Research Reports Series - 106

Research Study on

Agrarian Distress, Coping Mechanisms & Ramifications of Debt Waiver Scheme

(A Study in Telangana State)

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It is hereby confirmed and placed on record that the information in this study report is furnished by the study team and the articles, opinions and content published in this book, need not necessarily be the opinions or policies of NABARD and NABARD does not accept any liability for any omissions or errors thereof.

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Ch. Radhika Rani

Executive Summary

Agricultural development is an important component of inclusive sustainable growth approach. However, the agrarian sector has been plagued by many issues resulting in farmers taking the extreme step of suicides. The issue is far more serious in the State of Telangana which is among the top five States in the country in terms of number of farmer suicides in the last ten years. The State announced the debt waiver scheme in the year 2014 in order to mitigate the farmers' distress. The study is an attempt to understand the context of agrarian distress in the State, the extent of indebtedness of the farmers, the coping mechanisms executed by the farmers and by the State to mitigate the distress and the impact of debt waiver scheme.

Two districts in Telangana-Mahbubnagar and Karimnagar, one under rainfed and another under irrigated conditions, were covered under the study with a sample size of 1320 at the rate of 660 each under Small and Marginal Farmer (SMF) category and Medium and Large Farmer (LMF) category. Besides primary data, the study relies on secondary data collected from various sources to understand the growth of irrigation sector in the State, extent of lending by the banks and insurance coverage and its implementation.The vulnerability of the farmers was assessed in the context of production vulnerability, occupational vulnerability and financial vulnerability.

Irrigation is a determining factor for the growth of any agrarian economy. Growth rates in different sources of irrigation in the State of Telangana across three different time periods i.e., 1971-85, 1985 -2001 and 2001 to 2013 were analysed based on the secondary data collected. The overall growth rate in irrigation in Karimnagar was doubled from 2.7 per cent in 1971-85 to 4.8 per cent in 1985-2001 and further to 11.71 per cent during 2001-13.This increase in irrigated area in Karimnagar district has resulted from expansion of canals during 1975-1990 with a growth rate of 12.8 per cent and the expansion of tubewells during 2001-13 with a growth rate of 15.94 per cent. At the same time, Mahbubnagar registered a good growth rate during 1985-2001 with 8.4 per cent , but remained almost constant during the last time period i.e., 2001 -2013 with 8.59 per cent. The private investment in irrigation through the tubewell is going up at an alarming high rate compared to public investment in the State, which is corroborated by the decline in institutional lending in terms of number of accounts of borewells and pumpsets by 917 per cent and in amount by 77.9 per cent from 2010-11 to 2014-15.

Among the sample farmers, 42 per cent of SMF and 52 per cent of LMF depend exclusively on borewells, as compared to other sources of irrigation. Similarly, the number of farmers who depend on rainfed farming either fully or partially were about 66 and 61 per cent in case of SMF and LMF, respectively.The dependency on rainfed farming was

more in Mahbubnagar district for both the categories of farmers. Only around 8 per cent of SMF and 12 per cent of LMF have access to micro- irrigation facilities and it was higher among the farmers of Karimnagar compared to Mahbubnagar district. It is a point of strong evidence that farmers diversify the crops to reduce their production vulnerability. Therefore, cropping pattern was examined in the context of production vulnerability. More vulnerability was, therefore, observed among the sample farmers in Mahbubnagar district where the percentage of SMF following monocropping was 68 and the same for LMF was 63. In Karimnagar, the percentage of SMF following monocropping was 44, whereas the same for LMF was 28.While both the categories have been intensively cultivating their lands as reflected through their cropping intensity with 131.5 and 158.3 per cent in case of SMF and LMF, respectively, it is the LMF of Karimnagar who were in better condition in this aspect compared to others. It is also examined whether this intensification was through a single crop in kharif and rabi or through multiple cropping system through Crop Diversification Index (CDI). The CDI of SMF of both the districts and also the LMF of Mahbubnagar district was less when compared with the LMF of Karimnagar district with 0.45 per cent.The vulnerability of the households was assessed based on their dependence on single source or on multiple sources of livelihood. Majority of sample famers i.e., about 55 per cent in case of SMF and 52 per cent in case of LMF depend only on farm sector. The number of households who engage in non farm-activity were limited to around one per cent in both the categories of farmers. Financial vulnerability is governed inversely by the income from various sources and diversely by the expenditure pattern of a farm family**.** The average monthly income of a farm family for SMF category was worked out to be ₹ 3842 and the same for LMF was ₹ 7449. This was very less when compared to the All India report on estimated monthly income (NSSO 70th round) i.e., ₹ 7348/ and ₹ 10,730, respectively for these categories. Expenditure pattern of a farm family could not be assessed holistically without the information on the social security assistance, which is not covered in this study. This is the limitation of the study.

The major coping mechanisms being followed by the sample farmers in both the districts were diversification to plantation crops like mango and orange and dependency on livestock as an additional source of income.The land under plantation crops was seen only in Karimnagar district with 13.8 per cent in case of LMF followed by 6.8 per cent in case of SMF.The number of farmers who depend on livestock in addition to agriculture were 26 and 33 per cent in case of SMF and LMF, respectively. This percentage was higher in Karimnagar district as compared to Mahbubnagar district for both the categories. Land leasing was seen as an important coping mechanism by the farmers in the study area to augment their production base.The number of leased-in farmers were found to be higher among LMF category as compared to that of SMF category. The major coping mechanism being implemented by the State is crop insurance. However, not even one farmer out of 1320 sample farmers was observed to be benefited out of crop Insurance scheme, in the last ten years. In this context, the implementation of the three crop insurance

schemes in the State was examined. Between the years 2010-11 and 2013-14, under the National Agriculture Insurance Scheme (NAIS), out of the total farmers covered, only 9 per cent were benefited during kharif and 21 per cent during rabi, among the loanee farmers. The same among non-loanees was 26 and 97 per cent during kharif and rabi respectively. The number of loanee and non-loanee farmers benefited out of farmers covered in Weather Based Crop Insurance Scheme (WBCIS) was 78 and 85 per cent during kharif and 17 and 58 per cent during rabi, respectively.

In Telangana the number of accounts under direct finance to agriculture during 2013-14 were 77.14 lakhs and during 2015-16, 64.45 lakhs against the number of operational holdings of 55.53 lakhs, which refers to the case of multiple lending**.** Majority of the sample farmers, i.e., 71.85 per cent of SMF and 62.57 of LMF depend on multiple sources of non-institutional borrowing. While the outstanding debt burden of SMF category was ₹ 3,56,400, the same for LMF category was ₹ 8,17,600. Out of outstanding debt burden, the share of non-institutional borrowing was more in case of SMF with 53.6 per cent and the share of institutional borrowing was more in case of LMF with 68.3 per cent. Majority of the farmers i.e., 80 per cent of SMF and 67 per cent of LMF felt that the Debt Waiver Scheme would have been beneficial to them, had it been a one- time settlement. It is worked out that out of the outstanding debt the debt waiver scheme could mitigate 28 per cent of SMF and 12 per cent of LMF. Therefore, around 11 per cent of SMF and 25 per cent of LMF felt that very little relief was provided to them, keeping in view their total debts. The major support systems the sample farmers expecting from the government were irrigation facility, marketing support followed by technological support through extension services. Besides these, it is also important to support them with some low-cost interventions such as shade-nets that protect the crop against unseasonal rainfall, heat waves or from any other climatic aberrations as desired by the majority (73 per cent) of the sample farmers.

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Chapter I

INTRODUCTION

Inclusive agricultural development is important for a country like India where majority of the farm households are small and marginal. The economy has undergone structural transformation since 1990's from an agriculture-based to a knowledge-based, services and industrial economy. Still, the agriculture sector is the mainstay, as about half of India's population is wholly or significantly dependent on agriculture and allied activities for their livelihood (GoI, 2011).The 12th Five Year Plan Approach Paper also indicates that agricultural development is an important component of faster and inclusive sustainable growth approach. The country has shown phenomenal performance in the post-reforms period in certain areas like exports, balance of payments, resilience to external shocks, service sector growth, significant accumulation of foreign exchange, Information Technology (IT) and the stock market, improvements in telecommunications, etc. However, real development in terms of growth shared by all sections of the population has not taken place. One of the excluded sectors during the reforms period was agriculture, which showed slow growth and experienced farmers' suicides in the last decade. There are serious concerns on the performance of agriculture sector in the country today as farming has become an unviable activity, particularly for small and marginal farmers.

NCEUS (2008) says that "some of the general issues that confront marginal - small farmers as agriculturalists are: imperfect markets for inputs/products leading to smaller value realisations; absence of access to credit markets or imperfect credit markets leading to sub - optimal investment decisions or input applications; poor human resource base; smaller access to suitable extension services restricting suitable decisions regarding cultivation practices and technological know –how, etc". Small farmers need credit for consumption and investment. Less availability of credit influences adversely the adoption of modern technology and private capital investments, which in turn lowers the productive capacity of the agricultural sector and also pushes the farmers to borrow from non-institutional sources. Despite rapid spread in bank network after the nationalisation of banks in 1969 and subsequent policy initiatives, a large section of the people is still not able to access formal credit (Rangarajan, 2008). Rather, the share of non-institutional credit has taken a reverse swing which is a cause of concern. In fact, informal credit appears to be going quite strong in several parts and pockets of the country (NABARD, 2011). The dependence on non-institutional agencies is high amongst low landholding classes. It is as high as 47 to 77 per cent amongst farmers owning below one hectare (ha) of land and 42 per cent for the one to two hectare category. Many studies (RBI, 2006;

GOI, 2007) on the current agricultural crisis tell us that farmers' indebtedness is only a symptom; there are deeper issues in the twin dimensions of the crisis – an agrarian crisis and an agricultural development crisis. While the latter pertains to productivity and profitability of agriculture as a means of livelihood, agrarian crisis pertains to the larger context of the agricultural households and their economic and social relations with the society around them. The agricultural developmental crisis, due to reduced overall agricultural growth accompanied by declining productivity and profitability of farm operations coupled with declining social security support manifests into agrarian crisis in the long run. The crisis is deepening further with an increase in the suicide rate by farmers in the last decade.On an average, there has been one farmer committing suicide every 30 minutes since 2002 (Sainath, 2008).

The agrarian sector has been plagued by issues of decline in productivity of crops, increase in cost of production and farmers not getting right price for their products. Adding to these woes, climate change is a much bigger threat with drought like conditions during the time of sowing and untimely rains at the time of harvesting. While the farmers' problems could be addressed through political will, proactive bureaucracy and people's action, no amount of scientific inputs, administrative preparedness and infrastructural support could address climate change related problems totally, except mitigating them to some extent. The panorama under which this issue needs to be addressed is at a larger scale bringing the industrial sector also into its purview apart from the agriculture sector. Therefore, the risks that the farmers face have multiple dimensions and indebtedness is one such risk the farmers are forced to take, to meet their consumption and investment needs. The decision to waive farm loans and debt relief of around ₹ 60,000 crores announced in the Union budget during 2008-09 or by the Andhra Pradesh and Telangana governments to waive off loans given to farmers, women Self-Help Groups (SHGs) and weavers to the tune of ₹ 43,000 crore and ₹ 30,000, respectively during 2014 was an attempt to mitigate this risk. The loan waiver scheme was seen by many (Dev, 2008; Meeta and Rajivlochan, 2008) as a political exercise by the respective State governments, to woo the vote bank of the farmers. Apart from the debate of rationalisation of such schemes one plus point is that it has brought the whole issue of agriculture sector to the centre stage. The study is an attempt in this direction.

