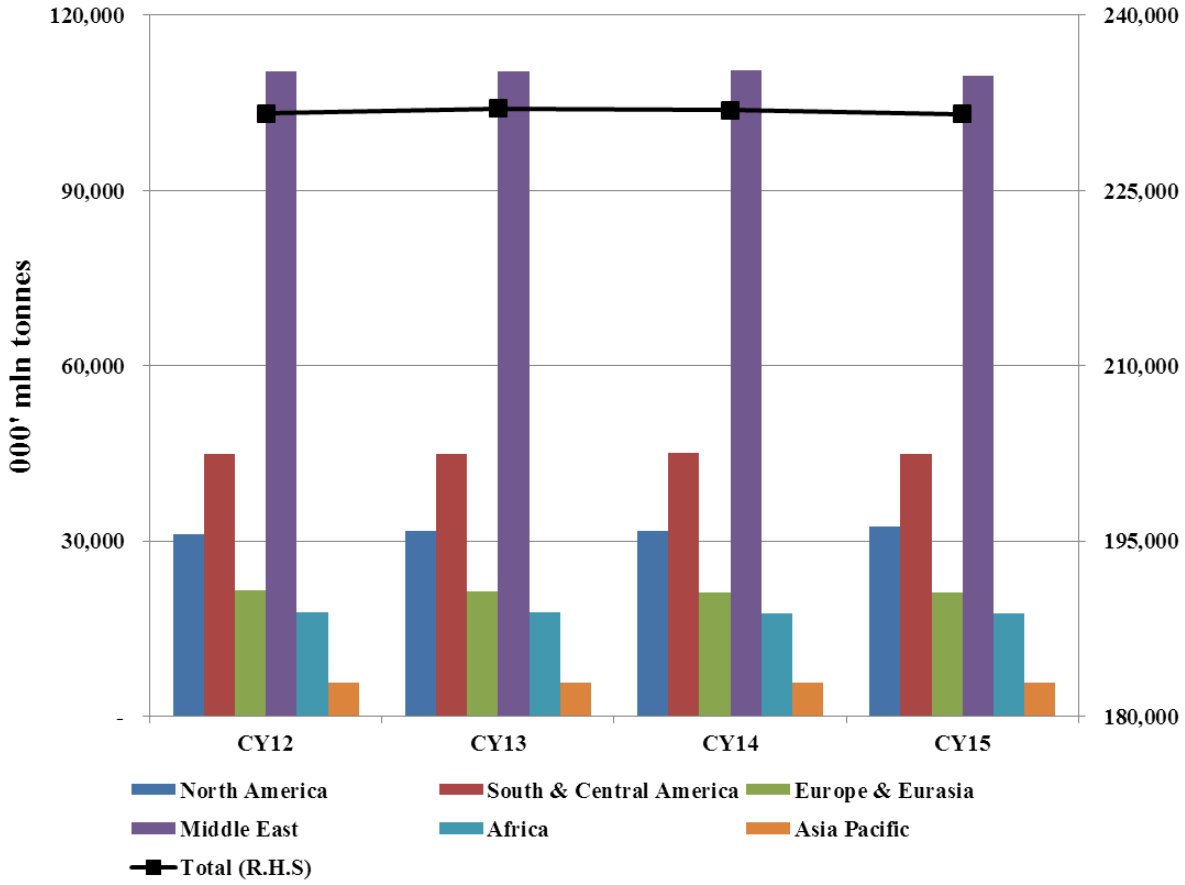
Pakistan Refining Industry
An Overview

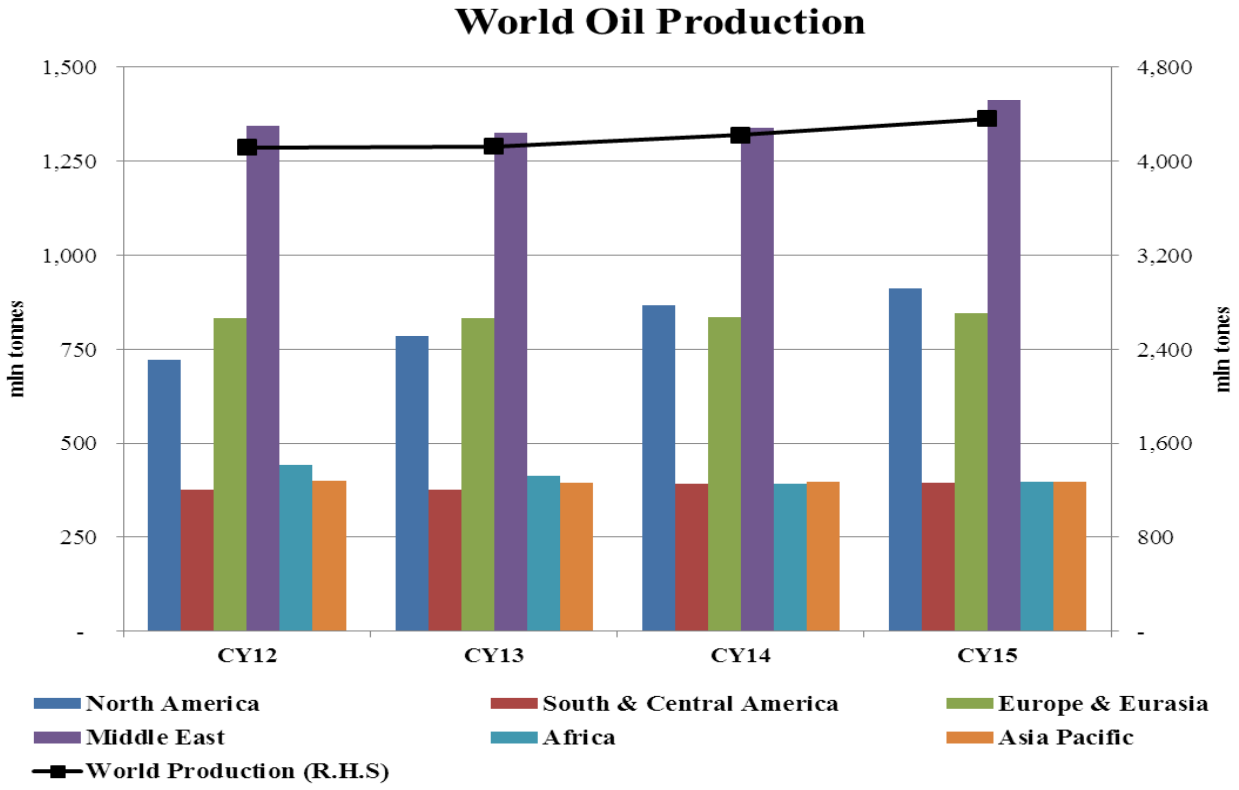
October 2016

World Crude Oil Reserves



- Largely sustained level of reserves
- Largest Region Contributes – 47% (2014: 47.2%)
- Global proven oil reserves in 2015 fell by 3.2 billion MT (-0.1%) to 239 billion MT
