

**Monsoon Blues**

August 12, 2009

The purpose of this note is to analyze the impact of a poor monsoon / drought like situation in India from a macro as well as sectoral perspective.

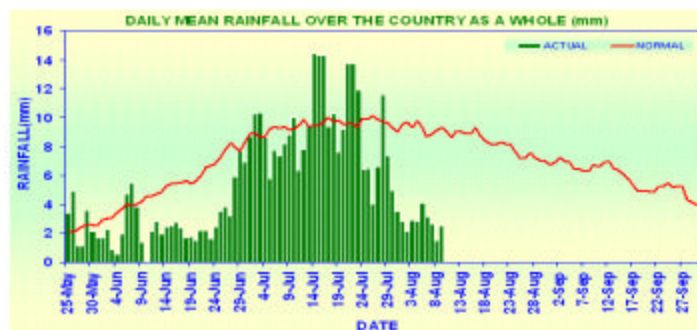
The rain shortages have worsened in all regions except for pockets of the east and the northeast. The rain deficit for the country rose from 19 percent on July 22 to 28 percent on August 9. In the northwestern region—a major grain-producing zone—the rainfall has been 40 per cent below normal. The sub-divisions with deficiency of 50% or more include West Uttar Pradesh (-67%), Haryana, Chandigarh & Delhi (-64%), Telangana (-60%), East Uttar Pradesh (-53%) and Rayalaseema (-50%). Rainfall deficiency in the meteorological sub-divisions of Northern/Indo-Gangetic Plain is 26-67%, with U.P., Haryana and H.P. badly affected. The region accounts for 52% of the country's foodgrains and 50% of sugarcane output. In UP (14.1% of cultivable land) there is a 51% deviation in rainfall, in AP (7% land and 52% deviation), in Maharashtra (12.2% land 14% deviation) and in MP (11.1% land 13% deviation). Parts of Maharashtra and much of Andhra Pradesh have also been hit by drought. In view of prevailing rainfall scenario and inputs from statistical and numerical weather prediction (NWP) models based on latest data, seasonal forecast (June to September) is now revised to 87% ($\pm 4\%$) from the earlier 93% forecast on June 24. The caveat: weather forecasting is an inexact science and what matters more than the all-India average rainfall is distribution patterns and timeliness, which will only be known in the next 2-3 weeks.

Scientists have some clues about the poor monsoon behaviour. The anticipated rise in the sea surface temperatures in the eastern Pacific Ocean—the phenomenon known as El Nino which is unfavourable for rains in India—has occurred and may impact rainfall in the coming weeks.

We have a problem on our hands. It might or it might not develop into a full-blown drought. It could turn out to be the worst drought in two decades—worse than in 2002 when the deficit was 19 per cent.

Cumulative Rainfall in the Season % Deviation from Long Period Average			
1993	0	2001	-9
1994	10	2002	-19
1995	0	2003	2
1996	3	2004	-13
1997	2	2005	-1
1998	5	2006	-1
1999	-4	2007	5
2000	-8	2008	-2
		2009*	-28

* As on 9 August, 2009



Though Indian economy has turned resilient to monsoon failures to a large extent, the key issues that could arise if monsoon deficiency is not bridged significantly include:

Impact on Rural spending and on GDP: The rural sector is an important consumer, it is the economy's driving force. A drought could have an impact on rural demand - which has been buoyant so far because of bountiful harvests, and which therefore kept many businesses going through the crisis months of the last year. Agriculture still employs more than 60 per cent of the population. A drought could prompt rural consumers to slash spending on domestically produced items including consumer non-durables and durables, spilling the drought's impact into the industrial sector. A poor agriculture season could have a lagging impact on industry and services. While the share of agriculture in GDP has fallen from an average of 36.4 per cent in the 1980s to about 18% now, the linkages to the other sectors continues to be high. While industrial recovery could get more entrenched after the slowdown seen last year, the services sector would continue to act as a cushion to higher GDP growth. Despite this offsetting effect, GDP growth rates could still get affected in FY10 and we could see cut in forecasts by economists and brokerages going forward. The fact that important states like Maharashtra, Haryana & Jharkhand could go to polls in the next few quarters means that the Government could take immediate populist moves to appease the rural masses and mitigate the impact of the drought.

Impact on power generation: In an era when the power deficit continues to be a burning issue, deficient rainfall could result in lower reservoir levels and lower hydel power generation, affecting GDP growth further.

