

Crisis of Agricultural in Uttar Pradesh: From Apprehension to Actuality

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Abstract

The Indian countryside where the large majority of its people reside is in the grip of a severe crisis relating to agriculture. The rural India is in acute distress- there is not enough work, not enough food to eat and not enough water to drink for the rural population. Dipankar Gupta (2005) seems brutally correct when he writes, "*Agriculture (in India) today is an economic residue that generously accommodates non-achievers resigned to a life of sad satisfaction. The villager is as bloodless as the rural economy is lifeless. From rich to poor the trend is to leave the village.....*" The situation looks extremely grim as we are in a situation where painkillers are adding to the pains and the medicines are aggravating the disease. Government's efforts of coming out of the quagmire are actually pushing agriculture further dipper and dipper into it. Manifestations of agrarian distress in contemporary India is not confined to the pockets of backwardness; even the regions having a high degree of commercial agriculture, using relatively better technology and having a relatively diversified cropping pattern have reported high indebtedness and distress of various kinds. While the perilous form of the crisis as reflected in form of farmer's distress and suicide is visible at present mainly in states like Andhra Pradesh, Maharashtra (especially Vidarbha) and Kerala etc.; the preliminary signs of a brewing crisis is discernible also in the North Indian states of Punjab, Haryana and Uttar Pradesh. The crisis of agriculture in Uttar Pradesh has not reached an acute stage but it is a lingering crisis of low intensity reflected in stagnation in production, farmer's indebtedness, poor returns to cultivation, and growing discontent of the farmers and alienation. The literature on the nature and magnitude of crisis of agriculture of the type Uttar Pradesh is in, is rather sparse; while policy makers are not keen to even accept that something is wrong with agriculture in UP, the economists are too obsessed and occupied with the severe form of crisis existing elsewhere to pay any heed to it. The primary contention of the present write up is twofold- first, to conceptualise crisis of agriculture in order to see whether it is crisis of the agricultural sector or that of the agriculturists and second, to draw forth the point that the apprehension of a brewing crisis in UP is not false. If corrective measures are not taken at the earliest there is every likelihood that the ***apprehension of a major crisis of agriculture in the state would turn into actuality***. The paper is organized in three sections. Section-I explicates the concept of the crisis taking help of relevant literature, Section-II briefly discusses the methodology of measurement of crisis of agriculture. Section-III presents a summary picture of UP agriculture and develops a composite index of crisis of agriculture for UP and some other states and the final section i.e. Section-IV suggests some interventions required to put the cart on track.

Section-I Crisis of Agriculture: Conceptual Issue

There are two diametrically opposite views on the nature of crisis of agriculture and the steps needed for its resolution. The official view (of the government) sees it exclusively as an ***agricultural crisis***, i.e. the crisis of a sector, which is afflicted by "technology fatigue", due to which the earlier gains made during the Green Revolution has withered away and has caused investment, production and crop-yield to stagnate and even fall. It relates this crisis to a fall in per-capita food availability and the resultant food shortage in the economy. The other view, which represents the Left perspective, sees it as an ***agrarian crisis***, i.e. the crisis of certain agrarian classes, arising out of the relationship of these classes to other classes, in the context of the neo-liberal policies. It is structural and institutional in nature, resulting in growing marginalisation and failure of support systems because of shift in institutional emphasis from state to market. This view *separates agriculture from agriculturists* claiming that *though prosperity of agriculture does not necessarily mean affluence of farmers but crisis for farmers necessarily means crisis for agriculture*. It relates agrarian crisis to agriculture becoming unremunerative and increasingly unviable for the bulk of the peasantry, an adverse movement in the terms of trade for peasant agriculture, growing indebtedness of the peasantry, increasing landlessness and massive acquisition of farming land for non-agricultural purposes and ultimately falling private investment and interest in agriculture (Patnaik, 2009).

The roots of the present crisis could be traced in 1980s when the terms of trade started going against agriculture [Balagopal (1998), Bose (1981), and Rudra (1982)] and policies with urban bias began to dominate the state

policies with farming gradually appearing as a losing proposition. However, the crisis came into its own only after launching of the reforms. Locating the crisis in contemporary literature in terms of the factors initiating and sustaining it is a contentious issue. Assadi (2010) has made an excellent job of identifying & classifying the debate related to crisis of agriculture and its manifestations in farmers' suicide. Drawing inspiration from him and researching the extant literature we could locate four distinct views on emergence & nature of crisis-

1. First debate tries to locate the crisis of agriculture as part of multiple crises. The crises are ecological, economic, and social, each inter-linked with the other.-

a. The ecological crisis is the result of extreme use of hybrid seeds, chemical fertilisers and pesticides, causing the erosion of soil fertility and increasing crop-susceptibility to pests and diseases. Land degradation, water logging, salinity and reduction of wastage are emerging as main problems in command areas while the over-exploitation and the irreversible depletion of ground water resources are assuming alarming intensity in dry and draught prone areas, with fertility falling in both.

b. The social crisis is looked at as exploitation of the farming class by the process of emergence of monopoly capitalism. The small and marginal farmers in the logic of market and without the security of institutional structures are being increasingly rendered redundant and are being depeasantised, dispossessed and displaced.

c. The economic crisis is looked at as agriculture becoming unviable due to increasing cost and price deflation of agriculture products. The adoption of 'seed-water-fertilizer' based technology which was cash-intensive and supply-effective by government during the Green Revolution era have increased the cost of cultivation significantly and the dependence of the farmers on the factor markets. The rise in cost coupled with deteriorating terms of trade against agriculture and withdrawing state from the economy especially agriculture has left farmers completely at the mercy of market and resulted in growing indebtedness of farmers and falling private investment.

