

“Emerging Agrarian Crisis in India: Inputs for National Policy on Sustainable Agriculture”

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Abstract

In terms of occupation India is primarily an agrarian country. But, agriculture contributes a meager amount to GDP; resulting in a trap of vicious circle of underdevelopment for her rural populace. In spite of more than sixty five years of independence and developmental planning, the farmers' situation remains pathetic. Earlier, it was nature's fury which was taking their lives, now they themselves are taking their lives. Moved by growing spate of farmers' suicide, this study intended to examine the nature and extent of agrarian distress in recent years from a holistic perspective by focusing its on a specific region i.e. Bundelkhand region of Uttar Pradesh. The analysis suggests that the cropping pattern has been in contravention with the prevailing agro-climatic conditions leading to increased impoverishment of the peasantry. Further, there has been a growing marginalization of farmers in Bundelkhand. And a large section of peasants have been deprived of institutional credit and devoid of insurance cover. Moreover, the rising cost of cultivation and lack of appropriate government support prices in the face of slowing down of global commodity prices have increased their burden. On the one hand, the state has ignored them; on the other hand, the market has exploited them. Exorbitant rents of share cropping and high debt servicing obligations to village money lenders have further increased their burden. Owing to global warming and climatic change, the vagaries of weather in recent years add salt to their injury. To tide over the emerging crisis the study proposes a host of affirmative policy measures.

I. Introduction

This study has been done with the purpose of understanding the agrarian distress in response to the series of farmers' suicides in Uttar Pradesh, Rajasthan and Delhi in 2015. The report is organized as follows; in total there are six major sections. The first section provides a brief introduction of the study while the second section reviews the available literature and sets the research objectives. The third section outlines the objectives while the fourth section describes the data sources and methodology used for the present study. The fifth section is the important section of this report as it is devoted for analysis of data and interpretation of results. The 6th and final section summarizes the entire discussion and provides suitable policy suggestions.

The written history of agriculture in India dates back to the Rig-Veda, written around 1100 BC. Today, India ranks second in worldwide farm output. However, when we compare India with other countries with respect to yield per hectare, we find that India produces one third of what Australia or Netherlands produces. The low productivity in agriculture has far reaching implications for sectoral and rural urban distribution of income. This is evident from the fact that in 2013, agriculture and allied sectors like forestry and fisheries accounted for only 13.7% of Gross Domestic Product whereas they engage more than 50 per cent of total workforce in the country. The low level of income breeds poverty, illiteracy, high infant mortality and low productivity in the country side. In fact, the country side is trapped in the vicious circle of poverty (Nurkse, 1953). The increasing farmers' suicides are glaring examples of pathetic state of affairs in Indian agriculture.

Prima facie, the agrarian distress in India is reflected in terms of farmers' suicide. According to the National Crime Record Bureau of India 13,754 farmer had committed suicides in 2012. In 2004, it was as high as 18,241.

Though farmers' suicide has been a recurring phenomenon in India, suicide by Gajendhra Singh, a farmer from Rajasthan, in one of the rallies of a political party at *Jantar Mantar*, on 22nd April 2015, brought the issue of farmers' suicides into lime light. A survey of uploading of videos directly related to farmers' suicide on 'youtube' between the preceding 12 months, i.e. between May 2014 to April 2015, suggests that there were 90 exclusive uploading on the issue with more than 32 lakhs combined viewership and those posting had received around 3 thousand likes. This indicates the enormous seriousness of the issue which had motivated this

research. In particular this research seeks to explore the nature and extent of agrarian distress that compels the farmers to take the extreme step of taking ze own life.

II. Review of Literature

Both agrarian distress and its corollary; the farmers suicides, are recurring phenomena since a pretty long time. Historically, it spans from Bengal Famine in 1943 to recent spate of suicides in Uttar Pradesh. From Malcom Darling Commissions report to Amartya Sen's Book on poverty and famine (1981), there has been a plethora of literature on agrarian distress in India. Even the literature on farmers' suicide and agrarian distress in recent years is not scanty. A few of those are worth citing in the present context.

A study by Srijit Mishra (2014), using the Accidental Deaths in India (ADSI) data from 1995-2012, published by National Crime Record Bureau (NCRB), suggests that at an all India aggregate all India level, the suicide rates for male farmers increased to a peak in 2004 and again in 2009 but then it declined and a became lower than the suicide rates for male non-farmers in 2011 and 2012. However, his state-specific analysis, while showing mixed pattern, indicates that the decline in recent years had largely been on account of an abrupt drop in Chhattisgarh owing to changes in reporting and non-reporting of farmers' suicides for West Bengal in 2012. Further the study suggests that in contrast to the all India pattern, the states like Andhra Pradesh and Maharashtra with large cotton-growing areas have reported relatively higher incidence of farmers' suicides in recent years. This study highlighted the broad pattern of farmers' suicides and deficiency in the NCRB data apart from indicating that the risks associated with cotton farming for small and marginal farmers as a possible cause of suicide.

Another study, by Nagaraj et. al. (2015) adds up to the previous one in enriching the recent literature on farmers' suicide and agrarian distress. Using the same NCRB data for the period of 1997-2012, the study provides an analysis of magnitude and trends in farmers' suicides at both all India and regional levels. It links agrarian distress and socio economic aspects with farmers' suicide logically while maintaining the complex nature of the latter.

A study by Vasavi (2012) deliberates on the large canvass of farmers' suicides through various ground level arguments. In providing a macro picture of farmers' suicides the study, again using the NCRB data, maintains that five States; Maharashtra, Andhra Pradesh,

Karnataka, Madhya Pradesh and Chhattisgarh account for two-thirds of all farm suicides in the country. In these five states the rates of suicide has increased between 2001 and 2011 (from 15.8 to 16.3 per 10,000 farmers). In narrating the gravity of the situation the study quotes the famous journalist P. Sainath, who maintains that even with possible data corruption (under reporting by NCRB) a farmer commits suicide every half an hour since 2001. Also, the study highlights how the gravity of the situation is dismissed by politicians and mainstream media in this country. Econometrically, the phenomenon of farmers' suicide it is just a white noise next to the dominant narrative of a blooming and globalizing economy. For the pathetic phenomenon of farmers suicide the study holds the factors such as; economic backwardness, increasing pauperisation, cast marginalisation, social isolation, growing responsibilities, indebtedness, resource depletion, increasing marginalisation of land holdings, commercialisation of agriculture under a mantle of ignorance, etc. Finally, the study maintains that relief packages have grossly failed in addressing the farmers' woes leading to a reoccurrence of suicides year after year.

Finally, a recent study by Singh, L, Kesar Singh and Rakesh Sharma (2016) through primary survey of around 1400 respondents from 22 villages across 3 most suicide prone districts of Punjab, two of which belong to cotton belt, suggests that poor returns from farming leading to indebtedness followed by suicide. In general, the study finds the causes of suicide mostly pertained to indebtedness, economic distress, crop damage or failure, or a combination of these, besides drug addiction. By analysing the average size of landholdings of different groups, the study finds that the victims in general had smaller holdings. Though the study missed out a variety of other aspects of agrarian distress like the role of crop diversification and non-farm activity for the rural households, it has contributed immensely to the existing body of literature.

Thus, the available literature amply suggest that in spite of possible under estimation of farmers suicide in NCRB data, farmers suicide is a matter of grave concern and it can't be separated from agrarian distress in the economy.