- OPEC countries continue to hold the largest share (71.4%) of global proved reserves.

World Crude Oil Production

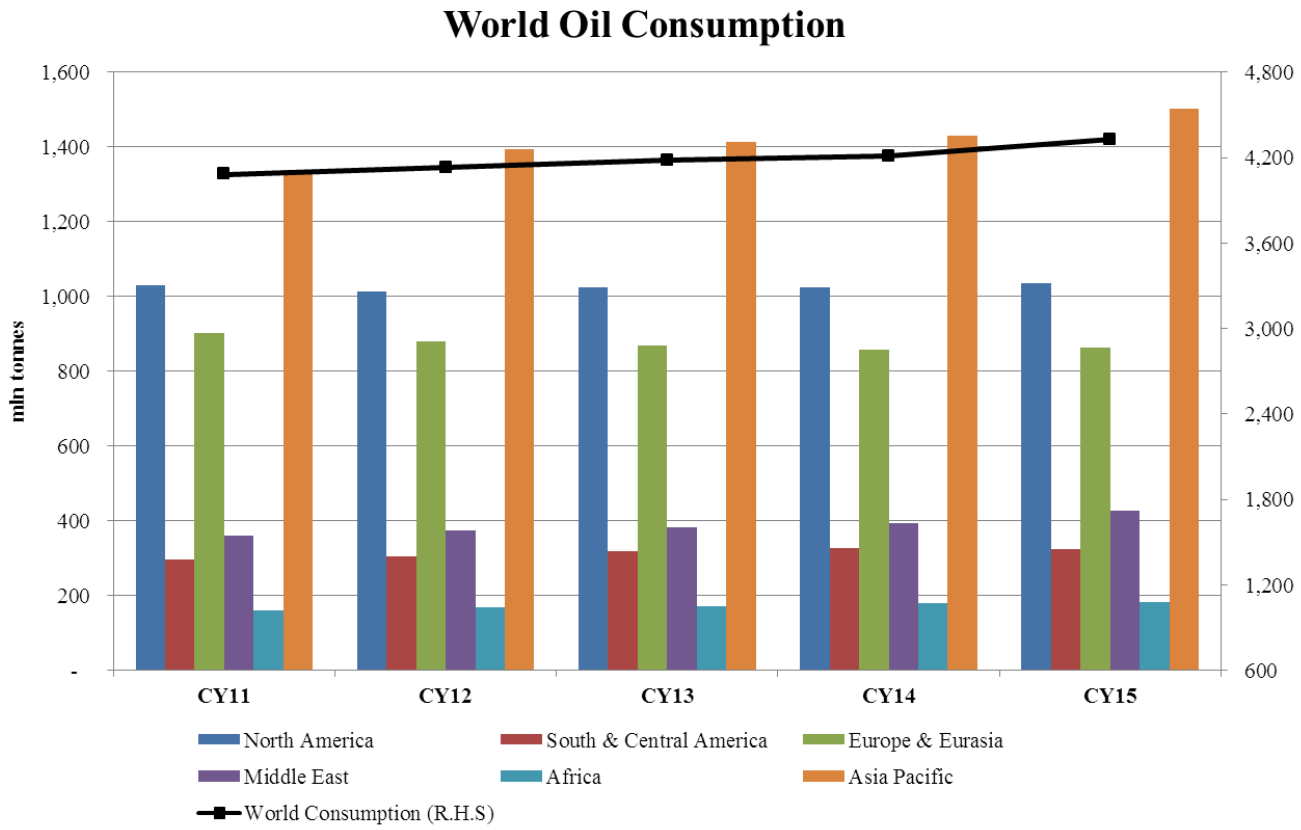


- Major increase in US Production Level – 8%
- Increments faced of Middle East Region.
- Iraq: 22.9%↑
- Iran: 4.5%↑
- Saudi Arabia: 4.6%↑