There is no argument against supporting small and marginal farmers to come out of the clutches of poverty and indebtedness through some immediate relief measures and loan waiver is one such measure. In fact, some (Bhalla and Jain 2008) noted that since the government will bear the cost of the scheme, there would be no burden on the banks and in fact they can be strengthened by cleaning up their books. Small and marginal farmers would be automatically eligible for fresh loans and they will be encouraged to

stay with the institutional lending system. Consumption demand generated through the loan waiver scheme will have an impact on the economy in general.

However, there were many concerns regarding the implementation of the scheme. The main being, identifying the target group on the basis of size of holding is a matter of concern, as in rainfed arid and semi-arid areas income from agriculture is very uncertain, even for farmers having 4 or 5 hectares of cultivable land. A small farmer with less land but assured irrigation may be financially better off than a large farmer without any assured irrigation (Swaminathan, 2008). Another concern is a large part of the institutional credit is cornered by the medium to large farmers while marginal farmers depend on moneylenders for meeting their credit needs (EPW, 2008). As per the Situation Assessment Survey of Agricultural Households in India, based on NSSO (70th round), nearly 40 per cent of all loans came from informal sources with 26 per cent advanced by moneylenders. Marginal landholding households suffer the most with only 15 per cent of their credit from institutional sources. A large section of farming community thus are excluded from the loan waiver scheme.

The main criticism of the scheme relates to its impact on future lending and repayment through institutional sources. The weakening of credit repayment discipline in anticipation of future waive off is a matter of serious concern. The implementation of the scheme looked like penalising the farmers who have been making prompt repayments of their debts timely (EPW, 2008).

Lastly, poor agricultural income and absence of non-farm avenues of income is indicative of the larger malaise in the agrarian economy of India with several factors contributing to it. The report by Tata Institute of Social Sciences (TISS, 2005) on 'Causes of Farmer Suicides in Maharashtra' identifies the heavy rural indebtedness as the major reason behind the suicides but more importantly, the report says that indebtedness arises from a mismatch between the cost of production and the market prices. Institutional credit, therefore, alone cannot be a 'panacea for all' without addressing the other larger issues that are connected for agricultural development. It is, therefore, important to understand the context of agrarian distress in the State, the extent of indebtedness of the farmers, the coping mechanisms executed by the farmers and by the State to mitigate the distress and the impact of debt waiver scheme.

Research Questions

All the concerns mentioned above lead to the following questions:

- What are the major factors causing agrarian distress ?
- What are the coping mechanisms and what is the extent of State support towards the coping mechanisms?

- What is the extent to which the loan waiver is addressing farmers indebtedness / agrarian crisis?

Research Objectives

The objective of the study are

- To understand the risk,vulnerability and coping mechanisms of the farmers in both rainfed and irrigated areas.
- To analyse the magnitude of indebtedness of the farmers and its sources.
- To examine the capacity of loan waiver scheme (LWS) in addressing the agrarian distress.

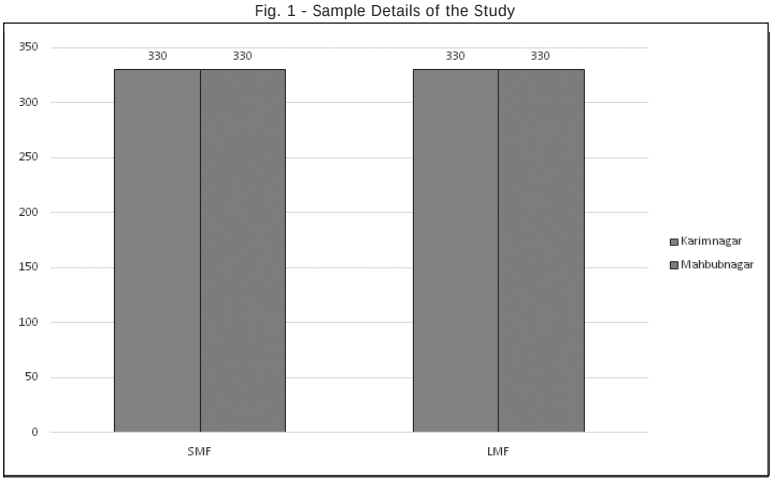
Chapter II

METHODOLOGY

Sample Size

- Two districts in Telangana State (Mahbubnagar and Karimnagar), one under rainfed and another under irrigated conditions, were covered under the study to assess the situation /distress levels of the farmers under these two conditions. The total area under irrigation in Karimnagar district during 2013-14 was 6,63,000 hectares. The total area under irrigation in Mahbubnagar district during the same period was 3,46,000 hectares, of which area under wells was maximum which accounts for 2,84,000 hectares i.e., 82 per cent. The percentage of Net Irrigated Area (NIA) to Net Sown Area (NSA) during 2013-14 in Karimnagar and Mahbubnagar districts was 81.96 and 23.87, respectively. Therefore, these districts were selected as irrigated and rainfed districts, respectively.
- In each district three banks, one each from Commercial Bank (Lead Bank of the district), Regional Rural Bank and Cooperative Bank were selected for detailed study. Six branches at the rate of two branches per bank were covered for detailed study.
- About 110 borrowers from each of the branch covering 55 small and marginal category and 55 medium and large category were selected for detailed study.
- Farmers having a landholding size of equivalent or less than 2 ha were covered under small and medium farmer (SMF) category. Farmers who were having landholding of more than 2 ha were placed under large and medium (LMF) category as large farm holdings were found to be very less in the villages in these districts consequent upon fragmentation of landholdings across generations.

Fig. 1 - Sample Details of the Study



- Thus, total sample size consists of four branches of Commercial Bank (@ two/ district), four branches of RRB (@ two/district), four branches of Cooperative Bank (@ two/district), 1320 borrowers from two districts (@ 660 per district x two districts). Details are provided in Table 2.1.
- The research team was supposed to collect information of about 100 landless and tenant farmers who are part of Joint Liability Groups. However, after visiting the villages it be come difficult to identify 100 landless agriculturists, exclusively depending on tenancy. Therefore, we restricted the sample to 1320 @660 in each district.
- In Karimnagar district, two branches of Karimnagar District Cooperative Central Bank Ltd (KDCCB) at Metpally and Raikal were selected. Under Commercial Bank, SBH Metpally and SBI Jagtial and under Grameen Bank, Telangana Grameen Bank (TGB) Laxmipur and Rammadugu branches were selected.
- In Mahbubnagar district, two branches of Telangana State GrameenVikas Bank (TSGVB) at Kalvakurthy and Achampet were selected. Under Commercial Bank, SBH Mahbubnagar and SBI Damargidda were selected. Under Grameen Bank, Telangana Grameen Bank, Sasnoor and Narayanpet were selected.

Table 2.1 : Sample Size of the Study Districts

Landholding	District		State
	Karimnagar	Mahbubnagar	
Landless	40	40	80
SMF			
Cooperative Bank	110	110	220
Commercial Bank	110	110	220
RRB	110	110	220
Total	**330**	**330**	**660**
LMF			
Cooperative Bank	110	110	220
Commercial Bank	110	110	220
RRB	110	110	220
Total	**330**	**330**	**660**
Grand Total (SMF+LMF)	**660**	**660**	**1320**
Grand Total (Landless Tenants +SMF+LMF)	**700**	**700**	**1400**

Sample Selection

- After the selection of Karimnagar and Mahbubnagar districts,one each under irrigation and rainfed conditions, we conducted two workshops, one in each district in August, 2015. The workshops have provided a platform to put across the viewpoints of all the stakeholders. The stakeholders included the functionaries from department of agriculture, bank staff engaged in farm lending, progressive farmers, NGO's and the functionaries of the cooperative sector. Proceedings of the workshops are given in Annexure-I. List of participants of the workshops are enclosed in Annexure-II&III.

- Based on the discussions with various banking staff who have attended the workshops we have selected the Cooperative Bank , the Commercial Bank and RRB in each district and two branches from each bank based on the maximum amount of debt that was waived off during the first installment of the Loan Waiver Scheme (LWS) of Telangana during 2015.

- Once the branches were selected, the field investigators visited the branches and collected the list of loanees under two categories i.e., Small and Marginal Farmers (SMF) category and Large and Medium (LMF) category at the rate of 55 in each category from the respective branches.

- The field investigators could meet majority of the loanee farmers at the bank branch[1] itself and collected the information through a pre-tested questionnaire[2]**.** (Annexure-IV)

- Once the farmers in two categories i.e., Small and Marginal (SMF) category and Large and Medium (LMF) category were selected at random in the respective bank branches,the mandals which they represented were taken and are placed below (Table 2.2)

1 During the time of our survey, the State Government has announced the second installment of the debt waiver and accordingly the banks have been clearing them for the farmers. Therefore, we could meet maximum number of sample farmers in the banks itself.

2 Questionnaire was pre-tested during the conduct of workshops in the districts.

Table 2.2: Mandals Covered in the Study Districts

Category	Karimnagar	Mahabubnagar
Landless	Gollapalli (3), Ibrahimpatnam (17), Jagtial (17), Metpally (3)	Addakal (9), Damargidda (9), Itikyal (4), Kalawakurthy (1), Narayanpet (12), Nawabpet (1), Utkoor (4)
Cooperative Bank	Gollapalli (26), Ibrahimpatnam (37), Jagtial (8), Metpally (40), Mallapur (48), Raikal (61)	Achampet (65), Addakal (2), Balmoor(21), Damargidda (4), Itikyal (4) Kalawakurthy (32), Lingel(15), Midjil (20), Utkoor (2), Vangoor (25), Veldanda (30)
Commercial Bank	Gollapalli (7), Ibrahimpatnam (15), Jagtial (89), Mallapur (9), Metpally (89), Raikal (6), Rammadugu (5)	Addakal (72), Balmoor (9), Damargidda (113), Kalawakurthy(7), Midjil (1), Nawabpet (18),
RRB	Gollapalli (75), Jagtial (55), Mallapur (4), Metpally (1), Rammadugu (85)	Addakal (1), Itikyal (117), Narayanpet (10), Utkur (92)

Data Collection and Analysis

- The period of data collection was during October-November, 2015. Period of reference for the primary data from the sample households was 2014-15. Primary data was collected through pre-tested questionnaires.Secondary data regarding the agricultural statistics of Mahbubnagar and Karimnagar districts and irrigation particulars were collected from Commissionerate of Agriculture, websites of Directorate of Economics and Statistics and Ministry of Agriculture. Institutional credit disbursal through various banks was collected from State Bank of India (Lead bank of Telangana), and Andhra Bank(Lead bank of undivided Andhra Pradesh). Information on Implementation of the crop insurance schemes at the State and district levels was collected from the Agriculture Insurance Company, Hyderabad.

- The data was analysed through simple measures such as averages and percentages. However, some simple tools such as Cropping Intensity, Crop Diversification Index (Simpsons Method) and Profitability Index were used to analyse the depth of farming vulnerability.

