

# Indian Agriculture: Emerging Issues and Policy Perspectives

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**T**he summer of 2014 got drenched with the elections euphoria, but for Indian agriculture all eyes are set on the prospects of a good monsoon. Is there a possibility of an *El Nino*? Will it lead to a drought like condition and have an adverse impact on agricultural production? How will this impact those dependent on agriculture for their livelihood? What about farmers' suicides? These questions remind us of the larger agrarian crisis and its interrelated dimensions of an agricultural developmental crisis. The former is about declining share of the overall pie towards agricultural sector, poor returns to cultivation, and nutritional deprivation while the latter is about inadequate and inappropriate planning that led to a deceleration in the growth rate of production and productivity, and an increase in risk and vulnerability. This also calls for alternative policy thinking.

### Agrarian Crisis

The share of agriculture and allied activities in gross domestic product at constant 1999-2000 prices decreased from 41 per cent in 1972-73 to 14.6 per cent in 2009-10 while during the same period the share of employment in the sector declined from 73.9 per cent to 53.2 per cent. This means

that the average returns per worker in agricultural households was less than Rs.8. Assuming a 6 per cent annual average growth rate, which is much on the higher side, the per capita per day returns in 2013-14 would double to Rs.16. This explains the poor returns to cultivation. With nearly half the population being still dependent on agriculture, the non-farm opportunities remain limited.

The *2013 Global Hunger Index* puts India at a rank of 63 from among 78 countries, which is lower than some of the Sub-Saharan countries and all the other South Asian countries. The per capita per day availability of foodgrains, as indicated in the *State of Indian Agriculture 2012-13*, has reduced from 510 grams in 1991 to 463 grams in 2011. This is also reflected in the per capita per day calorie and protein consumption as the national sample survey estimates of 1993-94, 2004-05 and 2009-10 suggest. Such an outcome is also because of a shift in the cereal production and their consumption from millets to rice and wheat. There have been recent initiatives to increase the millets production and their consumption.

The manifestation of the agrarian crisis has been identified with farmers' suicides. However, it is symptomatic and its absence does not necessarily

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preclude risks. A comparison of suicide mortality rates (SMRs, suicide deaths for 100,000 persons) between farmers and non-farmers suggests that at the all India level the difference in the rates diverged the most in 2004 (18.8 and 13.6) and then there was a secular decline in the gap till 2008 (16.9 and 14.7) to diverge again in 2009, a drought year, and then started converging again from 2010 to 2012. However, a closer look at the six states with relatively higher incidence of farmers' suicides indicate that for the recent three years (2010 to 2012) the rates are diverging in Andhra Pradesh, Maharashtra and Kerala and

**However, a closer look at the six states with relatively higher incidence of farmers' suicides indicate that for the recent three years (2010 to 2012) the rates are diverging in Andhra Pradesh, Maharashtra and Kerala and converging in Chhattisgarh, Karnataka and Madhya Pradesh.**

converging in Chhattisgarh, Karnataka and Madhya Pradesh. The turnaround in Chhattisgarh is because it has stopped reporting farmers' suicides and instead increased reporting of a category called self-employed others. In addition, West Bengal did not report profession-wise suicides data for 2012. Thus, the convergence that one observed at the all India level is more on account of inappropriate and incomplete reporting. In any case, one has to look up other aspects to identify possible changes.

### **Agricultural Developmental Crisis**

Using triennium ending data divided to three sub-periods, 1981-82 to 1993-94, 1993-94 to 2004-05 and 2004-05 to 2010-11, an analysis of growth rates computed through a double-kinked exponential curve suggests that the growth of agriculture and allied activities in the first period (3.3 per cent) was statistically significantly higher when compared with the second

period (2.7 per cent) and there has been an increase in the growth rate in the recent period (3.0 per cent). An analysis in terms of value addition points out that the growth rate in the first period was statistically significantly higher than the second period for cereals (3.3 per cent and 1.0 per cent), pulses (1.5 per cent and -0.03 per cent), oilseeds (6.1 per cent and 0.5 per cent), cotton (4.1 per cent and 1.0 per cent), milk (5.0 per cent and 3.7 per cent) and meat (5.1 per cent and 2.9 per cent); the growth in the third period was higher than the second period for all the above except for milk (3.5 per cent) and it was statistically significantly higher for pulses (2.5 per cent), oilseeds (4.8 per cent) and cotton (13.7 per cent). The trends observed till 2010-11 have continued till 2013-14, but for a setback in 2012-13 because of delayed onset and deficient rainfall.

Conventionally, in monsoon India, the farmer was exposed to either yield or price shocks that were supposed to move in opposite directions counterbalancing each other. Today, the possibility of yield risk increases because of unavailability of power that in turn affects water availability at a crucial time, or because of spurious seeds or due to an increase incidence of pest attack or because of weather changes. Further, because of global integration, price volatility has increased and price shocks could be because of higher subsidies in the United States or the European Union. And, with these changes the two risks do not counterbalance each other and the farmer can also be exposed to both the shocks in the same season.