One of the proximate reasons for prevalent agrarian distress could be indebtedness of the farmers as discussed by Singh, L, Kesar Singh and Rakesh Sharma (2016). The latest All India Debt and Investment Survey (AIDS) report 2014, suggests that the *non-institutional* agencies played a major role in advancing credit to the households, particularly in rural India.

The *non-institutional* agencies had advanced credit to 19% of rural households, while the *institutional* agencies had advanced credit to 17% households. And it was found to be more wide spread for the lower asset groups in the rural area. Further, while the latter provided credit to rural households at moderate rate of interest (6% to 15%), the former i.e. non-institutional agencies provided a significant amount of its total loans to households at an interest as high as 20% or above. The share of such loans to total loans by the non-institutional agencies was 69% in the rural area. Nevertheless, following the hue and cry over rural indebtedness and farmers' suicide government appointed various committees, viz.; R. Radhakrishnan Committee on Agricultural Indebtedness and Rangarajan Committee on Financial Inclusion, to assess the situation. Various studies (such as; Ramachandran and Swaminathan, 2002; Shetty, 2005; Ghosh, 2005; Chandrasekhar and Ray, 2005; Chavan, 2005; etc.)) and Government appointed committees, across the board acknowledged the decline in the delivery of rural credit per se and its more pronounced decline in the under privileged regions of the country, during the decade and a half of financial liberalisation. In fact, the former held the neo-liberal policies (especially financial liberalisation and banking sector reforms, etc) adopted since the early 1990s, responsible for such a decline and the rise in indebtedness. By 2006-07, the number rural branches of SCBs had declined to 30,393 from 35,254 in 1991 (Mishra and Mohapatra, 2010).

Nevertheless, following the recommendations of various committees the UPA-I emphasized on the revival of farmers credit. The literature also across the board suggests that there has been a revival of farmers' credit after 2006. It has gone manifold since then. This has been found to be true across region and states. However, there is dearth of evidence regarding the distribution of the credit by requirement across different class of farmers such as; Maginal, Small and Large farmers. One of the other important reasons of agrarian distress could be the marginal farming. A growing body literature suggests that there has been a progressive marginalisation of farming community over the years. The share of marginal farmers in both number and area has increased significantly over the years owing to a variety of reasons such as; limited supply of land, rising dependency on agriculture due slow pace of economic diversification, rapid population growth at bottom income pyramid in the rural households, inheritance law, and other socio cultural factors (FAO 2009). According to latest Agriculture Census 2010-11 (9th in its series), there are about 137.8 million land holdings in the country; in which more than 2/3rd are categorised as marginal holdings while combined shares of

marginal and small farmers constituted about 85% of the total land holdings in country. At the same time, marginal farmers operate more than one fifth of total area under cultivation (Agriculture census 2010-11, Dev 2010, Mehrotra 2011 and Satish 2007). Marginal farmers are relatively less interested in mechanisation of agriculture owing to rising cost of cultivation, declining output prices and lack of availability of institutional credit.

A recent survey by CSDS suggests that nearly 76 per cent of the farmers want to give up farming. The survey also suggests that the benefits of state support policies for agriculture mostly benefits the large famers. Further, in the recent years, there is a growing feeling that the cost of cultivation has increased substantially while the farmers have been deprived of a remunerative price for their produced owing to global fall in commodity prices. Vagaries of nature and market uncertainties add salt to injury. In this injury most affected are the marginal farmers who are generally devoid of adequate insurance cover and institutional lending. In fact, the macabre of suicide largely takes place in the families of marginal farmers (Kennedy and King, 2014) as they are mostly the initial deficit households (Bhaduri, 1982) and often share croppers who borrow from land lords, money lenders and other non-institutional sources at exorbitant rates of interest (Sarangi Committee; 2010, Dev; 2012). Pertinently, since land is used as collateral for obtaining loan and as a basis for insurance computing insurance indemnity, the share croppers are deprived of both institutional credit as well as insurance cover.

Thus, the available literature amply suggest emerging agrarian distress which causes farmers' suicides, is in turn caused by various factors such indebtedness, poor return from farming, volatility in earning, lack of diversity in cropping pattern, rising cost of cultivation, increasing marginalisation of farming community, indebtedness, etc.

Against this backdrop the present study intends to explore some of these aspects in the context of Uttar pardesh. Uttar Pradesh, because, as maintained earlier in April 2015, farmers suicide was the cynosure of public debated and the reporting were mainly from the said state following sudden massive crop loss owing to abrupt change in weather conditions.

Further, when we scanned through the available on line reporting on farmers' suicides in Uttar Pradesh during that period, we found that most of it had taken place in the districts belonging to the Bundelkhand region of the state. In fact, the Bundelkhand region is historically the most backward agrarian region in the state as agro-climatically it enjoys a

disadvantage position in the state. The region is well recognised as a drought/disaster prone semi arid region. Acute drought and distress including starvation deaths is frequent phenomenon in this region. Thus, we zeroed down on the Bundelkhand region of Uttar Pradesh as the area of our study.

III. Objectives of the Study

To examine the Cropping Pattern in Bundelkhand region of Uttar Pradesh.

To examine the size class of farmers in the region.

To examine the state of irrigation facilities by size class of farmers and by in the region.

To assess phenomenon of rising cost of cultivation and indebtedness in the region.

IV. Data Source and Methodology

The study has primarily used the available secondary data. The secondary data published by Directorate of Economics and Statistics, Ministry of Agriculture (Department of Agriculture Cooperation and Farmers' Welfare), Agriculture Census of India, Commission for Agricultural Cost and Prices (CACP), Central Statistical Organisation (CSO), National Sample Survey Organisation (NSSO), National Bank for Agriculture and Rural Development (NABARD) and Reserve Bank of India (RBI) In particular, agricultural census data is used to assess the land use pattern while Area, Production and Productivity data for various crops published by Ministry of Agriculture, Govt. of India is used to assess the cropping pattern. Similarly, the CACP data is used to assess the cost of cultivation in the region. And NSSO data is used to assess farmers' indebtedness.

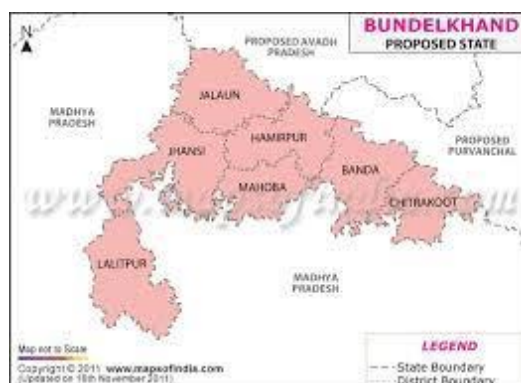
However, as far as the analysis of secondary data is concerned the study has followed the usual statistical methodology such as growth rates, percentage etc.

V. Analysis and Interpretation

In this section we have analyzed the data and interpreted the results with regard to cropping pattern, size class of farmers and the availability of irrigation facilities. Also in this we have assessed the cost of cultivation and indebtedness on the basis of available literature. However, to begin with we have provided a brief introduction of Bundelkhand region in Uttar Pradesh.

