. The likely escalation in the cost of operations like interculture, plant protection, supplementary irrigation, nitrogenous fertilizer, harvesting/stripping and marketing during 2014-15 crop year has been estimated as 13.69 per cent in the Punjab, 11.78 per cent in Sindh and 13.97 per cent in KPK on the basis of average weighted annual increase in their costs for the last 4 years.
8. The management charges for a manager looking after a 25-acre farm and devoting one-fourth of his time to the managerial activities have been worked out at Rs 17189 per month for a Field Assistant at the 15<sup>th</sup> stage in BPS-6 as per revised scale of July 2011, including 15 & 10 % Ad hoc Relief in 2012 and 2013 respectively.
9. Land rent varies from field to field and region to region and is inclined by several factors extensively. It is a very important constituent of the cost of production in all the three sugarcane producing provinces. For updating the land rentals, there is no precise measure available at hand. However, keeping in view the observations obtained during the field survey as cited above, the land rentals have been revised accordingly.

**ECONOMICS OF SUGARCANE AND COMPETING CROPS AT  
PRICES REALIZED BY THE GROWERS: 2013-14 CROPS**

S. #	Province/crops/crop combination	Crop duration	Water used	Gross cost	Cost of purchased inputs	Gross revenue	Gross margin	Net income	Output-input ratio	Revenue per		
										Rupee of purchased inputs	Crop day	Acres inch of water used
		Days	Acres inches	.....Rupees per acre.....						Ratio	.....Rupees.....	
1	2	3	4	5	6	7-6-5	8-6-4	9-6/4	10-6/5	11-6/2	12-6/3	

**Punjab**

1	Sugarcane	394	48	74550	23533	87598	64065	13048	1.18	3.72	222	1825
2	Seed cotton	240	22	48701	17218	57068	39850	8368	1.17	3.31	238	2594
3	Basmati paddy	180	58	42714	20134	65137	45004	22423	1.52	3.24	362	1123
4	IRRI paddy	180	62	38122	17685	36887	19202	-1235	0.97	2.09	205	595
5	Wheat	180	12	35832	13596	38518	24922	2687	1.07	2.83	214	3210
6	Sunflower (spring)	180	22	38414	16272	40400	24129	1986	1.05	2.48	224	1836
7	Seed cotton + wheat	420	34	84532	30814	95587	64772	11054	1.13	3.10	228	2811
8	Seed cotton+sunflower	420	44	87115	33490	97468	63979	10353	1.12	2.91	232	2215
9	Basmati paddy+wheat	360	70	78545	33730	103656	69926	25110	1.32	3.07	288	1481
10	Basmati paddy+sunflower	360	80	81128	36405	105537	69132	24409	1.30	2.90	293	1319
11	IRRI paddy + wheat	360	74	73954	31281	75406	44125	1452	1.02	2.41	209	1019
12	IRRI paddy+sunflower	360	84	76536	33956	77287	43331	751	1.01	2.28	215	920

**Sindh**

1	Sugarcane	488	71	88853	29138	107947	78809	19094	1.21	3.70	221	1520
2	Seed cotton	240	18	44854	14793	52884	38091	8030	1.18	3.58	220	2938
3	IRRI paddy	180	56	35725	13433	45821	32388	10096	1.28	3.41	255	818
4	Wheat	180	12	33867	12710	35665	22955	1798	1.05	2.81	198	2972
5	Sunflower (spring)	180	22	38955	16006	44900	28895	5945	1.15	2.81	249	2041
6	Seed cotton + wheat	420	30	78721	27502	88549	61046	9828	1.12	3.22	211	2952
7	Seed cotton+sunflower	420	40	83809	27502	97784	70282	13975	1.17	3.56	233	2445
8	IRRI paddy+ wheat	360	68	69592	26143	81486	55344	11894	1.17	3.12	226	1198
9	IRRI paddy+sunflower	360	78	74680	29438	90721	61283	16041	1.21	3.08	252	1163