	CY11	CY12	CY13	CY14	CY15
World Production (mln tonnes)	4,008	4,116	4,127	4,221	4,362
YoY	3.0%	2.7%	0.2%	2.3%	3.4%

Middle East	1,340	1,412
Iran	175	183
Iraq	160	197

World Crude Oil Consumption



- Sustained growth in major consumption region:
  China - 6.3%↑
  India - 8.1%↑

	CY09	CY11	CY12	CY13	CY14	CY15
World Consumption (mln tonnes)	3,925	4,085	4,133	4,179	4,211	4,331
Change	-3%	1.1%	1.2%	1.1%	0.8%	2.9%

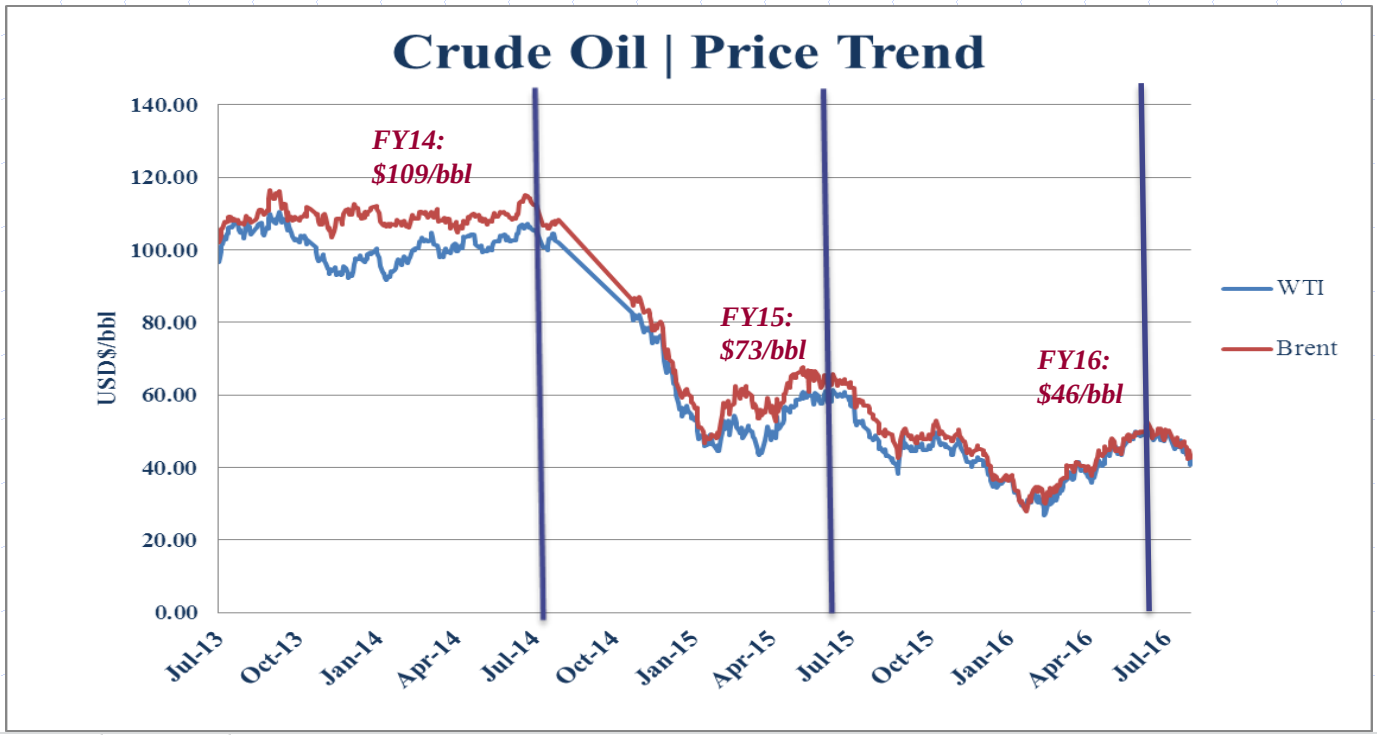
Global Crude Oil Trade

In mln tons

Region	2014			2015		
	Crude			Crude		
	Imports	Exports	Net	Imports	Exports	Net
Asia Pacific	980	48	(931)	1,021	50	(971)
Europe	447	12	(435)	488	10	(478)
US	365	17	(349)	366	25	(342)
Former Soviet Union	0	295	295	3	255	252
Middle East	11	850	839	8	880	872
Rest of the World	73	655	582	91	758	667
Global	1,876	1,876	-	1,977	1,977	-