(a) Bundelkhand Region of Uttar Pradesh

Bundelkhand region in Uttar Pradesh comprises of seven districts; Banda, Chitrakoot, Hamirpur, Jalaun, Jhansi, Lalitpur and Mahoba. The region accounts for around 5 per cent of total population in around 12 per cent of total land area and it has a population density of around 330 persons. The region has a population of approximately 10 million, out of which 82.32 per cent is rural and more than one third of the households in these areas are considered to be Below the Poverty Line (BPL). In terms of asset indices, Bundelkhand's mean asset index is lower than that of any other region. The mean proportion of asset-poor households (those without any of the assets specified in the census) is also significantly higher in Bundelkhand compared with other regions of the state (Mishra and Bhattacharya, 2015). Agriculturally, it is the most backward region in the state. It is characterised by low rainfall and large dry land. In Bundelkhand region a little over 60% of the area is cultivated, but compared to other parts of Uttar Pradesh, the region has less developed irrigation facilities.



However, an analysis of cropping pattern could be one of the starting points of an investigation of agrarian distress in Bundelkhand region of Uttar Pradesh.

(b) Cropping Pattern

The region does not exhibit a significant wider choice in crop production. It produces a limited variety of crops owing to its variety of agro-climatic disadvantages, policy apathy and

other factors. Nevertheless, the variety of the crops the region produces can be classified under a few broad categories such as; Foodgrains, Oilseeds and Cash/Commercial crops. Let us discuss each of these broad categories of crops along with their respective sub-categories in turn.

(i) Foodgrains

As per the latest available district level data i.e. for the year 2013-14 published by Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, in Bundelkhand region, nearly 2464 thousand hectares of gross cropped area are under foodgrains production.

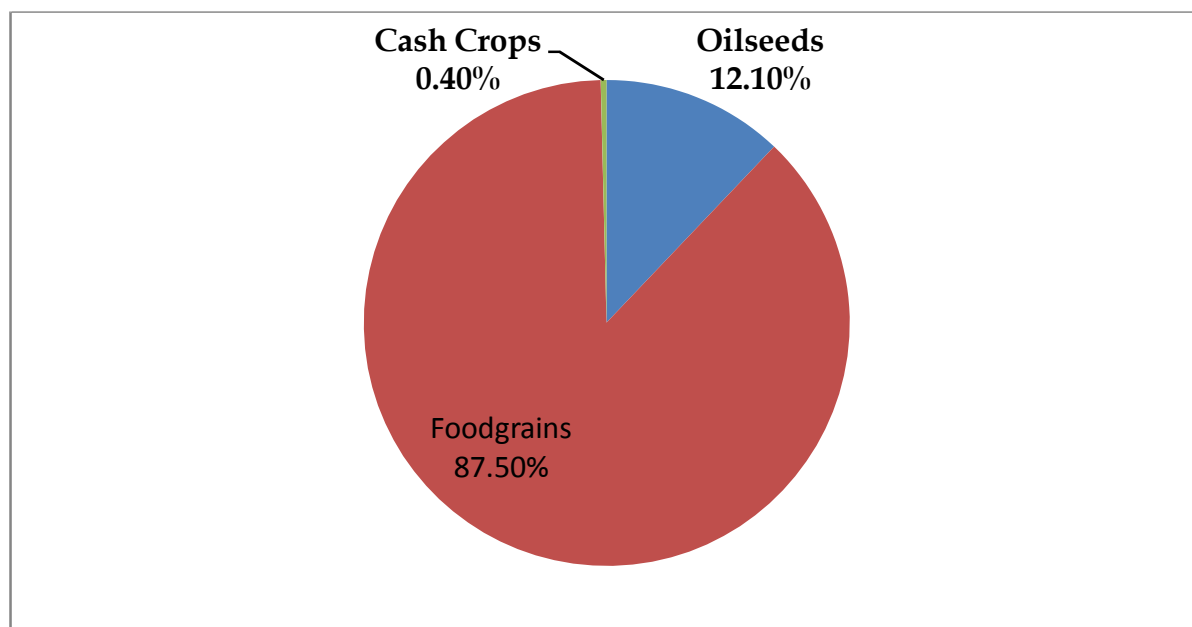
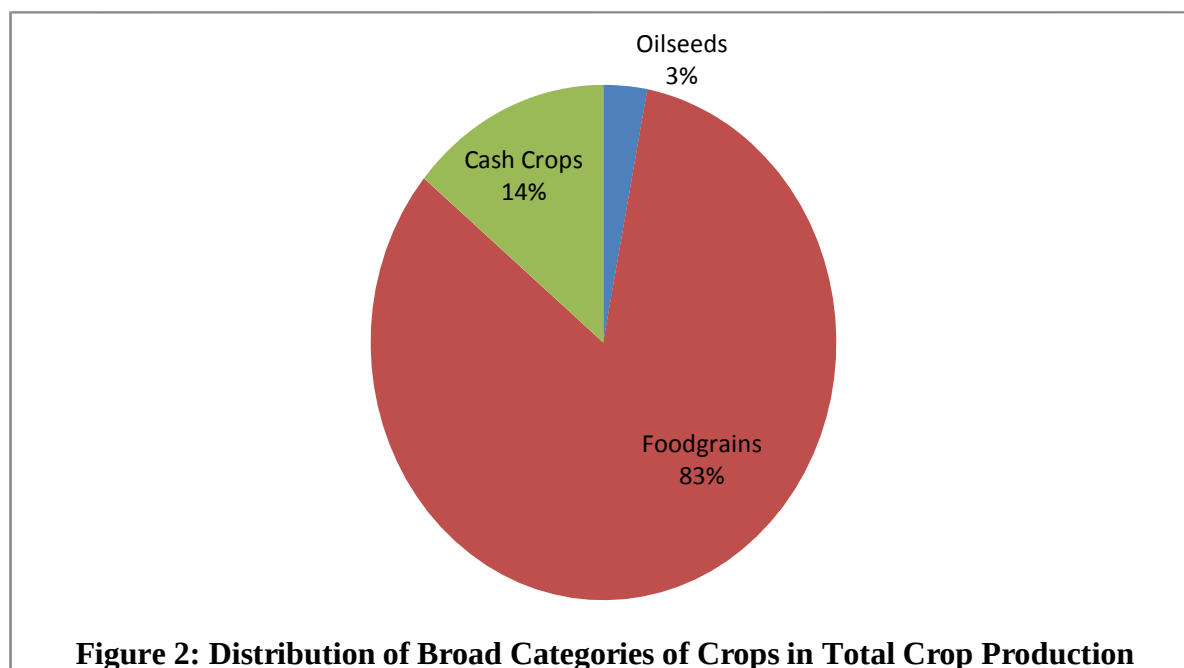


Figure 1: Distribution of Broad Categories of Crops in Total Area under Cultivation

Foodgrains accounts for a lion share in both GCA under cultivation and production (**Figure 1**). In terms of area it accounts for 60 per cent while in terms of production it accounts for nearly 80 per cent. It is followed by oilseeds and cash crops, respectively, both in terms of area and production.



Historically, at least since the early 80s, both the area and production of foodgrains have increased almost consistently barring a minor hiccup in the late 90s with regard to its area under cultivation (**Table 1**). Further, the yield of foodgrains though exhibits a trend more or less similar to that of its area and production, in recent decades there does not appear to be any significant improvement in it. In particular, it appears to have become stagnant in the last decade and a half (**Table 1**). What contributes to its rise in production and area under cultivation of foodgrains in spite of slow improvement in its yield can be ascertained from its various major constituents such as; cereals, coarse cereals and pulses.