## Notes for Annex - VI

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2013-14 crops.
2. The data regarding input-output parameters have been adopted from the API's price policy papers for sugarcane, seed cotton, rice paddy and wheat, 2013-14 crops. However, the relevant data for sunflower and canola were adopted from the last support price policy for non-traditional oilseeds 2000-01 crops, with necessary adjustments in input prices for updating costs and incomes for the 2013-14 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2013-14 crops, some marginal revisions have been made as under:
  - 2.1 The cost of supplementary irrigation has been adjusted in accordance with the variation in the electric charges @ 3.37 percent for wheat, while for sugarcane, seed cotton and rice paddy there is no change in the cost. Diesel rates have also been adjusted @ 14.29 percent for wheat crop.
  - 2.2 The cost of fertilizers has been revised in view of their prices prevailed at the time of application for the respective crops in 2013-14 season.
3. Water use has been estimated from the number of irrigations as reported in the cost of production estimates of the respective crops assuming each irrigation of 3 inches and 'rauni' of 4 inches.
4. The following prices as realized by the growers for different crops are adopted for the analysis:
  - 4.1 The support price of Rs 1200 per 40 kgs, as maintained by the government for 2013-14 crop, has been adopted for the current analysis.
  - 4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post-harvest period in major producer area markets have averaged at Rs 2286 and Rs 924 per 40 kgs, respectively. While, the average price of IRRI paddy in Sindh is reported at Rs 901 per 40 kgs.
  - 4.3 The wholesale market prices of seed cotton during the post-harvest months of Aug - Feb 2013-14 in the main producer area markets have averaged at Rs 3044 per 40 kgs in the Punjab. In Sindh, the corresponding prices are averaged at Rs 2755 per 40 kgs.
  - 4.4 The sunflower 2013-14 crop is yet to be harvested. However, it was reported by the PODB Islamabad that All Pakistan Solvent Extraction Association may purchase sunflower and canola at Rs 2250 per 40 kgs during the season.
  - 4.5 The market prices of sugarcane at mill-gate in the major cane producing areas are reported to hover around Rs 170 per 40 kgs in the Punjab and Rs 174 per 40 kgs in Sindh.
5. The market prices have been adjusted for the marketing expenses to make them effective at the farm level. These expenses amount to Rs 13.5 per 40 kgs in Punjab and Rs 7.32 in Sindh for sugarcane, Rs 25 for seed cotton in Punjab and Rs 27 in Sindh, Rs 20 for rice paddy, and Rs 18 for wheat and oilseeds.
6. Gross income = (Yield per acre multiplied by price of principal produce at farm gate) plus (value of by-products per acre).
7. Cost of purchased inputs = Cost incurred on seed and related items, fertilizer, supplementary irrigation including labour, canal water rate, pesticides and weedicides.
8. Gross margin = Gross income minus cost of purchased inputs.
9. Net income = Gross income minus gross cost.
10. Output-input ratio = Gross income divided by gross cost
11. Revenue per rupee of = Gross income divided by cost of purchased inputs cost inputs
12. Revenue per crop day = Gross income divided by crop duration in days.
13. Revenue per acre-inch = Gross income divided by irrigation water used in acre inches.

TABLE - ECONOMIC EFFICIENCY OF RESOURCE USE IN SUGARCANE  
PRODUCTION IN PUNJAB

Based on import parity prices

Description	Revenue	Traded Inputs Cost	Domestic	
			Factor Cost	Profit
----- Rupees per acre -----				
<b>2007-08</b>				
Private Prices	31083	11472	17655	1957
Social Prices	33564	10505	16820	6240
Transfers	-2481	967	835	-4283
<b>2008-09</b>				
Private Prices	56515	14777	20463	21275
Social Prices	41680	13359	19291	9030
Transfers	14835	1419	1171	12245
<b>2009-10</b>				
Private Prices	87900	11621	32253	44026
Social Prices	61091	10687	29206	21197
Transfers	26810	934	3047	22829
<b>2010-11</b>				
Private Prices	98901	22391	32697	43813
Social Prices	126062	20445	30517	75100
Transfers	-27161	1945	2180	-31286
<b>2011-12</b>				
Private Prices	84207	29104	44258	10846
Social Prices	93148	26574	41822	24752
Transfers	-8941	2530	2435	-13906
<b>2012-13</b>				
Private Prices	96076	32427	45920	17728
Social Prices	79353	29612	43305	6436
Transfers	16723	2815	2616	11292
<b>2013-14</b>				
Private Prices	96076	32801	47720	15554
Social Prices	75351	29884	45078	389
Transfers	20724	2917	2642	15166