Impact on fiscal deficit: In a year when the Govt has chosen the path of stimulating demand and postponing the implementation of fiscal discipline, the additional spends on drought relief (food subsidy, fertiliser subsidy, cattle care, crop insurance etc) could either stretch the fiscal situation or result in diversion of monies meant for other purposes for alleviation of drought situation. Monies will have to be spent on fodder for cattle, which invariably are the ones that suffer the most in a drought—and cattle are often a poor man's main assets in the countryside. If they die in large numbers, millions of people get impoverished. The Govt will have to augment outlays on the much-needed social and physical infrastructure and poverty alleviation programmes. Unanticipated weakening of the growth momentum may affect revenue collections. The last drought that the country faced in last 19 years was in year 2002 when the rainfall for the full year were lower by 19% than the normal rainfall. The cost of drought management in FY2002 was roughly Rs.138 bn (USD 3.1bn) for the central government or 0.6% of the then GDP



Impact on inflation: As the country has enough buffer stocks of wheat and rice to survive for the next 13 months, availability of foodgrains may not be a big issue, but reaching these stocks to the nook and corner of the country could be an issue. With food price inflation already a problem, the coming months will present fresh challenges. However we do not expect any major spike in food inflation from the current levels. A softening of CPI could however take time due to this development. Even in 2002, inflation rate did not spike up despite the period coinciding with the Gulf crisis.

Impact on interest rates: Interest rates may not rise significantly as private demand for funds could remain subdued, while demand from Govt could be buoyant. Adequate management of monetary policies and borrowing program by the RBI could cushion the impact on G-sec yields and general interest rate scenario. Even in 2002, interest rates did not see major change.

Impact on currency: While FII flows could slow down or see some outflows, net capital flows could remain stable, particularly foreign direct investment (FDI) and non-resident deposits. We do not foresee any major pressure on the Rupee. Even in 2002 the Rupee appreciated from 48.59 to a USD in end July 2002 to 48.26 to a USD in end Nov 2002. The only possible spoiler could be rising crude oil price.

Impact on stock markets: If the monsoon situation does not improve in the next few weeks, it could result in downgrading of GDP growth estimates, downgrading corporate earnings estimates, a fall in the premium given to Indian markets and a consequent fall in indices (the process has already begun). How do the FIIs react to this situation will be keenly watched as their exit could result in a sharper fall. On the other hand, longer term FIIs could see this as a buying opportunity and pump in monies. Overall some weakness could be seen followed by consolidation. Of course the Indian markets will continue to be driven by global cues, fund flows into emerging markets and risk appetite towards emerging market equities. This trigger could be a local trigger that can accelerate a downtrend in case global equities correct.

Yet, a **positive thought** could be that every drought year in the past 25 years has been followed by a year of strong economic growth. The 1987 drought resulted in a 1.2 per cent decline in farm output and a drop in GDP to 3.5 per cent. But farm growth shot up to 15.7 per cent and GDP to a record 10.2 per cent the following year. After the drought in 2002, markets formed a long-term bottom in April/May 2003 from where a long term bull market began. Further after the 2002-03 drought, the Indian Markets formed a bottom in early May 2003 and thereafter entered a five-year rally. If 2009-10 happens to be a drought year, then there is a possibility of the markets correcting the recent rally (election rally). This process could result in formation of a sustainable long term bottom formation giving an opportunity to investors to enter the market at attractive levels.

Impact on Rural economy

Over the course of last year, sustained rural demand was the saving grace amidst falling consumption, plunging stock markets and export demand, and horribly depressed sentiment. Firms with existing rural consumer bases weathered the economic downturn – Maruti Suzuki, Hero Honda, HUL etc.

Four consecutive years of 'normal' rainfall – an important determinant of output, and therefore demand – and a surging real estate market that saw farmers with land close to urban areas encash huge amounts – were two clear external factors that aided this surge in, and sustenance of, consumption. Further, a 'pro-farmer' government clearly helped. In the past five years, the central government has continuously and steeply hiked the minimum support prices (MSP) for agricultural commodities. (The MSP for wheat, for instance, went up from Rs 640 per quintal (100kg) in 2004-05 to Rs. 1080 in 2008-09). As a result of these, and other favorable factors, agricultural GDP grew at a historically-rapid 4-6% rate for three consecutive years, before dropping back to 1.6% in 2008-09.