Table 1: Area, Production and Yield of Major Crops in Bundelkhand

Sl. No.	Crops	1982-83			1991-92			1999-00			2013-14	
		Area (in ctar	Production tones)	Yield (K g cta	Area (in ctar	Production tones)	Yield (K g cta	Area (in ctar	Production tones)	He per re)	Area (in ctar	Production tones)
A	Rice	92.11	63.50	689	85.95	71.16	828	74.87	79.85	1067	79.25	143.13
b	Wheat	537.02	672.72	1253	558.19	844.98	1514	580.04	1099.63	1896	884.11	1895.76
A (a+b)	Total Cereals	629.13	736.22	1170	644.14	916.14	1422	654.91	1179.48	1801	963.36	2038.89
1	Bajra	33.00	13.77	417	27.35	20.49	749	23.75	24.20	1019	21.47	21.53
2	Barley	41.63	43.33	1041	27.70	39.04	1409	19.01	33.24	1749	35.89	94.92
3	Jowar	257.33	152.31	592	212.62	170.96	804	153.30	131.16	856	63.64	67.70
4	Maize	17.13	12.47	728	24.76	29.13	1176	17.39	16.70	960	32.59	32.70
5	Other Coarse Cereals	41.63	43.33	1041	102.65	99.99	974	26.05	34.00	1305	0.24	0.18
B (1+2+3 +4+5)	Total Coarse Cereals	390.72	265.21	679	395.08	359.61	910	239.50	239.30	999	153.83	217.02
C	Total Pulses	733.36	575.52	785	865.64	726.48	839	950.26	764.22	804	1346.53	662.30
I(A+B+C)	Total Food Grains	1753.21	1576.95	899	1904.8 6	2002.23	1051	1844.6 7	2183.00	1183	2463.72	2918.22
II	Total Oil Seeds	78.58	28.30	360	135.58	64.35	475	159.05	87.27	549	340.28	103.03
i	Sugarcane	3.30	108.48	32873	3.96	150.14	37914	3.34	221.95	66452	11.19	491.35
ii.	Other Cash Crops	0.00	0.00	0.00	0.00	0.00	0.00	1.07	21.74	20318	0.01	0.04
III (i+ii)	Total Cash Crops/Commec ial Crops	3.30	108.48	32873	3.96	150.14	37914	4.41	243.69	55259	11.20	491.39

Source: Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India

Cereals

Among the foodgrains cereals are the second most important crops in terms of area under cultivation. It follows pulses and is followed by coarse cereals (**Figure 3**).

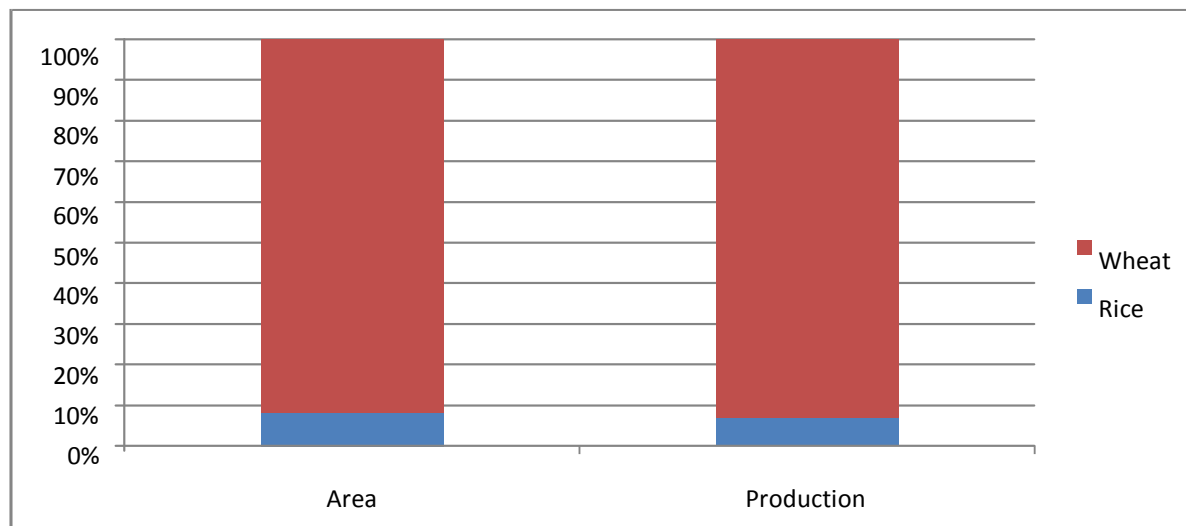
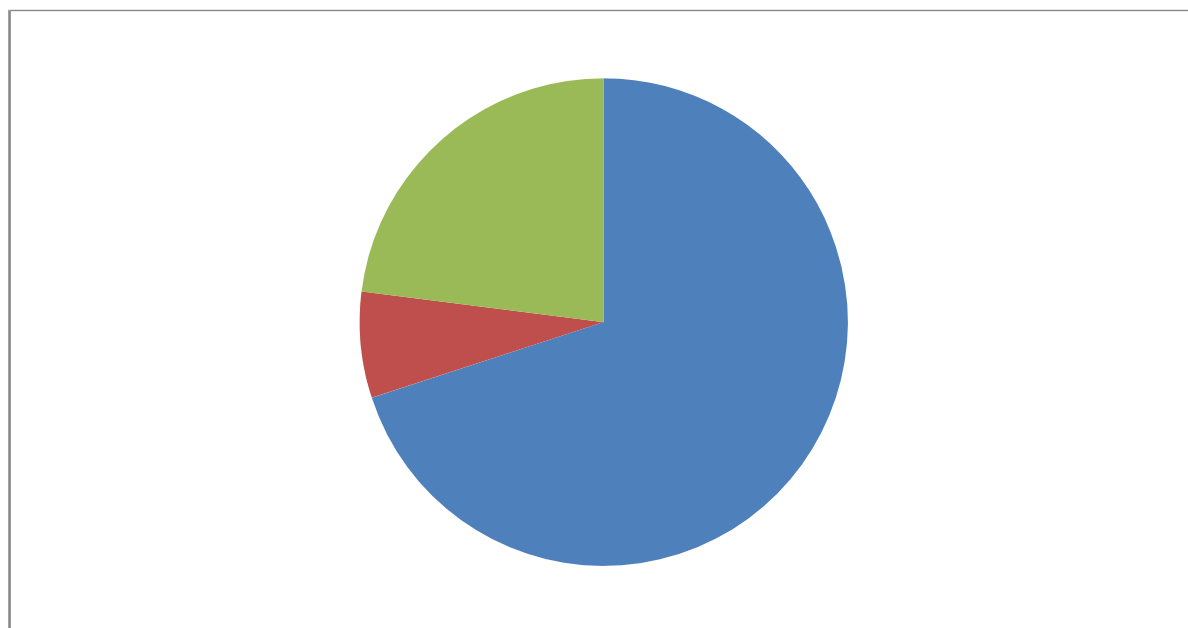


Figure 3: Area and Production of Rice and Wheat in Total Cereals

Its historical dominant position has been eroded by pulses in recent years. However, it continues to occupy its top rank in terms of production. Historically, cereals have always been way ahead of pulses in terms of their yields. Wheat and rice constitute cereals but they have not been equally effective in terms of their area production and productivity. Among them, it is the wheat that counts. The area and production of wheat is much higher than that of rice (**Figure 3.**)



Figure 4: Distribution Major Categories of Crops in Total Area under Foodgrains



In fact, historically, the cultivation of wheat has far outstripped that of rice in terms of all the three parameters. As shown in the **Table 1**, over the years the area, production and yield of wheat has increased consistently whereas that of the rice has declined in the last couple of decades. The dominance of wheat in a rain scarce agro climatic condition like Bundelkhand assumes significance.

