Economy
Monsoon

INDIA

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India monsoon: waiting for revival. The monsoon has not augured well till date though the recent upswing in precipitation has raised some hopes. July is the most important month of the season and we believe that clarity will evolve by early August. For now, we maintain our GDP growth estimate at 5.3% and March CPI inflation at 7.1% for FY2015. In case of a full-blown drought, growth can be lower by 40 bps and March CPI inflation is likely to be higher by 100 bps. Consequently, we maintain our view that the RBI would remain cautious and on an extended monetary policy pause.

Temporal distribution: July and September are the most significant months

July is the most significant month in terms of sowing and hence *kharif* crop production. The *kharif* production has more than 50% correlation with the July rainfall. This is intuitive given that sowing for cereals and pulses needs to begin in June and pushed to July depending on the monsoon pick-up. Most crops have growth and harvesting phase between August and November. Consequently, September is the next important month (with a correlation of ~30%) and risks are from unseasonal rains affecting the standing crop. Exhibit 1 highlights the rainfall status across India.

Spatial distribution: Food grains at significant risk; vegetables depend on government's measures

Exhibit 2 highlights the risks to food grains production across the country. Most of the recent food price increase has been due to vegetables. Although some of the vegetables are available throughout the year, onion, potato and tomato prices remain susceptible to a weak monsoon.

Reservoir levels can only sustain as much; risks to winter (*rabi*) crops too

Comfortable reservoir levels were expected to have mitigated some of the risks of a weak monsoon. However, reservoir and basin levels turned deficient by early July (see Exhibits 3 and 4) due to the extremely weak monsoon conditions. While this poses a risk to the *kharif* production, a bigger challenge will be for the *rabi crops*, dependent mainly on the irrigation/reservoir levels. Around 45% of the total agricultural land (~65 mn hectares on net basis) is irrigated though improvements are wanting in most of the larger states (see Exhibit 5). We note that India's agriculture output is now equally weighted between *kharif* and *rabi* outputs.

Food prices are on the rise in July

Since 2010, most of the volatility has stemmed from vegetable prices and eggs, meats and fishes. The **GameChanger Perspective** report dated July 3, 2014 (*Action and achievement*) indicated that the government has a poor record of conviction and confiscations under the Essential Commodities Act. While the government has acted upon restricting hoarding, eventual demand-supply mismatches will also be a challenge in case of poor production. Vegetable prices in July have been on the upside compared to June (see Exhibit 6). The sowing pattern indicates that acreage till July 18 is 44% lower than the same period last year.

March 2015 retail inflation could be higher by 100 bps; growth could be at 5.0% in FY2015

Factoring in a full-blown drought, we expect GDP growth to be 40 bps lower than our estimated 5.3% in FY2015 (see Exhibit 7). Some loss in agricultural production can be neutralized by the higher-than-expected growth in industrial sector. However, we would wait till the end of July to factor in any change in growth-inflation dynamics as a clearer picture of the sowing pattern and temporal/spatial distribution of precipitation will emerge by then. We calculate retail inflation to be higher by 100 bps against our March 2015 estimate of 7.1% (see Exhibit 8) as the worst-case scenario of a monsoon failure.

QUICK NUMBERS

- Rainfall at (-)29% till July 21
- Kharif production has ~50% correlation with July rainfall
- In a full drought scenario, growth could be ~5.0% and inflation higher by 100 bps in end-FY2015

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Exhibit 1: Rainfall status remains deficient though recent rainfall has been more than normal
Deviation in cumulative actual rainfall from normal rainfall across 36 subdivisions (%)