2. The second view attempts to locate the reasons for the crisis in adapting the World Bank model of agriculture or what is called *McKinsey Model of Development* that created spaces for industry-driven agriculture which ultimately translated into agri-business development including Information Technology. This model of development has not only exacerbated the crisis leading to an environmental catastrophe but also destroyed millions of rural livelihoods. The industrial agriculture and animal husbandry, which have been thrust upon the developing countries by the multilateral donor agencies and multinational corporations (MNCs) for increasing production and raising the level of supernormal profits, have taken its toll on biodiversity, human health and quality of soil and has perpetuated crisis.

3. The third discourse, the official one, comes from the state. It attempts to locate the reasons in multiple issues, such as the incessant floods, manipulation of prices by traders, supply of spurious pesticides and seeds, decline in prices of agricultural produce, increase in the cost of agricultural inputs, successive drought in recent years, and of course, the neglect of farmers by the previous state governments. In more than one way this approach explains the result rather than causes. The approach claims that the present problem is in no way the result of faulty policies of the government or neglect of the agricultural sector in general and the farming community in particular, rather the result of natural and market based factors that are well beyond the control of the government.

4. The fourth view attempts to locate the crisis to the negative growth of agrarian economy in the neo-liberal policies as argued by Vandana Shiva (2006) and a host of authors toeing the Leftist line. This is the Marxist critique spearheaded by Patnaik (2004) and others. The leftist literature locates crisis in the larger context of ambiguous path of capitalist development in India manifested in the neo-liberal policy or imperialist globalization that linked the poor unprotected peasantry with the global market. This view looks at crisis as crisis of certain agrarian classes, arising out of the relationship of these classes to other classes or distortion of agrarian structure. It argues that the neo-liberal policies surreptitiously but consciously promotes monopoly capitalism and agrarian crisis is endemic to monopoly capitalism.

The approach sees the crisis in agriculture as a crisis afflicting the peasantry, which in turn is a part of the crisis of petty production that capitalism has an inbuilt tendency to destroy. The leftist thinkers claim that the neglect of the interest of farming community or rather the pro-big farmer policy of the government in the pre 1990 era and adoption of neo-liberal policy in the post 1990 period have badly distorted the agrarian structure. Despite much hype created by different governments as regards their commitment to institutional reforms, the political will and commitment to the cause has been missing resulting in rather tardy progress on this front. The agrarian structure today stands badly distorted thereby complicating the situation of farmers. The land distribution and the usage pattern of land have caused a significant change in the structure of the agrarian organization. The agricultural sector is now recognized more as a '*bottom heavy*' distribution of land holding. This has occurred due to the demographic pressure on the one hand, and the model of development adopted in the planning process, on the other. The number of marginal and small farmer is increasing at a faster rate than explained by demographic changes. This is causing several problems such as-

a. The shrinking size of holdings is making farming non-viable for the small peasants. Their problem is

complicated further by the increasing cost of cultivation.

b. The non-viability of size of holdings has compelled peasants to undertake commercial crops that are characterised by market-led instability.

c. The land market has gone in favour of the large owners. The socially deprived and marginal farmers are losing out the race because of none-affordable technology and non-viable agriculture. They are turning into landless labourers selling –off their land at throw away price. The impact of slowdown in agricultural yield growth along with lower employment opportunities outside agriculture has increased the dependence of small and marginal farmers and landless labourers on wage income in agriculture resulting in increased vulnerability of small and marginal farmers and agricultural labourers.

A cursory look at the four distinct approaches is sufficient to understand the debate and draw a rather broader view of the problem. The approach treating the World Bank model as the main culprit and the official stand can be summarily rejected as they see the symptoms and not the ailment and give only partial picture of the story. The government stand treats the ultimate result as cause of crisis and by blaming it on ‘nature’ and some unscrupulous ailment beyond its control attempts to steer it(government) away from any controversy and away from any responsibility. It believes that the present crisis is agricultural crisis and hopes that by increasing productivity and production in agriculture the problem can be effectively tackled. The view is apparently wrong and leads us nowhere; *we cannot call the present crisis as agricultural crisis.*

The real debate is between the first and the last approach which we prefer calling *agriculture vs. agriculturist debate*. A deeper inspection of the two approaches gives the impression that both approaches give importance to the same set of factors- ***the real debate is related to the primacy of class relations & peasant concern in the leftist approach and equal importance being given to both agriculture sector and peasants in the first approach.*** While the leftist approach claims that so long as agriculture is unviable, increasing output won’t be possible and if possible won’t solve the problem of farmers and therefore won’t be sustainable, the other approach speaks for a comprehensive long term growth strategy for agriculture that not only handles the problem of those involved in agriculture but at the same time by sprucing up the growth of the agricultural sector effectively handles the problem of food security and agriculture serving as platform for the growth of manufacturing.