TABLE - ECONOMIC EFFICIENCY OF RESOURCE USE IN SUGARCANE  
PRODUCTION IN SINDH

Based on import parity prices

Description	Revenues	Traded Cost	Domestic Factors' Cost	Profits
----- Rupees per acre -----				
<b>2007-08</b>				
Private Prices	50024	13615	21024	15386
Social Prices	45529	12589	22790	10150
Transfers	4495	1026	-1766	5236
<b>2008-09</b>				
Private Prices	73008	17785	23794	31429
Social Prices	55216	16201	25611	13404
Transfers	17792	1584	-1817	18026
<b>2009-10</b>				
Private Prices	114920	18261	28574	68086
Social Prices	75158	16701	30116	28341
Transfers	39762	1559	-1542	39745
<b>2010-11</b>				
Private Prices	133510	26638	37690	69182
Social Prices	169386	25501	38947	104938
Transfers	-35875	1138	-1257	-35756
<b>2011-12</b>				
Private Prices	112554	35124	48127	29303
Social Prices	120362	33433	49599	37330
Transfers	-7808	1691	-1472	-8027
<b>2012-13</b>				
Private Prices	124384	39140	50295	34949
Social Prices	104807	37238	51803	15767
Transfers	19577	1903	-1508	19182
<b>2013-14</b>				
Private Prices	124384	39622	52868	31894
Social Prices	103935	37752	54391	11791
Transfers	20449	1870	-1524	20103

TABLE - ECONOMIC EFFICIENCY OF RESOURCE USE IN SUGARCANE PRODUCTION IN PUNJAB  
Based on export parity prices

Description	Revenue	Traded	Domestic	Profit
	Inputs Factor			
	Cost	Cost	Cost	
	----- Rupees per acre -----			
2007-08				
Private Prices	31083	11472	17655	1957
Social Prices	22968	10505	16820	-4357
Transfers	8116	967	835	6314
2008-09				
Private Prices	56515	14777	20463	21275
Social Prices	27551	13359	19291	-5099
Transfers	28964	1419	1171	26374
2009-10				
Private Prices	87900	11621	32253	44026
Social Prices	36479	10687	29206	-3415
Transfers	51422	934	3047	47441
2010-11				
Private Prices	98901	22391	32697	43813
Social Prices	102592	20445	30517	51629
Transfers	-3690	1945	2180	-7816
2011-12				
Private Prices	84207	29104	44258	10846
Social Prices	76866	26574	41822	8470
Transfers	7341	2530	2435	2376
2012-13				
Private Prices	98336	32427	45920	19988
Social Prices	62941	29612	43305	-9976
Transfers	35395	2815	2615	29967
2013-14				
Private Prices	96076	32801	47720	15554
Social Prices	54328	29884	45078	-20635
Transfers	41748	2916	2642	41864

TABLE - ECONOMIC EFFICIENCY OF RESOURCE USE IN SUGARCANE PRODUCTION IN SINDH  
Based on export parity prices

Description	Revenues	Traded Domestic Cost Factors' Cost		Profits
		----- Rupees per acre -----		
2007-08	50024	13615	21024	15386
Private Prices	32556	12589	22790	-2823
Social Prices	17468	1026	-1766	18208
Transfers				
2008-09	73008	17785	23794	31429
Private Prices	41696	16201	25611	-116
Social Prices	31312	1584	-1817	31546
Transfers				
2009-10	114920	18261	28574	68086
Private Prices	49470	16701	30116	2653
Social Prices	65450	1559	-1542	65433
Transfers				
2010-11	133510	26638	37690	69182
Private Prices	141190	25501	38947	76742
Social Prices	-7679	1138	-1257	-7560
Transfers				
2011-12	112554	35124	48127	29303
Private Prices	100805	33433	49599	17774
Social Prices	11749	1691	-1472	11530
Transfers				
2012-13	124384	39140	50295	34949
Private Prices	85095	37238	51803	-3946
Social Prices				
Transfers				
2013-14	124384	39622	52868	31894
Private Prices	77997	37752	54391	-14147
Social Prices				
Transfers				



