

API SERIES NO. 251



# **RICE PADDY POLICY ANALYSIS FOR 2014-15 CROP**



**AGRICULTURE POLICY INSTITUTE  
MINISTRY OF NATIONAL FOOD SECURITY AND RESEARCH  
GOVERNMENT OF PAKISTAN  
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## ACRONYMS AND ABBREVIATIONS

API	Agriculture Policy Institute
BMR	Balancing Modernization Replacement
COP	Cost of Production
CPI	Consumer Price Index
DR	Dokri Research
DRC	Domestic Resource Cost
E&M	Economics and Marketing
ECC	Economic Coordination Committee(of the cabinet)
EPC	Effective Protection Coefficient
FAO	Food and Agriculture Organization
FAQ	Fair Average Quality
FCA	Federal Committee on Agriculture
FOB	Free on Board
FMI	Farm Machinery Institute
FSC&RD	Federal Seed Certification and Registration Department
FYM	Farm Yard Manure
GAP	Good Agriculture Practise
GST	General Sales Tax
IPM	Integrated Pest Management
IRRI	International Rice Research Institute
KS	Kala Shah Kaku
MINFA	Ministry of Food and Agriculture
NARC	National Agricultural Research Centre
NIAB	Nuclear Institute for Agriculture and Biology
NPC	Nominal Protection Coefficient
PARC	Pakistan Agricultural Research Council
PASSCO	Pakistan Agricultural Storage and Services Corporation
PBS	Pakistan Bureau of Statistics
PSC	Punjab Seed Corporation
RRI	Rice Research Institute
SSC	Sindh Seed Corporation
WBPH	White Back Plant Hopper
WTO	World Trade Organization

# RICE POLICY ANALYSIS FOR 2014-15 CROP

## SUMMARY OF FINDINGS AND RECOMMENDATIONS

### Findings:

#### 1. Area and Production

- ❖ Overall rice production at country level during the decade ending 2013-14 has increased @ 2.2 per cent per annum owing to 0.2 per cent expansion in area and 2.0 per cent improvement in yield.
- ❖ The total production of rice for 2013-14 crop is estimated at 6.798 million tonnes at country level, higher by 23 per cent than the 5.536 million tonnes in 2012-13.
- ❖ Basmati rice is produced in the Punjab only.
- ❖ Sindh plays an imperative role in total production of IRRI rice, contributing 55 percent in area and 59 per cent in production while the shares of the Punjab and Balochistan are 27 and 18 per cent in area and 23 and 19 per cent in production respectively.
- ❖ Shares of the Punjab, Sindh and Khyber Pakhtunkhwa in production of 'other' varieties of rice are 49, 46 and 5 per cent respectively.

#### 2. Domestic Prices

- Monthly average wholesale market prices of super basmati paddy during 2013-14 crop ranged between Rs. 2007 and Rs. 2447/40 kgs during the post harvest in major rice producing area markets.
- In Sindh, the monthly average wholesale market prices of IRRI paddy in major rice producing area markets ranged from Rs. 840 to Rs. 912/40 kgs during the post harvest period.

#### 3. Cost of Production

- ❖ The cost of cultivation of basmati paddy in the Punjab for 2014-15 crop is estimated at Rs. 39,616 per acre.

- ❖ While the cost of production of basmati paddy at market level is estimated around Rs. 1550 per 40 kgs, including marketing cost.
- ❖ The cost of cultivation of IRRI paddy in Punjab is estimated at Rs. 36,618 per acre.
- ❖ While the cost of production of IRRI paddy in Punjab is estimated at Rs. 1015 per 40 kgs.
- ❖ The cost of cultivation of IRRI paddy in Sindh for 2014-15 crop is estimated at Rs. 33,508 per acre.
- ❖ The market level cost of production of IRRI paddy in Sindh would come to Rs. 714 per 40 kgs.

#### 4. Economics of Rice Paddy and Competing Crops

- Rice being a major kharif crop competes with cotton for land, water and other farm resources in the areas where cultivation of both crops is technically feasible.
- Basmati performance in Punjab in terms of returns to overall investment has been significantly better than cotton. Similarly, in terms of crop duration, Basmati returned higher revenue to farmer. However, in terms of purchased inputs and irrigation water, Basmati's returns for investment were lower than cotton.
- IRRI paddy in the Punjab could not perform well against cotton in any of the economic indicators analyzed.
- In Sindh, IRRI cultivation surpassed seed cotton in terms of output-input ratio & crop duration while out-numbered by revenue of purchased inputs and irrigation water.

#### 5. Real Prices

- The real market prices of basmati paddy in the Punjab witnessed mixed trend during 2007-14 crops years. In three years it remained higher than the base year's price of Rs. 920/40 kgs while in other three years it stood less than the base year price.
- In Sindh, the real market prices of IRRI paddy in the referred period remained higher for two years while in four years it remained less than the base year's price of Rs. 509/40 kgs.

#### 6. World Situation

- World rice production in 2012-13 is estimated at 472 million tonnes, higher by 1.1 percent than last year production and 0.8 percent lower from the forecast rice production of 476 million tonnes in 2013-14.

- The world rice trade during 2012-13 is reported at 38 million tonnes, showing 2.7 percent increase over last year.
- The world rice trade in 2013-14 is forecast at 40 million tonnes, higher by 2.0 million tonnes traded in 2012-13.

## 7. Export Parity Prices

- International prices of basmati rice during 2013-14 are reported at US \$ 948 to 1079 per tonne while the export parity prices of paddy ranged between Rs. 1880 to 2168 per 40 kgs.
- International prices of IRRI rice in the referred period ranged at US \$ 468 to 504 per tonne and the export parity prices of IRRI paddy ranged between Rs.762 & Rs. 832 per 40 kgs.

## 8. Economic Efficiency

- Economic efficiency of resources use in rice production has been evaluated by estimating the Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost (DRC).
- NPC value for basmati paddy remained less than one during the entire period of 2009-14 except 2013-14, implying that rice producers have not received the economic price for their produce.
- Similarly EPC value for basmati paddy in the Punjab also remained less than one throughout the referred period except two years i.e. 2012-13 and 2013-14.
- In case of IRRI rice in Sindh, the NPCs and EPCs both immensely fluctuated and remained more than one, showing some implicit protection to the IRRI growers in the country.
- DRC indicates the opportunity cost of domestic resource used in the production of a commodity. The DRC less than one indicate a commodity system having comparative advantage and vice versa.
- DRCs for basmati have been less than one during the period under review, implying that Pakistan has comparative advantage in basmati production.
- The DRCs for IRRI paddy in Sindh remained less than one during the period under review, indicating comparative advantage for Sindh in producing IRRI rice for export.



## 9. World Comparison

- Pakistan is the 10<sup>th</sup> & 11<sup>th</sup> largest rice producer in terms of area and production respectively but holds 58<sup>th</sup> position in terms of yield in the world.
- In terms of area, India is on the top with 42.50 million hectares, followed by China with 30.30 and Indonesia with 13.44 million hectares.
- In terms of rice production, China is on the top with 136.19 million tonnes, followed by India with 101.733 million tonnes and Indonesia with 46.030 million tonnes.
- In terms of yield per hectare, Egypt lies on the top with 6353 kgs/hectare, followed by Australia with 5940 and USA with 5566 kgs/hectare.

## 10. Policy Options

- Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for rice paddy 2014-15 crop are presented below:

Base		<b>Worked back price of Rice paddy at mill-gate</b> (Rupees per 40 kgs)
A.	<b>Export parity prices based on actual Fob (Karachi) prices of Pakistani basmati and IRRI rice:</b>	
	i) Basmati	
	▪ June, 2014	1880
	▪ 2013-14	2168
	ii) IRRI	
	▪ June, 2014	832
	▪ 2013-14	762
B	<b>Domestic market prices of rice paddy During Oct-Feb 2013-14</b>	
	i) Basmati Punjab	2323
	ii) IRRI-6 Sindh	888
C.	<b>Cost of production at market level for 2014-15 Crops</b>	
	i) Basmati (Punjab)	1550
	ii) IRRI (Punjab)	1015
	iii) IRRI (Sindh)	714

# Recommendations

In view of the field information, consultations with the stakeholders in the API's Standing Committee meeting on rice paddy and analysis of the relevant factors, following recommendations are made regarding the intervention price and improving productivity, quality and marketing of rice paddy.

## a. Intervention Price of Rice Paddy: 2014-15 Crop

- i. In view of the relevant analysis and high input costs, the API is of the view that the Government may like to consider for announcement of Intervention Price for Rice paddy 2014-15 crop around Rs.1800 per 40 kgs for basmati and Rs.800 per 40 kgs for IRRI paddy, in case of need.
- ii. It should provide remunerative margin of returns over the cost of production which would help Productivity Enhancement Programme of the Government through balanced input use, better management and optimal technology adoption.
- iii. It provides a reference point for intervention by the public sector agency, if needed.
- iv. The API strongly feels that greater attention and emphasis should be given by the government on improving quality of rice for boosting exports.
- v. In view of free market and active role of private sector, the actual incentive to paddy growers should come through the market forces.
- vi. The government policy of encouraging the role of private sector in marketing of rice may be further strengthened.
- vii. The PASSCO should be designated as implementing agency for procurement of rice paddy at the intervention price if announced by the government.
- viii. PASSCO equipped with pre-requisites for procuring rice paddy should enter well in time in the field especially in Sindh province where the harvesting starts early.

**b. Improving Productivity**

- i. Use of Certified seed should be encouraged. While approving the Hybrid Rice Varieties, the Provincial Seed Councils should also be kept on board. Unapproved varieties should be either got approved according to procedure or be banned.
- ii. Government should put the hybrid seeds in the system by approval according to the proper procedure to avoid fluctuation in yield.
- iii. Price of Hybrid seed should be rationalized. Inbred lines of Hybrid seed should be encouraged while importing seed. Extra vigilance should be exercised to control GMO paddy seed.
- iv. Irrigation water is getting scarce over-time. The Research Institutes should make efforts for evolving varieties which consume less water. Research Institutes may also evolve technologies for dry sowing of rice.
- v. Timely availability of fertilizer may be ensured at the time of crop sowing.
- vi. To ensure quality of inputs especially, fertilizer and pesticides, Provincial Agriculture Departments may enhance monitoring by using mobile labs.
- vii. To regulate the prices of fertilizer and avoid black marketing, retail price along with manufacturing and expiry date should be printed on fertilizer bags and the Provincial Agriculture Departments should ensure effective implementation of a strong monitoring system.
- viii. To resolve the issue of non-availability of desired farm machinery, the Cooperative System should be encouraged for arranging farm machinery on rental basis to growers.
- ix. To improve quality of rice for better price at farm gate, Portable dryers for small farmers may be introduced at subsidized rate.
- x. Certified seed of IRRI-6, KS-282 and other high yielding varieties in sufficient quantity should be made available at reasonable prices.
- xi. Provincial Agriculture Research Institutes/ NARC may be facilitated for production of local hybrid varieties, if economical.
- xii. Prices of certified seed, both local/imported, should be strictly controlled at competitive level.
- xiii. According to Rice Pest Control Act, rice nursery cannot be sown before May 20. This needs to be strictly implemented. This will facilitate in harvesting of monsoon rain water resulting in reduction of production cost.

- xiv. Balanced use of fertilizers according to Agriculture Extension Department's recommendations should be advocated. Pure zinc sulphate should also be made available to growers.
- xv. Pest Scouting activities should be strengthened through creating awareness and training. Indiscriminate use of pesticides should be avoided. Lesser use of pesticides will not only reduce cost of production but also resolve the issue of pesticide residual.
- xvi. Majority of rice growers are small or medium farmers and unaware of Global GAP. To create awareness among farming community, awareness campaign should be launched by federal/ provincial governments.
- xvii. To encourage the Breeder, awards should be insured for new HYV varieties.

**c. Improving Quality and Marketing**

- i. Import as well as local manufacturing of rice harvesters need to be encouraged and should be provided to growers at subsidized rates to discourage premature harvesting of paddy.
- ii. To improve quality of paddy, paddy dryers need to be installed at each rice mill through incentive by the public sector.
- iii. Par boiled steaming of rice technology should be encouraged under the supervision of qualified technician for standardization of rice quality.
- iv. Projects like Supply Chain System of the Punjab Government should be encouraged in other provinces also in collaboration with private sector for improving the quality and marketing of rice.
- v. Although Crop Reporting Service (CRS) is efficiently working on yield estimation and crop production but is suffering from the shortage of employees, there is need of capacity building of the CRS and to provide conveyance to Crop Reporters and Statistical Officer for timely completion of crop estimates.
- vi. The efficiency of CRS needs to be enhanced by providing mini threshers portable for crop yield estimation of rice crop.
- vii. To safeguard the interest of farmers, India is providing substantial amount of subsidy in agriculture sector, as a result of which production cost of Indian rice is more competitive.

- viii. If rice is eliminated from negative list of traded commodities with India, Pakistan cannot compete with India. So the rice should be mentioned in negative list.
- ix. Processing units and warehouses of exporters may be got HACCP certified to meet international Food Laws.
- x. Issue of Aflatoxin (fungal attack on rice) is surging. To overcome this issue, import of dryer and silos may be allowed at zero tariffs.
- xi. To avoid Kapra Betal infestation, a separate location should be assigned in port area to avoid transfer of pest from wheat to rice.
- xii. Rice should be stored in separate godowns. Use of used jute bags should be strictly banned. Poly propylene bags are more useful to avoid Kapra Betal infestation.
- xiii. Rice godowns should be strictly monitored for sanitation on regular basis.
- xiv. Fumigation of the rice consignment with methyl bromide and aspirator may be treated prior to shipment. Separator may also be used to separate the dead insect.

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**Chairman, API**

**July, 2014**

## RICE POLICY ANALYSIS FOR 2014-15

### 1. INTRODUCTION

1.1 Rice plays an assorted role in Pakistan's agrarian economy. It is second staple food and meets more than 2 million tonnes of national food requirement. Rice industry is an important source of employment and income for rural people. It also contributes in the country's foreign exchange earnings of the *exchequer*. Rice accounts for 3.1 percent of the value added in agriculture and 0.7 percent of GDP (Economic Survey 2013-14). The cropped area under rice is 2.8 million hectares. Rice production in the country consists of Basmati, IRRI and 'Other' varieties. All of them have sufficient export demand as well as they are consumed domestically. Basmati is long grain aromatic variety entirely produced in the Punjab. Sindh leads in IRRI production and Punjab in 'Others' varieties production. However, rice is cultivated in all the four provinces at varying levels of production. The crop also provides feed to livestock in the form of rice straw and husk. It is also used as a raw material for the manufacturing industry.

1.2 Rice production was at its peak at 6.952 million tonnes in 2008-09. In 2008-09 onward, rice production has shown a mixed trend and stood at 6.789 million tonnes in 2013-14. During 2013-14, rice was cultivated on the area of 2789 thousand hectares, 20.8 percent higher than last years area of 2309 thousand hectares. The production stood at 6798 thousand tonnes, against the target of 6200 thousand tonnes showing a growth of 9.6 percent against the target. If compared to the corresponding period of last year production i.e 5536 thousand tonnes, a healthy increase of 22.8 percent was witnessed. The production increased due to increase in area while yield remained not impressive due to flood and excessive rain in cultivated areas. Domestic higher prices did not encourage exporters to sell higher quantity of rice in the markets abroad. Within food group, export of rice alone accounting for 46.9 percent, registered an impressive growth of 16.41 percent. During 2013-14 rice exports earned US\$ 1.667 billion (Economic Survey

2013-14). India produces subsidized rice and further subsidies it for exports which limits competitiveness of small producing countries in the world market.

1.3 There is a dire need to protect Pakistani rice exports and invest in research, pest eradication, storage, improvement in yield, develop international demanded varieties and have to keep it up by having GAP (Good Agriculture Practise) certification at farm level. The efforts should be made that our rice markets remain intact.

## 2. SOWING & TRANSPLANTING OF RICE PADDY

2.1 Rice crop in Pakistan is mostly sown by transplanting of seedlings raised in nurseries. Direct seeding is also practised on a limited scale in areas where weed is not a problem. The sowing times of nurseries and transplanting differ by variety and region. The recommended sowing time of nurseries and their transplanting in various regions are given in Table-1.

**Table-1: Sowing Times of Rice Crop**

Province	Variety	Time for	
		Sowing nursery	Transplanting
Punjab	Super Basmati	20 May to 7 June	20 June to 7 July
	Other Basmati	1 June to 20 June	1 July to 31 July
	IRRI	20 May to 7 June	20 June to 7 July
<b>Sindh</b>			
Upper Sindh	IRRI-6, Sada Hayat	8 May to 15 June	8 June to 15 July
	DR-82/92	23 May to 30 June	23 June to 31 July
	Dr-83	16 June to 15 July	16 July to 15 August
Lower Sindh	IRRI-6, Sada Hayat	16 April to 15 May	16 May to 15 June
	DR-82/92	8 May to 22 June	8 June to 22 July
	Dr-83	1 June to 7 July	1 July to 8 August
<b>KPK</b>			
Plains	All varieties	1 May to 31 May	1 June to end of June
Hilly areas	All varieties	1 May to 20 May	3 <sup>rd</sup> week of May to end June
<b>Balochistan</b>	All varieties	20 May to 30 June	20 June to 30 July

**Sources:** i) For Punjab: Director, Rice Research Institute, Kalashah Kaku.  
 ii) For Sindh: Rice Research Institute, Dokri, Sindh.  
 iii) For the KPK and Balochistan: Rice Coordinator, NARC, Islamabad.