Over the years, the farmer is increasingly relying on the market for inputs. The link between ground realities and publicly funded research and extension is waning and the farmer depends on the input-dealer leading to a supplier-induced-demand. What is more, the private provisioning of inputs without any regulation to address the sale of spurious products or other market irregularities increases farmers' vulnerability. Further, with changes in technology, the farmers'

current knowledge become redundant and there is deskilling.

Adequate, affordable and timely availability of credit would be essential for any enterprise, but this has been eluding the Indian farmer. In addition, agricultural credit is about doing the same things again and again and not linked to horizontal or vertical expansions. Thus, any shocks are likely to make debt non-serviceable and this would make the farmer ineligible for subsequent loans from formal sources. This would increase the reliance on informal sources at a greater interest burden.

Input-intensive cultivation practices bring in risks that go beyond weather and market uncertainties. There can be inappropriate fertiliser applications having an adverse impact on soil health resulting in yield fatigue or pesticides having harmful impact on livestock and human health or depletion of groundwater among others. A way out being propagated is an expansion of

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the same, that is, to bring more areas under the input-intensive approach - the look east policy being touted under a second green revolution or an evergreen revolution. The argument put forward in favour of this or other technology-driven approach is that there is no alternative (TINA).

### **Alternative Policy Thinking**

In practice, multiple alternatives exist (MAE) that is context-specific.

It differs across locations and evolves over time. It questions the one-size fits all approach. Such thinking takes advantage of the variability of the natural resource base and the diversity in the production systems. As each crop has a different life cycle, the diversity spreads out the vulnerability from each episode of unforeseen climatic events. In addition to an integration of different crops, the system is also integrated with livestock production. These could lead to low external input sustainable agriculture (LEISA). The application or propagation of this approach is knowledge centric.

**The comprehensive pilots are spread across different agro-ecological conditions and focuses on integrating knowledge-centric interventions on water, soil, seed, livestock, fisheries, credit and institutions among others. They also collaborate with the local-level line departments and other government functionaries, as that is very essential to scale-up within the pilot area. The interventions that started in Kharif 2012 have attracted the attention of the Planning Commission, the Department of Science and Technology and the Food and Agriculture Organization.**

Comparing knowledge-centric MAE to technology-driven TINA, one can state the following.

MAE is bottom-up where different knowledge providers will not only have to keep the local specifics in mind, but will have to work in tandem with the users. TINA is top-down where the provider of the technological-fix, as a solution to some presumed problem, is considered hierarchically superior to the user of that technology.

MAE is context-specific, requires

an understanding of the system dynamics and evolving effective structures of managing them. TINA is crop-specific and involves application of inputs/technology to enhance production.

MAE focuses on the production of a complex system with an important emphasis on risk reduction. TINA focuses on a single crop or livestock with an emphasis on improving productivity.

MAE understanding of efficiency is from a system perspective. TINA looks into efficiency in the technological and economic sense that is normalised per unit of input.

MAE involves marginal lands with the crop-livestock system spread over a larger area and in that sense is extensive. TINA is mainly in areas with better soils and with access to water (preferably through irrigation) and input-intensive.

MAE is about integration of mixed and multiple crops with livestock. TINA is about specialisation that espouses mono-cropping.

MAE production on private lands is dependent on commons. TINA production is in owner-operated lands.

Despite these differences, MAE like TINA, cannot happen on its own. To promulgate it, one needs the support of appropriate knowledge, resources and adequate leveraging with marketing opportunities and information technology. It also requires constant monitoring and evaluation.

One of the recent initiatives in-line with MAE is the interventions in comprehensive pilots through the Revitalizing Rainfed Agriculture Network (RRA-N) comprising of a number of civil society groups spread across the country. The comprehensive pilots are spread across different agro-ecological conditions and focuses on integrating knowledge-centric interventions on

water, soil, seed, livestock, fisheries, credit and institutions among others. They also collaborate with the local-level line departments and other government functionaries, as that is very essential to scale-up within the pilot area. The interventions that started in Kharif 2012 have attracted the attention of the Planning Commission, the Department of Science and Technology and the Food and Agriculture Organization. This requires greater research engagement that will delineate the specificities in each comprehensive pilot and identify the similarities across comprehensive pilots to facilitate their application beyond the pilot areas.

To sum up, Indian agriculture has been going through a crisis that is agrarian as also agricultural. A way out of this is to explore context-specific knowledge-centric approaches. This, to borrow a term, has the potential for an inclusive, sustainable and food-secure India.

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(This paper draws from some of the recent works by the author. They include: Technology, Development, and Farmers' Suicides in India: A Misplaced Debate, Visiting Fellows Seminar, Asia Research Centre, London School of Economics and Political Science, 20 March 2014; Agriculture in India: Performance, Challenges and Opportunities (with S Mahendra Dev and Vijaylaxmi Pandey) in Ashima Goyal edited *The Oxford Handbook of the Indian Economy in the 21st Century*, Oxford University Press (OUP), New Delhi, 2014; etc.). □

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