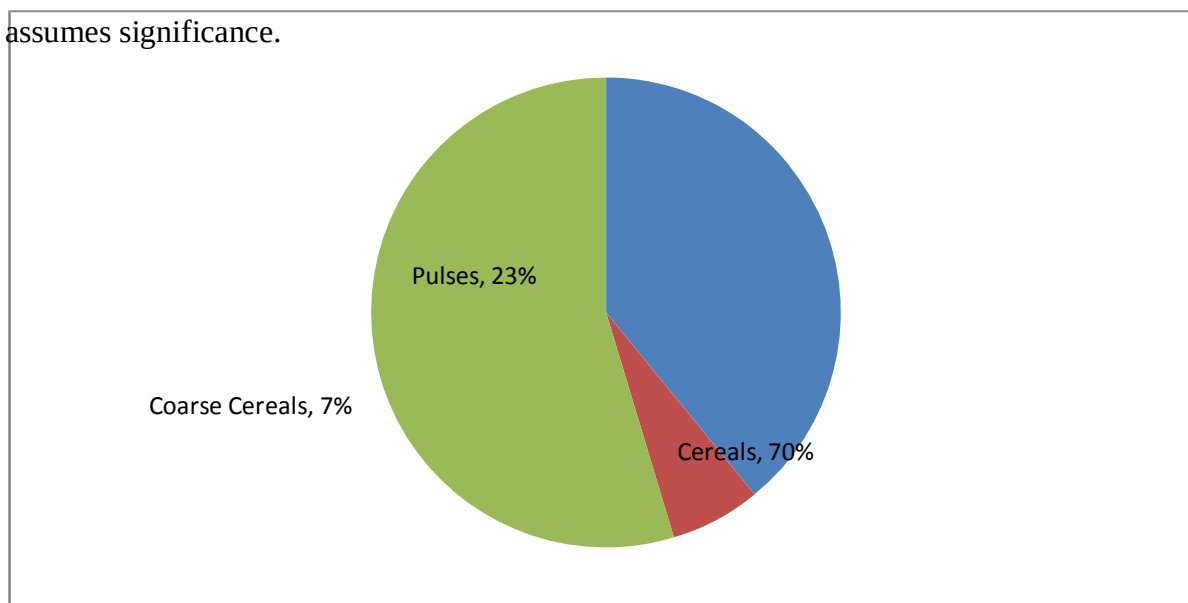


Figure 5: Distribution Major Categories of Crops in Total Production of Foodgrains**Pulses**

Interestingly, in recent years the cereals have lost their positions to pulses in terms of area – thanks to the introduction of a variety of high yielding, short duration seeds requiring less water crops. For example, a new variety of chick pea has been introduced that is sown after the harvest of paddy. The crop grows with whatever little moisture is left in fields post paddy harvesting. Unfortunately, the dominant position of pulses among cereals in the GCA under cultivation in recent years has not been reflected in terms of their production resulting in low yield in comparison to cereals. In fact, pulses though occupied a second position among the cereals over the years in terms of area and production, have always remained behind the coarse cereals in terms of productivity, barring the early 80s (**Table 1**).

Coarse Cereals

Over the years the coarse cereals have performed reasonably well in terms of productivity. In fact, the productivity of some the coarse cereals such as Barley, has been as good as that of wheat. More so, in recent years its productivity has been substantially higher than that of wheat. Despite better productivity, there has been a continuous decline in area under the cultivation of coarse cereals (**Table 1**). Unfortunately, over a pretty long period of time, the coarse cereals: the protein base for the masses, have been neglected - thanks to so called green revolution which emphasized on rice and wheat.

However among the coarse cereals, in terms of area, Jowar is followed by Barley and Maize but in terms of production, is Barley followed by Jowar and Maize (**Figure--**). This probably indicates that the yield is not the only determining factor behind cropping pattern. Besides, yield, consumption pattern, governmental policies and support systems influence the cropping pattern in any region including the Bundelkhand region in Uttar Pradesh.

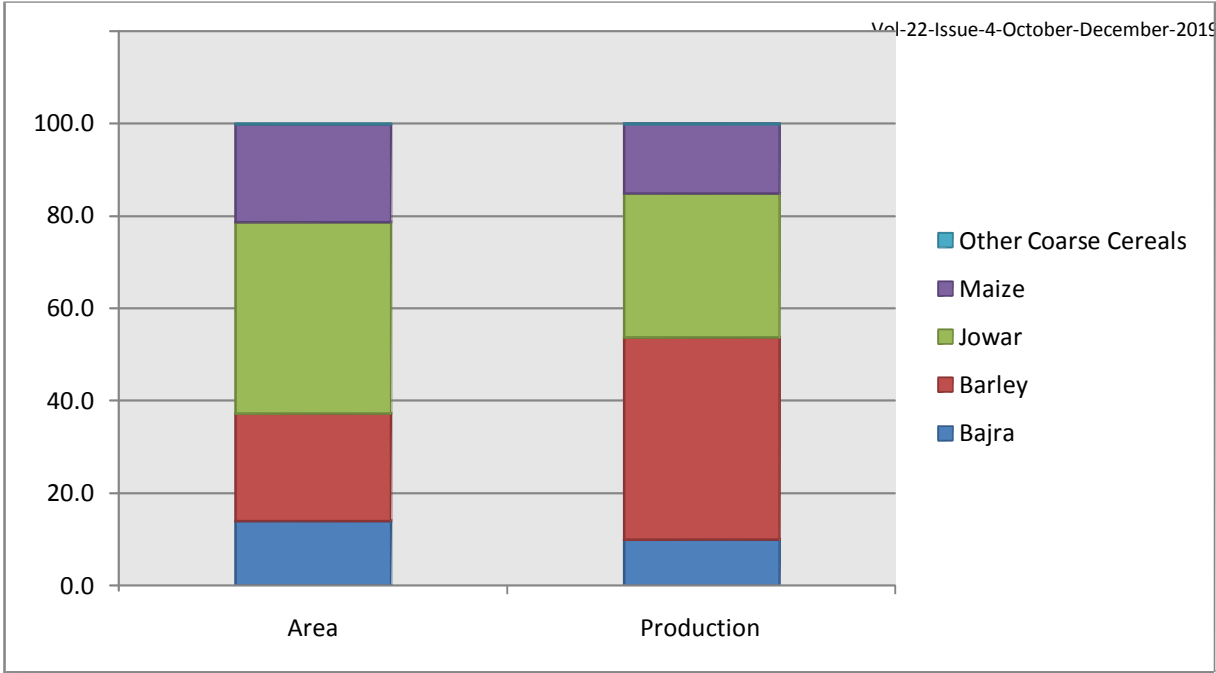


Figure 6: Area and Production of Various Crops in Total Coarse Cereals

ii. Oilseeds

Following foodgrains oilseed occupies the second important position in terms of area (**Figure 1**). Pertinently, the area under the cultivation of oil seeds have increased consistently over the years – thanks to the initiative called Technological Mission on Oilseeds (TMO) of 80s, that tried to provide us self-sufficiency in edible oil production and save precious foreign currency from its imports. Oilseed being a dry land crop, TMO initiatives apart from providing self-sufficiency in edible oil production provided livelihood security for millions of poor farmers in the semi-arid tropics. However, its production in recent year has not been in commensurate with its area under cultivation resulting in a decline in its yield (**Table 1**). Riding on the theory of comparative advantages, increasing dose of trade liberalisation has opened up the flood gates for import of edible oil which probably has jeopardised the incentives for dry land farming by the poor and the vulnerable.