Limitation of the Study

Understanding agrarian distress in a rural economy involves many cross-cutting issues such as agrarian relations, technology and its impact, marketing, access to social security, etc., in addition to crop productivity, livelihood and farmers' indebtedness. Since the main focus of the study is to assess the risk and vulnerability of the farmer in the context

of his indebtedness and the impact of the debt waiver scheme, the above mentioned aspects were not covered in the study.

About the Study Area

The State of Telangana was formed on 2nd June, 2014 as 29thState of the Indian Union by carving out ten districts from the erstwhile State of Andhra Pradesh. This State is the result of a half century long movement,on account of economic and cultural deprivation. The State falls under two agro climatic regions i.e., Northern Telangana and Southern Telangana regions. While the Northern Telangana region comprises the districts of Adilabad, Karimnagar, Nizamabad, Northern part of Medak, North West part of Warangal, South East of Nalgonda and Khammam, the Southern Telangana comprises Ranga Reddy, Mahboonagar, Nalgonda , North Western part of Warangal and Southern part of Medak district. While the average rainfall of Northern Telangana zone was 900-1150 mm, the average rainfall of Southern Telangana zone was 700-900 mm.

Agriculture in Telangana has attracted considerable attention during the last decade, mostly because of the suicides of the farmers. Farmers' suicides have become an important socio-economic concern in India that has profound implication on the quality of life of farmers and their families. The number of farmers' suicides in the State of Telangana from 2004 to 2013 were 2990. The suicides rate has become much more alarming in the recent past with around 898 from the formation of the State to till now (Eenadu , 2015). The common thread running across the story of suicides in Telangana is the need for the farmers to augment their production base by leasing-in land or to augment their irrigation base by digging bore wells and their subsequent failure. It so happened, around a decade back, the farmers who committed suicide were cotton farmers investing on spraying pesticides to kill the cotton boll worm *Helicoverpaarmigera* . In case of crop failure due to any reason , the pesticide meant to control the bollworm menace has also become the means with which the farmers end their lives. Bt cotton introduced during this period as an alternative to reduce the pesticides seems to have worked well for sometime. But a paradigm shift in cropping pattern by many rainfed farmers towards Bt cotton resulted in falling prices of the commodity. So the pendulum has been shifting from techno-centric approach to market-centric approach with access to irrigation as the denomination factor always. In this context an attempt is made to understand the growth in irrigation in the State.

While there was a three and half-fold increase in population in the State between 1951 to 2011 (Table 2.3) the increase in rural population during the same period was two and half times. During this period, the total number of cultivators has come down by 27.3 per cent, whereas, the number of agricultural labour has increased by 64.5 per cent. The share of cultivators as a per cent of rural population has come down from 45 per cent in 1951 to 14 per cent by 2011. At the same time the share of agricultural labour during the same period has increased from 19 to 21.5 per cent.

Table 2.3: Demographic Profile of Rural Telangana

Year	Total Population (In Lakh)	Growth Rate	Rural Population (In Lakh)	No of Cultivators (In Lakh)	Agriculture labour (In Lakh)	Total (In Lakh)
1951	107.52	NA	85.02	38.42	16.44	54.86
1961	127.12	18.23	102.63	28.5	17.19	45.69
1971	158.18	24.43	124.97	23.69	22.03	45.72
1981	201.81	27.58	150.82	30.86	28.33	59.19
1991	260.89	29.28	182.15	34.36	40.02	74.38
2001	309.87	18.77	211.34	33.3	32.1	65.4
2011	351.93	13.57	215.85	30.17	46.44	76.61

Source: Agricultural Statistics at a Glance: Telangana 2013-14.

Mobility of Land Owning Across Classes

A complete downward mobility of size of land owning was observed (Table 2.4) among all the classes between the time periods 2000-01 to 2010-11. However, this was higher among large farmer category followed by medium and semi-medium farmer category both in terms of number of farmers and extent of land owned by them, owing to the fragmentation of land across the generations. Fragmentation is a continuous process with landholdings getting smaller, as they have been passed onto successive generations due to inheritance. The primary negative consequence of the land fragmentation is increase in economic cost because it hinders mechanisation and thereby results in increased cost of cultivation (Mearns R and Sinha S. 1999). This has become more alarming as the decline in landholding was at faster pace among the ST community as compared to other classes.

Table 2.4: State-wise Number and Area of Operational Holdings in Different Size Groups

S. No.	Year	Marginal (Upto 1.0 Ha)		Small (1.0 - 2.0 Ha)		Semi-medium (2.0 - 4.0 Ha)	
		Number	Area	Number	Area	Number	Area
	SC						
1	2000-01	483553	205878	129830	179597	52489	135616
2	2005-06	509976	217632	133030	183474	51030	131309.7
3	2010-11	252444 (-91.5)	106940 (-92.5)	60510 (-114.5)	83181 (-115.91)	17479 (-200)	44657 (-199)

(Contd...)

Table 2.4 (Contd…)

S. No.	Year	Marginal (Upto 1.0 Ha)		Small (1.0 - 2.0 Ha)		Semi-medium (2.0 - 4.0 Ha)	
		Number	Area	Number	Area	Number	Area
	ST						
1	2000-01	272113	136498	139952	197216	86333	225405
2	2005-06	302771	151774	149688	210330	87028	226969
3	2010-11	90245 (-201.5)	44390 (-207.4)	38096 (-267.3)	53003 (-272)	14198 (-508.1)	363579 (+61.3)
	All						
1	2000-01	2639723	1208688	1098278	1553321	634383	1696998
2	2005-06						
3	2010-11	1481270 (-78.2)	660809 (-82.9)	543274 (-102.1)	766145 (-107.1)	232930 (-152.6)	614731 (-176.1)

S. No.	Year	Medium (4.0-10.0 Ha)		Large (10.0 & above Ha)		Total	
		Number	Area	Number	Area	Number	Area
	SC						
1	2000-01	12083	66236	1023	24037	678978	611364
2	2005-06	11154	60837	857	13490	706047	606743
3	2010-11	3178 (-280)	16925 (-291)	184 (-455)	3021 (-695.6)	333795 (-103.4)	254724 (-140)
	ST						
1	2000-01	25994	141815	1898	28362	526290	729296
2	2005-06	25254	136738	1689	24554	566430	750364
3	2010-11	2678 (-870.6)	14356 (-887.8)	163 (-1064.4)	2677 (-959.4)	145380 (-262.0)	150783 (-383.6)
	All						
1	2000-01	234552	1338799	32443	547383	4639379	6345189
2	2005-06	NA	NA	NA	NA	NA	NA
3	2010-11	65258 (-259.4)	364990 (-266.8)	6470 (-401.4)	99810 (-448.4)	2329202 (-99.1)	2506485 (-153.15)

Source:Agricultural Statistics at a Glance, Telangana 2013-14.

* Figures in parantheses indicate percentage increase /decrease from 2000-01.

Study Districts

The district Karimnagar lies in North Telangana zone of agro climatic zones of Telangana State. The annual average rainfall of the district is 920 mm. As per the district contingency plan reports of Ministry of Agriculture 2011, the Net Sown Area (NSA) of the district is 38.4 per cent of the geographical area and the Gross Sown Area (GSA) is 59.3 per cent. The cropping intensity of the district is 154.5 per cent. The area under borewells is predominant in the district. As a percentage of total irrigated area the area under borewells, canals and tanks is 88, 4.6 and 7.12 per cent, respectively. Net Irrigated Area (NIA) as a per cent of Net Sown Area was 81.96 during 2013-14. The major crops in the district are paddy, maize, cotton, greengram and redgram. The plantation crops are mango, orange and batavian. Turmeric is the major spice crop in the district.

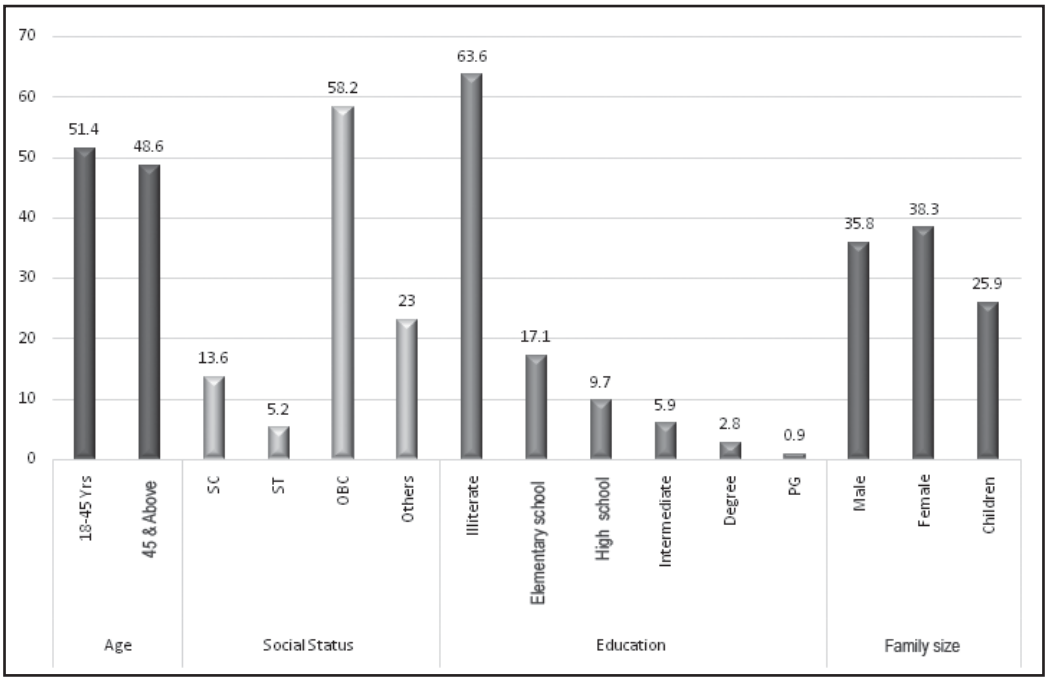
The district Mahbubnagar lies in Southern Telangana Zone of agro climatic zones of Telangana State. The annual average rainfall of the district is 604.5 mm. The major crops in the district are rainfed maize, castor, groundnut, redgram, jowar and cotton. Paddy is cultivated in irrigated tracks. The major plantation crops are mango, orange and batavian. The net sown area and gross sown area as percentage of geographical area are 39.2 and 42.05, respectively. The cropping intensity is 107.2 per cent. The net irrigated area as a percentage of net sown area is 23.87 during 2013-14. The area under borewells is predominant in this district also. The percentage of area under bore wells, canals and tanks out of total irrigated area was 78.37, 16.4 and 3.8 per cent, respectively. It is therefore observed that even in the irrigated district of Karimnagar, the major growth under irrigation comes from borewells and tanks.

Chapter III

SOCIO ECONOMIC PROFILE OF THE RESPONDENTS

Majority of the respondents in both the districts were in productive age group. (Table 3.1). Majority of the sample households at the aggregate level belongs to OBC category followed by other category. This is similar to the trend at the State level (Srinivasulu K, 2002). The percentage of households belonging to illiterate category were higher among the sample farmers. The percentage of female members in a household were higher as compared to male members at the aggregate level.

Fig. 2: Social Characteristics of the Respondents



Source : Primary Survey.