PER CAPITA AVAILABILITY (CONSUMPTION OF SUGAR: 2010-11 TO 2012-13  
( October - September )

S. No	Items	2010-11	2011-12	2012-13
1	Opoening stocks as on 1st October	334	1109	1394
2	Production	4630	4657	5036
3	Imports	602	7	34
4	Export	0	145	1027
5	Closing stocks as on 30th September	1109	1394	1915
6	Net availability (item 1+2+3-4-5)	4457	4234	3522
7	Population	184.18	187.92	191.68
8	Per capita availability ( consumption)	24.20	22.53	18.37
9	Average per capita availability Average (2010-11 to 2012-13)		21.70	

Note:

a) Population of AJ& K, NAS and Afghanrefuges have also been included.

Sources:

1. For stocks and production:

2. For import and export:

3. For population of Pakistan:

4. For population of AJ&K and Nas:

5. For population of Afghan refuges:

Pakistan Sugar Mills Association, Islamabad.

Federal Bureau of Statistics, Karachi.

Economic Survey, 2012-13.

Population Census Organization, Islamabad.

Kasmir Affairs and Northern Areas and States and Frontier

Regions Division, Government of Pakistan, Islamabad.

**DOMESTIC AVERAGE WHOLESALE PRICES OF SUGAR IN MAJOR  
DOMESTIC MARKETS: 2013 AND 2014**

Month	Lahore	Fasilabad	Karachi	Hyderabad	Peshawar	Average
<b>2013</b>	----- Rupees per 100 kgs -----					
January	5010	5004	4910	5200	4800	<b>4985</b>
February	4931	4859	4800	5178	4800	<b>4914</b>
March	4955	4954	4800	5000	5200	<b>4982</b>
April	5135	5151	4800	4910	5300	<b>5059</b>
May	5121	5111	5000	4830	5300	<b>5072</b>
June	5158	5111	5000	4748	4300	<b>4863</b>
July	5298	5187	5000	3823	4300	<b>4721</b>
August	5190	5161	5200	-	4208	<b>4940</b>
September	5153	5153	5108	5078	4200	<b>4938</b>
October	5283	5341	-	5168	4560	<b>5088</b>
November	5658	5628	-	-	4640	<b>5309</b>
December	5079	4961	-	5000	4160	<b>4800</b>
<b>Average</b>	<b>5164</b>	<b>5135</b>	<b>4958</b>	<b>4893</b>	<b>4647</b>	<b>4973</b>
<b>2014</b>						
January	4847	4845	-	5200	4950	<b>4961</b>
February	4810	4844	-	5260	5000	<b>4979</b>
March	5042	5070	-	5375	5300	<b>5197</b>
April	5070	5038	-	5420	5200	<b>5182</b>
<b>Average</b>	<b>4942</b>	<b>4949</b>	-	<b>5314</b>	<b>5113</b>	<b>5079</b>

Note:

- Not available

- Sources:
1. Agriculture Marketing Information Services, Punjab, Lahore.
  2. Agriculture Marketing Services, Sindh, Huderabad.

**AVERAGE WHOLESALE PRICES OF SUGAR IN MAJOR DOMESTIC MARKETS:  
2000-01 TO 2013-14 ( October- September)**

Year	Lahore	Fasilabad	Karachi	Hyderabad	Peshawar	Average	Increase(+) decrease(-) in average price over
	----- Rupees per 100 kgs -----						Percent
2000-01	2551	2524	2482	2353	2566	2495	-
2001-02	2069	2042	2063	2022	2073	2054	-17.69
2002-03	1939	1906	1892	1872	1972	1916	-6.70
2003-04	1813	1769	1788	1743	1853	1793	-6.42
2004-05	2417	2410	2373	2345	2411	2391	33.35
2005-06	3359	3342	3243	3223	3349	3303	38.14
2006-07	2932	2901	2884	2818	2933	2894	-12.40
2007-08	2444	2410	2390	2346	2473	2413	-16.63
2008-09	4049	3997	3998	3938	4090	4014	66.39
2009-10	6203	6161	6138	6084	6276	6173	53.76
2010-11	6848	6706	6687	6895	6993	6826	10.58
2011-12	5326	5256	5055	5374	5350	5272	-22.75
2012-13	5117	5084	4977	4947	4772	4979	-5.56
2013-14	4942	4949	-	5314	5113	5079	2.01

Sources: 1. Agruculture Marketing Information Services, Punjab, Lahore.  
2. Agriculture Marketing Services, Sindh, Hyderabad.