- Global trade of crude oil expanded by +5.2% from last year

Crude Oil Prices

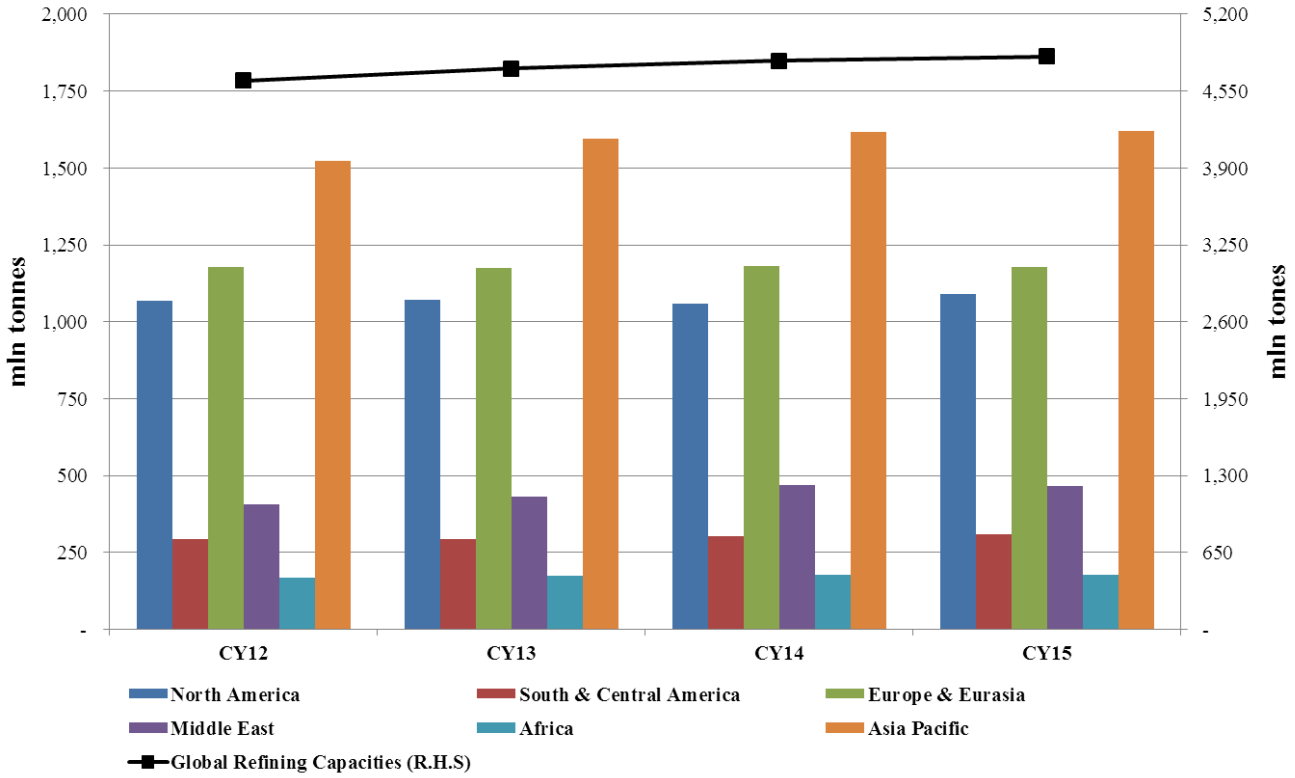


•US imports quantum observed a declining trend for the last five years, causing a dip in the international crude oil prices

U.S Net Imports of Crude Oil and Petroleum Products (Thousand Barrels per Day)

Decade	Year-0	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9
1970's				6,025	5,892	5,846	7,090	8,565	8,002	7,985
1980's	6,365	5,401	4,298	4,312	4,715	4,286	5,439	5,914	6,587	7,202
1990's	7,161	6,626	6,938	7,618	8,054	7,886	8,498	9,158	9,764	9,912
2000's	10,419	10,900	10,546	11,238	12,097	12,549	12,390	12,036	11,114	9,667
2010's	9,441	8,450	7,393	6,237	5,065	4,711				