Though there is no denial of the fact that the agricultural policies in the nation over the years have created a conflict between agriculture and farmers especially the small and marginal ones and made agriculture an unviable occupation for bulk of them, yet it would be wrong to say that just by addressing the concern of small and marginal farmers the present crisis can be effectively handled and the agricultural sector can be put back on track. For a nation like ours with more than 1.2 billion people, the growing demand for food makes technological revolution mandatory. Further, the economic reforms that the nation started in 1990s are irreversible in nature and there is no question of completely going back on neo-liberalism. Even otherwise though monopoly capitalism by its very nature is pitted against the peasantry yet, experiences in some other nations show that agriculture has witnessed a robust growth and the farming community has prospered even when the nation has adopted the so called ‘neo-liberal’ policies and government has treaded along the capitalist path. Working blindly in favour of peasantry would compel us to adopt steps that might go against interest of poor and vulnerable urban population. *The present crisis is therefore not just a crisis of peasantry or agrarian crisis;* it is part of a broader crisis that engulfs the entire agricultural sector. We prefer to call it **Crisis of Agriculture.**

We end up this section by concluding that the present crisis is the crisis of the agriculture that has two facets- crisis of the agricultural sector and crisis of the peasants who are dependent on it, it is neither the first nor the second but a combination of the two.

Section-II Methodology of Computation of Index of Crisis of Agriculture

The primary focus of the paper is to highlight the poor position of agriculture in Uttar Pradesh. It is done in two ways – First, we have selected some important components of agriculture such as trends in production, yield and area, profitability of agriculture, farmers’ indebtedness etc. and then using relevant data have shown how the state agriculture fair on these. Second, in order to measure the intensity of crisis we have attempted to develop an index of crisis of agriculture with the help of appropriate indicators. The index has been prepared for major 14 major states and the districts of Uttar Pradesh. The availability of data appears as a major obstacle in the endeavour. The list of indicators incorporated is given in Table-1 below-

Table-1 List of Crisis Indicators

SN	Indicators for Crisis of Agriculture Both at District & State Level
1	Average Loan Per Household (In Rs.)
2	Yield
3	Per Head Production (Kg)
4	Percentage Of Net Sown Area to Total Agricultural Land
5	Profit Of Production(Per Quintal)
6	Cropping Intensity
Additional Indicators Used for State Level Crisis Index	
7	Suicide Mortality Rate (Male Farmers)
8	Suicide Mortality Rate (Female Farmers)

The districts level data of these indicators have been collected mostly from the Directorate of Economics & Statistics, Government of Uttar Pradesh while the state level data has been taken from the Directorate of Economics and Statistics, Department of Agriculture and cooperation, Ministry of Agriculture, Government of India.

Agriculture is characterised by huge year to year fluctuations. In order to reduce their impact we have taken data for the triennium. For the state level index data for the triennium ending TE11 has been taken, while for district level crisis index of UP two triennium years -TE04 & TE11 have been included. We have included figures for the new millennium only as the situation of agriculture in the state has worsened during about this time only. For the computation of crisis index, each indicator has been first normalized with the normalized values ranging between 0 and 1. This indicates the relative position of district with reference to a selected indicator. Minimum and maximum values (goalposts) have been set in order to transform the indicators into indices between 0 and 1. The maximums are the higher observed values in the time series (2001-2011). The minimums are lowest values in the time series (2001-2011) or subsistence value for state level and district level for respective indices. After defining the minimum and maximum values, the normalized value has been calculated as follows:

$$\text{Normalized value (In)} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad (1)$$

If, indicator is negatively associated with crisis, then equation (1) has been changed to.

$$\text{Normalize valued (In)} = \frac{\text{Maximum value} - \text{Actual value}}{\text{Maximum value} - \text{Minimum value}} \quad (2)$$

The analysis of this paper is based on first stage aggregation, thus, arithmetic mean has been used for first stage aggregation.

$$\text{Crisis Index} = \frac{I_{n1} + I_{n2} + I_{n3} + I_{n4} + I_{n5} + I_{n6}}{6} \quad (3)$$

Section-III Crisis of Agriculture in Uttar Pradesh

Uttar Pradesh, the largest state of India, is situated in one of the most fertile tracts of the country i.e. Ganga and Yamuna basin. Being primarily agricultural, high growth in agriculture sector is necessary for attaining higher growth in the overall economy of the State, as also for reduction in the incidence of poverty. Since the Tenth Plan the agricultural sector in the State has not been doing well and the growth rate in the sector has been less than 2% p.a. We present the agricultural scenario of UP in two parts. We briefly discuss the performance of state agriculture vis-à-vis other states and then develop crisis index to compare different states-

Poor Performance of Agriculture: - The state agriculture has witnessed sliding down in the second phase of reforms. The growth rate in area, yield and production have all deteriorated significantly for food crops, non food crops and both taken together in UP recently. The situation today is worse than the pre-green revolution (PGR) period e.g. in the PGR growth rate of food crops production was 2.55 % while in the post reform period it has been a meagre 1.78%. The situation is no different for all crops where the figures stand at 3.0 and 1.10 respectively. The post reform period yield and productivity growth rate also does not compare well with the earlier period. Table-2 compares average yield of food grain of UP with other states. It is clear that the yield figure for the state does not augur well with its reputation of an agricultural state.

Table-2 Annual Growth Rates of Yield for Major Crops in Major Indian States

State	Yield	State	Yield
Punjab	4218.36	Gujarat	1666.05
Haryana	3431.73	Bihar	1591.67
West Bengal	2538.87	Karnataka	1524.21
Andhra Pradesh	2522.82	Orissa	1397.62
Kerala	2436.60	Madhya Pradesh	1205.30
Tamil Nadu	2364.89	Rajasthan	1147.80
Uttar Pradesh	2328.82	Maharashtra	1074.52

Source: Directorate of Economics and Statistics, Department of Agriculture and cooperation, Ministry of Agriculture, Government of India.

Table-3 provides the change in the values of area, production and yield during the last decade for major crops for triennium ending 2005, 2008 and 2011 in UP.