## AVERAGE INTERNATIONAL PRICES OF SUGAR: 2001-02 to 2013-14 (OCT-SEP)

Years	ISA Daily price of Raw sugar (Fob and stowed Caribbean ports in bulk)		London Daily price of White sugar ( Fob and stowed European ports in bags of 50 kgs)		Difference between White and raw sugar prices		
	US Cents/ lb	US\$/ tonne	US Cents/ lb	US\$/ tonne	US Cents/ lb	US\$/ tonne	Per cent of White Sugar
2001-02	6.85	151.01	10.59	232.48	3.74	81.47	35.32
2002-03	8.12	179.03	10.36	228.35	2.24	49.32	21.59
2003-04	6.57	144.84	10.16	223.93	3.59	79.09	35.33
2004-05	8.97	197.75	12.48	275.06	3.51	77.31	28.13
2005-06	14.84	327.14	18.34	407.75	3.50	80.61	19.10
2006-07	10.43	229.90	14.80	326.82	4.38	96.92	29.55
2007-08	12.38	273.02	15.62	344.44	3.24	71.42	20.73
2008-09	15.42	340.02	18.94	417.56	3.52	77.54	18.57
2009-10	20.41	450.03	26.07	574.68	4.86	107.23	17.66
2010-11	26.56	585.45	32.29	711.93	5.74	126.49	17.77
2011-12	22.68	499.96	27.54	607.20	4.86	107.23	17.66
2012-13	18.12	399.56	23.96	528.15	5.83	128.58	24.35
<b>2013-14</b>	<b>17.43</b>	<b>384.26</b>	<b>21.06</b>	<b>464.33</b>	<b>3.63</b>	<b>80.07</b>	<b>17.24</b>
October	18.54	408.73	22.45	494.93	3.91	86.20	17.42
November	17.77	391.75	21.50	473.99	3.73	82.23	17.35
December	16.40	361.55	20.33	448.10	3.93	86.55	19.31
January	16.11	355.16	19.55	431.07	3.44	75.91	17.61
February	16.22	357.58	20.49	451.68	4.27	94.10	20.83
March	17.24	380.07	21.22	467.90	3.98	87.83	18.77
April	17.61	388.23	21.24	468.22	3.63	79.99	17.08
May	18.31	403.66	21.74	479.25	3.43	75.59	15.77
June	17.46	384.92	21.51	474.2	4.05	89.28	18.83
July	18.64	410.93	20.59	453.85	1.95	43.02	9.48

Source: International Sugar Organization (ISO), London.