### 3. REVIEW OF 2013-14

#### 3.1 Provincial Shares in Area and Production

3.1.1 Based on the average of 2011-12 to 2013-14, annual production of rice worked out at 6.165 million tonnes from the average area of 2.556 million hectares (6.317 million acres). Varietals break-up of rice production (Table-2) shows that Punjab having best suited agro climate conditions in production of basmati rice is the sole producer of basmati rice in the country. In the total production of IRRI rice, Punjab, Sindh, and Balochistan are contributing 22.7, 58.7 and 18.7 per cent, respectively. In 'Others' varieties of rice, respective shares of Punjab, Sindh and Khyber Pakhtunkhwa are 49.1, 46.0 and 4.9 per cent.

**Table-2: Provincial Shares in Area and Production of Rice: Average of 2011-12 to 2013-14 Crops**

Variety	Pakistan		Punjab	Sindh	KPK	Balochistan
	Area (000 hectares)	Per cent				
<b>Total</b>	<b>2556.4</b> <b>(6317.4)</b>	<b>100.0</b>	68.3	24.7	2.0	5.1
Basmati	1102.9 (2725.4)	43.1	100.0	-	-	-
IRRI	711.5 (1758.2)	27.8	27.3	54.5	-	18.2
Other	742.0 (1833.8)	29.0	60.3	32.7	6.9	-
	Production (000 tonnes)	Percent	-----Per cent-----			
<b>Total</b>	<b>6164.8</b>	<b>100.0</b>	<b>55.3</b>	<b>36.3</b>	<b>1.6</b>	<b>6.7</b>
Basmati	1901.4	30.8	100.0	-	-	-
IRRI	2207.4	35.8	22.7	58.7	-	18.7
Other	2056.0	33.4	49.1	46.0	4.9	-

**Note:** Figures in parenthesis are in thousand acres.

**Source:** Worked out from data in Annex-I.

3.1.2 The provincial shares of Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan in total area under rice crop are 68.3, 24.7, 2.0 and 5.1 per cent, respectively. Basmati accounts for 43.1 per cent of the total area, IRRI and 'Others' varieties are grown on 27.8 and 29.0 per cent. Province-wise and variety-wise shares in production are given in Fig-1 and 2.



Fig-1: VARIETAL SHARES IN PRODUCTION OF RICE: AVERAGE OF 2011-12 TO 2013-14

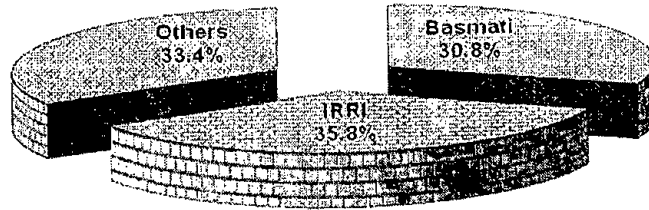
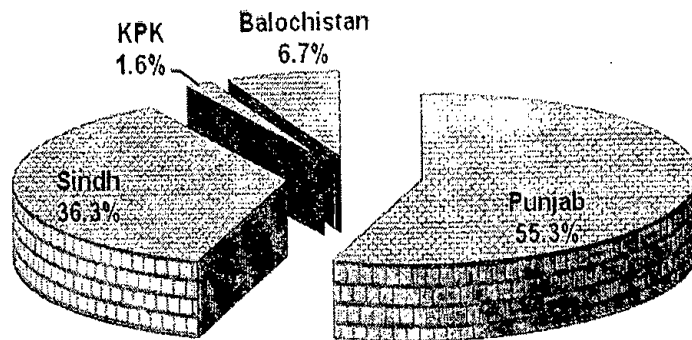


Fig-2: PROVINCIAL SHARES IN PRODUCTION OF RICE: AVERAGE OF 2011-12 TO 2013-14



### 3.2 Changes in Area, Yield and Production

3.2.1 The area under rice crop during 2003-04 to 2013-14 has ranged between 2.309 and 2.963 million hectares (5.705 to 7.321 million acres) and production oscillated between 4.823 and 6.952 million tonnes (**Annex-I & I-A**). The yield during this period fluctuated between 1970 to 2437 kgs per hectare (797 to 986 kgs per acre). Long and short terms changes in area, yield and production of rice are discussed below:

#### a. Long terms changes: 2003-04 to 2013-14

3.2.2 During the decade ending 2013-14, production of rice at country level is estimated to have increased @ 2.2 per cent per annum as a cumulative effect of increase in yield by 2.0 per cent and expansion in area by 0.2 per cent.

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

Country/Province	Variety	Area	Yield	Production
		-----Per cent per annum-----		
Pakistan	<b>All varieties</b>	<b>0.2</b>	<b>2.0</b>	<b>2.2</b>
	Basmati	-3.2	0.7	-2.5
	IRRI	-1.7	1.0	-0.7
	Others	14.1	4.7	19.5
Punjab	<b>All varieties</b>	<b>0.3</b>	<b>1.5</b>	<b>1.8</b>
	Basmati	-3.2	0.7	-2.5
	IRRI	5.7	1.8	7.6
	Others	16.4	0.2	16.6
Sindh	<b>All varieties</b>	<b>0.6</b>	<b>3.3</b>	<b>3.9</b>
	IRRI	-3.9	1.5	-2.5
	Others	18.5	16.6	38.1
KPK	<b>All varieties</b>	<b>-2.3</b>	<b>-1.0</b>	<b>-3.3</b>
Balochistan	<b>All varieties</b>	<b>-4.9</b>	<b>0.3</b>	<b>-4.6</b>

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

3.2.3 Annual growth of rice production in the Punjab during the period 2003-04 to 2013-14 remained 1.8 per cent as result of 1.5 per cent per annum increase in yield and 0.3 per cent per annum in area. The area of basmati rice has decreased by 3.2 per cent per annum. Yield increased by 0.7 per cent per annum, resultantly production increased @ 2.5 per cent per annum. The production of IRRI rice has increased by 7.6 per cent annually due to 5.7 and 1.8 percent increase in area and yield. The production of 'Other' varieties has increased by 16.6 per cent per annum because of 16.4 per cent expansion in area and 0.2 per cent rise in yield.

3.2.4 In Sindh, where only coarse varieties are cultivated, rice production during the period under reference is estimated to have increased @ 3.9 per cent annually due to 0.6 per cent expansion in area and 3.3 per cent rise in yield.

3.2.5 In the Khyber Pakhtun Khwa, the production of rice has decreased by 3.3 per cent annually due to 2.3 and 1.0 percent per annum decrease in area and yield.

3.2.6 In Balochistan, rice production during the period under reference has recorded average annual reduction of 4.6 per cent due to decrease in area by 4.9 percent whereas rice yield increased by 0.3 percent.

**b. Short-terms changes: 2013-14 vs 2012-13**

3.2.7 According to the Final estimates, rice production estimated at 6.798 million tonnes in 2013-14 is 22.8 per cent higher than last year's production of 5.536 million tonnes. The production has increased mainly increases of area by 20.8 and 1.65 percent in yield. The changes in area, yield and production by province and by variety in 2013-14 in relation to 2012-13 are given in **Table-4**.

**Table-4: Area, Yield and Production of Rice by Variety: 2012-13 and 2013-14 Crop**

Country/ Pakistan	Area		Change	Yield		Change	Production		Change
	2012-13	2013-14		2012-13	2013-14		2012-13	2013-14	
	000 hectares		Percent	Kgs/hectare		Percent	000 tonnes		Percent
<b>Pakistan</b>	<b>2308.8</b>	<b>2789.3</b>	<b>20.81</b>	<b>2398</b>	<b>2437</b>	<b>1.65</b>	<b>5535.9</b>	<b>6798.2</b>	<b>22.80</b>
Basmati	995.1	1192.6	19.85	1767	1725	-2.37	1758.1	2057.1	17.01
IRRI	579.1	795.7	37.40	3140	2980	-5.11	1818.6	2371.2	30.39
Others	734.6	801.0	9.04	2667	2959	10.94	1959.2	2369.9	20.96
<b>Punjab</b>	<b>1711.4</b>	<b>1808.9</b>	<b>5.70</b>	<b>2032</b>	<b>1924</b>	<b>-5.31</b>	<b>3478.0</b>	<b>3481.0</b>	<b>0.09</b>
Basmati	995.1	1192.6	19.85	1767	1725	-2.37	1758.1	2057.1	17.01
IRRI	210.0	189.4	-9.81	2607	2625	0.71	547.4	497.2	-9.17
Others	506.3	426.9	-15.68	2316	2171	-6.26	1172.5	926.7	-20.96
<b>Sindh</b>	<b>511.1</b>	<b>745.6</b>	<b>45.88</b>	<b>3608</b>	<b>3510</b>	<b>-2.70</b>	<b>1843.9</b>	<b>2617.4</b>	<b>41.95</b>
IRRI	331.6	426.8	28.71	3471	3013	-13.19	1151.0	1286.1	11.74
Others	179.5	318.8	77.60	3860	4176	8.18	692.9	1331.3	92.13
<b>KPK</b>	<b>48.8</b>	<b>55.3</b>	<b>13.32</b>	<b>1922</b>	<b>2024</b>	<b>5.27</b>	<b>93.8</b>	<b>111.9</b>	<b>19.30</b>
<b>Balochistan</b>	<b>37.5</b>	<b>179.5</b>	<b>378.67</b>	<b>3205</b>	<b>3275</b>	<b>2.18</b>	<b>120.2</b>	<b>587.9</b>	<b>389.10</b>

Source: Annex-I.

3.2.8 In the Punjab, overall production of rice has shown a slightly increase of 0.1 per cent during 2013-14 as compared to 2012-13. The increase in production occurred mainly because of increase in area by 5.7 per cent despite 5.3 per cent down by yield. Production of basmati increased by 17.0 percent because of increase in area by 19.9 per cent and 2.4 percent decreased in yield, IRRI varieties has shown a decrease of 9.2 per cent in production due to decrease by 9.8 per cent in area whereas 0.7 per cent increase in yield. Production of 'Other' rice has decreased by 21.0 per cent mainly because of decrease 15.7 and 6.3 percent in area and yield.

3.2.9 In Sindh, overall production of rice has increased by 42.0 per cent mainly due to increase in area by 45.9 per cent and decreased by 2.7 percent to the last year. Production of IRRI also increased by 11.7 mainly due to increase in area by 28.7 and decreased by

13.2 per cent in yield. Production of "Others" rice has increased by 92.1 per cent is due to increase in area and yield by 77.6 and 8.2 percent respectively.

3.2.10 In the Khyber Pakhtunkhwa rice production increased by 19.3 percent due to increase in area by 13.3 percent and yield by 5.3 percent as compared to 2012-13 crop.

3.2.11 In Balochistan, where IRRI varieties of rice are grown, production of rice has increased by 389.1 per cent due to increase in area by 378.7 and yield 2.18 percent as compared to 2012-13 crop.

3.2.12 Agriculture Department of Punjab and Sindh has provided following reasons regarding change in area and production of rice for 2013-14 crop:

### **Punjab**

#### **Area**

3.2.13 The rice acreage shows an increase of 5.7 per cent over the previous year which is due to lucrative market prices received during the last year which induced the growers to bring more area.

#### **Production**

3.2.14 Flood/excessive rains, attack of leaf roller and blight in Gujranwala, Faisalabad and Lahore Divisions affected the yield per acre.

### **3.3 Targets Vs Achievements: 2013-14 Crop**

3.3.1 The respective Provincial Agriculture Departments fixed rice production target for 2013-14 crop is estimated at 5.783 million tonnes. As per final estimates provided by provincial Agricultural Departments, the production is estimated at 6.798 million tonnes,

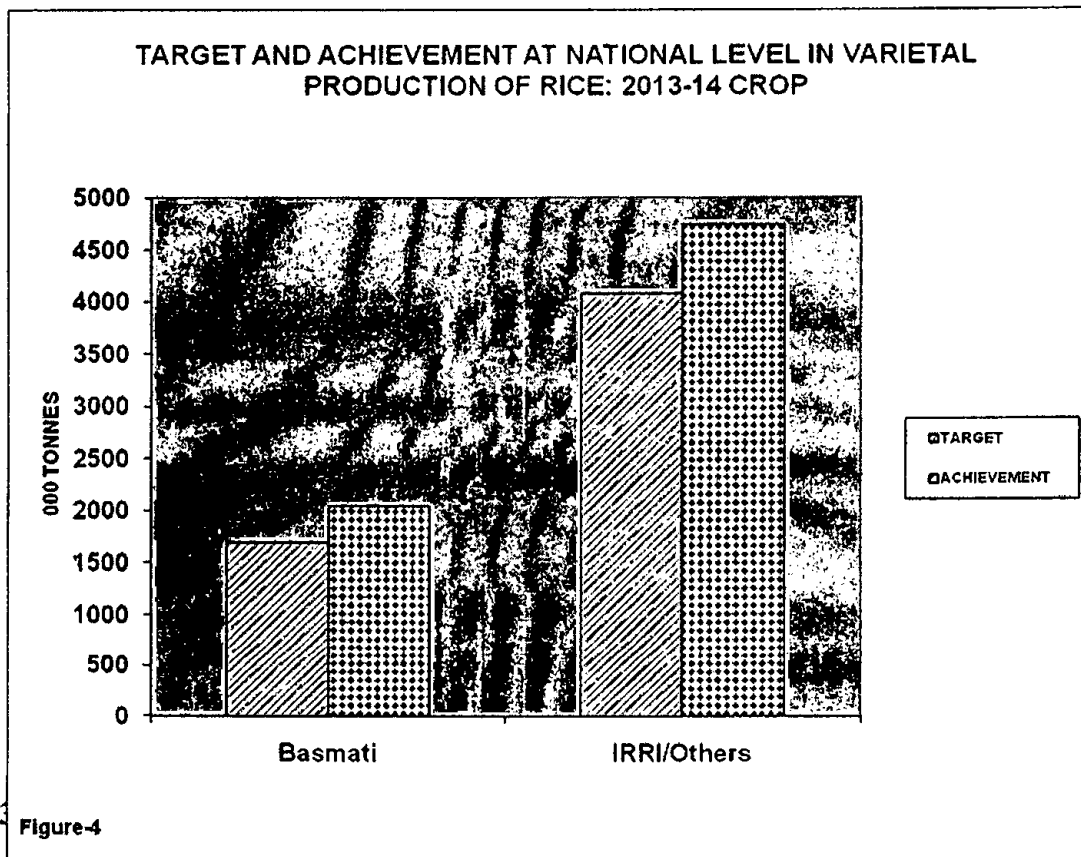
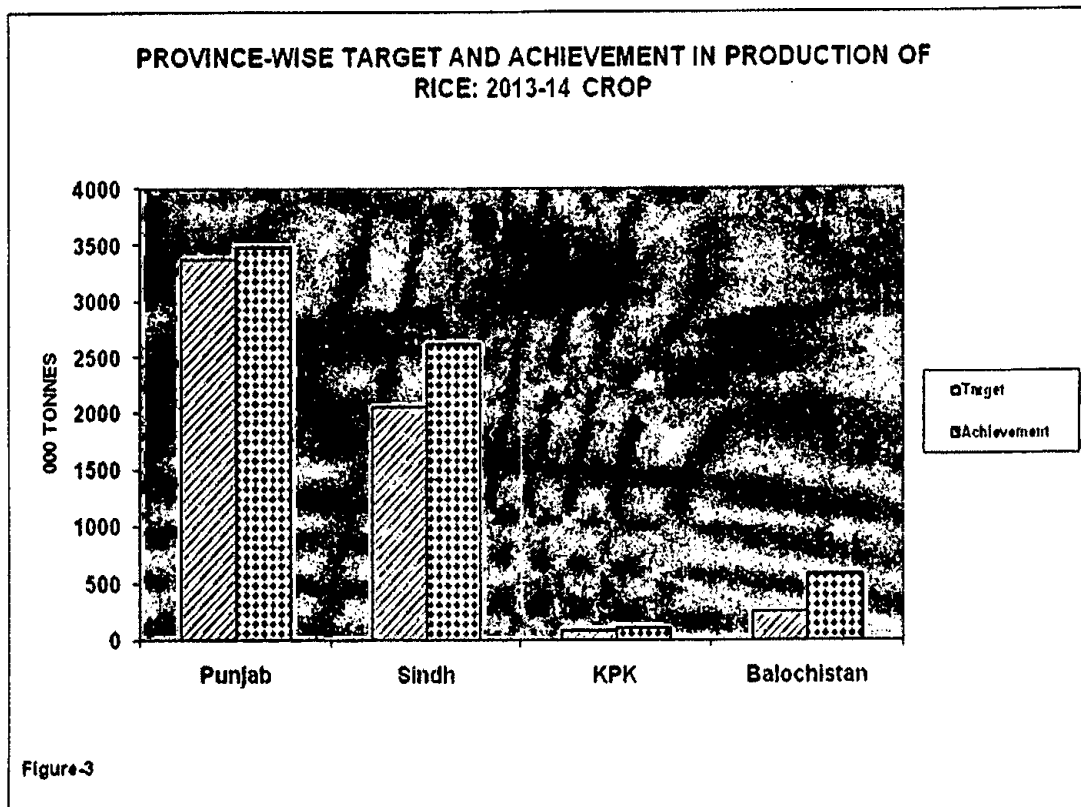
higher the target by 17.56 per cent. The area, yield and production of Basmati remained above the target by 19.3, 1.5 and 21.0 per cent respectively (Table-5). The area, yield and production of IRRI and 'Other' varieties of rice remained up the target by 2.8, 13.0 and 16.1 percent respectively.