Table-3 Percentage Growth Rate of Important Crops in U.P

	Name of Crop	TE05			TE08			TE11		
		Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
1	Rice	-0.14	-2.95	-3.81	-0.96	3.58	4.59	0.31	1.59	1.12
2	Wheat	0.44	-2.33	-2.89	0.09	3.98	3.87	1.41	5.25	3.77
3	Pulses	1.68	1.09	-0.74	-6.94	-12.44	-5.89	2.71	8.46	6.26
3	Maize	-1.68	2.49	1.68	-1.02	-2.31	-1.43	-2.58	-1.40	1.10
4	Food Grain	0.05	-2.39	-2.77	-1.13	2.47	3.65	0.82	4.09	3.19
5	Sugarcane	-0.44	1.09	1.73	3.97	1.97	-1.96	-2.85	-2.79	0.14
6	Oil seed	3.16	2.88	-0.59	3.81	0.66	-3.03	2.48	5.65	4.91

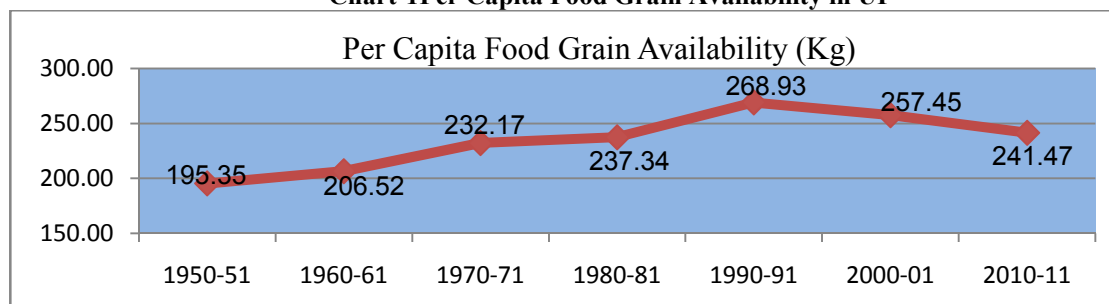
Source: Economics & Statistics Division, Planning Department Government of U. P.

The table shows that TE 05 and TE 08 have really been very bad for the state agriculture as during these two years the growth rate of yield for all major crops have been in the red.

There has been decline in production of some important crops also like pulses, maize and overall food grains. Even production of rice and wheat declined in TE05. Situation statistically has improved slightly in TE11 but this is because of base effect (a drastic fall during TE05 and TE08 has made a slight rise in yield or production in absolute term over the average value look significant). The table also reveals the poor performance of the main cash crop of the state Sugarcane. The area under the crop has declined, production growth has become negative and yield has stagnated. The performance of oilseeds is comparatively better but not high enough to give the state agriculture a boost.

Stagnant or rather declining yield and very slow increase in agricultural production coupled with high growth rate of population in the state has caused per capita food grain availability in the state to decline. Although with per capita food grain availability of 234.56 Kgs in 2012-13 UP ranks a fair third after Punjab(996.74 Kg) and Haryana(635.20 Kg) and way above neighbouring states of Madhya Pradesh (201.28 Kgs) and Bihar (107.2 Kgs) yet a worrisome trend is fall in the figure since 1990-91. In fact the growth rate of food grain production that till 1990-91 was higher than population growth rate has drastically declined (from 42.36 percent in 1990-91 to 12.73 percent in 2010-11). As the growth rate of food grain output has gone down the per capita food grain availability has nose-dived since 1990-91. The chart shows that from 268.59Kg per capita per year it came down to 257.45 in 2000-01 and further to 241.47 in 2010-11.

Chart-1 Per Capita Food Grain Availability in UP



Source: Computed Using Data From Economics & Statistics Division, Planning Department Government of U. P.

Un-viability of Agriculture:-The most important indicator of unviability of agriculture in the state is the gap between the minimum support price (MSP) declared by the government for a particular crop and the cost of

cultivation. The profitability of agriculture has declined nationwide and the position of farmers in UP has worsened. Table-4 given below shows that profit per quintal from cultivation in UP is far below major states of India-

Table-4 Profitability of Cultivation for Major Foodgrains (Rs. / Quintal)

State	Profit from Cultivation	State	Profit from Cultivation
Gujarat	36246.15	Karnataka	3396.37
Rajasthan	29985.97	Orissa	1700.54
Bihar	17499.99	Tamil Nadu	-233.42
Punjab	16669.26	Andhra Pradesh	-3727.75
Madhya Pradesh	16624.82	West Bengal	-3817.22
Haryana	9076.80	Maharashtra	-6038.86
Uttar Pradesh	3736.24	Kerala	-6047.33

Source: Directorate of Economics and Statistics, Department of Agriculture and cooperation, Ministry of Agriculture, Government of India

Crop wise details of M.S.P. & Cost of Cultivation in U.P during 2002-2005 are given in table-5. A look gives the idea that for all important commodities the gap between MSP and Cost of Production is either very narrow or even negative, thereby meaning the cultivation of the particular crop has become un-remunerative or less profitable. It will be futile to expect the farmers to continue to grow paddy and maize when his return on cultivation on these is negative and wheat when the margin is so small.