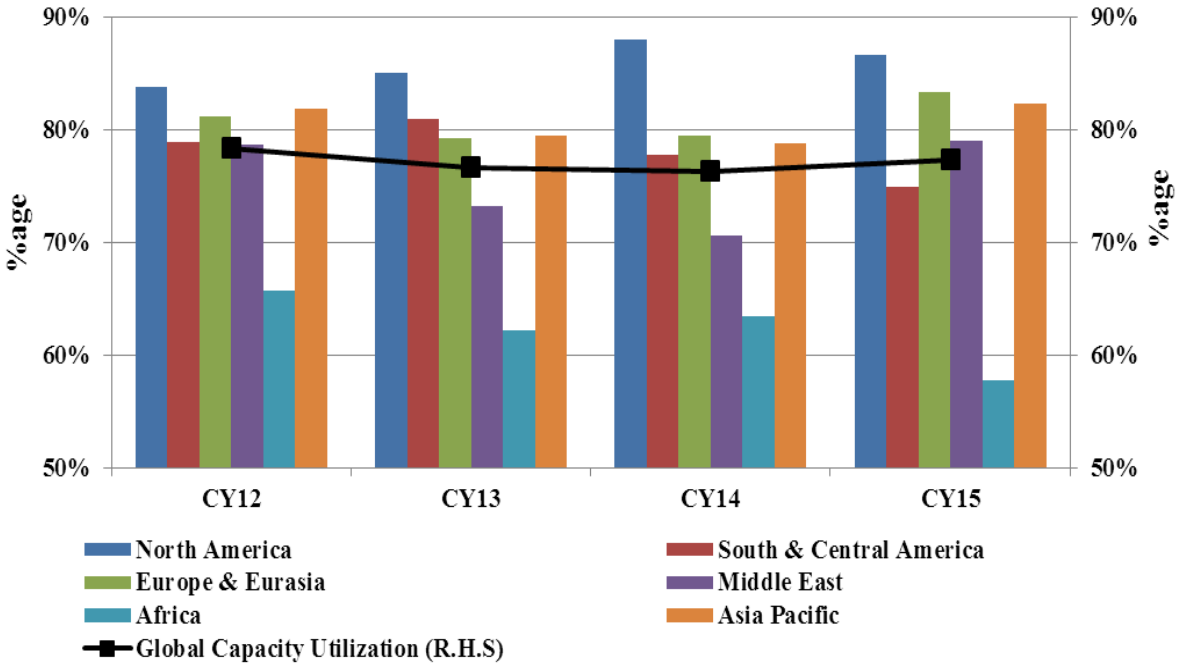
Global Refining Capacities



- Due to unfavorable oil prices, Refinery margins became unattractive hence no new projects were initiated.

	CY11	CY12	CY13	CY14	CY15
Global Refining Capacities (mln tonnes)	4,558	4,638	4,741	4,806	4,842
YoY	0.8%	1.8%	2.2%	1.4%	0.7%

Regional Capacity Utilization



- Global average refinery utilization rose by 1% to 82.1%
- Utilization levels switched between regions with an increase in the major demand hubs

Global Refined Products Trade

In mln tons

Region	2014			2015		
	Refined Products			Refined Products		
	Imports	Exports	Net	Imports	Exports	Net
Asia Pacific	394	264	(129)	454	304	(150)
Europe	174	99	(75)	184	129	(55)
US	90	180	90	98	198	100
Former Soviet Union	6	144	138	2	150	148
Middle East	43	129	85	37	141	104
Rest of the World	205	96	(109)	254	106	(148)
Global	912	912	-	1,029	1,029	-

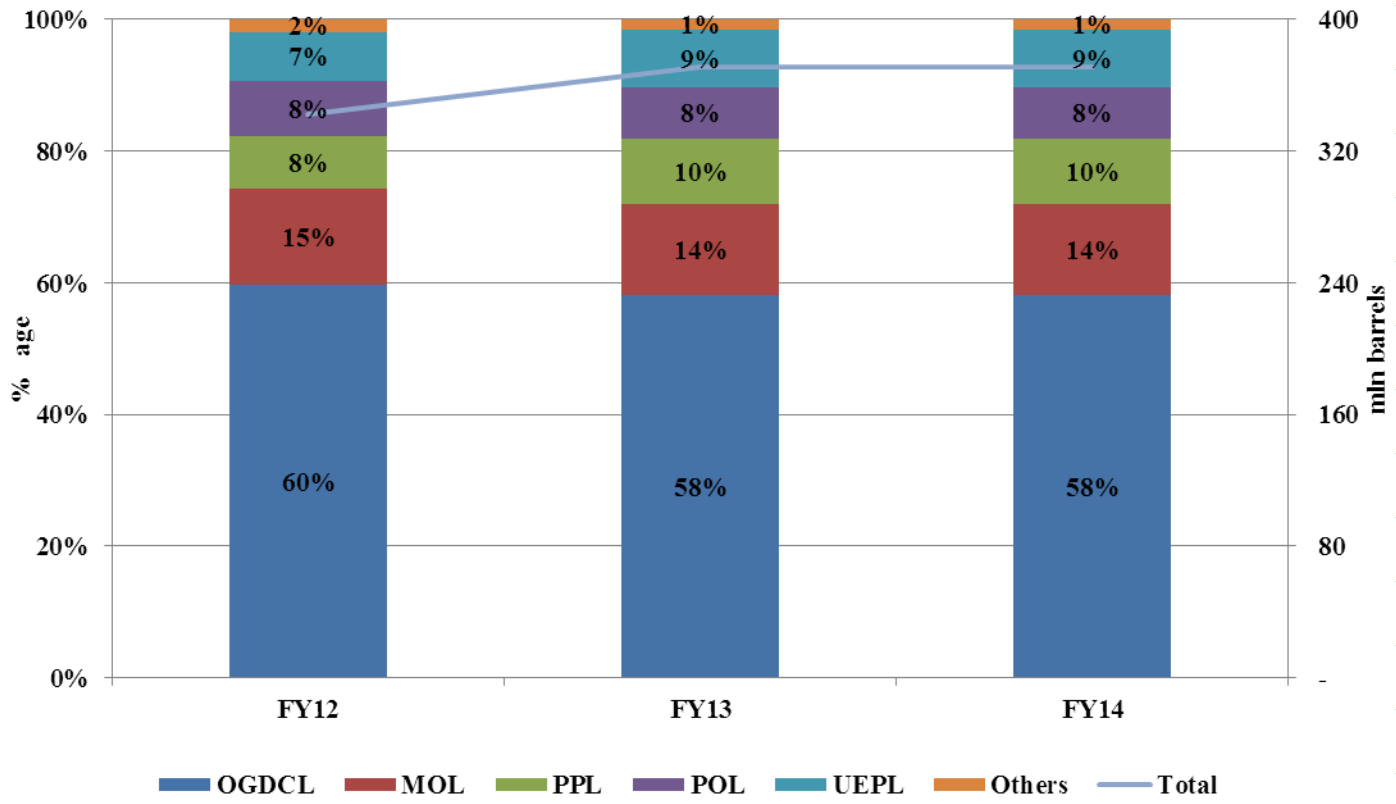
- Global trade of refined products widened by +12.8% from last year