	4-Jun-14	11-Jun-14	18-Jun-14	25-Jun-14	2-Jul-14	9-Jul-14	16-Jul-14	21-Jul-14
India	**(28)**	**(40)**	**(42)**	**(38)**	**(43)**	**(42)**	**(36)**	**(29)**
All-India normal rainfall (mm)	**19**	**49**	**86**	**132**	**188**	**250**	**316**	**357**
Scanty (< -59%)								
Gujarat region	(90)	(97)	(78)	(86)	(92)	(92)	(84)	(62)
Marathwada	(82)	(69)	(74)	(75)	(80)	(63)	(58)	(61)
Deficient (< -19% to -59%)								
Saurashtra and Kutch	(83)	(95)	(18)	(64)	(77)	(83)	(73)	(58)
Punjab	(70)	(91)	(83)	(65)	(36)	(51)	(61)	(58)
Telangana region	49	(35)	(37)	(49)	(59)	(52)	(48)	(52)
Madhya Maharashtra	(21)	(35)	(51)	(59)	(70)	(69)	(61)	(51)
Nagaland, Manipur, Mizoram and Tripura	(52)	(68)	(62)	(51)	(52)	(55)	(53)	(49)
Haryana, Chandigarh and Delhi	8	(64)	(10)	(32)	(41)	(47)	(63)	(46)
West Uttar Pradesh	(79)	(92)	(55)	(63)	(63)	(69)	(72)	(45)
Jammu & Kashmir	13	(43)	(49)	(48)	(34)	(38)	(37)	(43)
Coastal Andhra Pradesh	(7)	(44)	(65)	(72)	(67)	(50)	(42)	(42)
West Rajasthan	(42)	(65)	(74)	(50)	(57)	(66)	(70)	(42)
East Rajasthan	(28)	(66)	(56)	(51)	(68)	(73)	(62)	(41)
Vidarbha	(81)	(83)	(29)	(56)	(66)	(67)	(50)	(41)
Lakshadweep	(42)	0	(12)	(30)	(27)	(30)	(32)	(37)
North interior Karnataka	(15)	(15)	(35)	(40)	(51)	(34)	(30)	(34)
East Madhya Pradesh	(95)	(97)	(25)	(19)	(42)	(50)	(45)	(33)
West Madhya Pradesh	(91)	(96)	(53)	(63)	(75)	(74)	(47)	(33)
Himachal Pradesh	45	(36)	(31)	(37)	(22)	(35)	(32)	(29)
Chhattisgarh	(38)	(76)	(62)	(50)	(49)	(54)	(36)	(27)
Assam & Meghalaya	(50)	(18)	(37)	(21)	(22)	(24)	(25)	(27)
East Uttar Pradesh	(61)	(84)	(57)	(40)	(50)	(21)	(37)	(26)
Konkan and Goa	(71)	(78)	(37)	(51)	(66)	(60)	(31)	(26)
Kerala	(53)	(31)	(29)	(18)	(31)	(41)	(25)	(23)
Normal (-19% to +19%)								
Bihar	18	(6)	(34)	(9)	(16)	7	(15)	(18)
Coastal Karnataka	(83)	(71)	(35)	(30)	(46)	(50)	(30)	(15)
Arunachal Pradesh	(55)	(27)	(44)	(32)	(29)	(27)	(27)	(15)
Gangetic West Bengal	35	(41)	(44)	(19)	(10)	(8)	(11)	(13)
Uttaranchal	(64)	(78)	(57)	(58)	(56)	(58)	(40)	(10)
Sub-Himalayan West Bengal and Sikkim	20	61	15	20	14	9	0	(9)
Jharkhand	(57)	(69)	(62)	(26)	(22)	(3)	(14)	(8)
South interior Karnataka	122	22	(3)	1	(18)	(28)	(11)	(7)
Rayalaseema	118	59	9	(11)	(8)	(2)	4	(6)
Odisha	(66)	(74)	(72)	(66)	(53)	(52)	(32)	(6)
Tamil Nadu and Pondicherry	85	41	(0)	(6)	26	20	15	—
Andaman & Nicobar Islands	(55)	(15)	16	(3)	(15)	(8)	6	3

Source: IMD, Kotak Economic Research

Exhibit 2: Pulses and oilseeds will be at considerable risk from a deficient monsoon
Crop-wise details on production, rainfall estimates for full monsoon and irrigation

	Share in total production (%, FY2013)	June 2009 forecast	June 2014 forecast	Rainfall deviation (%, till July 21, 2014)	Irrigated land (% of cropped land)
Paddy					
West Bengal	14.2	92% of LPA	99% of LPA	(13)	59.2
Uttar Pradesh	13.7	81% of LPA	85% of LPA	(34)	80.7
Punjab	10.8	81% of LPA	85% of LPA	(58)	97.9
Andhra Pradesh	10.4	93% of LPA	93% of LPA	(39)	45.0
Odisha	7.3	99% of LPA	94% of LPA	(6)	27.4
Pulses					
Madhya Pradesh	27.2	99% of LPA	94% of LPA	(33)	47.2
Uttar Pradesh	13.2	81% of LPA	85% of LPA	(34)	80.7
Maharashtra	13.1	99% of LPA	94% of LPA	(35)	18.7
Rajasthan	10.6	81% of LPA	85% of LPA	(41)	36.3
Andhra Pradesh	8.5	93% of LPA	93% of LPA	(39)	45.0
Oilseeds					
Madhya Pradesh	30.7	99% of LPA	94% of LPA	(33)	47.2
Rajasthan	17.7	81% of LPA	85% of LPA	(41)	36.3
Gujarat	12.4	99% of LPA	94% of LPA	(60)	41.1
Maharashtra	11.3	99% of LPA	94% of LPA	(35)	18.7
Andhra Pradesh	6.0	93% of LPA	93% of LPA	(39)	45.0