iii. Cash Crops

Last but not the least; cash crop plays an important role in enhancing farm income. But due to agro climatic disadvantages, the cultivation of cash crops has been very marginal in the Bundelkhand region of Uttar Pradesh. However, due to the dominance of sugarcane in cash crop, it occupies the second important position in terms of production (**Figure 1**). However, its yield has declined drastically in recent years (**Table 1**). Sugarcane being a water intensive crop, its yield could have been affected by declining water resources. This raises question mark on the sustainability of its cultivation in an already water deficient region. Off late, the region has witnessed tobacco cultivation but has not yet experienced any noticeable success in it.

Thus, in contrast to the agro climatic disadvantages, the cropping pattern in Bundelkhand region of Uttar Pradesh is dominated by cereals; wheat and rice, which are more water intensive in nature. Apart from wheat and rice the water intensive crop like sugarcane also occupies an important position in the cropping pattern of the region. On the contrary, despite better productivity, coarse cereals like; Barley, Jowar, Bajra and Maize have taken a back seat. Even though pulses and oilseeds have not been suffered in terms of area under cultivation as such, they have suffered in terms intensiveness of cultivation or productivity in

general. Certainly, it can be said that the observed cropping pattern in Bundelkhand region of Uttar Pradesh is a typical post green revolution cropping pattern which requires large size farming with assured irrigation facilities.

(c) Size Class of Farmers in Bundelkhand Region of Uttar Pradesh

Given the above cropping pattern it is essential to analyse its suitability in terms of different class size of farmers as the post green revolution cropping pattern generally suits large size farming, as maintained above.

The agricultural census of India which is conducted every five years provides district level data on various aspects of agriculture. It classifies farmers, on the basis of their land holdings, into marginal (having less than 1 hectare), Small (having 1 to less than 2 hectares), Semi-medium (having 2 to less than 4 hectares), Medium (having 4 to less than 10 hectare), and large (having more than 10 hectares). The relative distribution of these types of farmers over the last three censuses in Bundelkhand region of Uttar Pradesh has been presented in the following **Table 2**.

Table 2: Distribution of Farmers by Size Class

Sl.No.	Size Class	2000-01		2005-06		2010-11	
		Number	Area Operated	Number	Area Operated	Number	Area Operated
A	MARGINAL	53.82	16.79	54.55	16.75	57.01	18.51
B	SMALL	23.60	22.00	23.25	21.39	22.22	21.59
A+B	Small & Marginal Farmers	77.42	38.79	77.80	38.14	79.24	40.10
C	SEMIMEDIUM	14.25	25.34	14.08	25.98	13.34	25.92
D	MEDIUM	7.50	28.49	7.37	28.92	6.74	27.41
E	LARGE	0.83	7.38	0.74	6.97	0.68	6.57
D+E	Medium and Large Farmers	8.33	35.87	8.12	35.89	7.42	33.98
F	ALL CLASSES	100	100	100	100	100	100
	Other Classifications						
a	Below 0.5 Hectares	55.16	32.70	56.24	32.78	59.04	36.27
b	0.5 - 1.0 Hectares	44.84	67.30	43.76	67.22	40.96	63.73
a+b	All Marginal Holdings	100.00	100.00	100.00	100.00	100.00	100.00
i	Below 0.5	29.69	5.49	30.68	5.49	33.66	6.71
ii	0.5 - 1.0	0.24	0.11	0.24	0.11	0.23	0.12
iii	ALL CLASSES	100	100	100	100	100	100

Source: Agriculture Census Survey, Various Issues.

As shown in the above **Table 2**, the shares of marginal farmers both in terms of their number and the area operated by them have increased consistently over the years. On the contrary, the share of all other types of farmers, be it small; semi-medium; medium or large, in total number of farmers have declined consistently over the years. Further among the marginal farmers, the farmers having less than 0.5 hectares of land have increased significantly over the years and so is the area operated by them. Thus, there has been a growing marginalisation of agriculture in Budelkhand region of Uttar Pradesh in the last decade. Definitely, the growing marginalisation of agriculture does not support a post green revolution cropping pattern which is quite expensive. Of course the availability of irrigation, one of the key components of post green revolution cropping pattern, eases the situation to a large extent. In this context it is essential to analyse the availability of irrigation facility for different class of farmers and by its sources.

(d) The Availability of Irrigation Facility

Essentially, in a semi-arid region like Bundelkhand and that for a post a green revolution cropping, the farming requires 100 provisioning of irrigation. Hence, an attempt has been made to assess the un-irrigated farming rather than irrigated farming over the years in Bundelkhand region of Uttar Pradesh. The shares of various types of farmers and the area operated by them in total un-irrigated area are presented in the following **Table 3**.

Table 3: Share of Various Classes of Farmers in Total Un-irrigated Area

Sl. No.	Size Class	2000-01		2005-06		2010-11	
		Number	Area Operated	Number	Area Operated	Number	Area Operated
A	MARGINAL	59.63	22.90	59.22	21.84	59.77	22.10
B	SMALL	23.40	26.05	23.28	24.93	23.71	26.06
A+B	Small & Marginal Farmers	83.03	48.95	82.50	46.77	83.48	48.16
C	SEMIMEDIUM	11.63	24.52	11.79	25.06	11.19	24.62
D	MEDIUM	4.89	22.04	5.24	23.42	4.85	21.94
E	LARGE	0.44	4.49	0.47	4.75	0.48	5.28
D+E	Medium and Large Farmers	5.33	26.53	5.72	28.17	5.34	27.22
F	ALL CLASSES	100.00	100.00	100.00	100.00	100.00	100.00

Source: Same as table 2.

As shown in the above **Table 3**, among the various types of farmers, it is the marginal farmers who have a large share in total un-irrigated area. In fact, their share in the un-irrigated area has increased consistently over the years, though their share in un-irrigated area operated has remained more or less constant. Quite contrary to expectation, the shares of all other types of farmers in operated un-irrigated area have also increased. All these certainly imply there has been a gross erosion in the irrigation facility which has affected all the various types of farmers in Bundelkhand region of Uttar Pradesh. The critics often say that it is due to a massive decline in public expenditure in agriculture. In order to ascertain it we need to verify the various sources of irrigation on which the peasantry in the region has been dependent.

(i) Irrigation Sources

In total net irrigated area, the shares of tube wells have increased significantly whereas those of canals have declined consistently over the years. Also there has been no decline in the shares of wells in total irrigated area under cultivation over the years (**Figure 7**).