In addition, three major government initiatives have boosted incomes, both directly and indirectly. The National Rural Employment Guarantee (NREG) programme, provided 2.16 billion workdays of employment to almost 45 million households across India last year. Additionally, last year's one-off farm loan waiver effectively provided farmers with a Rs. 71,000 cr windfall. While it may not have benefited many of those who needed it most – the marginal farmers, and those with small landholdings, who typically borrow from moneylenders – it did put money in the hands of the richer, 'consuming' class of farmers, and will continue to do so in the next few months. Lastly, Government spending on Bharat Nirman has brought electricity, all-weather roads, drinking water and telephone connectivity to thousands of villages.

Although a far smaller share of overall rural earnings now comes from farm income, close to 75% of rural households still depend directly or indirectly to some extent on agricultural income. Agriculture accounts directly for about 18% of GDP - a significantly lower proportion than in more underdeveloped economies, but still very high compared to rich countries, where the ratio is usually in the low single digits. Also, the summer's south-west monsoon accounts for about 80% of India's annual rainfall, so lower-than-expected rainfall during this brief period can have a disastrous impact on growth for the whole year. For example, a drought in 2002 caused the agricultural sector to contract by 5.2%, causing GDP growth on an output basis to slow from 5.8% to 4% during the 2002/03 (April-March) fiscal year. In the famous 1979 drought, when the agriculture sector contracted almost 13% in real terms, the economy shrank by more than 5%.

The Kharif crop is the autumn harvest (also known as the summer or monsoon crop) in India. Kharif crops are usually sown between April to July and harvested by October. Major kharif crops include millets (Bajra and Jowar), Paddy (Rice), Maize, Moong (Pulses), Groundnut, Red Chillies, Cotton, Soyabean, Sugarcane, Turmeric and Sesame. The Rabi crop is the spring harvest (also known as the "winter crop") in India. Rabi crops are generally sown between October to February and harvested by June. Major rabi crop includes



Wheat, Barley, Chana, Mustard, Sesame and Peas. Of the major agriculture crops produced in India, about 54% of the output comes in the kharif season and the remaining 46% in the rabi season.

The lack of rain so far has raised concerns that rice, sugar cane, oilseed and cotton crops could suffer. International sugar prices have risen in anticipation of shortages in India, reputedly the world's largest consumer. On the New York-based International Commodity Exchange (ICE), sugar futures for October delivery on Friday (7 August 2009) broke a 28-year barrier set in 1981, reaching 20.81 cents a pound. In London, the futures price rose to \$537.2 per metric tonne, the highest since 1983. Even winter crops such as wheat are at risk, as reservoir water levels may not be sufficient to provide adequate irrigation in the months ahead (although there is still plenty of time for this to change). While lack of rains obviously impacts the rain dependent areas directly, the irrigated areas may also not be spared as the reservoir levels and ground water levels also go down.

Impact on Power generation:

More water in reservoirs boost the supply of hydropower, which accounts for a quarter of India's total generation capacity, and help irrigate crops even after the monsoon season. However, prospects of a weak monsoon ahead opens up the possibility that reservoir levels may be left below full capacities at the end of the monsoon season, posing some risks to Rabi. Also, the tables below shows storage levels in some key reservoirs is well below the average for 10 years and also the hydel power generating capacity in certain large reservoirs that are facing shortage of water this time.

Govt of India Central Water Commission		Weekly Report - Major Basinwise					Week Ending 06/08/09		
Name of Basin	Live Cap at FRL	This Years Storage		Last Years Storage		Last 10 Year's Avg Storage		% Departure WRT Avg of 10 Years	
Ganga	28.096	4.558	16.22%	10.4	37.02%	6.877	24.48%	-33.72	
Indus	14.73	3.597	24.42%	10.454	70.97%	7.364	49.99%	-51.15	
Narmada	14.869	5.903	39.70%	2.769	18.62%	3.419	22.99%	72.65	
Tapi	7.394	2.378	32.16%	1.25	16.91%	3.159	42.72%	-24.72	
Godavari	14.526	2.25	15.49%	1.206	8.30%	3.933	27.08%	-42.79	
Krishna	31.548	17.345	54.98%	10.569	33.50%	15.007	47.57%	15.58	
Mahanadi & Neighbouring EFRS	13.181	3.832	29.07%	5.425	41.16%	4.665	35.39%	-17.86	
Cauveri & Neighbouring EFRS	8.19	4.972	60.71%	4.28	52.26%	3.711	45.31%	33.98	
West Flowing Rivers of South	13.6	8.104	59.59%	4.831	35.52%	7.069	51.98%	14.64	
Total	151.768	54.839		52.968		57.499			
%								-4.63	