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

Country/ Province	Area		Deviation from Target	Yield		Deviation from Target	Production		Deviation from Target
	Target	Achieve- ment		Target	Achieve- ment		Target	Achieve- ment	
	000 hectares		Percent	kgs per hectare		Percent	000 tonnes		Percent
<b>Pakistan</b>	<b>2553.6</b>	<b>2789.3</b>	<b>9.23</b>	<b>2265</b>	<b>2437</b>	<b>7.63</b>	<b>5782.8</b>	<b>6798.2</b>	<b>17.56</b>
Basmati	1000.0	1192.6	19.26	1700	1725	1.46	1700.0	2057.1	21.01
IRRI/Others	1553.6	1596.7	2.77	2628	2969	12.99	4082.8	4741.1	16.12
<b>Punjab</b>	<b>1727.0</b>	<b>1808.9</b>	<b>4.74</b>	<b>1954</b>	<b>1924</b>	<b>-1.50</b>	<b>3374.0</b>	<b>3481.0</b>	<b>3.17</b>
Basmati	1000.0	1192.6	19.26	1700	1725	1.46	1700.0	2057.1	21.01
IRRI/Others	727.0	616.3	-15.23	2303	2310	0.34	1674.0	1423.9	-14.94
Sindh (IRRI/Others)	645.0	745.6	15.60	3194	3510	9.91	2060.0	2617.4	27.06
KPK (Others)	48.3	55.3	14.41	1841	2024	9.93	89.0	111.9	25.78
Balochistan (IRRI)	133.3	179.5	34.69	1949	3275	68.00	259.8	587.9	126.29

**Sources:** 1. For targets: Respective Provincial Agriculture Departments.  
2. For achievements: Annex-I.

3.3.2 Area targets have been over-achieved in the Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan by 4.7, 15.6, 14.4 and 34.7 per cent respectively. The overall production of all Provinces, Punjab, Sindh, KPK and Balochistan also remained higher than the target by 3.2, 27.1, 25.8 and 126.3 per cent respectively. The yield in Sindh, KPK and Balochistan surpassed the target by 9.9, 9.9 and 68.0 per cent respectively while yield in Punjab remained below the target by 1.5 per cent. Targets and achievements of area, yield and production of rice by provinces and variety are depicted in **Fig-3** and **Fig-4**.



### **3.4 Important Rice Producing Districts**

3.4.1 Districts producing more than 50 thousand tonnes of rice include Gujranwala, Sheikhupura, Okara, Sialkot, Hafizabad, Nankana Sahib, M.B. Din, Kasur, Narowal, Bahawalnagar, Pakpattan, Jhang, Sargodha, D.G. Khan, Gujrat, Lahore, Chiniot and T.T. Singh, from the Punjab, Larkana, Shikarpur, Qamber, Jacobabad, Kashmore, Thatta, Badin, Dadu and Ghotki from Sindh and Jafarabad and Nasirabad from Balochistan. These 29 districts collectively produced 90.3 per cent of total production of rice. Main basmati producer districts which contributes about 57.2 per cent of the total basmati are Gujranwala, Sheikhupura, Sialkot, Hafizabad, Nankana Sahib, M.B. Din and Narowal. While 56.8 per cent of the total IRRI rice is contributed by Larkana, Shikarpur, Qamber, Thatta, Nasirabad and Jafarabad. These districts are above 100 thousand tonnes producers. Based on 2011-12 to 2013-14 average production, the districts are arranged in descending order by variety in **Annex-II**.

## **4. DOMESTIC DEMAND, SUPPLY AND PRICE SITUATION OF RICE**

### **4.1 Domestic Demand and Supply of Rice**

4.1.1 Based on annual per capita availability of rice averaging at 13.69 kgs during the period 2011-12 and 2012-13 (**Annex-III**), the domestic consumption requirement in 2013-14 for population of 194.06 million has been estimated at 2657 thousand tonnes. Against this requirement, total production of rice in the country from 2013-14 crop has been reported at 6798 thousand tonnes. Taking the allowance for seed and wastage @ 6 per cent of the production (408 thousand tonnes), the net available rice for consumption and trade comes to 6390 thousand tonnes. Thus Pakistan has an export surplus of 3733 thousand tonnes, after accounting for domestic requirement of 2657 thousand tonnes during 2013-14.



## 4.2 Domestic Prices of Rice Paddy

4.2.1 The wholesale market prices of basmati paddy as presented in **Table-6** have ranged between Rs 1805 per 40 kgs in Nankana market during October 2013 and Rs 2490 per 40 kgs in Sheikhpura market during November 2013. The seasonal average prices of basmati in the Punjab have ranged between Rs 2254 and Rs 2380 per 40 kgs.

**Table-6: Monthly Average Wholesale Prices of Basmati Paddy in Major Producer Area Markets of the Punjab:2013-14 crop**

Markets	Oct	Nov	Dec	Jan	Feb	Average
	-----Rupees per 40 kgs.-----					
Sialkot	2054	2550	2450	2464	2372	<b>2378</b>
Narowal	2086	2588	2425	2445	2355	<b>2380</b>
Gujranwala	2075	2364	2406	2414	2330	<b>2318</b>
Hafizabad	2035	2355	2390	2405	2318	<b>2301</b>
Sheikhupura	1990	2490	2353	2375	2322	<b>2306</b>
Nankana	1805	2338	2400	2412	2316	<b>2254</b>
<b>Average</b>	<b>2007</b>	<b>2447</b>	<b>2404</b>	<b>2419</b>	<b>2336</b>	<b>2323</b>

**Source:** Directorate of Agriculture (E&M) Punjab, Lahore.

4.2.2 The average wholesale market prices of IRRI Paddy during 2013-14 have ranged between Rs 833 to 953 per 40 kgs in various markets of Sindh during the post-harvest period of 2013-14 crop (**Table-7**).

**Table-7: Monthly Average Wholesale Prices of IRRI-6 Paddy in Major Producer Area Markets of Sindh during 2013-14**

Markets	Oct	Nov	Dec	Jan	Feb	Average
	-----Rs per 40 kgs-----					
Badin	875	863	918	-	-	885
T.M. Khan	820	835	865	-	-	840
Thatta	825	838	850	800	850	833
Dadu	-	870	875	860	890	874
Larkano	-	875	925	975	975	938
Shikarpur	-	890	880	925	925	905
Jacobabad	-	-	910	875	935	907
Kasmore	-	-	910	875	935	907
Qambar Shahdadkot	-	-	910	975	975	953
Ghotki	-	875	925	810	810	855
Sukkur	-	875	800	950	-	875
<b>Average</b>	<b>840</b>	<b>865</b>	<b>888</b>	<b>894</b>	<b>912</b>	<b>888</b>

**Sources:** Market Committees, Sindh.

## 5. COST OF PRODUCTION OF RICE PADDY

5.1 The cost of production (COP) is one of the important factors in making price suggestion for farm commodities. However, its empirical estimation involves a number of intangible problems and practical difficulties. Wide variations in the use level of inputs, technology adoption and diverse farming resulting in varying yield levels further add to the problem.

5.2 The cost of production estimates in the Punjab and Sindh for various varietals groups of rice paddy for the 2014-15 crop have been updated by adopting the input-output parameters as used in the Price Policy Report for Rice Paddy, 2013-14 crop in conjunction with the latest prices and rates of field operations. The prices of inputs and custom hiring rates of field operations were updated with the information provided by the participants in the meeting of API's Standing Committee Meeting, held on 28<sup>th</sup> April 2014 at Islamabad and mini field surveys conducted by the API in the important rice growing areas of the Punjab and Sindh during May-June 2014. The COP estimates for

rice paddy for the Punjab and Sindh are detailed in Annex-IV to VI, while the summary of these is shown in Table-8.

### 5.1 Average Farmers' Cost of Production of Rice Paddy: 2013-14 and 2014-15 Crops

5.1.1 The expected cost of production estimates of basmati and IRRI in the Punjab and IRRI in Sindh during 2013-14 and 2014-15 crops are summarized and presented in Table-8 below.

**Table-8: Average Farmers' Cost of Production of Rice (Paddy): 2013-14 and 2014-15 crops**

Item	Unit	Cost estimates		Increase in 2014-15 over 2013-14
		2013-14 crop	2014-15 crop	
<b>Punjab</b>				
<b>Basmati</b>				
1. Net cost of cultivation	Rs/acre	36614	39616	3002
2. Yield	Kgs/acre	1053	1053	-
3. Cost of production at farm level	Rs/40 kgs	1391	1505	114
4. Marketing cost i.e. loading, transport, commission etc.	"	40	45	5
5. Cost of production at market level	"	1431	1550	119
<b>IRRI</b>				
1. Net cost of cultivation	Rs/acre	34492	36618	2126
2. Yield	Kgs/acre	1510	1510	-
3. Cost of production at farm level	Rs/40 kgs	914	970	56
4. Marketing cost i.e. loading, transport, commission etc.	"	40	45	5
5. Cost of production at market level	"	954	1015	61
<b>Sindh</b>				
<b>IRRI</b>				
1. Net cost of cultivation	Rs/acre	32042	33508	1466
2. Yield	Kgs/acre	2004	2004	-
3. Cost of production at farm level	Rs/40 kgs	640	669	29
4. Marketing cost i.e. loading, transport, commission etc.	"	40	45	5
5. Cost of production at market level	"	680	714	34

Source: Annex-IV to VI.

#### Punjab

##### - Basmati

5.1.2 The cost of growing one acre of basmati paddy at the current inputs prices and custom hiring rates in the Punjab, during 2014-15 crop year is anticipated at Rs 39616,

inclusive of land rent. Based on the average yield of 1053 kgs per acre, the farm level cost of production works out to Rs 1505 per 40 kgs. Adding marketing cost @ Rs 45 per 40 kgs, the cost of production to harvest and deliver the rice paddy at the market/sheller level would be Rs 1550 per 40 kgs, surpassing by Rs 119 per 40 kgs (8.32 per cent) over the last year's corresponding cost estimated at 1431 per 40 kgs.

#### - **IRRI**

5.1.3 The likely cost of cultivating one acre of IRRI paddy in the Punjab during 2014-15 is sketched at Rs 36618, consisting of land rent. The farm level cost of production comes to Rs 970 per 40 kgs, basing on the average yield of 1510 kgs per acre. Taking into account marketing charges @ Rs 45 per 40 kgs, the cost of IRRI paddy at the market/sheller level would be Rs 1015 per 40 kgs, which is higher by Rs 61 per 40 kgs (6.39 per cent) than the parallel cost estimates of the 2013-14 crop of Rs 954 per 40 kgs.

#### - **Sindh**

5.1.4 Cultivating one acre of IRRI paddy in Sindh during 2014-15 crop's year is anticipated to cost at Rs 33508, inclusive of land rent. Based on average yield of 2004 kgs per acre, cost of production at farm level would be Rs 669 per 40 kgs. Taking marketing expenses @ Rs 45 per 40 kgs, the cost of produce to deliver at sheller/market would be Rs 714 per 40 kgs, exceeding the corresponding cost of Rs 680 per 40 kgs of the 2013-14 crop by Rs 34 (5.04 per cent).

5.1.5 The enhancement in COP of rice paddy in both provinces have been mainly on account of rises in the costs of cultural operations, supplementary irrigation, harvesting & threshing charges and land rent. However, depressed market prices of phosphatic fertilizer and increased value of paddy straw have partially off set the increase in the cost of production in both provinces.

## **5.2 Cost of Major Operations/Inputs**

5.2.1 The break up of various field operations and farm inputs in the total cost of cultivation of rice paddy in the Punjab and Sindh during 2013-14 and 2014-15 crops along-with percent changes therein is presented in **Table-9**.

**Table-9: Cost of Major Operations/inputs of Rice Paddy: 2013-14 and 2014-15 Cops**

Operations/inputs	2013-14	2014-15	Shares in
	Crop	Crop	increased cost
	(Rs/acre)		(Per cent)
<b>Punjab</b>			
<b>Basmati</b>			
1. Land preparation	5150 (13)	5500 (12)	8.75
2. Nursery/uprooting and transplanting	3829 (9)	4141 (9)	7.77
3. Weeding	606 (1)	624 (1)	0.46
4. Plant protection	511 (1)	551 (1)	0.98
5. Irrigation	10754 (25)	11389 (24)	15.86
6. Fertilizer including FYM	5313 (13)	5254 (11)	(-) 1.41
7. Land rent	9500 (22)	11000 (23)	37.49
8. Harvesting and threshing etc	4285 (10)	4944 (10)	16.47
9. Others	2666 (6)	3213 (7)	13.68
<b>Total cost</b>	<b>42614 (100)</b>	<b>46616 (100)</b>	<b>100.00</b>
<b>IRRI</b>			
1. Land preparation	4725 (13)	5050 (12)	10.40
2. Nursery/uprooting and transplanting	3728 (10)	4026 (10)	9.53
3. Weeding	829 (2)	861 (2)	1.05
4. Plant protection	528 (1)	568 (1)	1.30
5. Irrigation	6553 (17)	6676 (16)	3.94
6. Fertilizer including FYM	7005 (18)	6945 (18)	(-) 1.97
7. Land rent	9500 (25)	11000 (24)	47.98
8. Harvesting and threshing etc	2626 (7)	3029 (7)	12.91
9. Others	2498 (7)	2963 (7)	14.88
<b>Total cost</b>	<b>37992 (100)</b>	<b>41181 (100)</b>	<b>100.00</b>
<b>Sindh</b>			
<b>IRRI</b>			
1. Land preparation	6350 (19)	7150 (19)	32.44
2. Nursery/uprooting and transplanting	4940 (14)	5275 (14)	13.58
3. Weeding	852 (2)	852 (2)	-
4. Plant protection	453 (1)	493 (1)	1.64
5. Irrigation	2386 (7)	2438 (6)	2.12
6. Fertilizer including FYM	6212 (17)	6018 (16)	(-) 7.85
7. Land rent	8000 (23)	9000 (24)	40.55
8. Harvesting and threshing etc	3937 (11)	3914 (10)	(-) 0.90
9. Others	2412 (7)	2868 (8)	18.41
<b>Total cost</b>	<b>35542 (100)</b>	<b>38003 (100)</b>	<b>100.00</b>

- Notes:**
1. Others include mark-up, management, land tax, land revenue and drainage cess.
  2. Figures in parenthesis are percent shares in total cost of cultivation.
  3. Rounding off figures may result in a slight difference.

## **Punjab**

### **- Basmati**

5.2.2 In the Punjab, irrigation is an important component in the total cost of cultivation of basmati paddy for the 2014-15 crop, accounting for 24 per cent. The other major constituents are: Land rent (23 %), land preparation (12 %), Fertilizers including FYM (11 %), Harvesting/threshing operations (10 %) and Nursery and related operation (9 %).

### **- IRRI**

5.2.3 During 2014-15 crop year, land rent is the foremost component of the cost of cultivation of IRRI paddy in the Punjab, accounting for 24 per cent. The other chief constituents are: Fertilizer including FYM (18 %), Irrigation (16 %), land preparation (12 %), Nursery and related operations (10 %) and Harvesting/threshing (7 %).

## **Sindh**

5.2.4 The land rent is the key factor of the cost of cultivation of IRRI paddy during 2014-15 crop year in Sindh, contributing 24 per cent. The other chief components are: land preparation (19 %), Fertilizers including FYM (16 %), Nursery and related operations (14 %), Harvesting/threshing operations (10 %) and Irrigation (6 %).

## **6. ECONOMICS OF RICE PADDY AND COMPETING CROPS**

6.1 Resource allocation among competing enterprises is primarily guided by economic considerations as reflected in their gross cost, gross income, gross margin, net income, output-input ratio, etc. Rice, a major kharif crop, competes with cotton for land, water and other farm resources in the areas where cultivation of both crops is technically feasible. The coarse and fine varieties of rice may also compete among themselves. Rice also faces indirect competition from sugarcane, an annual crop, which occupies the land over the year.

6.2 The economics of rice and competing crops has been analyzed in terms of input-output prices paid and received by the growers for the 2013-14 crops. A summary of the relevant economic indicators emerging from the analysis is presented in **Table-10** for the Punjab and **Table-11** for Sindh. Also, the Output-Input ratios have been graphically presented in **Fig- 5** and **Fig- 6** for both the provinces. Details of the analysis are provided in **Annex-VII**.

### Punjab:

6.3 Basmati's performance in Punjab in terms of returns to overall investment has been significantly better than cotton. Similarly, in terms of crop duration, Basmati returned higher revenue to farmer. However, in terms of purchased inputs and irrigation water, Basmati's returns for investment were lower than cotton.