Source: CEIC, IMD, MOSPI, Kotak Economic Research

Exhibit 3: Basin levels have turned deficient
Basin-wise reservoir levels, bn cubic meters (BCM)

As on July 17, 2014	Live capacity at FRL	Current storage	Last year's storage	Last 10-years average	Curent over last year (%)	Reservior surplus/ (deficiency) (%)
Ganga	28.1	11.4	12.4	5.7	(8.0)	98.9
Indus	14.7	7.0	8.1	5.4	(13.9)	28.6
Narmada	17.4	2.5	10.3	3.8	(75.7)	(33.9)
Tapi	7.4	1.6	3.6	2.2	(56.6)	(29.0)
Mahi	4.0	1.9	2.6	1.5	(26.7)	25.6
Sabarmati	0.7	0.1	0.2	0.2	(43.5)	(48.5)
Rivers of Kutch	0.9	0.1	0.1	0.2	(12.4)	(61.6)
Godavari	15.1	4.2	5.0	3.0	(15.6)	40.8
Krishna	31.5	2.3	10.4	11.9	(77.6)	(80.3)
Mahanadi & neighborhood	13.2	3.5	3.1	3.3	11.4	4.3
Kaveri and neighbourhood	8.4	2.3	3.0	3.5	(24.2)	(35.2)
West flowing rivers of South	13.6	3.2	7.0	5.0	(54.3)	(36.1)
Total	**155.0**	**40.0**	**65.7**	**45.7**	**(39.2)**	**(12.6)**

Source: Central Water Commission, Kotak Economic Research

Exhibit 4: Reservoir levels have been falling steadily in absence of adequate rainfall
Reservoir levels for 84 large reservoirs, bn cubic meters (BCM)

	12-Jun-14	19-Jun-14	26-Jun-14	3-Jul-14	10-Jul-14	17-Jul-14
Current live storage (BCM)	39.3	37.7	38.0	36.9	36.5	40.0
Live capacity at FRL (BCM)	155.0	155.0	155.0	155.0	155.0	155.0
Corresponding storage last year	31.2	36.5	37.2	44.6	57.0	65.1
Corresponding storage last 10-year average	26.0	26.6	29.0	33.1	40.6	46.5
% storage as FRL capacity	25.4	24.3	24.5	23.8	23.5	25.8
Corresponding % last year	20.1	23.5	24.0	28.8	36.8	42.0
Corresponding % (last 10-year average)	16.8	17.1	18.7	21.3	26.2	30.0
Current years's storage as % of last year	125.9	103.3	102.1	82.6	64.0	61.4
Current years's storage as % of last 10-yr average	151.0	141.8	131.0	111.5	90.0	86.0
Reservoir surplus/(deficiency) (%)	**51.0**	**41.8**	**31.0**	**11.5**	**(10.0)**	**(14.0)**

Source: Central Water Commission, Kotak Economic Research

Exhibit 5: Irrigation in most states can provide only moderate support to crop production
Share of net irrigated land in total net cropped land in major states (%)

	Net area sown	Net irrigated area	Irrigated/ cropped (%)
Rajasthan	18.3	6.7	36.3
Maharashtra	17.4	3.3	18.7
Uttar Pradesh	**16.6**	**13.4**	**80.7**
Madhya Pradesh	**15.1**	**7.1**	**47.2**
Andhra Pradesh	**11.2**	**5.0**	**45.0**
Karnataka	10.5	3.5	33.2
Gujarat	10.3	4.2	41.1
Bihar	**5.3**	**3.0**	**57.6**
West Bengal	**5.0**	**3.0**	**59.2**
Tamil Nadu	**5.0**	**2.9**	**58.8**
Chhattisgarh	4.7	1.4	28.9
Orissa	4.7	1.3	27.4
Punjab	**4.2**	**4.1**	**97.9**
Haryana	**3.5**	**2.9**	**82.1**
Assam	2.8	0.2	5.8
Kerala	2.1	0.4	20.1
Jharkhand	1.1	0.1	11.5
Jammu & Kashmir	0.7	0.3	43.7
Uttarakhand	**0.7**	**0.3**	**46.5**
Others	2.3	0.5	21.6
Total	**141.5**	**63.6**	**44.9**