Table 3.1: Social Characteristics of the Respondents

	Karimnagar		Mahbubnagar		Telangana	
	Frequency	% of the District Sample (700)	Frequency	% of the district Sample (700)	Frequency	% of the State Sample
Age						
18-45 Yrs	362	51.7	357	51.0	719	51.4
45 & Above	338	48.3	343	49.0	681	48.6
Social Status						
SC	103	14.7	87	12.4	190	13.6
ST	40	5.7	33	4.7	73	5.2
OBC	355	50.7	460	65.7	815	58.2
Others	202	28.9	120	17.1	322	23.0
Education						
Illiterate	443	63.3	448	64.0	891	63.6
Elementary School	135	19.3	105	15.0	240	17.1
High School	59	8.4	77	11.0	136	9.7
Intermediate	37	5.3	45	6.4	82	5.9
Degree	22	3.1	17	2.4	39	2.8
PG	4	0.6	8	1.1	12	0.9
Family Size	**Karim-nagar**	**% to total family size**	**Mahbub-nagar**	**% to total family size**	**Total**	**% to total family size**
Male (Majors / Independent)	510	33.4	868	37.3	1378	35.8
Female (Majors / Independent	684	44.8	792	34.0	1476	38.3
Children (Dependent)	333	21.8	667	28.7	1000	25.9
Total Family Size	1527	100.0	2327	100.0	3854	100.0

Source : Primary Survey.

Asset Structure of the Households

The asset structure of the sample households was observed in order to get an understanding of their economic status. Pucca houses are the houses with proper roof, flooring and standard walls with ventilation. The number of households having pucca houses are about 70 per cent, in case of LMF category in both the districts. While both kuccha and pucca households were having at least one mobile in their households, the percentage of pucca households with toilet were about 67 in case of SMF and 80 in case of LMF. In case of kuccha houses it was 41 and 50 per cent for SMF and LMF, respectively. Households with high cost machinery were also found more in case of LMF category and also higher in case of Karimnagar district as compared to Mahbubnagar district.

Table 3.2: Asset Structure of the Households

		Karimnagar		Mahbubnagar		Total	
	Assets	SMF	LMF	SMF	LMF	SMF	LMF
A.	Kuccha House	104 (31.5)	95 (28.8)	107 (32.4)	98 (29.7)	211 (32.0)	193 (29.2)
B.	Pucca House	226 (68.5)	235 (71.2)	223 (67.6)	232 (70.3)	449 (68.0)	467 (70.8)
C.	Kuccha House +Mobile	102 (98.1)	95 (100)	101 (94.4)	98 (100)	203 (96.2)	193 (100)
D.	Kuccha House +Toilet+ Mobile	61 (58.7)	63 (66.3)	27 (25.2)	34 (34.7)	88 (41.7)	97 (50.3)
E.	Kuccha House +Toilet+ Mobile +Bicycle	35 (33.7)	40 (42.1)	1 (0.9)	1 (1.0)	36 (17.1)	41 (21.2)
F.	Kuccha House +Toilet+ Mobile +Bicycle +TV	35 (33.7)	40 (42.1)	1 (0.9)	1 (1.0)	36 (17.1)	41 (21.2)
J.	Kuccha House +Toilet +Mobile +Bicycle +TV +Scooter	16 (15.4)	28 (29.5)	- -	- -	16 (7.6)	28 (14.5)
G.	Pucca House + Mobile	226 (100)	235 (100)	223 (100)	232 (100)	449 (100)	467 (99.6)
H.	Pucca House + Mobile +Toilet	147 (65.0)	195 (83.0)	156 (70.0)	181 (78.0)	303 (67.5)	376 (80.2)

(Contd...)

Table 3.2 (Contd.....)

		Karimnagar		Mahbubnagar		Total	
	Assets	SMF	LMF	SMF	LMF	SMF	LMF
I.	Pucca House + Mobile +Bicycle	98 (43.4)	138 (58.7)	67 (30.0)	165 (71.1)	105 (23.4)	303 (64.6)
J.	Pucca House + Mobile +TV	215 (95.1)	235 (100)	208 (93.3)	232 (100.0)	423 (94.2)	467 (99.6)
k.	Pucca House + Mobile +Bicycle +TV	81 (35.8)	128 (54.5)	6 (2.7)	13 (5.6	87 (19.4)	141 (30.1)
L.	Pucca House +Toilet + Mobile +Bicycle +TV + Scooter	44 (19.5)	105 (44.7)	2 (0.9)	16 (6.9)	46 (10.2)	106 (22.6)

Source : Primary Survey.
Note :

- Figures in percentage below rows A and B indicate per cent of total sample of the respective categories.
- Figures in percentage below rows C to J indicate per cent of A.
- Figures in percentage below rows G to L indicate per cent of B.
- Figures in parentheses indicate percentages.

Land Ownership and Cultivation Pattern

- The total land cultivated by each of the category of farmers was taken in both the districts and the average landholding size was assessed and placed below (Table 3.3). While the average size of the SMF category was almost similar in both the districts with 1.2 ha, the average size of LMF was higher in Mahbubnagar district with 3.3 ha as compared to Karimnagar district with 2.9 ha.The average size of SMF category at the aggregate level was 1.2 acres, the size of LMF category was about 3.25 ha i.e., the size as that of semi-medium category farmer as classified in NSSO sample survey.
- While no households were found in the category of landless tenant farmers in the study villages, good number of cultivators were found trying to expand their production base by leasing-in land. So, once the data was collected from the two categories of farmers i.e., SMF and LMF, it was segregated further into two more categories i.e., the cultivators with own land and the cultivators with own plus leased-in land. At the aggregate level the cultivators who leased-in land were found to be more in LMF category compared to SMF category. Further, more number of LMF of Mahbubnagar district have leased-in land compared to Karimnagar district**.** The leasing in arrangement depends on the area under

irrigation or type of crop. If it is a food crop like paddy it is sharecropping arrangement. If it is a cash crop like cotton it is mostly on fixed amount basis. The details regarding leased-in lands are provided in the next chapter under coping mechanisms.

Fig. 3: Land Ownership Details in Study Districts

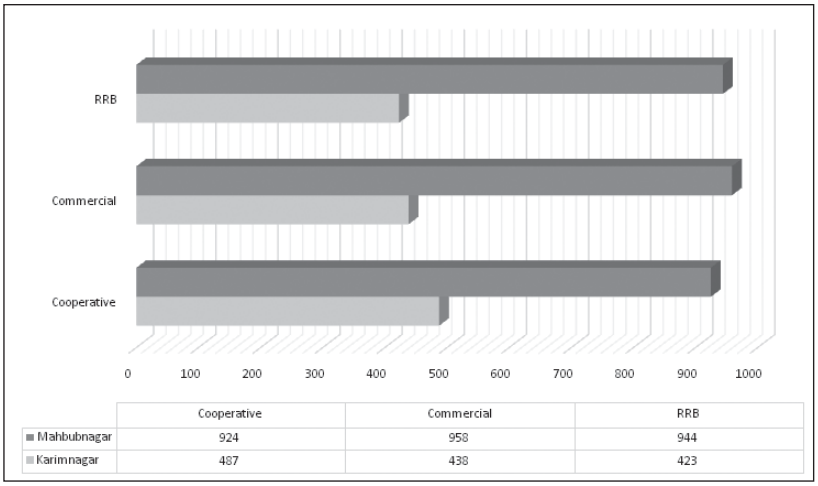


Table 3.3: Size of the Acreage of the Respondents

District	Land Holding	Category	Bank Type			Total
			Coope-rative	Comm-ercial	RRB	
Karim -nagar	SMF	No. of farmers	110	110	110	330
		Total ha.	151.9	137.4	99.6	388.9
		Average size	1.4	1.2	0.9	1.2
	LMF	No. of farmers	110	110	110	330
		Total ha.	335.2	300.7	323.0	958.9
		Average size	3.0	2.7	2.9	2.9
	Total	No. of farmers	220	220	220	660
		Total ha.	487.1	438.0	422.6	1347.7
		Average size	2.2	2.0	1.9	2.0
Mahbub -nagar	SMF	No. of farmers	110	110	110	330
		Total ha.	97.4	149.7	159.0	406.1
		Average size	0.9	1.4	1.4	1.2

(Contd...)

Table 3.3 (Contd.....)

District	Land-holding	Category	Bank Type			Total
			Coope-rative	Comm-ercial	RRB	
	LMF	No. of farmers Total ha. Average size	110 339.8 3.1	110 370.6 3.4	110 362.5 3.3	330 1072.9 3.3
	Total	No. of farmers Total ha. Average size	440 924.4 2.1	440 958.4 2.2	440 944.0 2.1	1320 2826.7 2.1

Source : Primary Survey.

Table 3.4: Land Ownership and Cultivation Pattern of the Respondents

		Karimnagar		Mahbubnagar		Total	
		SMF (ha)/ (Average Size)	LMF (ha)/ (Average Size)	SMF (ha)/ (Average Size)	LMF (ha)/ (Average Size)	SMF (ha)/ (Average Size)	LMF (ha)/ (Average Size)
a.	Land Owned						
i)	Irrigated	281.1	604.1	243.3	487.6	524.3	1091.7
ii)	Unirrigated	81.7	258.9	121.0	438.8	202.6	697.7
b.	Land Leased-in	26.1	95.9	41.9	145.3	68.0	241.2
	Total Land under Cultivation (a+b)	388.9 (1.17)	958.9 (2.9)	406.1 (1.23)	1071.7 (3.24)	795.0 (1.2)	2030.6 (3.07)

Chapter - IV

RISK, VULNERABILITY AND COPING MECHANISMS OF FARMERS IN TELANGANA

Risk and Vulnerability

Risk is the likelihood of occurrence of a particular and potentially adverse shock or stress. Vulnerability is the degree of individual households or individuals' ability to prevent, mitigate or cope up with the shocks and stress. In rainfed farming the risk represents the probability of a defined hazard affecting the livelihood of producers. Among the risks there are physical and financial risks.

Physical risk relates to variables such as crop yield, which vary about a long-term trend. The main source of physical risk is climatic risk: catastrophic variations in yields are usually climate-driven. But physical performance of a single crop provides only a partial measure of the farmer's risk (Thornton and Dent, 1990). Financial risk relates to income variability, of which yield uncertainty is only one source. Many studies also highlighted the importance of having multiple sources of livelihoods to reduce the risk and vulnerability of the farmers (Fabusoro et al, 2010; Mutenje et al, 2010; Ekblom, 2012).Therefore, the vulnerability of the farmers was assessed in the context of farming vulnerability, occupational vulnerability and financial vulnerability**.** Irrigation has proved to be an important factor that reflects the risk taking ability of the farmers. Therefore, the growth of irrigation in the State in the respective study districts taken from secondary data sources and the investment on irrigation by the sample farmers is presented below.