Table-5 Minimum Support Price & Cost of Cultivation of Major Crops in UP (Figures in Rs./Quintal)

Crop	2000-01			2009-10			Change in Profit in Intervening Years
	M.S.P.	Cost of Production	Profit	M.S.P.	Cost of Production	Profit	
Paddy	510	456.32	53.68	950	921.05	28.95	-24.73
Wheat	610	536	74	1100	926.92	173.08	99.08
Sugarcane	59.5	65.28	-5.78	129.84	119.04	10.80	16.58
Arhar	1200	1053.73	146.27	2300	4589.79	-2289.7	-2435.97
Gram	1100	1050.14	49.86	1760	2242.85	-482.85	-532.71
Maize	445	685.08	-240.08	840	1452.54	-612.54	-372.46
Barley	500	420.95	79.05	750	828.25	-78.25	-157.3
Bajra	445	414.26	30.74	840	879.91	-39.91	-70.65

Source: Economics & Statistics Division, Planning Department Government of U. P.

The un-viability of agriculture has reduced the willingness of farmers to continue in the occupation. Out of an estimated number of 22.15 million rural households in Uttar Pradesh, 77.4% are farming households. According to data released by NSSO based on 59th round of NSS, 24% of UP farmers (27% at all India level) did not like farming and felt that agriculture was not profitable and sustainable. In all 41% farmers in UP (40% at all India level) felt that, given a choice, they would take up some other career. This indicates a serious problem wherein the farmers are suffering from low self-esteem and do not believe that what they are doing is useful economically or even socially. In the social hierarchy, farming as a profession now figures considerably low.

Indebtedness of Farmers: - The data released by NSSO says that in UP out of 17.16 million farmer households, 6.92 million (40.3%) were reported to be indebted while for the country as a whole the percentage was 48.6(43.42 million out of 89.35 million). Estimated prevalence of indebtedness among farmer households was highest in Andhra Pradesh (82%) followed by Tamil Nadu (74.5%) and Punjab (65.4%). In UP, households with one hectare or less land accounted for 74% of all farmer households and about 39% of them were indebted.

The data released by Government of Uttar Pradesh shows that in UP average loan distribution of primary field has increased during last few years. It increased from Rs. 943.26 in TE04 to Rs.3664.82 in TE11. Western region has reported high indebtedness but the growth rate of indebtedness is high in Bundelkhand region. Eastern region has reported low indebtedness because of low innovation activities and use of traditional method of farming which is less expensive.

Table-6 Average Loan distribution of Primary Field Per Person (Rs) in Different Regions of UP

Region	TE04	TE11	Growth Rate of Indebtedness Between TE04 and TE11
Western	1456.99	5215.95	257.99
Central	925.63	3280.72	254.43
Bundelkhand	784.82	4730.07	502.69
Eastern	605.57	1432.52	136.55
Uttar Pradesh	943.25	3664.82	257.99

Source: Economics & Statistics Division, Planning Department Government of U. P.

Marginalization:- Over the time, the institutional changes, market processes and demographic pressure have brought two remarkable changes in land holding structure in U.P. -one, increased proportion of small and marginal holdings and second increased degree of tenancy. Most of this tenancy is oral and unregistered, without any regulation and with exploitative rent, resulting in adverse effects on agricultural productivity and growth. In U. P. average size of land holdings has declined to uneconomical level, it has declined from 1.2 ha. in 1971 to 1 ha. in 1981 further from 0.9 ha. in 1991 to .83 ha. in 2001 and finally it was .80 ha in 2005-06. As per 2005-06 Agriculture Census there were predominance of marginal and small farmer in the State, which was 77.96 % and 13.82% of the total holding respectively and this group of small and marginal farmers had 63.17% of the total land area.

Table-7Trend of Land Holding in UP (in thousands)

Year	Marginal (Below 1 ha)	Small (1-2 ha)	Semi Medium (2-4 ha)	Medium (4-10 ha)	Large Holding (10 ha & above)
1970-71	10453 (66.84)	2689 (17.19)	1652 (10.56)	733 (4.69)	112 (.71)
1980-81	12582 (70.58)	2898 (16.26)	1614 (9.05)	661 (3.70)	72 (.40)
1985-86	13702 (72.48)	2964 (15.68)	1582 (8.37)	602 (3.18)	55 (.29)
1990-91	14819 (73.82)	3118 (15.53)	1543 (7.69)	549 (2.73)	45 (.22)
1995-96	16237 (75.42)	3136 (14.57)	1585 (7.36)	532 (2.47)	39 (.18)
2000-01	16659 (76.88)	3087 (14.25)	1427 (6.59)	463 (2.14)	32 (.14)
2005-06	17507 (77.95)	3103 (13.82)	1391 (6.19)	428 (1.90)	28 (.12)

Note- Figures in parentheses show percentage of total farmers

Source: Agriculture Census, Ministry of Agriculture, Government of India

Rising debt in the face of the fact that the outreach of credit institutions is very low in UP further complicates the problem for farmers.

Part- B Index of Crisis of Agriculture in UP

The index of crisis of agriculture computed for the major states of India shows that relatively speaking UP is better placed than most other states. The state was ranked 12th among the 14 states included in the study. Tamil Nadu reflected highest incidence of crisis followed by Kerala and Karnataka. Punjab and Haryana, the two states are having lowest incidence of crisis.