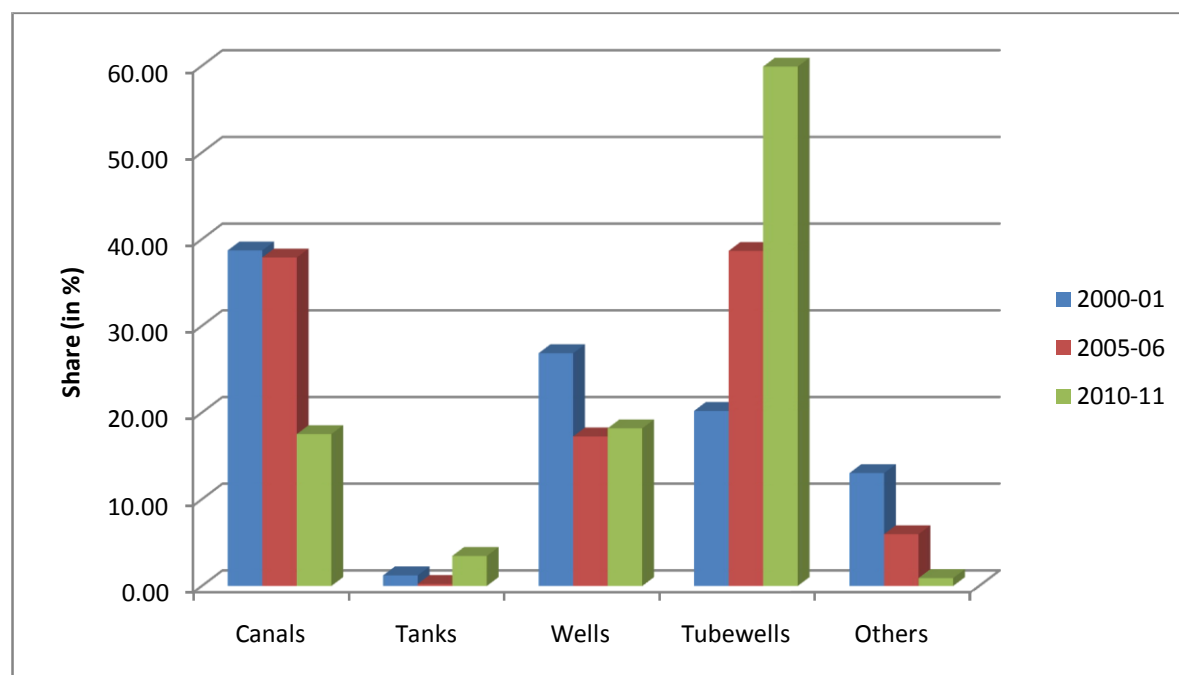


Figure 7: Share of Various Sources of Irrigation in Total Net Irrigated Area

In fact a completely similar picture emerges when we look at shares of various sources in total number of irrigated holdings (**Figure 8**).

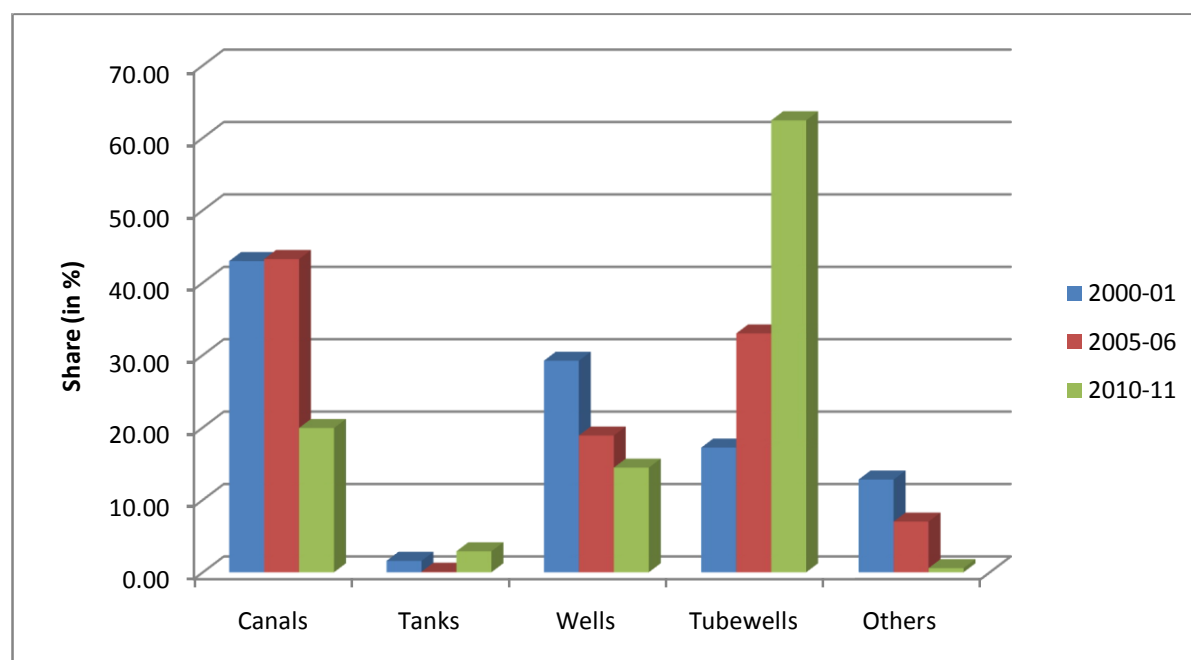


Figure 8: Share of Various Sources of Irrigation in Total number of Irrigated Holdings.

Thus, we see that the share of canal irrigation has declined drastically over the years whereas those of tube wells have increased considerably. Canal irrigation is generally provided by the

government as it has huge externality both in terms of its generation and distribution. However, irrigation by tubewells and wells are of a private variety and leads to misuse of scarce resources as the extractor do not pay for the declining water table. Besides, the latter involves huge out of pocket expenditure which the small and marginal famers can hardly afford. In fact, the very dependence on tubewell irrigation increases the cost of cultivation. Nevertheless, prima facie, there appears to be a continuous and consistent decline in public investment in agriculture.

Thus, the entire analysis amply suggests that post green revolution cropping pattern has exerted a heavy burden on the marginal farmers whose numbers have increased significantly in recent years. The rise in un-irrigated farming and erosion of canal irrigation clearly indicate the decline in public investment in agriculture which might have led to increased cost of cultivation.

(e) Rising Cost of Cultivation and Indebtedness

Though there is no appropriate data at the district level with regard to the cost of cultivation, the available literature grossly indicate that the cost of cultivation has increased significantly over the years. It is evident from the continuous upward movement in both minimum support prices and procurement prices. But, the support prices do not provide any cushion with regard to cost escalation for marginal farmers as they hardly have any marketable surplus. Nevertheless, in order to meet their rising farming expenditure they resort to borrowings but not from institutional sources rather from non-institutional sources such as; village money lenders and input traders. As maintained earlier, in the introductory section, the available statistics especially the various rounds of All India Debt and Investment Surveys indicate that the share of non-institutional debt for the farmers especially the poor and the marginal farmers has increased considerably over the years. This has happened due to the erosion of banking infrastructure in the rural economy in auspices of banking sector reforms. Unfortunately, the NBFC MFIs, which were supposed to replace the scheduled commercial banks have failed fill the credit vacuum, created with the withdrawal of the latter from the rural economy. In fact, a plenty of evidences suggests that the former have behaved no better than village money lenders. They have charged high interest rates and have indulged in unethical and coercive recovery practices (RBI 2011). This had resulted in farmers' suicides in Andhra Pradesh, Karnataka, Punjab and other parts of the country. Not only from MFIs or

money lenders, but also, often, they borrow from input traders and fall into an unending debt trap which leads to despair and ultimately suicides.