Irrigation Growth in the State and Study Districts

Irrigation is critical for promoting the growth of agricultural output. Studies have revealed that the output elasticity with respect to irrigation is high compared to other inputs (Subrahmanyam, 2002). Irrigation is an important area having large requirements for State investment. If we observe the State investment through the lens of share of irrigated area by different sources in the erstwhile AP State, during1960-61the share of irrigated area by canals, tanks and wells was 19, 62 and 18 per cent, respectively. This composition has changed to 18, 19 and 63 per cent, respectively in 1999-2000 (Subrahmanyam, 2002). As canal and tank irrigation come under public investment, it is evident that the increase in area under irrigation during the observed period took place mainly out of private investment which has implications in changing agrarian economy of the State. Growth in different sources of irrigation in the State of Telangana in three different time periods i.e., 1971-85, 1985 -2001 and 2001 to 2013 is presented in

Table 4.1. The overall growth rate in irrigation in Karimnagar is doubled in all the three time periods i.e., from 2.7 per cent during 1971-85 to 4.8 per cent during 1985 -2001 to 11.71 per cent during 2001-13.This increase in irrigated area in Karimnagar district has resulted from expansion of canals during 1975-1990 with a growth rate of 12.8 per cent and the expansion of tubewells during 2001-13 with a growth rate of 15.94 per cent.At the same time, Mahbubnagar registered a good growth rate during 1985-2001 with 8.4 per cent, but remained almost constant during the last time period i.e., 2001 - 2013 with 8.59 per cent. However, during this period, the growth in canal irrigation in Mahbubnagar district was more with 9.24 per cent compared to Karimnagar district with 4.61 per cent. In case of well irrigation, Karimnagar district witnessed higher growth rate with 15.94 per cent compared to Mahbubnagar district during the last time period.

The percentage contribution of each source to the total irrigation in each district during the periods 2001-01 and 2012-13 given in Annexure-V, Tables 4.1A, 4.1B which corroborates the fact that the private investment in irrigation through the tubewell is going up at an alarming high rate in Telangana compared to public investment.

Table 4.1: Source-wise Irrigation Growth During Different Time Periods

District	Canals			Tanks			Wells			Total		
	1971-85	1985-01	2001-13	1971-85	1985-01	2001-13	1971-85	1985-01	2001-13	1971-85	1985-01	2001-13
Nizamabad	2.8	-3.3	10.83	-2.3	-5.2	0.98	9.5	20.4	12.49	1.4	1.1	10.88
Medak	0.6	-4.5	2.29	-0.3	-2.2	13.63	8.2	11.7	8.27	1.7	2.1	8.53
Mahbubnagar	**-3.1**	**2.8**	**9.24**	**-3.5**	**-4.0**	**2.45**	**3.8**	**13.1**	**8.71**	**-1.7**	**8.4**	**8.59**
Nalgonda	2.3	-1.6	9.83	-3.0	-1.9	6.01	6.5	3.4	12.48	1.5	2.1	10.77
Warangal	-6.0	7.2	39.61	-1.8	-2.1	3.23	17.5	2.2	5.00	1.3	7.2	4.97
Khammam	12.0	3.5	6.83	-3.7	1.7	4.27	6.1	17.9	8.64	0.5	7.1	5.90
Karimnagar	**12.8**	**4.4**	**4.61**	**-2.0**	**7.6**	**4.55**	**11.3**	**-2.6**	**15.94**	**2.7**	**4.8**	**11.71**
Adilabad	2.9	0.9	-2.87	-1.7	-1.4	0.06	9.1	41.4	16.77	1.1	6.7	5.91
Rangareddy*	NA	-1.7	-3.66	NA	-2.6	-0.21	NA	7.2	3.76	NA	5.6	3.22
Total			6.89			3.59			9.73			8.28

Source: First Two Time Periods were taken from the Article on "Agricultural Growth and Irrigation in Telangana : A Review of Evidence by Vakula.V.", and Third Time period was calculated by the Authors.

Therefore, augmentation of groundwater irrigation with private investment is one of the implicit causes for the rising debts of the farmers, as revealed in some studies (Revathi, 1998). In the process of creating private sources of irrigation, many of the farmers have been investing heavily on digging and deepening of wells. A study of 50 deceased farmers in Warangal district **(**Ibid**)** shows that wells are the largest sources of irrigation for about three-fourths of the farmers in the district. The cost of digging the wells is normally borne by the farmers themselves with insignificant subsidy towards it. Besides this, the depletion of groundwater in recent years has necessitated deepening of wells and laying of in-well bores, the investment for which averaged anywhere between ₹ 50.000 to ₹ 1,00,000.

The year 2015 is reported to be the worst year in the last two decades, in terms of less rainfall. The deviation of rainfall from actual rainfall during this year is given in Table 4.2.

Table 4.2 : Rainfall (in mm)

District	Normal	Actual	Deviation
Adilabad	862	840	-26%
Nizamabad	737	383	-48%
Karimnagar	**689**	**467**	**-32%**
Medak	568	311	-45%
Ranga Reddy	468	293	-37%
Mahbubnagar	**345**	**224**	**-35%**
Nalgonda	423	398	-06%
Warangal	675	702	+04%
Khammam	724	768	+06%

Source : The Hindu , September 7, 2015.

As seen from the Table above, both the study districts witnessed low rainfall during the study period resulting in groundwater plummeting to its lowest levels. While interviewing the farmers they revealed that they have been investing on deepening of wells with an amount ranging from ₹ 20,000 to ₹ 30,000. In spite of these efforts, only 25 per cent of the wells could yield sufficient water. It is therefore important to assess the access to and investment on irrigation by the sample farmers.

Access to Irrigation and Investment on Irrigation by the Sample Farmers

Access to irrigation is one of the crucial factors of production. The dependency on borewells is high in both the districts. Increase in investment in irrigation through borewells and their subsequent failures is leading them into indebtedness, compelling them to commit

suicides in extreme cases as revealed in many studies (Mishra 2007, NSL 2011).The Table below (Table 4.3) presents access to irrigation and average investment on irrigation by the sample farmers. The Table summarises that when compared to the farmers with other sources of irrigation, the number of farmers who depend upon borewell were maximum with 42 per cent in case of SMF and 52 per cent in case of LMF, respectively. The number of farmers who depend upon rainfed farming either completely or partially were about 66 and 61 per cent in case of SMF and LMF, respectively. The dependency on rainfed farming was more in case of Mahbubnagar district for both the category of farmers. The average investment on borewells per farmer as reported by the farmers is also given in the Table. However, there were many cases observed during the field visit, where the farmers who have dug more than two bore wells in the event of their failure or drying up eventually. Nearly 20 farmers in Karimnagar district belonging to SMF category reported that they got the assigned land from the government and invested on land levelling for which they did not get any institutional support in the initial stages of development of assigned lands. Only around 8 and 12 per cent of SMF and LMF at the aggregate level have access to micro irrigation facilities. Access to micro irrigation was more for the farmers in Karimnagar compared to Mahbubnagar district.

Among the SMF category, the percentage of farmers who depend entirely on rainfed farming in Mahbubnagar district was 76.36 and the same in Karimnagar district was 66.5. Among the LMF category, the percentage of farmers who depend on rainfed farming in Mahbubnagar district was 70. Whereas, the same in Karimnagar district was 47.27 per cent. It is thus apparent that proportionate increase in irrigation facility was higher among the LMF category of irrigated district with an increase in the growth rate under irrigation,compared to the rainfed district. However, the difference was less among the SMF category in the two districts.

Table 4.3: Access to Irrigation

		Karimnagar		Mahbubnagar		Total	
		SMF (330)	LMF (330)	SMF (330)	LMF (330)	SMF (660)	LMF (660)
a)	Source of Irrigation (Number of Farmers)						
	Canal	44	29	47	35	91	64
	Tank	1	0	0	3	1	3
	Bore well	147	199	133	145	280	344
	Canal + Bore well	50	72	0	1	50	73
	Tank + Bore well	1	2	2	4	3	6

(Contd...)

Table 4.3 (Contd...)

		Karimnagar		Mahbubnagar		Total	
		SMF (330)	LMF (330)	SMF (330)	LMF (330)	SMF (660)	LMF (660)
	Rainwater-cum-Others	187	156	252	231	439	408
b)	Investment on Bore wells (₹) (Average per Farmer)	74382	114391	69591	88124	72278	104097
c)	Access to Micro Irrigation (Number of Farmers)	28	64	17	23	51	81
d)	Land Levelling Cost (Average per Farmer)	31947	61205	26786	28548	28876	41705

Source : Primary Survey.

Assessing the Production Vulnerability

Production vulnerability was tried to assess through cropping pattern i.e., monocropping versus multiple cropping, that is in the context of any eventuality of crop failure. Table 4.4 gives an idea on number of farmers depending on monocropping and on multi cropping. More vulnerability was therefore observed among the farmers in Mahbubnagar district where, the percentage of SMF following monocropping was 68 and the same for LMF was 63. In Karimnagar, the percentage of SMF following mono cropping was 44, whereas the same for LMF was 28. The percentage of farmers going for inter-crops was very less at the aggregate level with only 7.7. Between the two districts it was more in case of LMF category in Karimnagar district with 13 per cent as compared to that of LMF of Mahbubnagar district. The farmers in Metpally division of Karimnagar have been cultivating maize with turmeric as an inter-crop under irrigated conditions. While maize could be harvested in five months, turmeric comes to harvest in nine months. Though some of SMF category have been following this cropping pattern, this is very less among them, mainly due to the constraints in irrigation and high cost of production of turmeric.

The type of crop grown by the farmers depends on the availability of irrigation. While the area under food crops was almost the same among the SMF and LMF of Mahbubnagar farmers, it was more among the LMF of Karimnagar farmers (Table

4.5). This is basically due to the availability of irrigation water among LMF of Karimnagar district. The major food crops grown in both the districts are paddy and category. In addition to these, jowar and pulses were seen to be cultivated by the farmers in Mahbubnagar district. In this district redgram is the main pulse crop. While paddy is grown under irrigated conditions both during kharif and rabi, maize is grown under rainfed conditions in kharif and irrigated conditions in rabi. Under rainfed conditions, groundnut is the major oilseed crop in Mahbubnagar during kharif slowly getting replaced with cotton. Wherever irrigation was available rabi groundnut was also in place. While there was not much difference in the area under food crops between SMF and LMF in Mahbubnagar, the area under non-food crops, in particular the cotton crop was more by LMF. The same was more in case of SMF in Karimnagar district occupying around 20 per cent of the total sown area. The food crops in Karimnagar include paddy, maize, pulses, onions,chillies, etc., occupying around 69 per cent area for both SMF and LMF category. Soyabean is the major pulse crop in Metpally division of Karimnagar district. Plantation crops include turmeric, mango, oranges, banana, etc. The area under plantation was more among LMF category. The cropping intensity as reflected in Table 4.5 reflects the intensity of cropping in the lands of SMF and LMF categories. While both the categories have been intensively cultivating their lands as reflected through their cropping intensity, it is the LMF of Karimnagar who were in better condition in this aspect compared to others. It is also important to examine whether this intensification is through a single crop in kharif or rabi or through multiple cropping system,which was examined through Crop Diversification Index (CDI) (Table 4.6). Studies on crop diversification offer diverse views. While some studies suggest reduction in income (Guvele, 2001), some studies concluded that diversification leads to sustaining a reasonable income level given present farm-size distributions (Van den Berg et al, 2007). So it may be concluded that individual farm economies are unlikely to have a uniform relationship between crop diversification and production efficiency. The contrasting evidence provided by the afore-mentioned studies proves the point. However, it is a point of strong evidence that farmers diversify the crops to reduce their production vulnerability (Brenda B Lin, 2011). *Though the CDI of both the districts seems to be less, the LMF category seemed to be better off in this case compared to SMF category.*

Table 4.4: Assessing the Production Vulnerability (Ha)

	Karimnagar		Mahbubnagar		Total	
	SMF	LMF	SMF	LMF	SMF	LMF
Owned land (No of farmers) % to the Sample						
One Crop	128 (44.3)	76 (27.9)	195 (67.7)	169 (62.4)	323 (56.0)	245 (45.1)
Two Crops (K+R)	153 (52.9)	160 (58.8)	93 (32.3)	96 (35.4)	246 (42.6)	256 (47.1)
Inter Cropping Systems	8 (2.8)	36 (13.2)	0 0.0	6 (2.2)	8 (1.4)	42 (7.7)
Total	289	272	288	271	577	543

Source : Primary Survey.