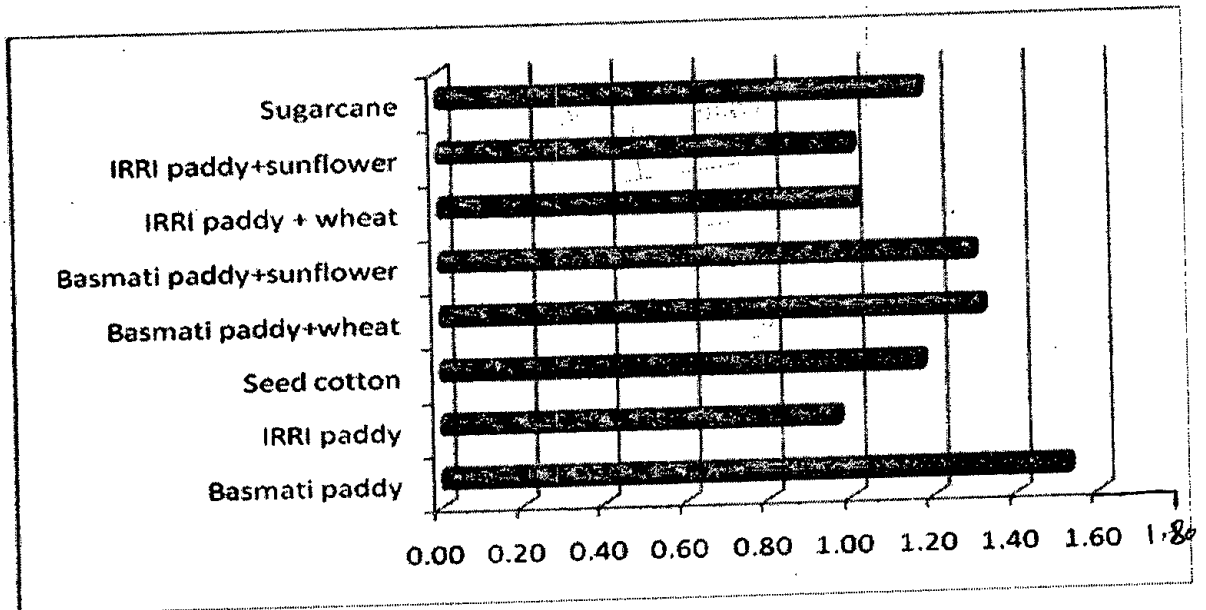
**Table-10: Economics of Rice and Competing Crops at Prices Realized by the Growers in the Punjab: 2013-14 Crops**

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. Basmati paddy	1.52	3.24	362	1123
2. IRRI paddy	0.97	2.09	205	595
3. Cotton	1.17	3.31	238	2594
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
8. Sugarcane	1.18	3.72	222	1825

Source: Annex-VII.

6.4 IRRi paddy in Punjab, however, could not perform against cotton in any of the economic indicators analyzed and cotton out-competed the earlier comprehensively. Not only that IRRi paddy was out performed by cotton, the crop even couldn't gain break-even and its returns to overall investment i.e output-input ratio, was below than 1, which indicates that farmer stood in loss in cultivating IRRi paddy.

**Fig-5: Output-input Ratio in Punjab for Rice Paddy 2013-14 crop**



6.5 In case of indirect competition, the Basmati's combinations with Wheat and Sunflower show better returns against sugarcane in terms of output-input ratio and crop duration, while sugarcane performed better, against the earlier, in terms of purchased inputs and irrigation water. IRRi combinations remained considerably lower in respect of all the economic indicators tested in this analysis.

### Sindh

6.6 In Sindh, rice farming has shown relatively better results in a few economic indicators as compared to the cotton crop. Rice farmers received higher returns in overall



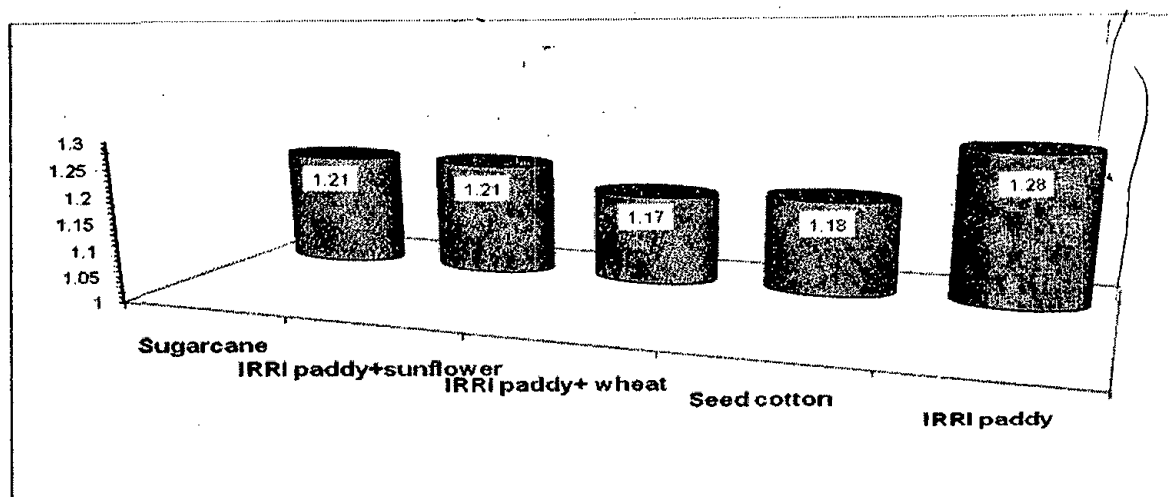
investment and crop duration. In case of returns to purchased inputs and irrigation water, IRRI farming lags behind seed cotton considerably (Table-11).

**Table-11: Economics of IRRI Paddy and Competing Crops at Prices Realized by the Growers in Sindh: 2013-14 Crops**

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. IRRI paddy	1.28	3.41	255	818
2. Cotton	1.18	3.58	220	2938
3. IRRI+wheat	1.17	3.12	226	1198
4. IRRI+sunflower	1.21	3.08	252	1163
5. Sugarcane	1.21	3.70	221	1520

Source: Annex-

6.7 In context of indirect competition with sugarcane, the economic position of IRRI+wheat rotation is weaker than sugarcane in all the criteria adopted for the current analysis, except crop duration. However, the performance of IRRI + sunflower combination has been at par with the sugarcane in terms of overall investment and significantly better in the crop duration. This combination remained below in terms of purchased inputs and irrigation water, both very important indicators.



**Fig-6: Output-input Ratio in Sindh for Rice Paddy 2013-14 crop**

## 7. NOMINAL AND REAL MARKET PRICES OF BASMATI AND IRRI PADDY: 2007-08 to 2013-14

7.1 To analyse the overtime changes in the purchasing power of basmati and IRRI paddy, the nominal and real market prices of rice paddy for the period 2007-08 to 2013-14 crops were deflated by the Consumer Price Index (CPI), the most common measures of inflation in the economy. The results are given in Table-12 and also depicted in Figs-7 and 8.

**Table-12: Nominal and Real Market Prices of Basmati and IRRI-6 Paddy: 2007-08 to 2013-14**

Crop year	Nominal Market Prices		Consumer Price Index (CPI)	Real Market Prices	
	Basmati	IRRI-6		Basmati	IRRI-6
1	2	3	4	5=(2/4)*100	6=(3/4)*100
	Rs per 40 kgs		2007-08=100	Rs per 40 kgs	
2007-08	920	509	100.00	920.00	509.00
2008-09	1183	585	117.03	1010.85	499.87
2009-10	1097	666	128.85	851.37	516.88
2010-11	1325	935	146.45	904.74	638.44
2011-12	1424	798	162.57	875.93	490.86
2012-13	1653	875	174.53	947.11	501.34
2013-14	2260	890	188.67	1997.86	471.72

**Note:** The market prices are the average wholesale prices prevailed during the post harvest season in the main producer area markets of the Punjab for basmati and of Sindh for IRRI paddy.

**Sources:**

- i) Economic Survey of Pakistan, 2013-14.
- ii) Directorate of Agriculture, (E&M), Lahore, Punjab.
- iii) Directorate of Agriculture Farms and Major Crops Development, Hyderabad, Sindh.

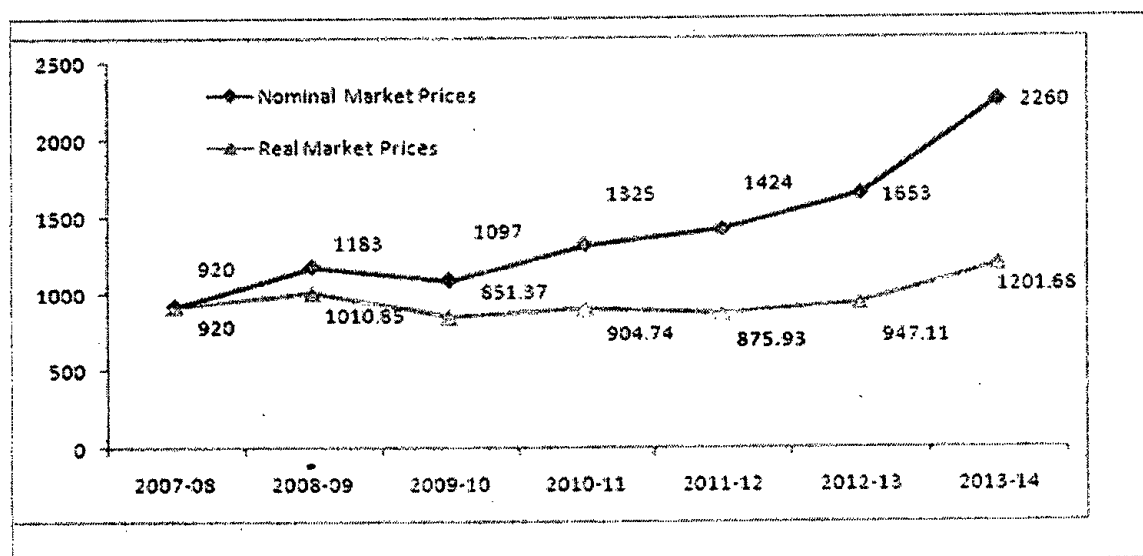
7.2 It is important to note from the above analysis that due to increasing trend of general inflation in the economy, the gap between nominal and real prices, both of Basmati and IRRI paddy is widening every year. It shows the deterioration of the purchasing power of the commodity overtime in real terms. Variety-wise detail of basmati and IRRI paddy is discussed in the following paragraphs.

### i) Basmati Paddy

7.3 The data in Table-12 reveals that the nominal market price of Basmati paddy has evidenced 146 per cent overall increase against the base year during the period under review while its real value improved only by 30.61 per cent. The major reason for this slow increasing trend in the real purchasing power of the crop is the 89 per cent general inflation observed in the economy during the same period.

7.4 For the entire period under review, the real market price remained above the base year level except in 2009-10, 2010-11 and 2011-12, where these fell below the base year level. The year 2013-14 proved as the best crop season for the rice growers as they fetched the highest real price of Rs.1198/- per 40 kgs in terms of 2007-08 prices from the open market.

**Fig-7: Nominal and real market price of Basmati Paddy in the Punjab: 2007-08 to 2013-14**

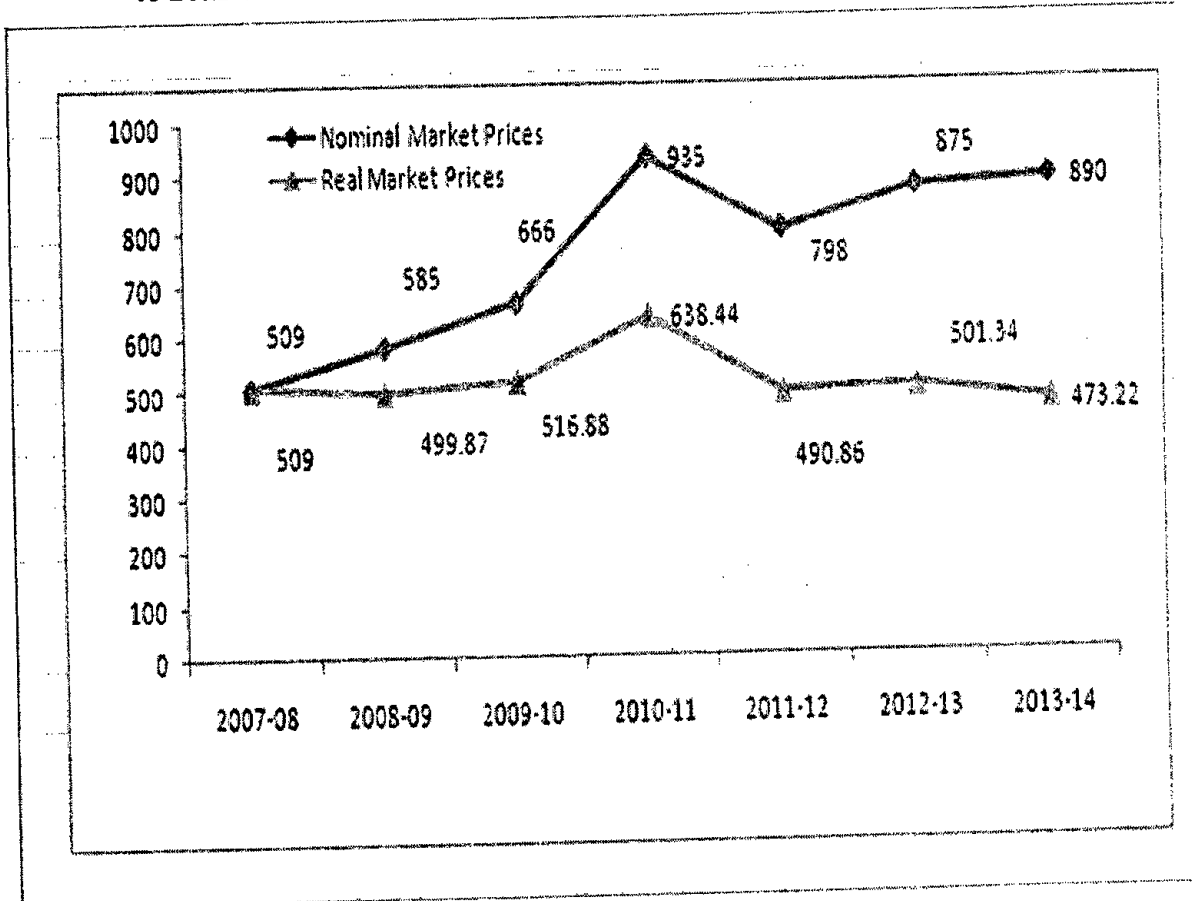


## ii) IRRI Paddy

7.5 It may be seen from Table-12, that the nominal market price of IRRI paddy in Sindh averaging at Rs 509/- per 40 kgs during the post harvest season of 2007-08 has increased to Rs 890/- per 40 kgs in 2013-14, indicating overall increase of 74 per cent. For the rise in CPI by 88 per cent, the consequent decrease in the real market price of IRRI paddy is estimated at 7 per cent from Rs 509/- in base year to Rs 473.22/- per 40 kgs in 2013-14.

7.6 The data also reveals that during the whole period in question, the real market prices of IRRI paddy fluctuations occurs during the period under review. However, the year 2010-11 was the best crop season for rice growers as they received the highest real price of Rs 638.44/- per 40 kgs.

**Fig-8: Nominal and real market price of IRRI-6 Paddy in the Sindh: 2007-08 to 2013-14**



## 8. WORLD SUPPLY, DEMAND, STOCKS, TRADE AND PRICES SITUATION OF MILLED RICE

### 8.1 World Supply, Demand, Stocks, and Trade Situation

8.1.1 The data regarding the world balance sheet of rice from 2011-12 to 2013-14 are presented in **Table-13**.

**Table -13: World Supply, Demand, Stocks and Trade in Rice: 2011-12 to 2013-14**

S.No	Item	2011-12	2012-13 Estimate	2013-14 Forecast
		-----Million tonnes-----		
1.	Opening stocks	100	107	110
2.	Production	467	472	476
3.	Total supply (Items 1+2)	567	579	586
4.	Consumption/disappearance	459	469	476
5.	Closing stocks	107	110	109
6.	Trade	37	38	40

**Source:** International Grain Council, Market Report June, 2014.

8.1.2 The world production of rice in 2012-13 is estimated at 472 million tonnes, 5 million tonnes or 1.07 percent higher than that in 2011-12. Adding the opening stocks of 107 million tonnes, total supply works to 579 million tonnes (2.12 percent) higher than in 2011-12.

8.1.3 Rice production in 2013-14 is forecast to increase to 476 million tonnes, 4 million tonnes higher than in 2012-13. With the addition of opening stocks of 110 million tonnes, total supply is expected at 586 million tonnes, 7 million tonnes higher than in 2012-13. The global consumption is forecast to rise from 469 million tonnes in 2012-13 to 476 million tonnes in 2013-14. Due to higher production against consumption during 2012-13, the end

year stocks have increased to 109 million tonnes. However, the global trade in rice reported at 38 million tonnes in 2011-12 is forecast to slightly increased to 40 million tonnes in 2013-14. Due to persistent increase in stocks, the prices may slightly fall.

## 8.2. Export Parity Prices of Rice Paddy

8.2.1 To ascertain export competitiveness of Pakistani rice in the international market export parity prices have been calculated on the basis of actual export prices of both fine and coarse rice. The details of these calculations are presented in Annexes-VIII and IX and summary has been provided in Table-14.

**Table-14: Export Parity Prices Of Basmati And IRRI Paddy**

Items	June 2014	2013-14	Average 2010-13
<b>A) Export Parity Price of Basmati Paddy</b>			
Average fob Karachi prices of rice (US\$/ton)	948	1079	948
Exchange Rate (Rs/US\$)	98.75	98.75	98.75
Average fob Karachi prices of rice (Rs/40Kgs)	3745	4262	3745
Mill-gate price of rice paddy (Rs/ 40 kgs)	1880	2168	1880
<b>B) Export Parity Price of IRRI Paddy</b>			
Average fob (Karachi) prices of rice (US\$/ton)	504	468	490
Exchange Rate (Rs/US\$)	98.75	98.75	98.75
Average fob Karachi prices of rice (Rs/40Kgs)	1991	1849	1936
Mill-gate price of rice paddy (Rs/40 kgs)	832	762	805

## 9. RICE EXPORT FROM PAKISTAN

9.1 Pakistan has been a major exporter of rice with its share in global trade at 8.7 per cent during 2012-13. Export of basmati rice has declined by 29.29 per cent in 2012-13 over 2011-12, while the export of coarse rice has increased by 4.80 percent (**Table-15**).