Table-8Index of Crisis of Agriculture in Major Indian States

State	Index of Crisis of Agriculture	State	Index of Crisis of Agriculture
Tamil Nadu	0.7456	Madhya Pradesh	0.5555
Kerala	0.7167	Gujarat	0.5494
Karnataka	0.6735	Bihar	0.4748
Andhra Pradesh	0.6726	West Bengal	0.4677
Maharashtra	0.6683	Uttar Pradesh	0.4395
Rajasthan	0.5747	Haryana	0.3408
Orissa	0.5558	Punjab	0.2322

Source: Authors' Computation

The comparative study of index of crisis of agriculture creates the impression that the condition of agriculture in UP is not bad and things are fine. This is however a wrong conclusion. The paper has attempted to compute inter-district and inter-region disparity in UP in two time periods- triennium ending (TE) 2004 and TE 2011. The index of crisis of agriculture for all districts of UP has been computed for the two periods and five categories have been demarcated on the basis of index scores. The difference between the largest and smallest index score has been divided by five to find the class intervals for five classes and then five inclusive classes have been constructed. These are as follows- (i). Districts with Crisis index values above 0.439 have been placed in the first category reflecting very high intensity of crisis. (ii) Districts with Crisis index values between 0.376 and 0.438 have been put in second category which is related with high crisis zone. Districts with Crisis index values from

0.312 to 0.375 have been comprised the moderate performers and placed in third category. The districts with a index score falling in the range 0.249 and 0.311 have been put in the low crisis performing category, while districts with index score of less than 0.248 have been comprised best performers and placed in last category.

There are few very interesting findings –

First, though it does not prima-facie appear from outside yet, there exists low intensity crisis in different parts of the state with the crisis index of some districts touching very high figure. In TE04 out of a total 69 districts, 14 districts came under first category, but in TE11 the number doubled to 28 districts (about 40% of total districts). Only one district of the state has reported very low intensity crisis in TE11 coming down from four districts in TE04.

Second, different districts and zones vary significantly in terms of prevalence of crisis with high intensity crisis in districts of Eastern, Central and Bundelkhand zones and low intensity in districts of Western UP. It could be seen from the table that (i) as many as twelve districts of Eastern UP and seven of Bundelkhand have very high crisis index figures in TE2011. Bundelkhand region has seven districts and all these are characterised by very high crisis in TE 2011. The condition of Eastern UP is obviously no better. In fact as Table -9 shows the crisis index for Bundelkhand region was highest in TE 2011 i.e. 0.498 followed by Eastern UP i.e. 0.433. The situation of agriculture is much better in Western UP.

Third, within a span of 7-8 years (TE2004 to TE2011) the extent of crisis in the state has increased with districts from low and moderate crisis moving to high and very high crisis etc. A look at the table reveals that (i) While in TE 2004 only 14 districts fell in the first category (very high crisis segment), the number just doubled in TE 2011. (ii) There was only one district in the Western UP that was in the category of very high crisis in TE 04, the number increased to 6 in TE11. In case of Bundelkhand two districts in TE04 did not belong to the very high crisis category but by TE11 all seven districts of the region fell in this category. The situation is not different for Central region of the state.

The crisis of agriculture in Uttar Pradesh has reached at significant level especially in Eastern and Bundelkhand regions.. There are a number of reasons that are causing high crisis index here-

a. All agricultural activities of these two regions are heavily dependent on rainfall which had been unpredictable. Rainfall is supplemented by groundwater which has been receding. The shift to new agricultural technique that is very water intensive has resulted in serious irrigation problem in Bundelkhand region. The region lacks alternate sources of water for irrigation. A depleted groundwater table and the high costs associated with building and operating irrigation infrastructure are putting the region in deep trouble.

Table-9 Grading of Different Districts of Uttar Pradesh on the Basis of Crisis of Agriculture Index

Index Score	Crisis index (TE04)		Crisis index (TE11)	
	Region	Districts	Region	Districts
Very High 0.439 and above	W=1 C=1 B=5 E=7 T=14	Sonebhadra, Lucknow, Gautam Budhanagar, Sant Ravidas Nagar, Lalitpur, Allahabad, Mirzapur, Kaushambi, Pratapgarh, Jhansi, Chitrakoot, Mahoba, Varanasi, Banda	W= 6 C=3 B=7 E=12 T=28	Sonebhadra, Lucknow, Gautam B. Nagar, Sant R. Nagar, Lalitpur, Allahabad, Mirzapur, Kaushambi, Pratapgarh, Jhansi, Chitrakoot, Mahoba, Varanasi, Banda, Kanpur Nagar, Jalaun, Kushinagar, Agra, Faizabad, Meerut, Bijnor, Hamirpur, Ballia, Basti, Ghaziabad, Raebareli, Balrampur, Saharanpur,
High 0.376 To 0.438	W=3 C=5 B=2 E=13 T=23	Balrampur, Kanpur Nagar, Hamirpur, Gorakhpur, Raebareli, Ballia, Faizabad, Bijnor, Jaunpur, Sultanpur, Agra, Fatehpur, Farrukhabad, Saravasti, Basti, Unnao, Azamgarh, Mau, Gonda, Sitapur, Jalaun, Ghazipur, Siddarth Nagar	W= 8 C=4 B=0 E=10 T=22	Muzaffar Nagar, Gorakhpur, Jaunpur, Sultanpur, Fatehpur, Farrukhabad, Saravasti, Unnao, Mau, Gonda, Sitapur, Ghazipur, Behraich, Kheri, Firozabad, Mahamaya Nagar, Kannauj, J. P. Nagar, Deoria, Mathura, Moradabad, Sant Kabir Nagar,
Moderate 0.312 to 0.375	W=9 C=3 B=0 E=6 T=18	Firozabad, Deoria, Kannauj, J. P. Nagar, Kushinagar, Saharanpur, Hardoi, Behraich, Ghaziabad, Kheri, Sant Kabir Nagar, Etah, Muzaffar Nagar, Meerut, Ambedkar Nagar, Barabanki, Bareilly, Chandauli	W= 6 C=2 B=0 E=5 T=13	Hardoi, Etah, Ambedkar Nagar, Barabanki, Bareilly, Chandauli, Azamgarh, Siddarth Nagar, Baghpat, Etawah, Aligarh, Bulandshahar, Maharajganj
Low 0.249 to 0.311	W=9 C= 0 B=0 E=1 T=10	Auraiya, Mahamaya Nagar, Budaun, Mainpuri, Etawah, Baghpat, Mathura, Moradabad, Aligarh, Maharajganj	W= 5 C=0 B=0 E=0 T=5	Auraiya, Budaun, Mainpuri, Shahjahanpur, Rampur
Very Low Below 0.248	W= 4 C=0 B=0 E=0 T=4	Bulandshahar, Shahjahanpur, Rampur, Pilibhit	W=1 C=0 B=0 E=0 T=1	Pilibhit