Source: MOSPI, Kotak Economic Research

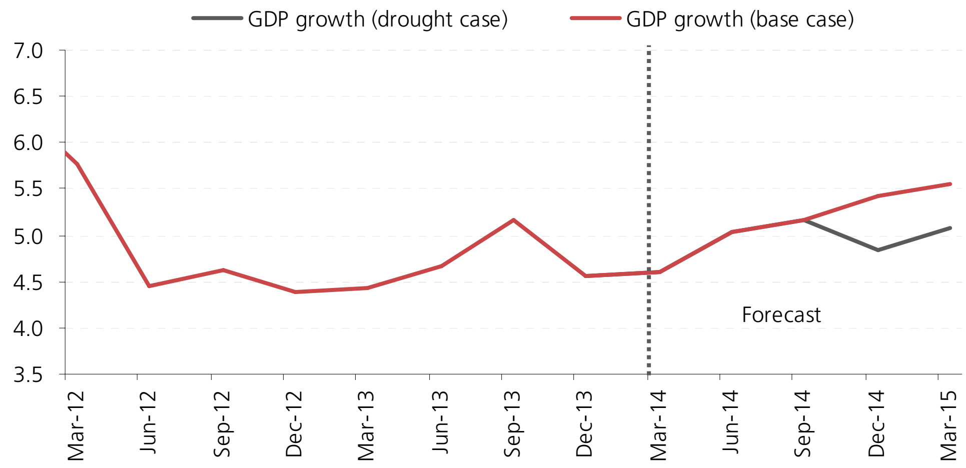
Exhibit 6: Vegetable prices have started to increase more than normal in July
Change in select vegetables' average prices over last month (%)

	Weightage	mom changes (%)						
	CPI	January	February	March	April	May	June	July
Brinjal	0.41	(10.9)	5.3	7.3	(8.7)	13.8	5.6	23.9
Cabbage	0.33	(27.9)	(6.4)	(0.9)	10.0	20.0	26.0	30.1
Cauliflower	0.37	(20.8)	(8.4)	4.2	11.3	38.2	33.7	15.2
Onion	0.57	(30.2)	(18.4)	2.3	2.2	11.1	24.5	30.6
Potato	0.55	(16.5)	(12.9)	11.9	18.1	2.1	10.0	10.1
Tomato	0.56	(44.2)	(17.2)	6.8	11.5	1.3	12.9	81.5

Notes:
(a) July data is till July 17.

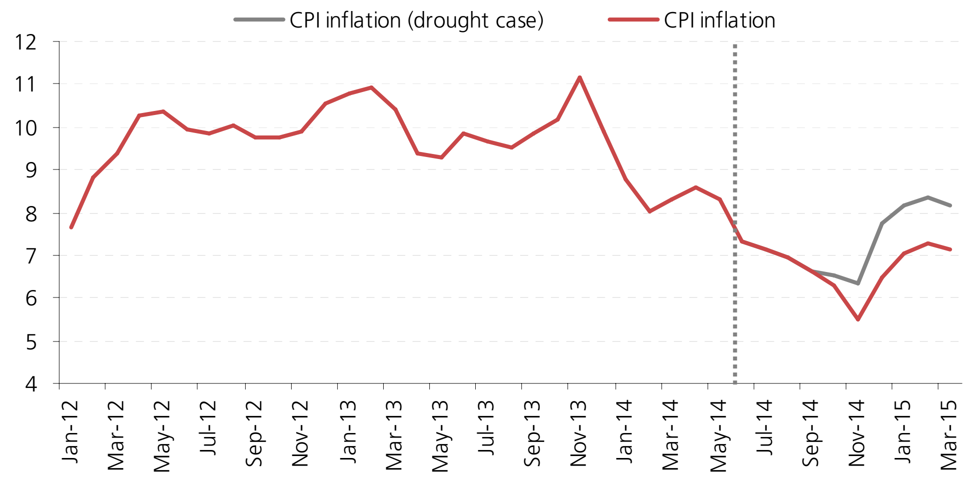
Source: National Horticulture Board, Kotak Economic Research

Exhibit 7: FY2015 GDP growth can be lower by 30-40 bps in case of drought-like scenario
Trend in GDP growth and our estimates for base case and for drought scenario (%)



Source: CEIC, Kotak Economic Research estimates

Exhibit 8: CPI inflation can be 100 bps higher by March 2015
CPI headline inflation (%)



Source: National Horticulture Board, Kotak Economic Research

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