Note : Figures in parentheses indicate percentages.

Fig. 4: Cropping Pattern of the Respondents in Kharif (in hectares)

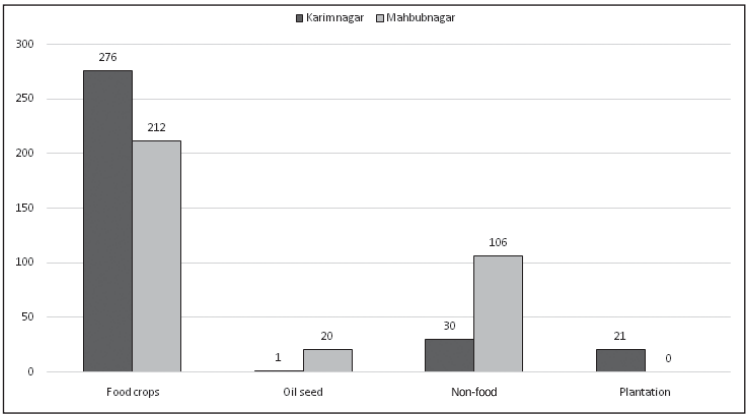


Table 4.5: Cropping Pattern of the Respondents

(Ha)

	Karimnagar		Mahbubnagar		Total	
	SMF	LMF	SMF	LMF	SMF	LMF
Major Crops during Kharif						
Food crops	115.6	160.4	109.8	101.7	225.5	262.1
Oil seed	0.6	0.3	9.8	10.4	10.5	10.7
Non-food	25.7	4.2	36.3	69.8	62.0	74.1

(Contd...)

Table 4.5 (Contd...)

	Karimnagar		Mahbubnagar		Total	
	SMF	LMF	SMF	LMF	SMF	LMF
Plantation	6.8	13.8	0.0	0.0	6.8	13.8
Total	148.7	178.7	155.9	181.9	304.7	360.7
Major Crops during Rabi						
Food crops	33.0	63.0	33.5	58.3	66.5	121.2
Oil seed	0.3	0.2	4.3	7.1	4.7	7.3
Fodder	0.0	0.0	5.3	8.4	5.3	8.4
Non-food	0.6	0.2	2.4	2.2	3.0	2.4
Plantation	0.7	1.1	0.0	0.0	0.7	1.1
Total	34.7	64.4	45.6	76.0	80.3	140.4
Major crops during Summer						
Food crops	8.9	29.5	0.0	0.0	8.9	29.5
Oil seed	0.6	0.9	0.0	0.0	0.6	0.9
Plantation	1.9	3.0	0.0	0.0	1.9	3.0
Total	11.3	33.4	0.0	0.0	11.3	33.4
Long-term crops						
Plantation	4.2	36.3	0.0	0.0	4.2	36.3
Total	4.2	36.3	0.0	0.0	4.2	36.3
Gross Sown Area (GSA)	199.0	312.9	201.5	257.9	400.6	570.8
Net Sown Area (NSA)	148.7	178.7	155.9	181.9	304.7	360.7
Cropping Intensity (CI)	133.8	175.1	129.2	141.8	131.5	158.3

Cropping Intensity = (Gross Cropped area / Net Sown Area) x 100
Source : Primary Survey.

Table 4.6: Crop Diversification Index (CDI) of the Respondents

No of Crops	Karimnagar		Mahbubnagar		Total	
	SMF	LMF	SMF	LMF	SMF	LMF
During Kharif	0.40	0.45	0.39	0.43	0.40	0.45
During Rabi	0.27	0.28	0.34	0.29	0.33	0.28
During Summer	0.15	0.29	-	-	0.15	0.29
Long-term Crops	0.12	0.27	0.25	0.28	0.24	0.28

Source : Primary Survey.

Assessing the Occupational Vulnerability

Rural India, which comprises more than 70 per cent of the population, has been traditionally dependent on agriculture. However, with steadily decreasing agricultural land-holdings in rural areas, agriculture has become less remunerative and therefore households that depend only on agriculture are no longer sustainable. The vulnerability of the households will be reduced if they depend on multiple sources of livelihood such as cattle rearing, wage labour, involvement in Non-Farm Rural Enterprises (NFRE), etc. (Brajesh Jha), This to a large extent is influenced by the fact that the revenue generated through agriculture is generally not sufficient to cover the household expenses. The Table below (Table 4.7) presents the number of farm households depending on agriculture and other forms of livelihoods to assess the extent of vulnerability. Among the cultivators about 55 per cent in case of SMF and 52 per cent in case of LMF depends only on agriculture sector. The number of farmers who depend on livestock in addition to agriculture were in the range of 26 to 33 per cent in case of SMF and LMF categories. This was slightly better in Karimnagar district as compared to Mahbubnagar district. The number of households who engage in non-farm activity were limited to around one per cent in both the category of farmers, whereas the all India figures on non-farm activities contribute around 25-35 per cent of the total household income in rural India.

Fig. 5: Occupational Pattern of the Respondents (Number of Farmers)

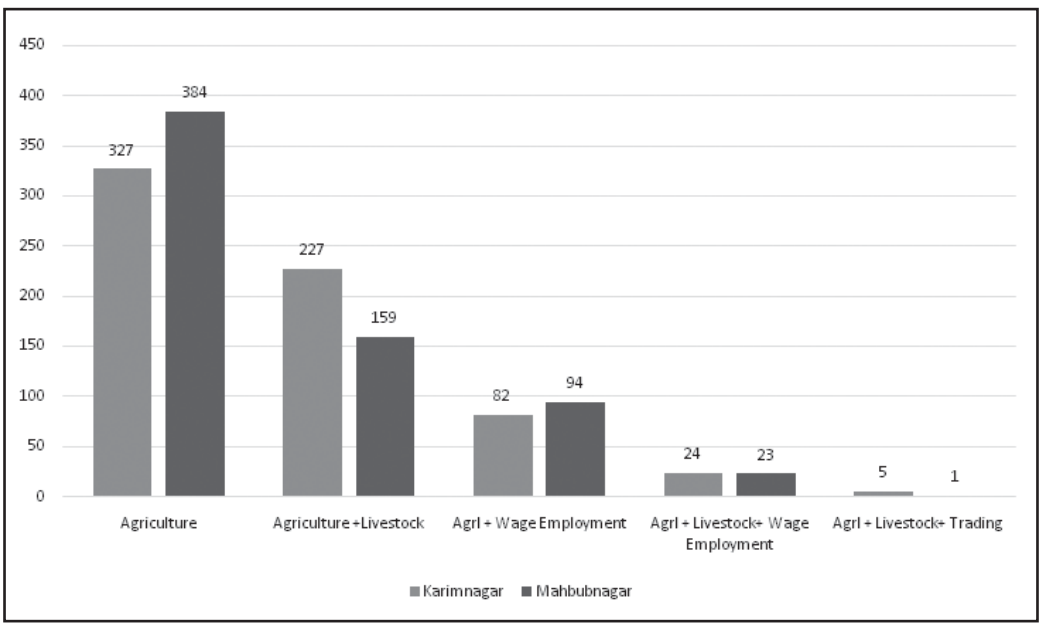


Table 4.7: Occupational Pattern of the Respondents (Number of Farmers)

Occupation	Karimnagar		Mahbubnagar		Total	
	SMF (330)	LMF (330)	SMF (330)	LMF (330)	SMF (660)	LMF (660)
Owned Land						
i) Agriculture	171 51.8	156 47.27	195 59.09	189 57.27	366 55.45	345 52.27
ii) Agriculture +Livestock	100 30.30	127 38.48	71 21.51	88 26.66	171 25.90	215 32.57
iii) Agrl + Wage Employment	46 13.93	36 10.90	51 15.45	43 13.03	97 14.69	79 11.96
Iv) Agrl + Livestock+ Wage Employment	13 3.93	11 3.33	13 3.93	10 3.03	26 3.93	21 3.18
V) Agrl + Livestock+ Trading	-	5 1.83%	1 0.34%	-	1 0.17%	5 0.92%

Source : Primary Survey.
Figures in percentages indicate percentage against the sample.

Assessing the Financial Vulnerability

Profitability Index was worked out based on the reported input costs by the farmers and gross value of the farmers' output. Input costs are the direct costs incurred by the farmers. The profitability index of more than 100 signifies profitability. As per this formula, the cultivation of major crops except cotton in the two districts has resulted in profitability (Table 4.8). The cotton crop profitability fluctuates from year to year. During the reference period the profitability index of 98.83 per cent indicates loss to the farmers with higher input costs and lower market price for the product. However, this index should be calculated taking the economic costs into consideration. Economic costs are the costs incurred along with direct costs and the indirect costs such as cost of family labour input or the opportunity cost missed by working in other fields and earning wages. *If the economic costs would have taken into consideration all the major crops cultivated by the farmers in both the districts would lead to substantial losses.*The average annual income (net income) through different sources was worked out and is presented in Table 4.9.

The average monthly income of a farm family which depends only on agriculture, was worked out to be ₹ 3842 for SMF category and the same for LMF was ₹ 7449.

This was very less when compared to the All India estimated report on monthly income (NSSO 70th round.) i.e., ₹7348 and ₹10,730 respectively for these categories. Only the LMF category of Karimnagar district with ₹ 10,624 was on par with the national average estimated monthly income. The income for the farmers who were having livestock as an additional source of income seems to be more by 45 and 14 per cent for SMF and LMF, respectively at the aggregate level compared to the income from only agriculture. The additional income generated from livestock and wage employment was much more with 60 and 31 per cent for SMF and LMF, respectively at the aggregate level. The additional income generated through livestock was more in case of SMF of Karimnagar district with 54.8 per cent compared to Mahbubnagar district with 32.14 per cent. The well developed dairy market through cooperatives in this district was having an impact on SMF. In case of LMF the impact was seen more in Mahbubnagar district with 25.18 per cent compared to Karimnagar district with 10.5 per cent. This could be due to diversification of LMF of Karimnagar to other sources of revenue such as trading. If we see the income generated from the combination of livelihoods in addition to agriculture, such as livestock and wage employment, it was clearly more in Mahbubnagar district with 61.3 per cent and 70.5 per cent compared to Karimnagar district with 32.4 per cent and 70.5 per cent in case of both SMF and LMF, respectively. *However, the percentage of sample farmers in Mahbubnagar district, depending on this multiple sources of livelihoods was limited to around 3.13 in case of LMF and 3.03 in case of SMF, which was very less.*

Table 4.8: Profitability of Major Crops of the Sample Farmers in the Study Districts

Crop	Total ha	Total Production (Tonnes)	Total Input Costs (₹ in lakh)	Total Value (₹ in lakh)	PI
Paddy	515.21	1679.81	188.03	241.89	128.64
Maize	427.35	992.1	82.28	132.94	161.57
Cotton	341.4	314.98	121.23	119.82	98.83
Pulses	119.97	185.77	51.08	72.45	141.83
Turmeric	36.62	54.92	41.97	77.87	185.53
Total	1440.55	3227.58	484.59	644.97	133.09

PI is the Profitability Index = Total value/Input costs x 100.
Source : Primary Survey.