Source: Authors' Computation

b. Harsh and worsening biophysical conditions such as low soil fertility, combined with more frequent extreme events such as droughts caused by climate variability and change, further exacerbate the

Bundelkhandregion's vulnerability. Of late, climate change that is being reflected in high rainfall intensity coupled with decrease in winter precipitation has resulted in high runoff and higher rivers flow making flood and erosion an eventuality.

c. The Bundelkhandregion has a population of approximately 21 million, out of which 82.32 per cent is rural and more than one third of the households are below the poverty line (BPL). The condition of the farmers in the region is very bad; they are in debt which is mounting. They neither have the resources not adequate governmental assistance to take up the agricultural work well. Low resources here have forced farmers to go for solo cropping and cultivate only around 20% of the net shown area in the Kharif season. About 60% of the gross cropped area remains irrigation less. Gradual decrease in the area cultivated during the Kharif season is also easily visible. It was around 33% of the gross cropped area in the year 1977-78 and which got reduced to 26% in the year 1993-94 and remained only 23% in the year 1998-99 to around 20% at present. Thus poor economic condition of farmers, high cost of cultivation and frequent crop-failure due to insufficient irrigation facilities have forced farmers in the region into a debt-trap. If appropriate steps are not taken by the government now, like their unfortunate counterparts of Vidarbha farmers of Bundelkhand region shall also have to commit suicide.

d. In Bundelkhand and Eastern UP 75% of the farmers are small and marginal with average land holding of up to 2 hectares and most of them can only think of mere survival. Their continued existence is by and large reliant on the blend of produces of their own land and daily wage earning. Lack of subsidiary employment opportunities and almost non-existent rural non-farm sector is creating livelihood crisis for the farmers. They borrow and invest in agriculture and if agriculture flops they have no resources to continue farming in future. This on the one hand forces them to sell their land to big farmers and on the other make them totally vulnerable. They are at the mercy of big landlords for employment and we are entering into a phase of revival and reincarnation of the Zamindari System in these regions.

e. Land rights in the region are also not very clear. Land shown in records to be in the possession of weaker sections, or as part of the village commons, has been encroached upon by big landowners. Many landless families have been given land on paper, but, for various reasons, have not been able to occupy the land. There are several allottees who do not know exactly which plot of land has been allotted to them. They cultivate a plot only to be told later that it is not their land. All these factors taken together make the situation of agriculture in Bundelkhand really precarious and increase the inter-region variation substantially.

Table-9 Index of Crisis of Agriculture in Different Regions of Uttar Pradesh

Regions	Crisis index score (TE11)	Crisis index score (TE04)	Rank based on score difference	Rank Crisis index (TE11)
Western	0.370	0.322	2	4
Central	0.433	0.397	4	3
Bundelkhand	0.498	0.449	1	1
Eastern	0.438	0.401	3	2

Source: Authors' Computation

Section-IV The Interventions: Putting the Cart on Track

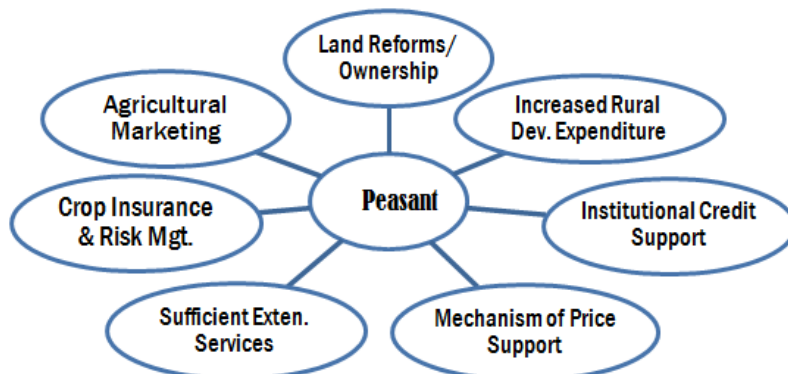
Crisis in the Agrarian Economy has emerged as a big cause of concern for the government. A number of steps have been taken in last one year or so to tackle the crisis. These include among others the loan waiver scheme for marginal farmers owning land up to one hectare and small farmers owning land up to 1 and 2 hectares, increase in Rural Infrastructure Development Fund to develop basic infrastructural facilities in rural area, Corpus Fund to subsidise Self Help Groups and promote financial inclusion through micro-finance, raising of agricultural credit target for the nationalised banks in order to reduce dependency on money lenders, increased expenditure on irrigation projects etc.