**Table- 15: PER CENT CHANGE IN EXPORT OF BASMATI AND COARSE RICE IN 2012-13 OVER 2011-12**

Region	Quantity		Value		% share in total export			
	Basmati Rice	Coarse Rice	Basmati Rice	Coarse Rice	Basmati Rice		Coarse Rice	
	-----percent change-----				2011-12	2012-13	2011-12	2012-13
Asia	-36.04	11.79	-25.97	11.87	80.52	72.83	36.21	38.62
Oceania	4.42	8.50	4.51	9.49	2.01	2.97	0.07	0.07
Europe	-21.07	-17.71	-8.74	-14.05	10.12	11.29	1.53	1.20
Africa	-16.45	-3.39	-12.60	-4.19	3.70	4.37	56.41	52.00
America	25.37	41.29	21.55	46.97	2.51	4.45	3.85	5.18
CIS	151.98	57.97	228.22	34.70	1.15	4.08	1.94	2.92
Total	-29.29	4.80	-19.16	4.51	100.00	100.00	100.00	100.00

Source: Annex- X

9.2 The **Table-15** reveals that total export of basmati rice declined by 29.29 per cent in 2013-13 over 2011-12. Around 80 percent of Pakistani Basmati destined to Asia and major decrease was observed in Asia region i.e 36.04 per cent. The export of basmati towards Europe and Africa also declined by 21.07 and 16.45 percent respectively. While it increased by 4.2, 25.37 and 151.98 per cent to Oceania, America and CIS countries, respectively. The total export of coarse rice has increased by 4.8 per cent in 2012-13 against the last year. The export of coarse rice decreased by 17.71 and 3.39 per cent to

Europe and Africa. While it improved by 11.79 per cent to Asia, 8.50 per cent to Oceania, 41.29 percent to America and 57.97 per cent to CIS countries in 2012-13 over the last year. Pakistan has improved its export of rice to CIS countries significantly during 2012-13.

## **10. ECONOMIC EFFICIENCY IN RICE PRODUCTION**

10.1. Economic efficiency in rice production has been evaluated by estimating the most frequently used economic parameters i.e Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost Coefficient (DRC). To assess the impact of price policy changes on rice producers and Pakistan's comparative advantage in rice production, the analysis is carried from 2009-10 through 2013-14. The NPC, EPC and DRC estimates are produced in **Table-16** and background analyses given in **Annex XI to XIII**.

### **10.1 Nominal Protection Coefficient (NPC) under Export Situation**

10.1.1 NPC is a measure of protection or taxation levied to the producers of a crop through the open market price of the crop. In this calculation open market price is numerator while social price is denominator. By definition, social price is the export parity price minus marketing cost from the farm gate to the market. The estimate does not include input costs used for producing the crop.

10.1.2 The NPC, EPC and DRC coefficients are separately calculated for Basmati and IRRI varieties of rice and produced in **Table-16**.

10.1.3 It is observed from the data in the **Table-16** below that for Basmati grown in Punjab, NPC values are less than one throughout the analysis period except 2013-14. The NPC values are continuously increasing except in 2011-12.



**Table-16: Economic Efficiency Coefficients for Rice in Pakistan Under Export Situation**

Province/ Year	NPC	EPC	DRC	Resources spent to earn Forex Worth One US \$	US\$ 1 = Pak Rs
<b><u>Punjab</u></b>					
<b>Basmati</b>					
2009-10	0.74	0.65	0.54	45.7	85.00
2010-11	0.91	0.86	0.67	57.3	85.87
2011-12	0.69	0.74	0.61	58.9	96.63
2012-13	0.99	1.26	0.77	76.1	98.52
2013-14	1.09	1.44	0.80	78.5	98.75
<b><u>IRRI</u></b>					
2009-10	1.11	1.18	1.00	84.6	85.00
2010-11	1.40	1.70	1.08	92.5	85.87
2011-12	1.15	1.27	1.09	105.0	96.63
2012-13	1.18	1.40	1.52	150.1	98.52
2013-14	1.23	1.53	1.80	178.2	98.75
<b><u>Sindh</u></b>					
<b>IRRI</b>					
2009-10	1.11	1.16	0.73	61.9	85.00
2010-11	1.40	1.61	0.81	69.9	85.87
2011-12	1.00	1.01	0.63	61.0	96.63
2012-13	1.18	1.28	0.78	76.7	98.52
2013-14	1.22	1.35	0.94	90.9	98.75

10.1.4 The decisive rule is that if NPC is smaller than one, local producers get price less than the corresponding export parity price and thus are implicitly taxed and the vice versa.

10.1.5 The NPC data in the referred period reflect that Basmati growers in Pakistan have been implicitly taxed. This situation discourages development of the crop. However, NPC value for 2013-14 is above one which implies incentive for Basmati growers to invest more in the crop which will ultimately increase its production in Pakistan.

10.1.6 For IRRI paddy in Sindh, NPC coefficients are fluctuating but have been continuously above one during the period under study. It means that on the whole, IRRI

paddy growers are protected through the output price policy which induces producers for promotion of the crop.

## **10.2 Effective Protection Coefficient (EPC) under Export Situation**

10.2.1 Effective Protection Coefficient unlike NPC includes both input and output prices in its calculation. Thus it captures the cumulative effect of both inputs' costs and the crop revenues on the crop producers. However, it needs to be mentioned that EPC does not consider all input costs rather considers only traded inputs' costs – those inputs which are purchased with cash. These are seed, fertilizer, tube well water, machinery (tractor etc) and payments made to hired labour. As a general principle if EPC is greater than one, the producers of the concerned crop are protected and if it is less than one, they are implicitly taxed. In the former situation farmers are induced to produce more of the crop while the later situation discourages development of the crop.

10.2.2 Review of the EPC values for Basmati paddy produced in **Table-16** indicate that the Basmati growers in Punjab remained implicitly taxed till 2011-12 because EPCs were less than one during this period. From 2012-13 onward EPC value significantly increased. In 2012-13 it increased to the level 1.26 against 0.74 in 2011-12. Its main reason is big jump in domestic price of Basmati paddy in 2013 against the 2011-12 level. In 2011-12 it was Rs 1424/40 Kg while in 2012-13 it increased to Rs. 1968/ 40 Kg.

10.2.3 In EPC calculation, difference of the crop revenue and traded inputs' cost at private price is numerator and the difference of the crop revenue and the traded inputs' cost at social price is denominator. As the numerator in 2012-13 relatively increased more than the denominator, EPC coefficient significantly increased. In other words, during 2012-13 basmati growers got a price higher than the corresponding export parity price. EPC value for the same reasons further increased in 2013-14 to the level 1.44 because basmati paddy price was Rs. 1968/40 Kg in 2012-13 which increased to Rs. 2323/ 40 Kg in 2013-14.

10.2.4 For IRRI paddy, both in Punjab and Sindh values of EPC coefficients are not consistent with the NPCs. EPC coefficients for the reference period are found higher than one. It means, on the whole input output pricing policy favors IRRI paddy growers in the

country. Thus both NPCs and EPCs for IRRI paddy suggest that input/ output price policy is in favor of IRRI rice which will increase its production in the country.

### **10.3 Domestic Resource Cost Coefficient (DRC)**

#### **Basmati paddy**

10.3.1 Domestic Resource Cost Coefficient (DRC) is a measure of opportunity cost of domestic resources used per unit of the value added in the production of a crop. DRC value less than one indicates a country's comparative advantage in a commodity and the vice versa. In this calculation numerator is the total non-traded inputs' cost at social prices and denominator is the difference of the crop revenue and the traded inputs' cost at social prices. As a principle, if DRC coefficient is greater than one, country does not have comparative advantage in the concerned crop and vice versa. In other words, the crop is efficiently produced in that country and cost of resources employed in its production is less than its import cost.

10.3.2 The DRC values for Basmati and IRRI are produced in **Table-16**. For Basmati paddy, DRC coefficient is found always less than one during the analysis period. It means Pakistan has comparative advantage in Basmati production.

#### **IRRI paddy**

10.3.3 For IRRI paddy, DRC coefficients for Sindh, most of the time has been less than one which indicate that IRRI production in Sindh province is efficient. The finding supports that Pakistan has comparative advantage in IRRI rice in the Sindh.

## 10.4 Cost of Earning Foreign Exchange

10.4.1 It is already mentioned that DRC coefficient is a measure of the opportunity cost of the domestic resources (family labour, interest on capital, management charges, canal water charges, etc) used in the production of a crop. Thus DRC coefficient may be used to determine cost of foreign exchange earning in terms of domestic resources. The foreign exchange earning cost estimates are presented in **Table-16**.

10.4.2 It is observed from column 4 in the above table that the country spend less to earn forex through Basmati than IRRI export because cost of domestic resources to earn one dollar are consistently less in Basmati than IRRI. Furthermore, these costs are relatively more stable and consistent in Basmati than IRRI paddy.

## 11. RICE YIELD AMONG COMPETING COUNTRIES

11.1 Global rice during **2012** occupied an area of 163.199 million hectares with total production of 479.826 million tonnes. The world top 28 producing countries contribute 95.59 per cent of total area and 96.33 per cent of total production (**Annex-XIV**).

11.2 In terms of rice **area**, India is on the top with 42.5 million hectares followed by China with 30.29 million and Indonesia with 13.44 million hectares. Pakistan lies at 10<sup>th</sup> number in this regard.

11.3 In terms of rice **production**, China is on the top with 136.190 million tonnes followed by India with 101.733 million and Indonesia with 46.030 million tonnes. However, Pakistan lies at 11<sup>th</sup> position in rice production of the world.

11.4 In terms of **yield** per hectare, Egypt lies at the top with 6353 kgs per hectare followed by Australia with 5940 and USA with 5566 kgs per hectare. **Pakistan** ranks at 58<sup>th</sup> in terms of yield while **India** falls at 56<sup>th</sup> position. (**Annex-XV**).

## 12. MAJOR RICE VARIETIES AND THEIR YIELD POTENTIAL IN PAKISTAN

12.1 In Pakistan, rice is an important food and cash crop. It is the 2<sup>nd</sup> most important crop that brings economic prosperity of the growers as well as earns billion of rupees through its export. The yield potential of rice of different varieties being sown in Punjab and Sindh, the major producing provinces of Pakistan, are presented in Table-17 below:

**Table-17: Major Rice Varieties and Their Yield Potential**

Variety	Yield Potential		Shares in the total area of rice paddy
	Rice Paddy		
	(Maund/acre)	(Kgs/acre)	( Per cent)
<b>Punjab</b>			
a) <b>Basmati</b>			
Basmati-385	55	2600	6.05
Super Basmati	65	2600	70.72
b) <b>IRRI</b>			
IRRI-6	80	3200	4.86
Niab- IRRI-9	80	3000	1.95
KS-282	100	3200	2.28
<b>Sindh</b>			
a) <b>IRRI-8</b>			
IRRI-6	70	2800	80
DR-82	70	2800	
DR-83	50-55	2100	
IRRI-92	70	2800	
Khanewal 95	50-55	2100	
Sada Hayat	60-65	2500	
Shaheen	80	3200	
Lateefy (Aromatic)	40	1600	
b) <b>In Pipe Line</b>			
DR-57	80	3200	
DR-58	85	3400	
DR-65 (Aromatic)	40-45	1700	

**Sources:** i) Nuclear Institute for Agriculture & Biology (NIAB), Faisalabd.  
ii) Rice Research Institute (RRI), Dokri Sindh.

12.2 Pakistan is a major rice exporting country in the World. However, the national realized yield at farmers' farm level is low though yield potential exists in the country. According to the Provincial Agriculture Departments, the average yield for different varieties for 2011-14 for the Punjab and Sindh are: Basmati 1047 kgs, IRRI 1563 kgs and other varieties 1367 kgs per acre in the Punjab And 2034 kgs in IRRI and 2340 kgs per acre for others in Sindh. These yields are much below than the potential yield as reported the Rice Research Institutes, NIAB of the Punjab and RRI, Dokri of Sindh in table above. To meet the increasingly growing domestic food demand and export requirements for foreign exchange, there is a need to take tangible efforts to get the possible yield at farmers' farm level.

### **13. IMPROVED SEED AVAILABILITY OF RICE PADDY**

13.1 Seed is deemed as a nucleus of plant and plays a vital role in increasing yield, thus it is necessary to use quality seed of recommended varieties. In the self-pollinated crop like rice, the experts recommended seed should be replaced at least every 5 years, implying that at least 20 per cent area of rice should be brought under fresh certified seed every year.

13.2 In order to review the overtime progress regarding coverage of quality seed, the annual gross and replacement of certified seed of rice paddy and its availability during the period from 2008-09 to 2013-14 have been presented in **Annex-XVI**.

13.3 It is observable from the **Annex** mentioned above that the supply of certified seed has shown an asymmetrical trend. The availability of certified seed at the country level during the referred period augmented and remained approximately at 46.0 thousand tonnes in 2013-14, higher by 242 per cent than the available certified seed of 13.5 thousand during 2008-09.

13.4 The varietal breakup of the supply of certified seed of rice paddy in both public and private sector for the crop year **2013-14** is presented in **Table-18**.

**Table-18: Variety wise Certified Seed of Paddy Supplied by Public and Private Sectors for 2013-14 Crop**

Province/variety	Seed availability (Tons)			Area sown 000 ha.	Seed requirement tons	Seed enough for area %
	Public sect.	Pvt. sect.	Total tons			
<b>Punjab</b>	5357	29890	35247	1809	29716	119
Basmati (Fine)	1726	11232	12958	1193	14316	91
IRRI & others	3631	18658	22289	616	15400	145
<b>Sindh (IRRI+ others)</b>	733	8993	9726	746	18650	52
<b>KPK.</b> IRRI others	3	70	73	55	1375	5
<b>Bol. IRRI</b>	0	1000	1000	180	4500	22
<b>All Pakistan</b>	<b>6093</b>	<b>39953</b>	<b>46046</b>	<b>2790</b>	<b>54241</b>	<b>85</b>
Basmati	1726	11232	12958	1193	14316	91
IRRI +other	4367	28721	33088	1597	39925	83

Source: FSC&RD, Islamabad.

13.5 The provincial variety-wise data presented in the table above show that in all provinces the major source of supply of certified seed is private sector. The shares of private sectors in the respective provincial total seed availability is as: Punjab (85 %), Sindh (92 %), Khyber Pakhtunkhwa (96 %), Balochistan (100 %) and at country level (87 %). It is commendable to point out that keeping in view 20 % annual seed replacement, all provinces have surplus certified rice paddy seed with the exception of Khyber Pakhtunkhwa.

## 14. ACKNOWLEDGEMENTS

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**AREA, YIELD AND PRODUCTION OF RICE BY VARIETY AND PROVINCE:  
2003-04 TO 2013-14**

Year	PUNJAB				SINDH			KH. PUKH Total (Others)	Baloch. Total (IRRI)	Pakistan				
	Basmati	IRRI	Others	Total	IRRI	Others	Total			Basmati	IRRI	Others	Total	
<b>AREA</b>													----- Thousand hectares -----	
2003-04	1426.1	138.0	123.8	1687.9	495.3	55.9	551.2	61.7	159.8	1426.1	793.1	241.4	2460.6	
2004-05	1466.5	108.1	179.7	1754.3	484.9	58.9	543.8	59.9	161.5	1466.5	754.5	298.5	2519.4	
2005-06	1534.9	131.9	95.6	1762.4	527.4	65.8	593.2	59.4	206.4	1534.9	865.7	220.8	2621.4	
2006-07	1474.2	138.8	115.4	1728.4	534.3	63.8	598.1	60.8	193.9	1474.2	867.0	240.0	2581.2	
2007-08	1377.1	159.8	186.6	1723.5	531.1	62.9	594.0	61.7	136.2	1377.1	827.1	311.2	2515.4	
2008-09	1548.3	202.3	227.0	1977.6	560.3	173.2	733.5	61.3	190.1	1548.3	952.7	461.5	2962.5	
2009-10	1414.0	218.9	298.6	1931.5	518.9	188.8	707.7	53.8	190.1	1414.0	927.9	541.2	2883.1	
2010-11	1333.8	182.5	250.5	1766.8	274.7	86.5	361.2	46.1	191.2	1333.8	648.4	383.1	2365.3	
2011-12	1121.0	183.3	409.9	1714.2	405.3	230.5	635.8	50.1	171.1	1121.0	759.7	690.5	2571.2	
2012-13	995.1	210.0	506.3	1711.4	331.6	179.5	511.1	48.8	37.5	995.1	579.1	734.6	2308.8	
2013-14	1192.6	189.4	426.9	1808.9	426.8	318.8	745.6	55.3	179.5	1192.6	795.7	801.0	2789.3	
<b>YIELD</b>													----- kgs per hectare -----	
2003-04	1619	2084	2218	1701	2763	1147	2599	2120	2582	1619	2609	1945	1970	
2004-05	1601	2188	2204	1699	2946	1209	2758	2057	2611	1601	2765	1978	1994	
2005-06	1721	2387	2333	1804	3109	1239	2901	1978	2563	1721	2869	1911	2116	
2006-07	1691	2409	2145	1779	3121	1475	2945	2021	2466	1691	2861	1935	2107	
2007-08	1781	2593	2243	1907	3232	1609	3060	2079	2433	1781	2977	2083	2212	
2008-09	1680	2559	2307	1842	3479	3393	3459	2091	3386	1680	3265	2686	2347	
2009-10	1751	2431	2362	1922	3331	3677	3423	1903	3393	1751	3131	2775	2387	
2010-11	1773	2443	2287	1915	3347	3594	3406	1701	683	1773	2307	2512	2039	
2011-12	1685	2491	2272	1912	3570	3528	3555	1890	3089	1685	3202	2663	2396	
2012-13	1767	2607	2316	2032	3471	3860	3608	1922	3205	1767	3140	2667	2398	
2013-14	1725	2625	2171	1924	3013	4176	3510	2024	3275	1725	2980	2959	2437	
<b>PRODUCTION</b>													----- Thousand tonnes -----	
2003-04	2309.2	287.6	274.6	2871.4	1368.7	64.1	1432.8	130.8	412.6	2309.2	2068.9	469.5	4847.6	
2004-05	2347.9	236.4	396.0	2980.3	1428.4	71.2	1499.6	123.2	421.6	2347.9	2086.4	590.4	5024.7	
2005-06	2641.8	314.8	223.0	3179.6	1639.5	81.5	1721.0	117.5	529.1	2641.8	2483.4	422.0	5547.2	
2006-07	2493.6	334.4	247.5	3075.5	1667.7	94.1	1761.8	122.9	478.2	2493.6	2480.3	464.5	5438.4	
2007-08	2453.1	414.4	418.5	3286.0	1716.5	101.2	1817.7	128.3	331.4	2453.1	2462.3	648.0	5563.4	
2008-09	2601.6	517.7	523.7	3643.0	1949.3	587.7	2537.0	128.2	643.7	2601.6	3110.7	1239.6	6951.9	
2009-10	2475.4	532.2	705.4	3713.0	1728.2	694.2	2422.4	102.4	645.0	2475.4	2905.4	1502.0	6882.8	
2010-11	2365.2	445.8	573.0	3384.0	919.4	310.9	1230.3	78.4	130.6	2365.2	1495.8	962.3	4823.3	
2011-12	1889.1	456.6	931.3	3277.0	1447.1	813.0	2260.1	94.7	528.6	1889.1	2432.3	1839.0	6160.4	
2012-13	1758.1	547.4	1172.5	3478.0	1151.0	692.9	1843.9	93.8	120.2	1758.1	1818.6	1959.2	5535.9	
2013-14	2057.1	497.2	926.7	3481.0	1286.1	1331.3	2617.4	111.9	587.9	2057.1	2371.2	2369.9	6798.2	