VI. Summary and Policy Suggestions

A cropping pattern contrary to agro-climatic realities has impregnated the farming in Bundelkhand region, largely on account of government policies especially the green revolution strategies. High yielding varieties, fertiliser, pesticides and irrigation facilities: the key components of green revolution strategies have been largely in favour of rice and wheat. Besides green revolution strategies, agrarian support policies of the government like procurement and minimum support have also influenced the cropping pattern as those have been specific to rice and wheat. Apart from directly influencing, the government policies have also indirectly influenced the cropping pattern by altering the consumption pattern of the cultivators in the region. The public distribution system has shifted the consumption of local populace away from coarse cereals like Jowar, Bajra, Barley and Maize towards rice and wheat. Obviously, the people tend to produce the crop they consume, no matter whatever may be the agro climatic conditions.

Of course, the green revolution had exhibited some success in the initial years but it has dried down in the latter years owing to increasing marginalisation of land holdings, declining productivity, resource depletion, lack of irrigation facilities, decline in public investment, rising cost of cultivation, increasing volatility. These factors have affected farming in general apart from affecting green revolution cropping, in particular. In order to meet the growing farming expenditure the poor and marginal farmers have resorted non-institutional and MFI borrowings at very exorbitant costs.

With the withdrawal of social banking and agricultural extension programmes there has been a complete institutional vacuum in the rural agrarian economy. Such a vacuum has been well exploited by input traders and middle man. They allure the poor and gullible farmers for high value crops like cotton by providing high cost supports both in terms of cash and kinds including seeds and other inputs. The trade liberalisation and commodity trading has led to price volatility in many crops. Apart from price volatility the crops in recent years have also experienced output volatility owing to climate change. As a result, the vulnerability for farming community, in general, and for the poor and marginal farmer in agro climatic fragile

region like Bundelkhand, in particular, has increased considerably. Such acute agrarian distress, in the absence of alternative economic opportunities such as non-farm activities or migration to cities, often compels the people at the margin to commit suicide.

In order to tide over the emerging agrarian crises any affirmative governmental policy initiative should consider the following suggestions;

- (a) The cropping pattern should be in tandem with agro-climatic conditions of the region concerned.
- (b) No policy should alter the existing consumption pattern of the local community – at the most it may improve the basket from nutritional perspectives.
- (c) There should be adequate emphasis on crop diversification and appropriate crop mix.
- (d) The public investment in agriculture need to be drastically improved.
- (e) The government should emphasize on massive agricultural extension programmes.
- (f) Efforts should be made to break the input trader and middleman nexus in exploiting the poor farmers.
- (g) Share cropping should be incentivised.
- (h) Appropriate legislation need to be made to protect the rights of the share croppers in the long run.
- (i) Appropriate crop insurance schemes should be introduced so that the small farmers can protect themselves during exigencies.
- (j) Credit facility for the farming and related activities should be improved. May be there should be re emphasis on social banking.
- (k) Agricultural support programmes should be introduced for a variety of other crops especially coarse cereals, pulses and oilseeds.
- (l) Efforts should be made to control the volatility in agricultural prices.
- (m) A cost support system should be introduced for the small farmers who do not produce marketable surplus, so that they can be protected from abrupt rise in cost of cultivation.
- (n) Farmers *mandis* should be encouraged so that they can get remunerative prices for their crops.
- (o) The agrarian activities should be diversified by including livestock, poultry, fishery, etc.
- (p) Adequate non-farm activities should be expanded to reduce the burden on agriculture and safeguard the farmers from distress.

However, the designing of effective agrarian policies should take care of the local conditions into consideration while incorporating aforesaid suggestions. Above all the effectiveness of any policy depends on its execution. Nevertheless, any agricultural policy with a hard core objective of ameliorating the problems of the small farmers will go a long way in addressing the emerging agrarian crisis.

VII. References

- Bhaduri A (1982), “*The Economic Structure of Backward Agriculture*”, Academic Press, London
- Chandersekhar, C.P. and S.K.Ray (2005), “*Financial Sector Reforms and Transformation of Banking*” in Ramachandran V.K and Madura Swaminathan (Ed.) *Financial Liberalization and Rural Credit in India*, Tulika Publication, India.
- Chavan, Pallavi (2005), “Banking Sector Liberalization and the Growth and Regional Distribution of Rural Banking in India, in Ramachandran V.K and Madura Swaminathan (Ed.) *Financial Liberalization and Rural Credit in India*, Tulika Publication, India.
- Dev Mahendra S. (2012), *Small Farmers in India: Challenges and Opportunities*, Working Paper, WP-2012-014, June, IGIDR, Mumbai
- Ghosh J. (2005), “*Bank Nationalisation: The Record*” www.macrosan.com
- Kennedy Jonathan and Lawrence King (2014), The political economy of farmers’ suicides in India: indebted cash-crop farmers with marginal landholdings explain state-level variation in suicide rates, *Globalisation and Health*, 26 M
- Lakhwinder Singh, Kesar Singh Bhangoo, Rakesh Sharma (2016), *Agrarian Distress and Farmer Suicides in North India*, Routledge, India.
- Mishra & Mohapatra (2010), *Financial Liberalisation: The Impact on Banking Infrastructure in Rural India*” *Indian Journal of Social Enquiry*, March - May.
- Mishra Srijit (2014), *Farmers’ Suicides in India, 1995-2012: Measurement and Interpretation*, Working Paper, Asia Research Centre, London School of Economics

- Nagaraj et. al (2015), “Farmers’ Suicides in India: Magnitudes, Trends, and Spatial Patterns, 1997–2012”, *Review of Agrarian Studies*, pp. 53-83.
- NSSO (1998), Indebtedness of Rural households as on 30.6.1991, All India Debt and Investment Survey, 48th Round (January-December 1992) Report No. 420, Government of India
- Ragnar Nurkse (1953) *Problems of Capital Formation in Underdeveloped. Countries.*
- Ramachandran V.K. and Swaminathan M.S (2005), Oxford: Blackwell
- “*Financial Liberalization and Rural Credit in India*” Tulika Books, New Delhi
- RBI (2011), “Report of the Sub-Committee of the Central Board of Directors of Reserve Bank of India to Study Issues and Concerns in the MFI Sector”, (Malegam Committee) Mumbai
- Shetty S L(2005), “Regional, Sectoral and Functional Distribution of Bank Credit” in Ramachandran V.K and Madura Swaminathan (Ed.) *Financial Liberalization and Rural Credit in India*, India, Tulika Publication
- Sumit Mishra and Pramit Bhattacharya, (2015), The Regional Divide within Uttar Pradesh, Live mint, Mon, Mar 16 2015.
- Vasavi, A. R. (2012) *Shadow Spaces: Suicides and Predicaments in Rural India, Three Essays Collectives.* New Delhi.