Base Oils

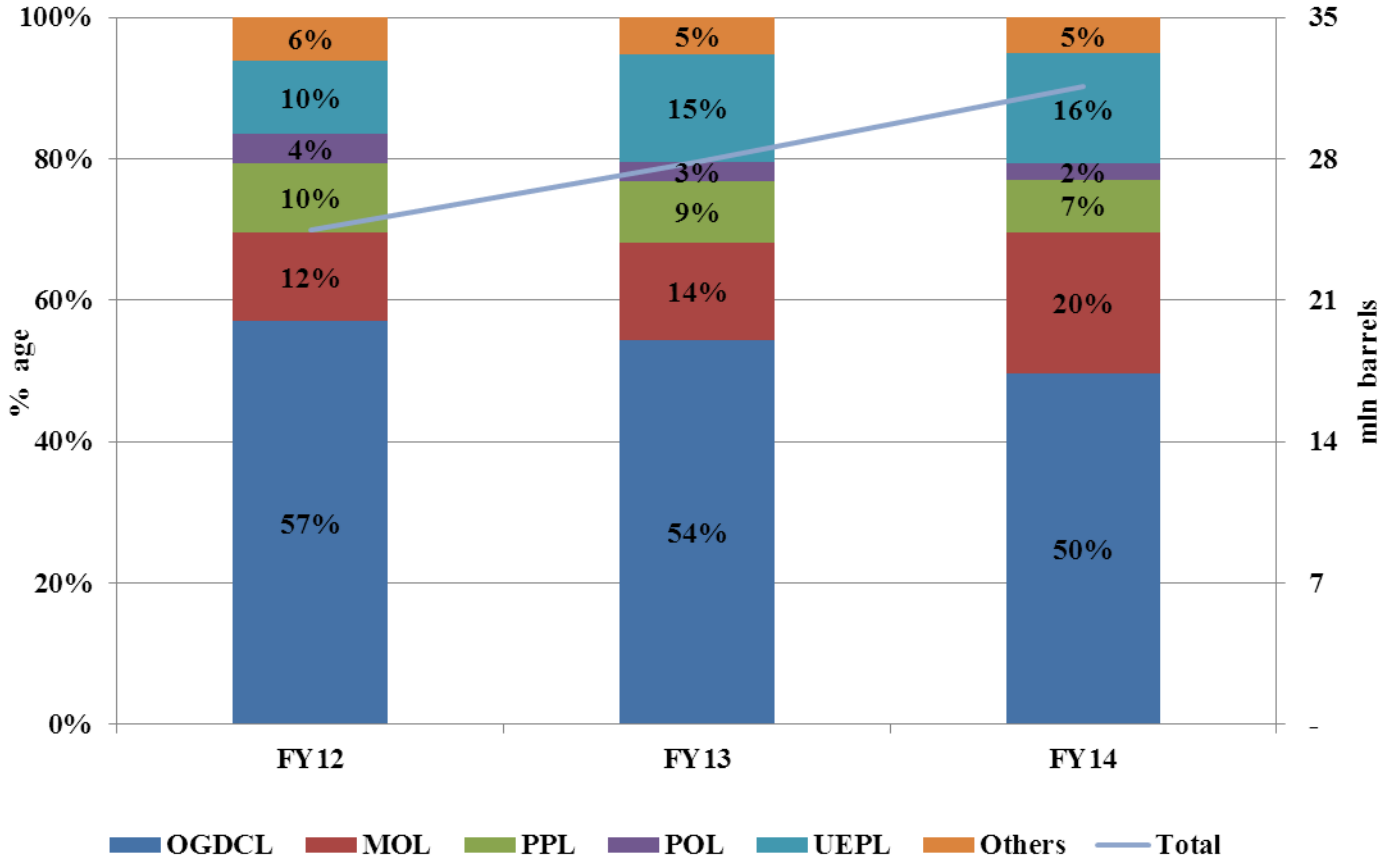
- Global demand for base oil rose to ~36.6 mln tonnes mainly owing to developments in automotive industry, rapid industrialization in developing countries and rigid industry standards.
- Group I base oils will witness a fall in demand mainly owing to its substitution by superior quality Group II and Group III base oils in industrial and automotive segments of Europe and North America.
- Certain grades of Group I such as Bright Stock will continue their popular streak in regions such as South America, Asia Pacific, and the Middle East.
- As emission standards get more rigid, the demand for high quality lubricants especially in the automotive sector are likely to rise, making Group III the most preferred base stock for the manufacturing of finished lubricants.
- The global lubricants market is expected to continue its growth momentum with Asia-Pacific as the key region due to enhanced industrial activity in major markets of China and India. This growth in demand coupled with players' ability to hold on some portion of the reduced cost of production due to fall in oil prices helped in improving the lube margins