Table 4.9: Average Annual Income (Net Income) through Different Sources (₹)

Occupation	Karimnagar		Mahbubnagar		Total	
	SMF	LMF	SMF	LMF	SMF	LMF
i) Agriculture	52903	127488	39552	46493	46228	86991
ii) Agriculture + Livestock	81900	141000	52400	58200	67150	99600
iii) Agrl + Wage Employment	79879	122750	43505	52254	61692	87502
iv) Agrl + Livestock+ Wage Employment	84300	149000	63800	79300	74050	114150
v) Agrl + Livestock + Trading	86400	130000	74000	79500	80200	104750

Source : Primary Survey.

Coping Mechanisms by Farmers

In the previous section, we have discussed mainly the agrarian distress related to augmentation of private investment on borewells and their subsequent failure, ground water, dependency on monocropping and absence of multiple livelihood opportunities by each and every household. Besides, climate change variations leading to uncertainty in yield and many other factors have been contributing to the agrarian distress such as weak rural infrastructure, imperfect markets and inappropriate design of risk mitigation instruments such as credit and insurance (Dev, 2012). Therefore, the enterprise of agriculture is met with great many uncertainties when compared to other enterprises. Even then majority of people depend on it for their livelihoods. There are many ways by which the farmers are coping with various production risks in agriculture. Similarly the State also has been trying to support the farmers during calamities through the mechanisms such as social assistance (calamity relief, food-for-work, etc) rescheduling loans, agricultural insurance , relaxations in grain procurement procedures and supply of fodder, etc. While the former informal strategies were identified as ex-ante coping mechanisms i.e., the mechanisms that involve individuals or households or such groups as communities or villages, the latter formal strategies were identified as ex post strategies, market-based activities and publicly provided mechanisms. (World Bank, 2001).

In this section, an attempt is made to analyse some of the coping mechanisms being followed by the farmers and also by the Government of India, a measure for the agriculture risk management, i.e., crop insurance. Crop debt waiver is also seen by the governments recently as a way of addressing the agrarian distress.

The two coping strategies that have received the most commentary in scrutiny in literature are crop diversification and intercropping. But which section of the farmers are opting for crop diversification is again an issue. Some studies have observed that there is an inverse relationship between farm size and agricultural diversification (AJ Singh et. al,1985; Haque, 04). This may be attributed to a more pronounced need to reduce peak season labour requirement, exploit the better potential of location-specific production opportunities associated with holding more fields, and greater access to credit to sow land to more input intensive crops (Walker and Ryan, 1990). Some other studies on crop diversification in various States felt that small farms are relatively more diversified (Gupta and Tiwari, 1985). Whether the diversified small farms are earning sufficient income that have an impact on their livelihood or not is another issue that is being debated (Haque, 1992).

a. Raising Plantation Crops

The farmers in the study villages have tried to reduce their production risk by diversifying part of their land to plantation crops. This was seen more in case of Karimnagar with 13.8 per cent of land under plantation crops like mango by LMF followed by SMF with 6.8 per cent (Table 4.5) As plantation crops require a gestation period which the farmers particularly the small farmers cannot afford, this was not seen in case of Mahbubnagar district.

b. Land Leasing

Land leasing is seen as an important coping mechanism by the farmers in the study area to augment their production base. The number of leased-in farmers were found to be more among large and medium category compared to that of small and marginal category (Table 4.10). It is also observed in the study villages that land leasing was not taken up by any farmer who is completely landless. Some landless people in the villages studied were observed to take the mango orchards on lease, but the agreement was fixed for the particular crop. Not much difference was found between the farmers of Mahbubnagar and Karimnagar districts with regard to the leasing-in land. The terms of leasing was mostly on fixed price basis. Only in case of paddy crop, it was on sharecropping basis which is either 10 bags to 12 bags per acre depending on the arrangement.

The cropping system followed in leased-in lands seems to be similar as that of own lands (Table 4.11) As leased-in lands are normally the lands with irrigation base, majority of the sample farmers were cultivating the crops in both kharif and rabi in these lands. Intercropping or multi-cropping was observed to be very less in the leased in lands also, as that of own lands.

Table 4.10: Category-wise and District-wise Land Ownership and Leasing-in Particulars (Number of farmers)

Category	Karimnagar			Mahbubnagar			Total		
	Own Land	Own + Leased in	Total	Own Land	Own + Leased in	Total	Own Land	Own + Leased in	Total
SMF	289	41	330	288	42	330	577	83 (14.38)	660
LMF	272	58	330	271	59	300	543	117 (21)	660
Total	561	99	660	559	101	660	1120	200 (17.85)	1320

Source : Primary Survey.

Note : Figures in parentheses are percentages.

Table 4.11: Cropping Pattern of Leased- in Farmers (Number of farmers)

	Karimnagar		Mahbubnagar		Total	
One crop	16 (39.0)	15 (25.9)	29 (69.0)	36 (61.0)	45 (54.2)	51 (43.6)
Two crops (K+R)	25 (61.0)	40 (69.0)	13 (31.0)	22 (37.3)	38 (45.8)	62 (53.0)
Intercropping Systems	0.0	3 (5.2)	0.0	1 (1.7)	0.0	4 (3.4)
	41	58	42	59	83	117

Source : Primary Survey.

Note : Figures in parentheses are percentages.

Among the leased farmers in Mahbubnagar district the percentage of farmers following monocropping in SMF and LMF was 69 and 61, respectively. The land that was taken on lease was also mostly to augment the production base of a particular crop i.e., mainly cotton crop. Followed by cotton , the land is also being leased-in to grow paddy, redgram or maize during kharif and rabi either under irrigated or rainfed conditions depending on the availability of irrigation.

Table 4.12: Occupational Pattern of Leased-in Farmers

Owned Land +Leased In	Karimnagar		Mahbubnagar		Total	
	LMF (41)	SMF (58)	LMF (42)	SMF (59)	LMF (83)	SMF (117)
i) Agriculture	29 (70.7)	34 (58.6)	26 (61.9)	41 (69.49)	55 (66.2)	75 (64.9)
ii) Agriculture +Livestock	7 (17.07)	14 (24.13)	9 (21.42)	12 (20.3)	16 (19.2)	26 (23.07)

(Contd...)

Table 4.12 (Contd...)

Owned Land +Leased In	Karimnagar		Mahbubnagar		Total	
	LMF (41)	SMF (58)	LMF (42)	SMF (59)	LMF (83)	SMF (117)
iii) Agrl + Wage Employment	5 (12.19)	7 (12.06)	6 (14.2)	5 (8.47)	11 (13.2)	12 (10.2)
iv) Agrl + Livestock+ Wage Employment	-	3 (5.17)	-	1 (1.69)	-	4 (3.41)
v) Agrl + Livestock+ Trading	-	-	1 (2.38)	-	1 (1.20)	-

Source : Primary Survey

Note: Figures in parentheses under the category of farmers indicate their total number.
Figures in parentheses under the occupation of farmers indicate percentages.

The occupational pattern of leased-in farmers was analysed to understand whether any additional source of income supports the farmers to opt for land leasing. It is observed from the Table 4.12 that majority of the farmers i.e., around 70 per cent depend only on agriculture. The dependency on livestock though less, was more in case of SMF category with 23 per cent. It could be concluded, therefore, that the farmers were leasing-in land to augment their production base, but not as an additional livelihood generated from the income of livestock or wage employment, etc.

Table 4.13 : Average Annual Income (Net Income) of Farmers Leased-in through Different Sources (₹)

Occupation	Karimnagar		Mahbubnagar		Total	
i) Agriculture	61854	145830	41304	49697	51579	97764
ii) Agriculture +Livestock	97000	157000	52202	61254	74601	109127
iii) Agrl + Wage Employment	81915	137230	49142	53355	65529	95293
iv) Agrl + Livestock+ Wage Employment	86600	166000	55643	59689	71122	112845
v) Agrl + Livestock+ Trading	97600	156000	76119	81884	86860	118942

Source : Primary Survey.

The average annual net income of farmers who are leasing-in land, in addition to cultivation in their own lands was analysed. In addition to leasing-in land they have been depending on a combination of livelihoods mentioned in Table 4.13. While similar combination of livelihoods was also observed in case of farmers who were cultivating their own lands (Table 4.9), it could be seen clearly from Table 4.13, that land leasing was proved to be additional income-generating avenue for these farmers.

c. Livestock

Dependency on livestock is seen as one of the important coping factors in rainfed areas. Livestock economy is highly dependent on the biophysical or natural resource base of the region. The absence of draught animals is significant in both the categories of farmers which could be due to the tractorisation and diseconomies of keeping the bullocks in the light of fodder and water scarcity. For many agricultural operations such as initial ploughing in case of cotton /maize or initial ploughing to final harvesting in case of paddy, the farmers are depending on hired high cost machinery and tractors. Among the milch animals, cross breed cows and desi buffaloes are common. Mostly desi buffaloes are being maintained by the small and marginal farmers who do not have the land for growing fodder. On the other hand medium and large farmers are going for cross breed cows. Small ruminants are being grown by shepherd community. Among the small ruminants sheep are being preferred than the goats. This is mostly because of the climatic conditions. The coarse wool of sheep helps them to thrive well during coarse conditions.

The Table below (4.14) indicates more number of buffaloes as compared to cows, among the sample farmers of Karimnagar district. This is due to well established cooperative structure for dairy in this district. The owners of the milch animals preferred to raise more than one animal for continuous supply of milk and to avoid the dry periods of milch animals. The State government of erstwhile AP and the present Telangana have been promoting small ruminants by providing 20 animals per household. Some sample farmers who belong to shepherd community do possess sheep and goats. The average number was found to be more in Mahbubnagar district compared to Karimnagar district.

Table-4.14: Nature of Livestock Possessed by the Respondents – Number of Farmers (Average Livestock)

Livestock		Karimnagar		Mahbubnagar		Total	
		LMF	SMF	LMF	SMF	LMF	SMF
Cows	No of farmers	69	64	61	87	130	151
	Average livestock	2	2	3	3	2	3
Buffaloes	No. of farmers	100	127	71	88	171	266
	Average livestock	2	2	3	3	2	2
Goat/ Sheep / Piggery	No. of farmers	17	19	24	21	41	40
	Average livestock	14	9	32	39	25	25
Poultry	No. of farmers	2	-	-	-	2	-
	Average livestock	16	-	-	-	16	-

Source : Primary Survey.

d. Crop Insurance

Major sources of risk in agriculture are drought, floods and cyclones. Drought affects more than 2/3rd of the cropped acreage annually. Agriculture therefore has become highly risky economic activity on account of its critical dependence on weather conditions which underscores the need for crop insurance. Designing and implementing an appropriate insurance programme for agriculture which is prone to systemic and covariate risk (where a single risk affects large number of people across large geographical regions) is always a challenge.