**Note:-** The varieties of basmati grown in the KPK are of different characteristics than those in the Punjab, therefore, area and production of basmati varieties of this province have not been included with data of basmati of Punjab. Instead data of all varieties of rice in the KPK have been included under "Others" in the province as well as on overall basis. Rice grown in Balochistan has been considered as of IRRI variety as variety-wise breakup is not available.

- Sources**
1. For 2003-04 to 2011-12, Agricultural Statistics of Pakistan 2011-12, MINFA Islamabad.
  2. For 2012-13 : Final estimates provided by concerned Provincial Agriculture Departments.
  3. For 2013-14 : Final estimates provided by concerned Provincial Agriculture Departments.

**AREA, YIELD AND PRODUCTION OF RICE BY VARIETY AND PROVINCE:  
2003-04 TO 2013-14**

Year	PUNJAB				SINDH			KH. PUKH Total (Others)	Baloch. Total (IRRI)	Pakistan			
	Basmati	IRRI	Others	Total	IRRI	Others	Total			Basmati	IRRI	Others	Total
<b>AREA</b> ----- Thousand acres -----													
2003-04	3524.0	341.0	305.9	4170.9	1223.9	138.1	1362.1	152.5	394.9	3524.0	1959.8	596.5	6080.4
2004-05	3623.9	267.0	444.0	4335.1	1198.2	145.5	1343.8	148.0	399.1	3623.9	1864.3	737.6	6225.8
2005-06	3792.9	325.9	236.2	4355.1	1303.3	162.6	1465.9	146.8	510.0	3792.9	2139.2	545.6	6477.7
2006-07	3642.9	343.0	285.2	4271.0	1320.3	157.7	1478.0	150.2	479.1	3642.9	2142.4	593.1	6378.4
2007-08	3403.0	394.9	461.0	4258.8	1312.4	155.4	1467.8	152.5	336.6	3403.0	2043.8	768.9	6215.7
2008-09	3826.0	499.9	560.9	4886.8	1384.6	428.0	1812.6	151.5	469.8	3826.0	2354.2	1140.4	7320.6
2009-10	3494.1	540.9	737.9	4772.9	1282.3	466.5	1748.8	132.9	469.8	3494.1	2292.9	1337.4	7124.4
2010-11	3296.0	451.0	619.0	4365.9	678.8	213.8	892.6	113.9	472.5	3296.0	1602.3	946.7	5844.9
2011-12	2770.1	453.0	1012.9	4236.0	1001.5	569.5	1571.1	123.8	422.8	2770.1	1877.3	1706.2	6353.6
2012-13	2459.0	518.9	1251.1	4229.0	819.4	443.6	1263.0	120.6	92.7	2459.0	1431.0	1815.3	5705.3
2013-14	2947.0	468.0	1054.9	4470.0	1054.7	787.8	1842.5	136.7	443.6	2947.0	1966.3	1979.4	6892.6
<b>YIELD</b> ----- kgs per acre -----													
2003-04	655	843	898	688	1118	464	1052	858	1045	655	1056	787	797
2004-05	648	885	892	687	1192	489	1116	832	1056	648	1119	800	807
2005-06	697	966	944	730	1258	501	1174	800	1037	697	1161	773	856
2006-07	685	975	868	720	1263	597	1192	818	998	685	1158	783	853
2007-08	721	1049	908	772	1308	651	1238	841	985	721	1205	843	895
2008-09	680	1036	934	745	1408	1373	1400	846	1370	680	1321	1087	950
2009-10	708	984	956	778	1348	1483	1385	770	1373	708	1267	1123	966
2010-11	718	989	926	775	1354	1454	1378	688	276	718	934	1016	825
2011-12	682	1008	919	774	1445	1428	1439	765	1250	682	1296	1078	970
2012-13	715	1055	937	822	1405	1562	1460	778	1297	715	1271	1079	970
2013-14	698	1062	878	779	1219	1690	1421	819	1325	698	1206	1197	986
<b>PRODUCTION</b> ----- Thousand tonnes -----													
2003-04	2309.2	287.6	274.6	2871.4	1368.7	64.1	1432.8	130.8	412.6	2309.2	2068.9	469.5	4847.6
2004-05	2347.9	236.4	396.0	2980.3	1428.4	71.2	1499.6	123.2	421.6	2347.9	2086.4	590.4	5024.7
2005-06	2641.8	314.8	223.0	3179.6	1639.5	81.5	1721.0	117.5	529.1	2641.8	2483.4	422.0	5547.2
2006-07	2493.6	334.4	247.5	3075.5	1667.7	94.1	1761.8	122.9	478.2	2493.6	2480.3	464.5	5438.4
2007-08	2453.1	414.4	418.5	3286.0	1716.5	101.2	1817.7	128.3	331.4	2453.1	2462.3	648.0	5563.4
2008-09	2601.6	517.7	523.7	3643.0	1949.3	587.7	2537.0	128.2	643.7	2601.6	3110.7	1239.6	6951.9
2009-10	2475.4	532.2	705.4	3713.0	1728.2	694.2	2422.4	102.4	645.0	2475.4	2905.4	1502.0	6882.8
2010-11	2365.2	445.8	573.0	3384.0	919.4	310.9	1230.3	78.4	130.6	2365.2	1495.8	962.3	4823.3
2011-12	1889.1	456.6	931.3	3277.0	1447.1	813.0	2260.1	94.7	528.6	1889.1	2432.3	1839.0	6160.4
2012-13	1758.1	547.4	1172.5	3478.0	1151.0	692.9	1843.9	93.8	120.2	1758.1	1818.6	1959.2	5535.9
2013-14	2057.1	497.2	926.7	3481.0	1286.1	1331.3	2617.4	111.9	587.9	2057.1	2371.2	2369.9	6798.2

**Notes:-** The varieties of basmati grown in the KPK are of different characteristics than those in the Punjab, therefore, area and production of basmati varieties of this province have not been included with data of basmati of Punjab. Instead data of all varieties of rice in the KPK have been included under "Others" in the province as well as on overall basis. Rice grown in Balochistan has been considered as of IRRI variety as variety-wise breakup is not available.

- Sources**
1. For 2003-04 to 2011-12, Agricultural Statistics of Pakistan 2011-12, MINFA Islamabad.
  2. For 2012-13 : Final estimates provided by concerned Provincial Agriculture Departments.
  3. For 2013-14 : Final estimates provided by concerned Provincial Agriculture Departments.

## DISTRICT-WISE PRODUCTION OF RICE BY VARIETY: AVERAGE OF 2011-12 TO 2013-14

"000"tonnes

S.No	Province/ District	Basmati	IRRI	Others	Total	Percent	S.No	Province/ District	Basmati	IRRI	Others	Total	Percent
<b>Punjab</b>							<b>Khyber Pukhtoonkhwa</b>						
1	Gujranwala	141.0	0.0	398.2	539.2	8.7	1	D.I.Khan	-	-	19.0	19.0	0.3
2	Sheikhupura	240.3	0.0	126.9	367.3	6.0	2	Swat	-	-	13.8	13.8	0.2
3	Okara	63.0	196.7	33.1	292.8	4.7	3	Malakand	-	-	10.5	10.5	0.2
4	Sialkot	211.8	0.0	72.8	284.6	4.6	4	Dir Upper	-	-	8.3	8.3	0.1
5	Hafizabad	129.2	0.0	135.7	264.9	4.3	5	Kurram AG.	-	-	8.3	8.3	0.1
6	Nankana Sahib	102.4	0.0	87.5	189.9	3.1	6	Dir Lower	-	-	7.0	7.0	0.1
7	M.B.Din	129.2	0.0	25.7	154.9	2.5	7	Bajour AG.	-	-	6.9	6.9	0.1
8	Kasur	67.7	58.5	27.0	153.2	2.5	8	Mansehra	-	-	5.3	5.3	0.1
9	Narowal	133.7	0.0	9.4	143.1	2.3	9	Bannu	-	-	3.8	3.8	0.1
10	Bahawalnagar	62.0	29.1	18.5	109.5	1.8	10	Battagram	-	-	3.5	3.5	0.1
11	Pakpattan	47.0	58.7	0.3	106.1	1.7	11	Shangla	-	-	3.5	3.5	0.1
12	Jhang	92.3	0.7	4.4	97.4	1.6	12	Chitral	-	-	3.4	3.4	0.1
13	Sargodha	59.6	4.4	7.2	71.1	1.2	13	Mardan	-	-	3.1	3.1	0.1
14	D.G.Khan	0.0	62.4	0.0	62.4	1.0	14	Peshawar	-	-	0.7	0.7	0.0
15	Gujrat	52.6	0.0	8.1	60.7	1.0	15	Swabi	-	-	0.7	0.7	0.0
16	Lahore	33.8	3.9	22.3	60.0	1.0	16	Bunir	-	-	0.5	0.5	0.0
17	Chiniot	42.2	15.6	1.5	59.4	1.0	17	Hangu	-	-	0.4	0.4	0.0
18	T.T.Singh	53.6	0.0	3.0	56.6	0.9	18	Charsadda	-	-	0.3	0.3	0.0
19	Faisalabad	26.6	1.0	22.1	49.7	0.8	19	Orakzai AG	-	-	0.2	0.2	0.0
20	Muzaffargarh	10.1	34.5	3.1	47.8	0.8	20	Kohat	-	-	0.2	0.2	0.0
21	Sahiwal	38.3	4.8	0.0	43.1	0.7	21	Nowshera	-	-	0.2	0.2	0.0
22	Khanewal	39.1	0.6	0.3	40.0	0.6	22	Kohistan	-	-	0.1	0.1	0.0
23	Vehari	36.7	2.5	0.3	39.5	0.6	23	Tank	-	-	0.1	0.1	0.0
24	R.Y.Khan	16.8	18.1	0.0	34.9	0.6	24	N.Waziristan	-	-	0.1	0.1	0.0
25	Khushab	26.5	0.0	0.0	26.5	0.4	25	Lakki Marwat	-	-	0.1	0.1	0.0
26	Multan	13.1	3.4	2.7	19.2	0.3	26	F.R.D.I.Khan	-	-	0.1	0.1	0.0
27	Layyah	9.7	0.0	0.0	9.7	0.2							
28	Lodhran	8.9	0.0	0.0	8.9	0.1							
29	Bahawalpur	5.5	1.9	0.0	7.3	0.1							
30	Mianwali	5.0	0.0	0.0	5.0	0.1							
31	Rajanpur	0.0	3.8	0.0	3.8	0.1							
32	Jhelum	2.1	0.0	0.0	2.1	0.0							
33	Bhakkar	1.5	0.0	0.0	1.5	0.0							
34	Attock	0.0	0.0	0.0	0.0	0.0							
35	Rawalpindi	0.0	0.0	0.0	0.0	0.0							
36	Islamabad	0.0	0.0	0.0	0.0	0.0							
37	Chakwal	0.0	0.0	0.0	0.0	0.0							
	<b>Sub Total</b>	<b>1901.4</b>	<b>500.4</b>	<b>1010.2</b>	<b>3412.0</b>	<b>55.3</b>		<b>Sub Total</b>	<b>0.0</b>	<b>0.0</b>	<b>100.1</b>	<b>100.1</b>	<b>1.6</b>
<b>Sindh</b>							<b>Balochistan</b>						
1	Larkana	-	287.2	70.5	357.7	5.8	1	Jaffarabad	-	246.3	-	246.3	4.0
2	Shikarpur	-	193.8	148.6	342.4	5.6	2	Nasirabad	-	161.2	-	161.2	2.6
3	Qambar	-	208.6	67.3	275.9	4.5	3	Khuzdar	-	2.4	-	2.4	0.0
4	Jacobabad	-	71.1	156.2	227.3	3.7	4	Turbat	-	1.5	-	1.5	0.0
5	Kashmore	-	97.4	126.5	223.9	3.6	5	Awaran	-	0.4	-	0.4	0.0
6	Thatta	-	156.5	61.3	217.8	3.5	6	Lasbella	-	0.2	-	0.2	0.0
7	Badin	-	56.6	150.4	207.0	3.4	7	Jhal Magsi	-	0.1	-	0.1	0.0
8	Dadu	-	94.1	41.8	135.9	2.2	8	Sibi	-	0.1	-	0.1	0.0
9	Ghotki	-	38.5	60.0	98.4	1.6	9	Dera Budghti	-	0.1	-	0.1	0.0
10	T.M.Khan	-	15.4	24.6	40.0	0.6							
11	N.Feroze	-	17.4	7.1	24.5	0.4							
12	Khalrpur	-	18.4	3.8	22.2	0.4							
13	Nawabshah	-	16.5	5.3	21.8	0.4							
14	Sukkur	-	6.7	9.8	16.6	0.3							
15	Sanghar	-	8.0	6.7	14.7	0.2							
16	Mirpurkhas	-	2.7	3.1	5.7	0.1							
17	Matlari	-	3.3	0.0	3.3	0.1							
18	Hyderabad	-	1.0	2.1	3.1	0.1							
19	Tando Allahyar	-	1.4	0.1	1.5	0.0							
20	Jamshoro	-	0.3	0.5	0.8	0.0							
	<b>Sindh Total</b>	<b>-</b>	<b>1294.7</b>	<b>945.7</b>	<b>2240.4</b>	<b>35.3</b>		<b>Balochistan Total</b>	<b>-</b>	<b>412.2</b>	<b>-</b>	<b>412.2</b>	<b>6.7</b>
								<b>Pakistan Total</b>	<b>1901.4</b>	<b>2207.4</b>	<b>2056.0</b>	<b>6164.8</b>	<b>100.0</b>

- Notes:
1. Data have been arranged in descending order on the basis of total production of rice in each district.
  2. Percentage share calculated on the basis of country total.
  3. Rounding may result in slight differences in figures.

Source: Respective Provincial Agriculture departments

## PER CAPITA AVAILABILITY (CONSUMPTION) OF RICE: 2008-09 to 2012-13 (OCTOBER - SEPTEMBER)

S.No	Items	2008-09	2009-10	2010-11	2011-12	2012-13
		-----Thousands tonnes-----				
	Production	6952	6883	4823	6160	5536
2	Deduction for seed, feed and wastage @ 6 percent for production	417	413	289	370	332
3	Export	2729	3733	3670	3002	2821
4	Net availability	3806	2737	864	2788	2383
		-----Millions-----				
5	Population	172.54	176.16	183.41	187.10	190.83
		-----Kgs-----				
6	Per capita availability ( consumption)	22.06	15.54	4.71	14.90	12.49
7	Average per capita availability (b)					
	Average (2008-09 to 2012-13)			14.31		
	Average (2011-12 and 2012-13)			13.69		

Notes: (a) Population of AJ&K, NAs and Afghan refugees have also been included.  
 (b) The production year 2008-09 and 2010-11 has been excluded being an outlier.