Domestic Oil Dynamics

Recoverable Reserves



Crude Production



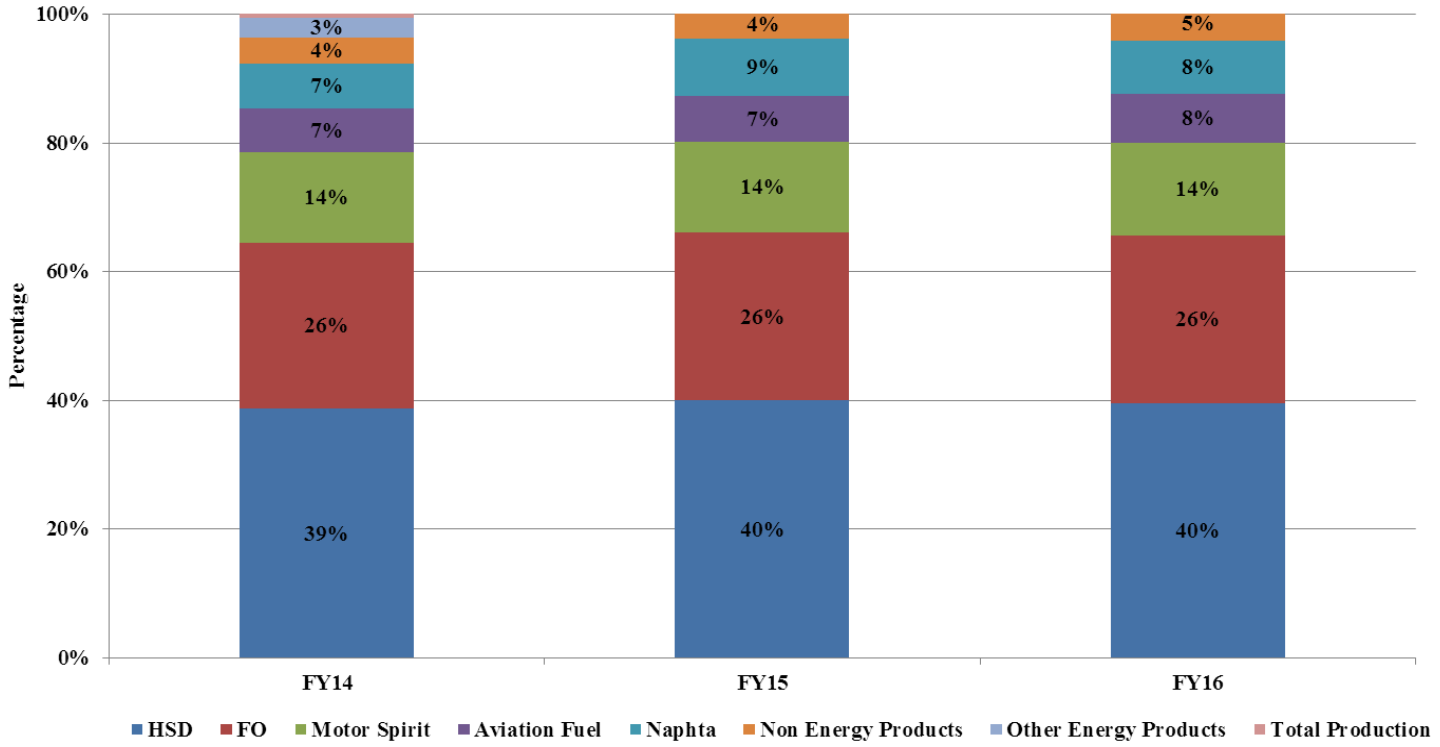
	FY12	FY13	FY14
Total (mln barrels)	24.5	27.8	31.6