FRL = Full Reservoir Level, WRT = With Respect To

Extract from weekly Report of Important Reservoirs of India

Govt of India Central Water Commission		Week Ending 06/08/09			
Name of Reservoir	Storage as % of Live capacity at FRL			Benefits	
	Current year	Last year	Last 10 Years	IRR (CCA) IN TH.HA	HYDEL IN MW
Himachal Pradesh					
Gobind Sagar (Bhakra)	33	77	58	676	1200
Pong Dam	68	68	45	-	360
Punjab					
Thein	26	62	43	348	600
Rajasthan					
Mahi Bajaj Sagar	26	29	44	63	140
Rana Pratap Sagar	39	90	50	229	172
UP					
Rihand	17	30	24	-	300
Uttarakhand					
Ramganga	5	36	21	1897	198
MP					
Bansagar	7	32	12	488	425
AP					
Nagarjuna Sagar	10	38	29	895	810

The above table includes reservoirs where the shortage is significant so far

FRL = Full Reservoir Level, TH.HA = thousand hectares, IRR = irrigated area, CCA = gross cropped area

The continued shortage of rains could mean lower generation of hydro power with the attendant issues of lower availability for households, commercial and industrial sectors. Direct and indirect impact of this on GDP could also be significant.

**Probable Macro impact of a drought like situation in India today**

- Import of certain food items like pulses and sugar to increase trade deficit. Clampdown on export of agricultural commodities. Imposition of strict price controls on various agri-commodities.
- Downgrade of GDP forecasts from the current 6% plus and probable delay in economic recovery.
- CPI to remain high. Food inflation, which is already pressurized, will face further pressure due to poor rainfall. The prices of pulses and coarse cereals, which are rain-fed crops and for which no buffer stock exists, will continue to remain under pressure. WPI however may not see significant rise apart from that derived from the base effect.
- Industrial production may fall due to the impact of higher raw material costs, lower power generation and lower rural demand (impact on consumer goods).
- Increased risk of earning downgrades for companies with significant rural exposure.
- Increased risk of FII outflows and slowdown in capital inflows.
- Higher burden on the exchequer to provide relief to drought stricken states. Current fiscal situation leaves very little headroom. If the fiscal deficit rises, it could impact borrowing and interest rates.
- Rural demand could get deferred, as farmers would rather save than spend on non-essentials in times of uncertainty. Secondly, government demand could decline because public funds will get diverted to relief expenditure.
- In the most recent 2003 monsoon shock, taxes were raised on products like vehicles and yarn to fund the relief programmes. Chances of additional revenue mobilization exercise (especially to tax the urban rich) are because of the already high fiscal deficit and pro-rural policy stance.
- Possibility of social unrest due to lack of employment opportunities and rising cost of living.

Sectoral Analysis

Industry	Impact	Companies	Comment
2 wheelers (incl bicycles)	Negative	Hero Honda, Bajaj Auto, TVS Motor, Tube Investments	2 wheeler sales could be lower due to fall in rural income. There could be a lag effect of drought on sales.
Automobiles	Mildly Negative	Maruti Suzuki	Car sales could fall on lower rural income. However the impact could be for a brief period.
Banks	Negative	Public sector banks like SBI, PNB	Increase in loan defaults, pressure for directed lending, RBI could liberalise provisioning norms for rural loans
Cement & Building products	Mildly negative	Shree Cement, Prism Cement, Ambuja Cement, JK Cement, Visaka Inds, Hyderabad Inds, Sintex Inds	Rural private spending could be impacted negatively, partly offset by increase in Govt spending on rural infrastructure. Negative impact could be seen with a lag.
Construction	Neutral	IVRCL, Patel Engg	Could benefit from increased spending on irrigation and dam projects
Farm equipment (tractors, engines, pumps etc)	Mixed	M&M, Escorts, Kirloskar Oil, Kirloskar Brothers, KSB Pumps	Tractor demand could see a slowdown. Pumpset demand could see an uptick due to using more ground water.
Financial Services companies with rural exposure	Mixed	M&M Financial	Could mildly increase loan defaults for M&M Fin Serv
FMCG	Negative	HUL, Dabur, Colgate, Jyothy Labs	Reduced demand of non-essential products, downtrading, volumes could be impacted negatively. However the impact may not last beyond 2-3 quarters.
Oilseeds	Neutral to positive	KS Oils, Ruchi Soya	Prices of seeds/raw oils could rise, but in an inflationary environment, processing companies could improve margins
Pesticides	Negative	United Phosphorus, Rallis India, Bayer Crop, Monsanto	Sales volumes could be impacted negatively and companies face the risk of sales returns next year.
Hydro Power	Negative	NHPC, Jaiprakash Hydro	Hydro power generation to be impacted negatively
Rice and wheat processing	Mildly negative	REI Agro, Lakshmi Energy, Agrotech, HUL	Prices of rice/wheat could rise, but in an inflationary environment, processing companies could improve margins
Fertilisers & Seeds	Negative	Nagarjuna Fertilisers, Chambal Fert, Zuari Inds, Coromandel Fertilisers, GNFC, GSFC, Monsanto, Advanta, Kaveri Seeds	Fertilisers demand could fall resulting in plants operating a below capacity and lower profits. Fall in seed sales but increase in demand for hybrid - drought resistant seeds
Sugar companies	Conditionally positive	Renuka Sugar, Balrampur Chini, Bajaj Hindustan	As long as the Govt does not try to cap prices, sugar manufacturers could enjoy increased realizations
Telecom & Media	Mildly negative	Bharti, Rel Comm, Zee, Idea	Subscriber growth is mainly coming from rural India. Ad spends could come down as advertisers could cut back spending