The government is claiming that it is making substantial efforts to put the cart on track. Its objective is to reverse the slide in agriculture and put the sector back in the growth mode. However, any effort to resurrect agricultural sector is bound to fail if we do not directly address the question of peasants and make agriculture a viable occupation once again. Government has so far attempted to address the agricultural sector and that too with a neo-liberal frame. A number of steps taken by it is going to backfire and further complicate things for the agricultural sector e.g. with a view to resurrecting the sector it is propagating and promoting corporate agriculture. The chain of reasoning is simple- Government sees the crisis as resulting from dependence on backward technology → Use of obsolete technology results from insufficient investment by the private sector → For promoting agricultural growth and opening the sector for global competition modernisation of agriculture is needed → Modernisation can take place only when private investment increases → Private Investment can increase only when corporatisation of agriculture takes place → Corporatisation could be promoted through Contract Farming → Contract Farming would kill peasants.

Our suggestions for revamping the agricultural sector is twofold-

A. Adoption of Peasant-Centric Policy

The present crisis is the culmination of anti-peasant policy followed by successive governments after 1990 and the cure lies in adoption of *peasant-centric policies*. Peasants need to be made the main focus of the agricultural policy. The flow-chart given below shows some important steps that the government needs to take. The importance of a number of these we have already explained while discussing the causes of the crisis. Hence, for the sake of keeping this already lengthy write up short, we omit this and concentrate on the second one only.



B. Provision of Alternative Livelihood Opportunities in Rural Areas

A very important reason for the poverty of the rural populace in general and the inability of peasants to devote sufficient resources towards farming activity and low return on agriculture in particular, is that there is lack of alternative/subsidiary income generating activities for farmers. India is characterised by population pressure, an ever-decreasing land to man ratio, small and fragmented holdings, highly inequitable land distribution structures, limited out-migration possibilities for substantial chunk of rural population, all of which put tremendous pressure on agriculture and reduce private investment and ultimately these linkages make agriculture an unviable occupation. The failure of the modern industrial sector in absorbing expanding number of surplus agricultural workers, problems faced in implementing institutional reforms and creating an egalitarian land distribution structure and ever decreasing employment elasticity of the agricultural sector have made matter worse for the rural people. A long term solution to the problem of agriculture (and more so to that of farmers) could be found in providing alternative livelihood opportunities. Under these circumstances it is important to diversify the rural economic base. Rural Non-Farm Sector provides a viable alternative in this regard.

The rural non-farm sector is being increasingly acknowledged as an important factor in the reduction of poverty levels in rural areas, both by way of contributing to the growth of output as well as employment potential by absorbing surplus labour from the agricultural sector. There is now growing recognition in India that RNFS needs to be given due importance in our development strategy in general and the policy framework relating to rural development, employment generation and poverty alleviation, in particular (Nayyar, Rohini and Sharma, A.N. 2005). Rural non-farm sector (RNFS) which was looked upon earlier as a passive side route for employment growth is now advocated as the central plank of rural development strategy.

There exists voluminous literature [Vaidyanathan (1986), Hazell and Haggblade(1991), Dev(1990), Unni(1991), Fisher et al(1997)] to quote some important ones) establishing strong linkage between the agriculture and RNFS. The most dominant view is that growth of non-farm activities in rural area is driven primarily by agriculture productivity growth at least in the initial stage i.e. a strong linkage between the rural-farm-non-farm sectors exist. However the converse is also true and as says Chadha (2007) ‘.....even the staunchest advocates of agriculture-led growth theories visualise an important role for the RNF sector in stimulating agricultural growth through inter-sectoral linkages. A two-way relationship between the farm and non-farm sector is a historical reality that has existed in various forms and content in most economies of the world. In Indian too, the two way causal relationship was clearly discernible when the Granger causality test was applied to state-level data on net state domestic product originating in primary, secondary and tertiary sectors during the 1980s and 1990s.’

There are a number of ways in which development of RNFS can support and promote agricultural development. Literature acknowledges existence of production, consumption, factor-market linkage etc. Prosperity and development of RNFS is crucial for the farmers and rural India. We need to have sufficient information and knowledge to frame proper set of policies that can develop the RNF sector and through it resurrect agricultural growth and tackle agrarian crisis. A number of studies have been conducted in India studying the role and importance of RNFS. However, we still have questions that have remained by and large only partially answered. As researchers it is our primary duty to find answers to these questions-

i. How growth of the RNFS affects the farm household i.e. whether an expansion of non-farm output is hindering the expansion of the farm economy by competing for scarce household inputs, or instead households are able to benefit from economies of diversification.

- ii. What type of transformations in the composition of input demand can be expected from the growth of RNFS e.g. whether RNF output is helping households fund quality input purchases in the absence of working credit market
- iii. How non-farm incomes of the households affects agricultural strategies like cropping techniques, choice of crops and technique of production and improves technical efficiency of the farmers.
- iv. How the externalities caused by RNFS (e.g. in form of human capital formations) lead to more efficient management of the agricultural operation and high productivity therein.
- v. How the RNFS offers more remunerative activities to supplement or replace agricultural income for the rural household and provides a means for the rural poor to cope or survive when farming fails

Concluding Observations: Indian remains land of villages and agriculture the most crucial sector. Crisis of agriculture means crisis for more than 60% of population dependent on it. Long-term sustainable development of agriculture and growth of the economy are possible only when the government frames pro-peasant policies. The policy makers need to understand that agriculture and peasants are inseparable- they cannot think of development of agriculture by neglecting the interest of peasants. The country doesn't need an agriculture where farmers are pauperised and the service providers rake in money. It needs a sustainable farming system which is economically viable, where money flows into the pockets of the tillers. It needs agriculture which is viable and where farmers don't think of quitting farming, a rural set-up which provides ample livelihood opportunities to farmers. The prosperity of peasants only would ensure success of agriculture and success of agriculture only can enable India to become an economic superpower in the present century.

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