## Sources:

- |                                      |   |
|--------------------------------------|---|
| 1 For Imports and Exports:           | Federal Bureau of Statistics, Karachi.  |
| 2 For Population of Pakistan:        | Economic Survey, 2012-13.   |
| 3 For Population of AJ&K and NAs:    | Population Census Organization, Islamabad.  |
| 4 For Population of Afghan refugees: | Kashmir Affairs and Northern Areas and States and Frontier Regions Division, Government of Pakistan, Islamabad. |

**AVERAGE FARMERS' COST OF PRODUCTION OF BASMATI PADDY IN THE  
PUNJAB: 2013-14 AND 2014-15 CROPS**

Sr. No.	Operations/inputs	Average No./oprs/units/acre	2013 -14 crop		2014 - 15 crop		Change in 2014-15 over 2013-14
			Rate per unit	Cost per acre	Rate 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 dry ploughing	4.000	650.00	2600.00	700.00	2800.00	200.00
	1.2 wet ploughing	2.000	850.00	1700.00	900.00	1800.00	100.00
	1.3 wet planking	2.000	425.00	850.00	450.00	900.00	50.00
2.	Nursery used (marlas)	3.390	-	1285.00	-	1396.00	111.00
3.	Uprooting, transporting and transplanting (contract)	-	-	2200.00	-	2400.00	200.00
4.	Labour for bund making etc. (m.day)	0.984	350.00	344.40	350.00	344.40	0.00
5.	Weeding:						
	5.1 manual (m.day)	1.154	350.00	403.90	350.00	403.90	0.00
	5.2 weedicides (No)	0.367	550.00	201.85	600.00	220.20	18.35
6.	Plant protection including application	0.786	650.00	510.90	700.00	550.20	39.30
7.	Farm yard manure including transport and application (50%)	0.200	2250.00	225.00	2300.00	230.00	5.00
8.	Fertilizer (bags)						
	8.1 DAP	0.585	3913.00	2289.11	3574.00	2090.79	-198.32
	8.2 NP	0.195	2683.00	523.19	2535.00	494.33	-28.86
	8.3 Urea	1.146	1721.00	1972.27	1854.00	2124.68	152.42
	8.4 Zinc Sulphate	0.316	600.00	189.60	600.00	189.60	0.00
9.	Fertilizer transport and application	2.270	50.00	113.50	55.00	124.85	11.35
10.	Irrigation * (Nos)						
	10.1 Canal	10.776	-	85.00	-	95.72	10.72
	10.2 Private tubewell	8.321	1025.00	8529.03	1100.00	9153.10	624.08
11.	Labour used for irrigation and water course cleaning (man days)	6.116	350.00	2140.47	350.00	2140.47	0.00
12.	Mark up on investment @ 15.0 % per annum for 6 months on item 1 to 11 minus item 10.1	-	-	1564.69	-	2052.19	487.50
13.	Harvesting, threshing and winnowing (kgs/acre)	89.280	48.00	4285.44	55.38	4944.33	658.89
14.	Management charges for 6 months	-	-	1030.00	-	1090.00	60.00
15.	Land rent for 6 months (Rs/acre/annum)	-	19000.00	9500.00	22000.00	11000.00	1500.00
16.	Land revenue, local rate, pachotra etc.	-	-	5.00	-	5.00	0.00
17.	Average land tax @ Rs 132/acre/annum for 6 months	-	132.00	66.00	132.00	66.00	0.00
18.	Gross cost (item 1 to 17)	-	-	42614.33	-	46615.75	4001.42
19.	Value of straw	-	-	6000.00	-	7000.00	1000.00
20.	Net cost of cultivation (item 18-19)						
	20.1 with land rent			36614.33		39615.75	3001.42
	20.2 without land rent			27114.33		28615.75	1501.42
21.	Yield per acre (kgs)	-	-	1053.00	-	1053.00	0.00
22.	Cost of production at farm (Rs/40 kgs)						
	22.1 with land rent	-	-	1390.86	-	1504.87	114.01
	22.2 without land rent	-	-	1029.98	-	1087.02	57.03
23.	Marketing charges i.e. Loading, transport, commission, weighment (Rs/40 kgs)	-	-	40.00	-	45.00	5.00
24.	Cost of production at market level (Rs/40 kgs)						
	24.1 with land rent	-	-	1430.86	-	1549.87	119.01
	24.2 without land rent	-	-	1069.98	-	1132.02	62.03

\* hrs/irrigation: Canal 1.96, Private tube-well = 2.38

Note: In light of changes in Mark-up rate overtime, it was revised for 2014-15 crop accordingly.

**AVERAGE FARMERS' COST OF PRODUCTION OF IRRI PADDY IN THE  
PUNJAB: 2013-14 AND 2014-15 CROPS**

Sr. No.	Operations/inputs	Average No./oprs/units/acre	2013 -14 crop		2014 - 15 crop		Change in 2014-15 over 2013-14
			Rate per unit	Cost per acre	Rate 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 dry ploughing	4.000	650.00	2600.00	700.00	2800.00	200.00
	1.2 wet ploughing	2.000	850.00	1700.00	900.00	1800.00	100.00
	1.3 wet planking	1.000	425.00	425.00	450.00	450.00	25.00
2.	Nursery used (marlas)	3.494	-	1125.00	-	1223.00	98.00
3.	Uprooting, transporting and transplanting (contract)	-	-	2200.00	-	2400.00	200.00
4.	Labour for bund making etc. (man day)	1.150	350.00	402.50	350.00	402.50	0.00
5.	Weeding:						
	5.1 manual (m.day)	1.338	350.00	468.30	350.00	468.30	0.00
	5.2 weedicides (No)	0.655	550.00	360.25	600.00	393.00	32.75
6.	Plant protection including application	0.812	650.00	527.80	700.00	568.40	40.60
7.	Farm yard manure including transport and application (50%)	0.196	2150.00	210.70	2200.00	215.60	4.90
8.	Fertilizer (bags)						
	8.1 DAP	0.702	3913.00	2746.93	3574.00	2508.95	-237.98
	8.2 NP	0.303	2683.00	812.95	2535.00	768.11	-44.84
	8.3 Urea	1.498	1721.00	2578.06	1854.00	2777.29	199.23
	8.4 Zinc Sulphate	0.818	600.00	490.80	600.00	490.80	0.00
9.	Fertilizer transport and application	3.337	50.00	166.85	55.00	183.54	16.69
10.	Irrigation * (Nos)						
	10.1 Canal	15.905	-	85.00	-	95.72	10.72
	10.2 Private tubewell	4.493	975.00	4380.68	1000.00	4493.00	112.33
11.	Labour used for irrigation and water course cleaning (man days)	5.964	350.00	2087.40	350.00	2087.40	0.00
12.	Mark up on investment @ 15.0 % per annum for 6 months on item 1 to 11 minus item 10.1	-	-	1396.99	-	1802.24	405.25
13.	Harvesting, threshing and winnowing (kgs/acre)	134.100	19.58	2625.68	22.59	3029.32	403.64
14.	Management charges for 6 months	-	-	1030.00	-	1090.00	60.00
15.	Land rent for 6 months (Rs/acre/annum)	-	19000.00	9500.00	22000.00	11000.00	1500.00
16.	Land revenue, local rate, pachotra etc.	-	-	5.00	-	5.00	0.00
17.	Average land tax @ Rs 132/acre/annum for 6 months	-	132.00	66.00	132.00	66.00	0.00
18.	Gross cost (item 1 to 17)	-	-	37991.88	-	41118.16	3126.28
19.	Value of straw	-	-	3500.00	-	4500.00	1000.00
20.	Net cost of cultivation (item 18-19)						
	20.1 with land rent			34491.88		35618.16	2126.28
	20.2 without land rent			24991.88		25618.16	626.28
21.	Yield per acre (kgs)	-	-	1510.00	-	1510.00	0.00
22.	Cost of production at farm (Rs/40 kgs)						
	22.1 with land rent	-	-	913.69	-	970.02	56.33
	22.2 without land rent	-	-	662.04	-	678.63	16.59
23.	Marketing charges i.e. Loading, transport, commission, weighment (Rs/40 kgs)	-	-	40.00	-	45.00	5.00
24.	Cost of production at market level (Rs/40 kgs)						
	24.1 with land rent			953.69		1015.02	61.33
	24.2 without land rent			702.04		723.63	21.59

\* hrs/irrigation: Canal = 1.96, Private tube-well = 2.22

Note: In light of changes in Mark-up rate overtime, it was revised for 2014-15 crop accordingly.

**AVERAGE FARMERS' COST OF PRODUCTION OF IRRI PADDY IN SINDH:  
2013-14 AND 2014-15 CROPS**

Sr. No.	Operations/inputs	Average No./oprs/units/acre	2013 -14 crop		2014 - 15 crop		Change in 2014-15 over 2013-14
			Rate per unit	Cost per acre	Rate 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 dry ploughing	5.000	975.00	4875.00	1100.00	5500.00	625.00
	1.2 dry planking	1.000	500.00	500.00	550.00	550.00	50.00
	1.3 levelling (tractor hour)	1.000	975.00	975.00	1100.00	1100.00	125.00
2.	Nursery (ghunta)	1.000	-	1765.00	-	1875.00	110.00
3.	Uprooting, transporting and transplanting (contract)	-	-	2475.00	-	2700.00	225.00
4.	Labour for bund making etc. (man day)	2.000	350.00	700.00	350.00	700.00	0.00
5.	Manual weeding (m.day)	2.435	350.00	852.25	350.00	852.25	0.00
6.	Plant protection						
	6.1 granular pesticides	0.733	550.00	403.15	600.00	439.80	36.65
	6.2 formulated spray	0.076	650.00	49.40	700.00	53.20	3.80
7.	Farm yard manure including transport and application (50%)	0.028	2150.00	30.10	2200.00	30.80	0.70
8.	Fertilizer (bags)						
	8.1 DAP	0.947	3800.00	3598.60	3483.00	3298.40	-300.20
	8.2 Urea	1.384	1758.00	2433.07	1826.00	2527.18	94.11
	8.3 Zinc sulphate	0.051	600.00	30.60	600.00	30.60	0.00
9.	Fertilizer transport and application	2.384	50.00	119.20	55.00	131.12	11.92
10.	Irrigation * (Nos)						
	10.1 canal	17.939	-	88.78	-	88.78	0.00
	10.2 private tubewell	0.522	650.00	339.30	750.00	391.50	52.20
11.	Labour used for irrigation and water course cleaning (man days)	5.595	350.00	1958.14	350.00	1958.14	0.00
12.	Mark up on investment @ 12.0 % per annum for 6 months on item 1 to 11 minus item 10.1	-	-	1266.23	-	1660.35	394.12
13.	Harvesting and threshing etc. (kgs/acre)	185.250	21.25	3936.56	21.13	3914.33	-22.23
14.	Management charges for 6 months	-	-	1030.00	-	1090.00	60.00
15.	Land rent for 6 months (Rs/acre/annum)	-	16000.00	8000.00	18000.00	9000.00	1000.00
16.	Land revenue, local rate, pachotra etc.	-	-	5.00	-	5.00	0.00
17.	Land tax @ Rs 200/acre/annum for 6 months	-	200.00	100.00	200.00	100.00	0.00
18.	Drainage cess @ Rs 24/acre/annum for 6 months	-	24.00	12.00	24.00	12.00	0.00
19.	Gross cost (item 1 to 18)	-	-	35542.38	-	38008.45	2466.07
20.	Value of straw	-	-	3500.00	-	4500.00	1000.00
21.	Net cost of cultivation (item 19-20)						
	21.1 with land rent			32042.38		33508.45	1466.07
	21.2 without land rent			24042.38		24508.45	466.07
22.	Yield per acre (kgs)	-	-	2004.00	-	2004.00	0.00
23.	Cost of production at farm (Rs/40 kgs)						
	23.1 with land rent	-	-	639.57	-	668.83	29.26
	23.2 without land rent	-	-	479.89	-	489.19	9.30
24.	Marketing charges i.e. Loading, transport, commission, weighment (Rs/40 kgs)	-	-	40.00	-	45.00	5.00
25.	Cost of production at market level (Rs/40 kgs)						
	25.1 with land rent			679.57		713.83	34.26
	25.2 without land rent			519.89		534.19	14.30

\* hrs/irrigation: Canal = 1.56, Private tube-well = 1.48

Note: In light of changes in Mark-up rate overtime, it was revised for 2014-15 crop accordingly.

### **Notes for Annex-IV to VI**

1. The input-output parameters for estimating cost of production for Rice Paddy, 2014-15 Crop were adopted from the Price Policy Report of Rice Paddy, 2013-14 Crop, API Series No 247.
2. The farm inputs prices, hiring rates of field operations, wage rate, land rentals, value of straw and marketing cost have been revised in the light of the information provided by the Provincial Agriculture Departments, Farmers' Associations and Kissan/Abadgar Boards in the meeting of the API's Standing Committee on Rice, held on April 28, 2014 at the Committee room of the Agriculture Policy Institute, Islamabad, field surveys conducted in the Punjab and Sindh during May-June 2014 and other sources as:
3. The prices of chemical fertilizers have been revised in light of the fertilizers prices published by the Federal Bureau of Statistics, Islamabad for the week ending on June 12, 2014.
4. The cost of supplementary irrigation has been adjusted in view of changes in the prices of diesel from Rs 104.60 to 109.34 and power tariff from Rs 6.77 to 10.35/kwh, based on the ratios of electric and diesel tube-wells of 13:87 in the Punjab, 23:77 in Sindh as reported in the Agriculture Statistics of Pakistan, 2011-12, Pakistan Bureau of Statistics Islamabad.
5. 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 18169 per month for a Field Assistant at the 15<sup>th</sup> stages in BPS-6 as per revised scale of July 2011, including 15, 10 and 10 % Ad hoc Reliefs in 2012 , 2013 & 2014 respectively.
6. The kind payments were valued at the post-harvest markets prices of paddy prevailed during 2013-14 @ Rs 2260 per 40 kgs for basmati, Rs 949 for IRRI in the Punjab and Rs 890 for IRRI in Sindh. The marketing cost of Rs 45 per 40 kgs has been deducted from the market prices to bring at the farm level.
7. In cost of cultivation of rice paddy, land rent in both provinces, Punjab and Sindh, is one of the principal components. It is affected by several parameters and substantially varies from region to region. To update land rent, there is no precise measure. However, keeping in view the discussion made by the representatives of the rice paddy farmers in the aforesaid meetings, land rentals have been adjusted accordingly.



## ANNEX-VII

**ECONOMICS OF RICE PADDY 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		
		Days	Acre inches	.....Rupees per acre.....					Ratio	Rupee of purchased inputs	Crop day	Acre inch of water used
				10=6/5	11=6/2	12=6/3						
1	2	3	4	5	6	7=6-5	8=6-4	9=6/4	10=6/5	11=6/2	12=6/3	
<b>Punjab</b>												
1	Basmati paddy	180	58	42714	20134	65137	45004	22423	1.52	3.24	362	1123
2	IRRI paddy	180	62	38122	17655	36887	19202	-1235	0.97	2.09	205	595
3	Seed cotton	240	22	48701	17218	57068	39850	8368	1.17	3.31	238	2594
4	Wheat	180	12	35832	13596	38518	24922	2687	1.07	2.83	214	3210
5	Sunflower (spring)	180	22	38414	16272	40400	24129	1986	1.05	2.48	224	1836
6	Seed cotton + wheat	420	34	84532	30814	95587	64772	11054	1.13	3.10	228	2811
7	Seed cotton+ sunflower	420	44	87115	33490	97468	63979	10353	1.12	2.91	232	2215
8	Basmati paddy +wheat	360	70	78545	33730	103656	69926	25110	1.32	3.07	288	1481
9	Basmati paddy+ sunflower	360	80	81128	36405	105537	69132	24409	1.30	2.90	293	1319
10	IRRI paddy + wheat	360	74	73954	31281	75406	44125	1452	1.02	2.41	209	1019
11	IRRI paddy +sunflower	360	84	76536	33956	77287	43331	751	1.01	2.28	215	920
12	Sugarcane	394	48	74550	23533	87598	64065	13048	1.18	3.72	222	1825
<b>Sindh</b>												
1	IRRI paddy	180	56	35725	13433	45821	32388	10096	1.28	3.41	255	818
2	Seed cotton	240	18	44854	14793	52884	38091	8030	1.18	3.58	220	2938
3	Wheat	180	12	33867	12710	35665	22955	1798	1.05	2.81	198	2972
4	Sunflower (spring)	180	22	38955	16006	44900	28895	5945	1.15	2.81	249	2041
5	Seed cotton + wheat	420	30	78721	27502	88549	61046	9828	1.12	3.22	211	2952
6	Seed cotton +sunflower	420	40	83809	27502	97784	70282	13975	1.17	3.56	233	2445
7	IRRI paddy+ wheat	360	68	69592	26143	81486	55344	11894	1.17	3.12	226	1198
8	IRRI paddy+ sunflower	360	78	74680	29438	90721	61283	16041	1.21	3.08	252	1163
9	Sugarcane	488	71	88853	29138	107947	78809	19094	1.21	3.70	221	1520

**Notes for Annex -VII**

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 any 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 purchased inputs cost = Gross income divided by cost of purchased inputs
12. Revenue per crop day = Gross income divided by crop duration in days.
13. Revenue per acre-inch of water used = Gross income divided by irrigation water used in acre inches.