Domestic Refineries

Refineries Product Slate – June ‘16

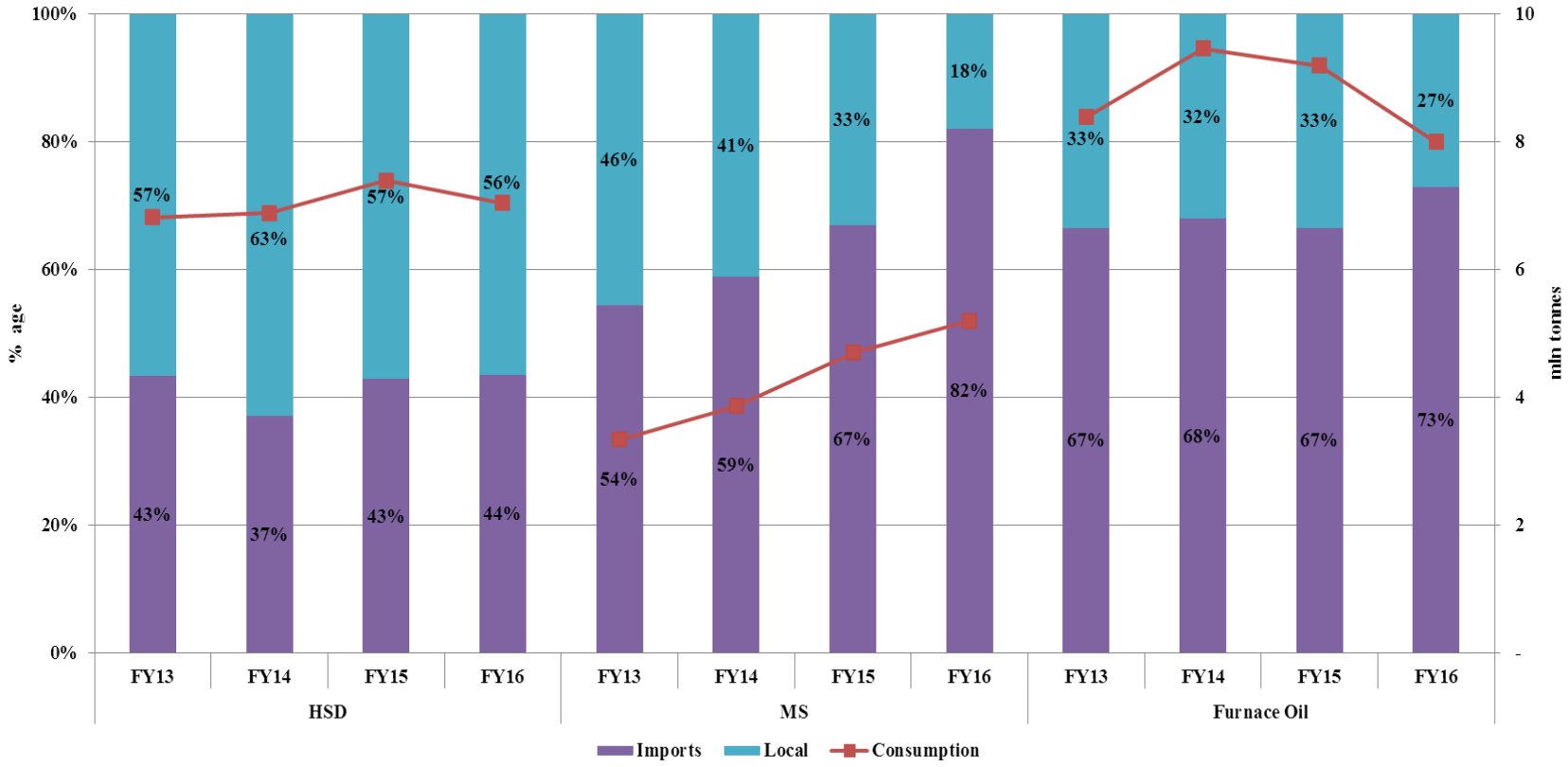
Product	PARCO	NRL	ARL	PRL
HSD	40%	37%	32%	40%
Motor Gasoline	20%	7%	19%	15%
Furnace Oil	25%	22%	24%	31%
Naptha	-	11%	13%	4%
HOBC	0.3%	-	-	-
LPG	3%	-	-	1%
Lube Oil	-	9%	-	-
Kerosene	2%	-	2.5%	1%
Asphalt	-	5%	2.5%	-
Others	9.7%	9%	7%	8%
Total	100%	100%	100%	100%

Refinery Production of POL Products



	FY14	FY15	FY16
Total Production (tonnes '000)	9,843	10,022	9,913

Supply Demand Mix – Fuels



Pricing Mechanism/Disclosure

Particulars (Rs/ Litre)	Sep-16		Sep-15	
	HSD	PMG	HSD	PMG
	Retail	Retail	Retail	Retail
Ex Refinery Price	55.26	34.97	42.55	40.01
Petroleum Levy	7.80	9.89	7.84	9.92
Inland Freight Equalization Margin	1.40	3.13	1.24	3.41
Dealer Commission	2.67	3.16	2.60	3.08
Distribution Margin	2.41	2.41	2.35	2.35
Ex Depot Price	**69.54**	**53.56**	**56.58**	**58.77**
Sales Tax	11.82	10.71	25.46	14.95
Maximum Ex Depot Price	**81.36**	**64.27**	**82.04**	**73.72**
Sales Tax	**17%**	**17%**	**46%**	**27%**

Impact of Deemed Duty on HSD

FY16	Country's Collection	Government of Pakistan (Imports)	Refining Sector
Sale of HSD (Thousand Tonnes)	7,462	3,081	4,381
Conversion to Liters (Mln Liters)	8,916	3,681	5,235
Average Ex-Refinery Price (PKR/Liter)	58.68	58.68	58.68
Total Revenue (PKR Mln)	437,870	180,793	257,077
Deemed Duty on HSD - 7.5% (PKR Mln)	32,840	13,559	19,281
Profitability (PKR Mln)			24,208
Profitability excluding deemed duty (PKR Mln)			4,928

Business Risk - Refining Capacity & Utilization

Refinery	2014		2015		2016		Planned Expansion/ Expected
	Capactity	Utilization	Capactity	Utilization	Capactity	Utilization	
Byco Petroleum*	1.8	12.5%	1.8	70.0%	1.8	65.0%	5.4 (Mar'17)
Pak Arab Refinery	4.5	102.0%	4.5	102.0%	4.5	100.0%	-
National Refinery	2.7	85.0%	2.7	81.4%	2.7	81.4%	-
Pakistan Refinery	2.1	78.0%	2.1	77.0%	2.1	79.3%	-
Attock Refinery	2.0	100.0%	2.0	102.0%	2.0	87.0%	0.8 (Nov'16)
Total	**13.4**	**76%**	**13.4**	**86%**	**13.4**	**83%**	**6.2**

Key Challenges

- Volatility in margins an outcome of fluctuating crude oil prices and simpler technology
- Unfavorable changes in pricing regime – ***removal of deemed duty***
- Prevailing Inter-Corporate Debt – impacting throughput levels
- Exchange rate depreciation

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