## IMPORT PARITY PRICES OF SUGARCANE AT MILL-GATE ON THE BASIS OF FOB (LONDON)

## PRICE OF WHITE SUGAR

S.No	Item	July 2014		2013- 14 (Oct-Jul)		2010-11 to 2012-13	
		US \$ per tonne					
1.	Average fob (London) price	453.95		464.33		615.76	
2.	Freight charges upto Karachi	60		60		60	
3.	C & f cost at Karachi port	514		524		676	
4.	Exchange rate (Rs/\$)	98.88		98.88		98.88	
		Rs per tonne					
5.	C & f cost at Karachi port (Pak rupees)	50819		51846		66819	
6.	Marine insurance @ 0.23 % of c & f cost	117		119		154	
7.	Cif cost at Karachi port	50936		51965		66973	
8.	Landing charges @1% of Cif Value	509		520		670	
9.	L.C opening charges @0.04% of C&f Value	20		21		27	
10.	Bank services charges @0.1% of C&F value	51		52		67	
11.	Provision of shortage & unforeseen losses @0.25% of C&F	127		130		167	
12.	Stevedoring charges	725		725		725	
13.	Clearing & forwarded charges	8		8		8	
14.	Misc: Exp 0.05% of of C&F value	25		26		33	
15.	Wharfage & Weightment	54		54		54	
16.	Importer's profit 2% of C&F value	1016		1037		1336	
17.	Transport charges for up country	2500		2500		2500	
18.	Incidental charges incurred on imported sugar	5036		5072		5587	
19.	Ex-mill/ market cost of imported sugar	55973		57037		72560	
		Punjab	Sindh	Punjab	Sindh	Punjab	Sindh
20.	Processing cost of sugar (a)	19031	19031	19392	19392	24670	24670
21.	Value of cane to produce one of sugar (item 19-item 20)	36942	36942	37644	37644	47890	47890
22.	Provincial base sugar recovery (Percent)	9.85	10.16	9.85	10.16	9.85	10.16
23.	Quantity of cane in tonnes required to produce one tonne of sugar ((100/ item 22)	10.15	9.84	10.15	9.84	10.15	9.84
24.	Price of one tonne of sugarcane (item 21/item 23)	3638.78	3753.30	3707.95	3824.65	4717.12	4865.58
25.	Price of 40 kgs of cane	145.55	150.13	148.32	152.99	188.68	194.82

## Sources:

- i) For average fob (London) price: Annex IX
- ii) For freight, incidentals and duties: Trading Corporation of Pakistan, Karachi.

## Note

- (a) Ratio of cost of cane to processing cost has been estimated at 66:34 from publication " Cost of Production of Sugar " jointly prepared in 1996 by APCOM and Business & Consultancy Services.

**EXPORT PARITY PRICES OF SUGARCANE AT MILL-GATE ON THE BASIS OF (FOB LONDON)  
PRICES OF WHITE SUGAR**

S.No	Item	July 2014		2013- 14 (Oct-Jul)		During 2010-11 to 2012-13	
		US \$ per tonne					
1.	Average fob (London) price	453.95		484.33		615.76	
2.	Exchange rate (Rs/\$)	98.88		98.88		98.88	
		----- Rs. per tonne -----					
3.	Average fob Karachi price ( assuming equivalent to fob London price)	44887		45913		60886	
4.	Transport charges from interior Sindh to port, special packing, inspection transit insurance, loading and unloading, clearing and forwarding and port terminal charges	2179		2179		2179	
5.	Bank commission @ 1.25 % of fob price	561		574		761	
6.	Inspection charges	429		429		429	
7.	Ex-mill price of sugar ( item 3 minus items 4 through 6)	41717		42731		57517	
		Punjab	Sindh	Punjab	Sindh	Punjab	Sindh
8.	Processing cost of sugar (a)	14184	14184	14529	14529	19556	19556
9.	Value of cane to produce one of sugar (item 7-item 8)	27534	27534	28202	28202	37961	37961
10.	Provincial base sugar recovery (Percent)	9.85	10.16	9.85	10.16	9.85	10.16
11.	Quantity of cane in tonnes required to produce one tonne of sugar ((100/ item 10)	10.15	9.84	10.15	9.84	10.15	9.84
12.	Price of one tonne of sugarcane (item 9/ item 11)	2712.05	2797.41	2777.94	2865.37	3739.20	3856.88
13.	Price of 40 kgs of cane	108.48	111.90	111.12	114.61	149.57	154.28

**Notes:**

- i) For average fob (London) price: Annex IX.
- ii) For incidentals and duties: Trading Corporation of Pakistan, Karachi.
- ii) For transport charges: Arian Cargo Transport Agency, Karachi.

**Note**

- (a) Ratio of cost of cane to processing cost has been estimated at 66:34 from publication " Cost of Production of Sugar " jointly prepared in 1996 by APCOM and Business & Consultancy Services.