## EXPORT PARITY PRICES OF BASMATI PADDY ON THE BASIS OF FOB (KARACHI) PRICE

S.No	Item	June, 14	2013-14	2010-13
		----- US \$ Per Tonne -----		
1.	Average fob (Karachi) prices of rice			
	US\$ per tonne	948	1079	948
	Current exchange rate (Rs per US\$)	98.75	98.75	98.75
	Pak Rupees per tonne	93615	106551	93615
		----- Rs per 40 kgs -----		
		3745	4262	3745
2.	Expenses from sheller/ market to export point	225	225	225
3.	Producer area market level price of rice (item 1-item 2)	3520	4037	3520
4.	Product recoveries per 100 kgs of paddy	----- Kgs -----		
	i) Head rice of export quality @ 70 of normal recovery	35.0	35.0	35.0
	ii) Short grain rice @25% of normal recovery	12.5	12.5	12.5
	iii) Brokens	20.0	20.0	20.0
	iv) Tips	3.5	3.5	3.5
	v) Bran powder	6.0	6.0	6.0
	vi) Husk and dust	23.0	23.0	23.0
5.	Prices of products	-----Rs per 40 kgs-----		
	i) Export quality rice as calculated in item 3	3520	4037	3520
	ii) Short grain rice (70% of export quality -item 3)	2464	2826	2464
	iii) Brokens (50% of short grainrice)	1760	2019	1760
	iv) Tips (30% of short grainrice)	1056	1211	1056
	v) Bran powder (15% of short grainrice)	528	606	528
	vi) Husk	150	150	150
6.	Value of products recoverable from 100 kgs paddy			
	i) Export quality rice	3080	3532	3080
	ii) Short grain rice	770	883	770
	iii) Brokens	880	1009	880
	iv) Tips	92	106	92
	v) Bran powder	79	91	79
	vi) Husk	86	86	86
	vii) <b>Total value of all products</b>	<b>4987</b>	<b>5708</b>	<b>4987</b>
7.	Husking/Processing /financial charges of			
	i) 100 kgs paddy	225	225	225
	ii) Export quality rice @Rs1 per Kg	63	63	63
8.	Mill-gate price of paddy per 100 kgs	4699	5420	4699
9.	Mill-gate price of paddy per 40 kgs	1880	2168	1880

## Sources:

- 1 Pakistan Bureau of Statistics, Karachi.
- 2 Rice Exporters/Millers for incidental charges.

## EXPORT PARITY PRICE OF IRRI PADDY ON THE BASIS OF FOB (KARACHI) PRICE

S.No	Item	May, 14	2013-14	2010-13
		----- US \$ Per Tonne -----		
1.	Average fob (Karachi) prices of rice			
	US\$ per tonne	504	468	490
	Current exchange rate (Rs per US\$)	98.75	98.75	98.75
	Pak Rupees per tonne	49770	46215	48388
		----- Rs per 40 kgs -----		
		1991	1849	1936
2.	Expenses from sheller/ market to export point	125	125	125
3.	Producer area market level price of rice (item 1-item 2)	1866	1724	1811
4.	Product recoveries per 100 kgs of paddy	-----Kgs-----		
	i) Head rice of export quality @ 70 of normal recovery	33.6	33.6	33.6
	ii) Short grain rice @25% of normal recovery	12.4	12.4	12.4
	iii) Brokens	14.0	14.0	14.0
	iv) Tips	7.0	7.0	7.0
	v) Bran powder	7.0	7.0	7.0
	vi) Husk and dust	26.0	26.0	26.0
5.	Prices of products	-----Rs per 40 kgs-----		
	i) Export quality rice as calculated in item 3	1866	1724	1811
	ii) Short grain rice (70% of export quality -item 3)	1306	1207	1267
	iii) Brokens (50% of short grainrice)	653	603	634
	iv) Tips (30% of short grainrice)	392	362	380
	v) Bran powder (15% of short grainrice)	196	181	190
	vi) Husk	100	100	100
6.	Value of products recoverable from 100 kgs paddy			
	i) Export quality rice	1567	1448	1521
	ii) Short grain rice	405	374	393
	iii) Brokens	229	211	222
	iv) Tips	69	63	67
	v) Bran powder	34	32	33
	vi) Husk	65	65	65
	vi) <b>Total value of all products</b>	<b>2369</b>	<b>2193</b>	<b>2300</b>
7.	Husking/Processing /financial charges of			
	i) 100 kgs paddy	225	225	225
	ii) Export quality rice @Rs1 per Kg	63	63	63
8.	Mill-gate price of paddy per 100 kgs	2081	1905	2012
9.	Mill-gate price of paddy per 40 kgs	832	762	805

## Sources:

- 1 Pakistan Bureau of Statistics, Karachi.
- 2 Rice Exporters/Millers for incidental charges.

## REGION WISE EXPORT OF BASMATI AND COARSE RICE DURING : 2011-12 AND 2012-13

Region	Quantity			Value			% share in in total export	
	2011-12	2012-13	%	2011-12	2012-13	%	2011-12	2012-13
	...000 tonnes.....		Change	...Million US \$...		Change	Per cent	
<b>A. Basmati Rice</b>								
Asia	767.53	490.94	-36.04	651.19	482.08	-25.97	80.52	72.83
Oceania	19.18	20.03	4.42	18.83	19.68	4.51	2.01	2.97
Europe	96.42	76.10	-21.07	89.02	81.24	-8.74	10.12	11.29
Africa	35.28	29.48	-16.45	33.07	28.90	-12.60	3.70	4.37
America	23.93	29.99	25.37	26.83	32.62	21.55	2.51	4.45
CIS	10.92	27.51	151.98	7.09	23.27	228.22	1.15	4.08
<b>Total</b>	<b>953.25</b>	<b>674.05</b>	<b>-29.29</b>	<b>826.03</b>	<b>667.78</b>	<b>-19.16</b>	<b>100.00</b>	<b>100.00</b>
<b>B. Coarse Rice</b>								
Asia	741.64	829.08	11.79	378.79	423.76	11.87	36.21	38.62
Oceania	1.48	1.61	8.50	1.06	1.16	9.49	0.07	0.07
Europe	31.26	25.72	-17.71	17.72	15.23	-14.05	1.53	1.20
Africa	1155.45	1116.29	-3.39	505.91	484.69	-4.19	56.41	52.00
America	78.77	111.29	41.29	31.36	46.09	46.97	3.85	5.18
CIS	39.71	62.74	57.97	20.17	27.16	34.70	1.94	2.92
<b>Total</b>	<b>2048.31</b>	<b>2146.73</b>	<b>4.80</b>	<b>955.00</b>	<b>998.08</b>	<b>4.51</b>	<b>100.00</b>	<b>100.00</b>

Source: Pakistan Bureau of Statistics, Karachi.

**ECONOMIC EFFICIENCY OF RESOURCE USE IN BASMATI (PADDY) PRODUCTION IN PUNJAB ON THE BASIS OF EXPORT PARITY PRICES**

Description	Revenues	Traded cost	Domestic factors' cost	Profits
----- Rupees per acre -----				
<b>2009-10</b>				
Private Prices	25991	9348	13414	3229
Social Prices	34749	9289	13682	11779
Transfers	-8759	60	-268	-8550
<b>2010-11</b>				
Private Prices	31269	12252	14454	4563
Social Prices	34290	12161	14760	7370
Transfers	-3021	91	-306	-2806
<b>2011-12</b>				
Private Prices	39287	15591	19208	4489
Social Prices	47666	15561	19562	12543
Transfers	-8379	29	-354	-8054
<b>2012-13</b>				
Private Prices	53608	17615	21718	14275
Social Prices	46170	17579	22097	6494
Transfers	7438	36	-379	7781
<b>2013-14</b>				
Private Prices	62953	18237	24432	20285
Social Prices	49408	18173	24823	6412
Transfers	13545	64	-391	13872

**Note:**

Data for 2013-14 is an estimate based on respective cost of production and export parity price for 2013-14. All other estimates are taken from previous issues of Rice Policy Analysis reports.

**ECONOMIC EFFICIENCY OF RESOURCE USE IN IRRI (PADDY) PRODUCTION IN  
PUNJAB ON THE BASIS OF EXPORT PARITY PRICES**

Description	Revenues	Traded Input Cost	Domestic Factor Cost	Profits
----- Rupees per acre -----				
<b>2009-10</b>				
Private Prices	23328	7949	12392	2986
Social Prices	21081	8067	12959	55
Transfers	2246	-118	-567	2931
<b>2010-11</b>				
Private Prices	32445	10383	13346	8716
Social Prices	23531	10531	14001	-1001
Transfers	8914	-148	-655	9717
<b>2011-12</b>				
Private Prices	36084	13558	18476	4050
Social Prices	31562	13843	19246	-1527
Transfers	4522	-285	-769	5577
<b>2012-13</b>				
Private Prices	35020	15382	20608	-971
Social Prices	29776	15700	21438	-7362
Transfers	5244	-318	-830	6392
<b>2013-14</b>				
Private Prices	34944	15801	21776	-2633
Social Prices	28636	16096	22634	-10093
Transfers	6308	-295	-858	7461

**Note:**

Data for 2013-14 is an estimate based on respective cost of production and export parity price for 2013-14. All other estimates are taken from previous issues of Rice Policy Analysis reports.



**ECONOMIC EFFICIENCY OF RESOURCE USE IN IRRI (PADDY) PRODUCTION IN SINDH  
ON THE BASIS OF EXPORT PARITY PRICES**

Description	Revenues	Traded inputs cost	Domestic Factor cost	Profits
----- Rupees per acre -----				
<b>2009-10</b>				
Private Prices	25675	6825	11601	7250
Social Prices	23193	7008	11785	4400
Transfers	2482	-183	-184	2850
<b>2010-11</b>				
Private Prices	35694	9090	13281	13323
Social Prices	25875	9302	13500	3073
Transfers	9818	-213	-219	10250
<b>2011-12</b>				
Private Prices	41480	12098	18077	11304
Social Prices	41530	12451	18347	10731
Transfers	-50	-353	-270	573
<b>2012-13</b>				
Private Prices	46089	13549	19552	12988
Social Prices	39426	13923	19842	5661
Transfers	6663	-374	-290	7327
<b>2013-14</b>				
Private Prices	45588	13955	21676	9958
Social Prices	38173	14305	21977	1891
Transfers	7415	-350	-302	8066

**Note:**

Data for 2013-14 is an estimate based on respective cost of production and export parity price for 2013-14. All other estimates are taken from previous issues of Rice Policy Analysis reports.

**AREA AND PRODUCTION OF MAJOR RICE PRODUCING COUNTRIES  
IN THE WORLD : 2012 CROP**

S.No.	Country	Area million(ha)	Per cent share
1	India	42.500	26.04
2	China, mainland	30.297	18.56
3	Indonesia	13.443	8.24
4	Thailand	12.600	7.72
5	Bangladesh	11.553	7.08
6	Myanmar	8.150	4.99
7	Viet Nam	7.753	4.75
8	Philippines	4.690	2.87
9	Cambodia	3.008	1.84
10	Pakistan	2.700	1.65
11	Nigeria	2.685	1.65
12	Brazil	2.413	1.48
13	Japan	1.581	0.97
14	Nepal	1.531	0.94
15	Madagascar	1.350	0.83
16	United States of America	1.084	0.66
17	Guinea	1.000	0.61
18	Sri Lanka	0.990	0.61
19	Lao People's Democratic Republic	0.934	0.57
20	Republic of Korea	0.847	0.52
21	United Republic of Tanzania	0.799	0.49
22	Malaysia	0.692	0.42
23	Egypt	0.620	0.38
24	Mali	0.617	0.38
25	Sierra Leone	0.610	0.37
26	Democratic People's Republic of Korea	0.570	0.35
27	Democratic Republic of the Congo	0.500	0.31
28	Iran (Islamic Republic of)	0.480	0.29
	<b>Total</b>	<b>156.00</b>	<b>95.59</b>
	<b>World Total 117 countries</b>	<b>163.199</b>	<b>100.00</b>

S.No.	Country	Production million(tonnes)	Per cent share
1	China, mainland	136.190	28.38
2	India	101.733	21.20
3	Indonesia	46.030	9.59
4	Viet Nam	29.108	6.07
5	Thailand	25.200	5.25
6	Bangladesh	22.593	4.71
7	Myanmar	22.000	4.58
8	Philippines	12.022	2.51
9	Brazil	7.700	1.60
10	Japan	7.103	1.48
11	Pakistan	6.267	1.31
12	Cambodia	6.194	1.29
13	United States of America	6.032	1.26
14	Republic of Korea	4.280	0.89
15	Egypt	3.941	0.82
16	Nepal	3.381	0.70
17	Nigeria	3.222	0.67
18	Madagascar	2.667	0.56
19	Sri Lanka	2.564	0.53
20	Lao People's Democratic Republic	2.326	0.48
21	Peru	2.013	0.42
22	Malaysia	1.834	0.38
23	Iran (Islamic Republic of)	1.600	0.33
24	Colombia	1.305	0.27
25	Guinea	1.279	0.27
26	Mali	1.277	0.27
27	United Republic of Tanzania	1.200	0.25
28	Democratic People's Republic of Korea	1.160	0.24
	<b>Total</b>	<b>462.220</b>	<b>96.33</b>
	<b>World Total 117 Countries</b>	<b>479.826</b>	<b>100.00</b>

Source: World Statistics Year Book 2012.

Note: Rice production has worked out from paddy production assuming rice/paddy ratio is 2/3.

## YIELD PER HECTARE OF MAJOR RICE PRODUCING COUNTRIES IN THE WORLD: 2012 CROP

S.No.	Name of Country	Yield Kgs/hect	S.No.	Name of Country	Yield Kgs/hect
1	Egypt	6353	30	Former Yugoslav Republic of Macedonia	3488
2	Australia	5940	31	Paraguay	3470
3	United States of America	5566	32	Indonesia	3424
4	Uruguay	5234	33	Iran (Islamic Republic of)	3333
5	Spain	5171	34	Honduras	3298
6	Peru	5149	35	Jamaica	3268
7	Morocco	5068	36	Belize	3259
8	Republic of Korea	5054	37	Kenya	3240
9	Turkey	4900	38	Nicaragua	3223
10	Greece	4757	39	Brazil	3191
11	China, mainland	4495	40	Dominican Republic	3149
12	Japan	4493	41	Senegal	3111
13	Somalia	4444	42	Réunion	3048
14	Argentina	4441	43	Guyana	3008
15	China, Taiwan Province of	4360	44	Romania	3000
16	Tajikistan	4308	45	Niger	2885
17	Italy	4280	46	Ecuador	2812
18	El Salvador	4265	47	Colombia	2757
19	Chile	4162	48	Myanmar	2699
20	Ukraine	4129	49	Suriname	2667
21	France	3968	50	Solomon Islands	2667
22	Portugal	3909	51	Malaysia	2648
23	Rwanda	3813	52	Sri Lanka	2590
24	Venezuela (Bolivarian Republic of)	3773	53	Philippines	2563
25	Viet Nam	3754	54	Kazakhstan	2513
26	Mexico	3749	55	Lao People's Democratic Republic	2491
27	Bulgaria	3697	56	India	2394
28	Russian Federation	3660	57	Hungary	2378
29	Mauritania	3522	58	Pakistan	2321
				<b>World Avg.</b>	<b>2940</b>

Source: World Statistics Year Book 2012.

## AVAILABILITY OF CERTIFIED SEED OF RICE (PADDY): 2008-09 TO 2013-14

Year	Province	Area			Seed req.		Total seed available	Availability of seed as percentage of	
		Bas	IRRI+other	Total	Gross	Replacement @ 20 %		Gross requirement	Replacement requirement
		---- 000 hect. ----			----- Tonnes -----			--- Per cent ---	
2008-09	Punjab	1548	430	1978	29326	5865	9762	33	166
	Sindh		734	734	18350	3670	3347	18	91
	Khyber Pakhtunkhwa		61	61	1525	305	122	8	40
	Balochistan		190	190	4750	950	225	5	24
	Total	1548	1415	2963	53951	10790	13456	25	125
2009-10	Punjab	1415	518	1933	29930	5986	24809	83	414
	Sindh		708	708	17700	3540	4590	26	130
	Khyber Pakhtunkhwa		54	54	1350	270	134	10	50
	Balochistan		190	190	4750	950	278	6	29
	Total	1415	1470	2885	53730	10746	29811	55	277
2010-11	Punjab	1334	433	1767	26833	5367	19262	72	359
	Sindh		361	361	9025	1805	5248	58	291
	Khyber Pakhtunkhwa		46	46	1150	230	46	4	20
	Balochistan		191	191	4775	955	1340	28	140
	Total	1334	1031	2365	41783	8357	25896	62	310
2011-12	Punjab	1121	593	1714	28277	5655	17701	63	313
	Sindh		636	636	15900	3180	7088	45	223
	Khyber Pakhtunkhwa		50	50	1250	250	92	7	37
	Balochistan		171	171	4275	855	1932	45	226
	Total	1121	1450	2571	49702	9940	26813	54	270
2012-13	Punjab	995	716	1711	29840	5968	29506	99	494
	Sindh		512	512	12800	2560	13152	103	514
	Khyber Pakhtunkhwa		51	51	1275	255	0	0	0
	Balochistan		38	38	950	190	0	0	0
	Total	995	1317	2312	44865	8973	42658	95	475
2013-14	Punjab	1193	616	1809	29716	5943	35247	119	593
	Sindh		746	746	18650	3730	9726	52	261
	Khyber Pakhtunkhwa		55	55	1375	275	73	5	27
	Balochistan		180	180	4500	900	1000	22	111
	Total	1193	1597	2790	54241	10848	46046	85	424

## Notes:

1. The area under rice for the Punjab province represents area under basmati and IRRI varieties while that of Sindh represents the area under IRRI and 'Others varieties'. For KPK and Balochistan total area under rice represents 'Others' and IRRI varieties, respectively.

2. The seed requirement has been worked by using the seed rate of 12 kgs per hectare for basmati and 25 kgs per hectare for IRRI and 'others' varieties.

## Sources:

For Area: Annex-I.  
For Seed: FSC&RD, Islamabad.