Drought in the past

For the country as a whole, a drought year is defined as one in which rainfall deficiency is in excess of 10% of normal and more than 20-40% of the area (either individually or together) is affected by moderate or severe drought conditions. When the spatial coverage of drought is in excess of 40%, it is classified all-India severe drought year. The spatial coverage of the rains and its quantum would classify the prevailing situation into a drought year if the situation does not improve in the coming weeks.

India has seen droughts in the past, the most recent being in 2002-03. Once a drought is declared, several things happen. The Central government starts considering deferring/rescheduling farm loans, moving water and fodder by rail, hiking food allocation to poor families, creating more jobs, importing foodgrains to meet likely demand-supply gap, and check inflation. A ministerial task force is set up to take rapid decisions. Drought-declared states are monitored individually and more carefully by the Centre. The Essential Commodities Act is used to prevent hoarding, and states get cash for relief programmes.

If the emergency response is delayed, life in drought-hit villages becomes a nightmare. Landless laborers and marginal farmers move to cities in search of casual jobs. Ironically, medium and large farmers are worst hit as agriculture is their main income source, and it could drop as much as 70%. Health suffers and schooling is disrupted as money dwindles. The impact radiates to cities as declining farm growth pulls down industry, urban goods and services. Other impacts include loss of seeds, loss of productive agricultural assets and reduction in consumption.

The table below provides a perspective of the impact of a drought on GDP and Inflation. Of the four major droughts, the drought in 2002-03 saw a low inflation and relatively healthy industrial growth. The low inflation was due to low inflation in primary articles- the buffer stocks of rice and wheat helped to keep a lid on their prices. The last two drought years 1987-88 and 2002-03 saw virtually no impact of monsoons on industrial activity, a redeeming feature for India in the current situation.

In 2002-03, the boost to construction activity through the National Highway Development Program and tax sops for housing (aided by soft interest rates) has been a major offset against weak monsoons. The growth in sectors such as steel and cement was directly associated with it. As construction is a labor-intensive activity and is not significantly dependent on skilled labor, employment generation through the highway program partly neutralized the lack of rural demand in a drought year.

Another reason for the growth in some of the industries in 2002-03 was through a boost in external demand. The export growth in 2002-03 (at 24% in US\$ terms) was way ahead of the annual target of 12%. Thus, insulation of industry from the failure of monsoons was linked to specific set of circumstances and the situation this year will depend upon those conditions holding this year. This year some buffer to prices will be provided by stocks of rice and wheat. Like 2002- 03, 2009-10 will turn out to be low inflation year (measured through WPI). But some crops that do not have buffer stocks (coarse cereals and pulses) will remain vulnerable. Government spending through NREGS will provide some buffer to rural demand and support industrial recovery. Similarly, government spending through hike in wages of government employees (some of which is still coming through) and in infrastructure too will support industrial activity.

	1971-72	1979-80	1987-88	2002-03
Rainfall – June – September (% deviation from normal)	-24.0	-19.0	-19.0	-19.0
GDP (Growth %)				
Agriculture	-19.0	-12.8	-1.3	-5.2
Industry	2.7	-3.1	6.6	6.4
Services	3.6	2.2	6.5	7.1
Total	0.9	-5.2	3.8	4.0
WPI (%)	5.6	17.1	8.1	3.4

Sources for Report: Ministry of Agriculture, Central Water Commission, Indian Meteorological Departments, Newspapers, Websites

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