**MIL-GATE PRICES OF SUGARCANE WORKED BACK FROM THE EXPECTED WHOLESALE MARKET PRICES  
OF SUGAR DURING 2013-14**

S.No	Item	WORKED BACK PRICES OF SUGARCANE					
		Rupees per tonne					
1.	Average wholesale market prices of sugar (a)	50000	55000	60000			
2.	Wholesale dealer margin @5% on net price	2212	2434	2655			
3.	Federal excise duty @ 8%	3540	3894	4248			
4.	Net price of sugar (items 1-2-3)	44248	48673	53097			
		Punjab	Sindh	Punjab	Sindh	Punjab	Sindh
5.	Processing cost of sugar (a)	15044	15044	16549	16549	18053	18053
6.	Value of cane to produce one tonne of sugar (item 4-item 5)	29204	29204	32124	32124	35044	35044
7.	Provincial base sugar recovery (Percent)	9.85	10.16	9.85	10.16	9.85	10.16
8.	Quantity of cane in tonnes required to produce one tonne of sugar ((100/ item 7)	10.15	9.84	10.15	9.84	10.15	9.84
9.	Price of one tonne of sugarcane (item 6/item 8)	2877	2967	3164	3264	3452	3560
10.	Price of 40 kgs of cane	115.06	118.68	126.57	130.55	138.07	142.42

**Note**

- (a) Ratio of cost of cane to processing cost has been estimated at 66:34 from publication " Cost of Production of Sugar " jointly prepared in 1996 by APCOM and Business & Consultancy Services, Islamabad

**Sources:**

For prices: Annex-VIII  
For FED: FBR, Islamabad.

**Commercial Sugarcane Varieties Developed and Released through Coordinated  
Sugar Crops Research Program of the PARC**

S. No.	Name of variety	Name of Institute	Year of Release	Maturity	Cane Yield(t/ha)	Sugar recovery (%)
<b>Punjab</b>						
1.	BF-162	AARI, Fsd.	1990	Early	100	10.5
2.	SPSG-26	SRI, Jhang	1991	Early	100	10.2
3.	BF-129	AARI, Fsd.	1996	Mid	100	9.8
4.	CP-43-33	AARI, Fsd.	1996	Early	90	10.8
5.	CP-72-2086	AARI, Fsd.	1996	Early	90	12
6.	CP-77-400	AARI, Fsd.	1996	Early	100	12.7
7.	CPF-237	AARI, Fsd.	2000	Early	95	12.5
8.	SPF-213	AARI, Fsd.	2000	Mid	100	11
9.	HSF-240	AARI, Fsd.	2002	Early	130	12.5
10.	SPF-234	AARI, Fsd.	2002	Early	100	11.6
11.	SPF-245	AARI, Fsd.	2004	Early	100	11
12.	HSF-242	AARI, Fsd.	2006	Early	108	12.4
13.	CPF-243	AARI, Fsd.	2006	Early	102	12.7
14.	NSG-555	SRI, Jhang	2008	Mid	119	10.1
15.	NSG-311	SRI, Jhang	2008	Mid	0	0
16.	CPF-246	AARI, Fsd	2010	Early	105	12.0
17.	CPF-247	AARI, Fsd	2010	Early	105	12.5
<b>Sindh</b>						
18	Ghulabi-95	ARI, Tandojam	1996	Early	200	10.7
19	NIA-98	NIA, Tandojam	1998	Mid	180	10.5
20	Thatta-10	NSCRI, Thatta	2004	Early	180	11
21	NIA-2004	NIA, Tandojam	2004	Mid	170	9.5
22	LRK-2001	QAARI, Larkan	2005	Early	200	11
<b>KPK</b>						
23.	CPM-13	SCRI, Mardan	1989	Early	70	12.5
24.	CO-1321	SCRI, Mardan	1989	Early	70	12
25.	Mardan -92	SCRI, Mardan	1992	Mid	100	12
26.	Mardan -93	SCRI, Mardan	1993	Early	100	12.5
27.	CP-77-400	SCRI, Mardan	1996	Mid	80	12.7
28.	Jn-88/1	SBS, Dargai	1996	Early	70	12.7
29.	Abid-96	SBS, Dargai	1996	Early	70	12.5
30.	SN-98	SCRI, Mardan	1998	Early	72	12.2
31.	MCP-421	SCRI, Mardan	2003	Mid	80	12.5
32.	Mardan-2005	SCRI, Mardan	2005	Early	90	12.2
33.	KB-2010	ARS, Bannu	2010	Early	0	0

Source:PARC