Many efforts have been made in the country, to smoothen the risk of the farmers in the form of crop insurance scheme. The implementation of the scheme is always a challenge in terms of farmers benefitted out of this scheme. *In case of sample farmers, not even one farmer out of 1320 farmers expressed his/her satisfaction on the implementation of the scheme. They observed that they were not benefitted by crop insurance despite the crop losses that occurred to them many times. Both the department of agriculture functionaries and bankers, the two stakeholders who were involved in disbursing crop insurance observed during our field visits that they need exposure on the crop insurance schemes.*

An attempt is made below to analyse the implementation of all the three crop insurance schemes i.e., National Agriculture Insurance Scheme (NAIS) , Modified National Agriculture Insurance Scheme (MNAIS) and Weather-based Crop Insurance Scheme (WBCIS) in the State of Telangana and also in sample districts based on secondary data sources.

Implementation of Crop Insurance Scheme in the State

National Agriculture Insurance Scheme –NAIS (1999)

NAIS was introduced during rabi 1999-00, on the basis of area approach i.e., defined areas (unit of insurance) for each notified crop for calamities. The unit area of insurance may be a Gram Panchayat, Mandal, Hobli, Circle, Phirka, Block, Taluka, etc., as decided by the State government. All farmers including sharecroppers and tenant farmers, growing the notified crops in the notified areas are eligible for coverage. The scheme is compulsory for farmers availing crop production loans and voluntary for others. The Table below indicates the number of loanee and non-looanee farmers covered under the scheme in Telangana State. Of ten districts in Telangana all nine districts except Hyderabad were covered under NAIS. Out of the total loanees covered under the scheme, during the last four years, only 9 per cent were benefitted during kharif and during rabi it is slightly higher with 21 per cent. The percentage of non-loanees benefitted under the scheme (Table 4.15) was much higher compared to loanee farmers with 26

and 97 per cent, respectively during kharif and rabi. However, in absolute numbers, they were very less compared to loanees. The percentage of claims settled out of sum insured was much less with 1.6 among the loanees, whereas the same in case of non-loanees was around 9 per cent. During 2010-11, the ratio of farmers covered in case of loanee and non-loanee under NAIS was 138:1.The same during 2013-14 has come down to 23:1.

Table 4.15: Year-wise Implementation of NAIS in Telangana for Loanee Farmers

(₹ in Lakh)

Year	Number of Farmers		Area Insured in Hectares	Sum Insured	Net Premium	Claims	Farmers Benefitted	
	Kharif	Rabi					Kharif	Rabi
2010-11	552367	185030	1050203	217757	5663	1895 (115)	36032 (6.51)	12214 (6.62)
2011-12	520126	323437	1271527	298217	7370	12800 (23)	117132 (22.54)	138328 (42.84)
2012-13	583547	181020	1092192	310402	8283	1552 (200)	15451 (2.63)	26406 (14.64)
2013-14	514989	196373	1026829	338936	8765	2434 (139)	25506 (5.00)	11904 (6.17)
Total	2171029	885860	4440751	1165312	30100	18700 (62)	194121 (8.93)	188852 (21.33)

Source : Agricultural Insurance Company, Hyderabad.

Note : Figures in parentheses in column 7 indicate percentage claims over sum insured
Figures in parentheses in column 8&9 indicate percentage farmers benefitted over farmers covered

Table 4.16: Year-wise Implementation of NAIS in Telangana for Non-loanee Farmers (₹ in Lakh)

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims	Farmers Benefitted	
	Kharif	Rabi					Kharif	Rabi
2010-11	3985	0	4623	607	14	12 (52)	468 (11.76)	0
2011-12	186666	21156	394419	33141	759	4338 (8)	73411 (39.35)	20975 (99.13)
2012-13	80276	517	133444	14071	335	1 (14969)	21 (0.0)	0

(Contd...)

Table 4.16 (Contd...)

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims	Farmers Benefitted	
	Kharif	Rabi					Kharif	Rabi
2013-14	22262	0	25285	5647	150	58 (97)	1261 (5.74)	0
Total	293189	21673	557771	53467	1258	4408 (12)	75161 (25.64)	20975 (96.85)

Source : Agricultural Insurance Company, Hyderabad.

Note : Figures in parentheses in column 7 indicate percentage claims over sum insured. Figures in parentheses in column 8&9 indicate percentage farmers benefitted over farmers covered.

The implementation of crop insurance schemes in the study districts was presented in Annexures VI, Tables 1-8. In Mahbubnagar district the percentage of claims over sum insured was 1.9 and 8.9, respectively among loanee and non-loanee farmers. The same in case of Karimnagar district was 1.3 per cent and 0.009 per cent, respectively. It is also observed that the number of non-loanee farmers were observed to be more in Mahbubnagar district compared to Karimnagar district. In the last four years, 2011-12 was the year where maximum number of farmers were benefitted through the scheme compared to other years in both the districts.

Modified National Agriculture Insurance Scheme (MNAIS)

MNAIS is not being implemented in the study districts.Only Warangal district was covered under MNAIS in Telangana. The scheme was made available only during rabi except for kharif of 2011-12. The percentage of claims over sum insured among loanees was 2.5 .Whereas the same for non-loanees was 23 per cent. The year 2011-12 was the only year during which MNAIS was implemented during kharif. The ratio of loanees and non-loanees covered was 12.3:1 during this year. As in the case of NAIS 2011-12 was the year during which maximum number of farmers were benefitted compared to other years. While the ratio of loanee and non-loanee farmers benefitted during 2010-11 was 2:1, the same during 2013-14 was 15.6:1. Two points could be discerned from the above observations as far as non-loanee farmers are concerned. Firstly, the ratio of non-loanee farmers insured and benefitted against the loanee farmers has been increasing gradually in case of NAIS from 2010-11 to 2013-14. Secondly, the ratio of non-loanee farmers insured against the loanee farmers has not changed much between 2010-11 and 2013-14 under MNAIS.

Table 4.17: Year-wise Implementation of MNAIS in Telangana for Loanee Farmers (₹ in Lakh)

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims	Farmers Benefitted	
	Kharif	Rabi					Kharif	Rabi
2010-11		14648	15806	4539	134.18	20.97 (216)		596 (4.13)
2011-12	16226	11731	40559	13308	315.51	398.14 (33)	3435 (21.24)	1852 (15.83)
2012-13		8842	10136	4210	84.41	95.26 (44)		963 (10.95)
2013-14		8212	8154	4543	118.16	157.48 (29)		1725 (21.0)
Total	16226	43433	74655	26600	652.26	671.85 (40)	3435 (21.23)	5136 (11.82)

Source : Agricultural Insurance Company, Hyderabad.

Note : Figures in parantheses in column 7 indicate percentage claims over sum insured. Figures in parantheses in column 8&9 indicate percentage farmers benefitted over farmers covered.

Table 4.18: Year-wise Implementation of MNAIS in Telangana for Non-loanee Farmers (₹ in Lakh)

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims	Farmers benefitted	
	Kharif	Rabi					Kharif	Rabi
2010-11		8538	6853	2060	61	5 (448)		295 (3.53)
2011-12	1315	1350	3958	535	14	105 (5)	671 (51.0)	691 (51.22)
2012-13		721	578	294	6	29 (10)		394 (54.66)
2013-14		114	49	24	1	4 (6)		110 (96.55)
Total	1315	10723	11438	2913	82	142 (20)	671 (51.0)	1490 (13.92)

Source : Agricultural Insurance Company, Hyderabad.

Note : Figures in parantheses in column 7 indicate percentage claims over sum insured. Figures in parantheses in column 8&9 indicate percentage farmers benefitted over farmers covered.

Weather Based Crop Insurance Scheme (WBCIS)

Agriculture in India is highly vulnerable to weather based parametres such as rainfall, temperature, sunshine, etc., by virtue of their low capacity to deal with adverse weather incidences. This is all the more true for rainfed areas which accounted for 70 per cent of gross sown area in the country. It is well established (National Commission on Water) that rainfall variations account for more than 50 per cent of variability in crop yields. Therefore, the government on realising the need for encouraging pilots, of this promising risk management tool, has supported the weather index insurance programme from 2007 onwards by providing financial support in the form of front ended premium subsidy. The programme on this was launched during 2007 with the technical assistance from Indian Agriculture Research Institute (IARI) to enable product structuring using Crop Growth Simulation Modeling platform. The underlying principle for 'weather index' insurance is the quantitative relationship between weather parametres and crop yields.

This programme has been implemented in the last four years in four districts i.e., Adilabad, Khammam, Nalgonda and Warangal during kharif for both loanee and non-loanee farmers. Karimnagar district has also implemented the scheme but not consistently for all the four years. In addition to these four districts-Karimnagar, Mahbubnagar and Medak districts implemented the scheme for non-loanees during rabi. At the aggregate level, the ratio of loanee and non-loanee farmers covered during kharif 2010-11 was 9.5:1. The same during 2013-14 was 16.5:1. The ratio of loanee and non-loanee farmers covered during rabi 2011-12 was 1: 107. The same during rabi 2013-14 was 1:1. If we see the ratio of number of farmers benefitted through this scheme, it is observed that the ratio of loanee farmers benefitted against non-loanee during 2010-11 kharif was 8:1. The same during kharif 2013-14 was 13.2:1. Whereas the ratio of non-loanee farmers benefitted during rabi 2011-12 was 1:879 and during rabi 2013-14 was 1:18.5.

The number of loanee farmers benefitted compared to the number of farmers covered was much better compared to NAIS and MNAIS with 78 per cent and 17 per cent during kharif and rabi, respectively. The same in case of non-loanee farmers was 85 and 58 per cent, respectively. However, in terms of claim over sum insured it was 7 per cent and 10 per cent, respectively for loanee and non-loanee farmers. In the study districts Karimnagar found is to be better in terms of farmers covered and farmers benefitted during kharif.

Table 4.19: Year-wise Implementation of WBCIS in Telangana for Loanee Farmers (₹ in Lakh)

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims	Farmers Benefitted	
	Kharif	Rabi					Kharif	Rabi
2010-11	94509	0	107256	29357	1587	852 (34)	48833 (51.74)	0
2011-12	108324	5	114964	37716	1848	3596 (10)	94131 (86.96)	3 (60.0)
2012-13	134307	15	144528	81748	2329	5664 (14)	124296 (92.52)	14 (93.33)
2013-14	103188	514	116316	37592	1847	2711 (14)	77539 (75.14)	74 (14.41)
Total	440328	534	483064	186413	7611	12800 (15)	344799 (78.33)	91 (17.01)

Source : Agricultural Insurance Company, Hyderabad.

Note : Figures in parentheses in column 7 indicate percentage claims over sum insured.
Figures in parentheses in column 8&9 indicate percentage farmers benefitted over farmers covered.

Table 4.20: Year-wise Implementation of WBCIS in Telangana for Non-loanee Farmers (₹ in Lakh)

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims	Farmers Benefitted	
	Kharif	Rabi					Kharif	Rabi
2010-11	9985	88	7273	2477	135	156 (16)	5987 (60.00)	88 (100.00)
2011-12	5275	3536	8826	4262	234	441 (10)	5253 (99.63)	2638 (74.62)
2012-13	12304	2106	12325	5310	247	545 (10)	11700 (95.16)	939 (44.62)
2013-14	6218	565	28124	2189	111	275 (8)	5862 (94.35)	4 (0.71)
Total	33782	6295	56548	14239	727	1418 (10)	28802 (85.32)	3669 (58.34)

Source : Agricultural Insurance Company, Hyderabad.

Note : Figures in parantheses in column 7 indicate percentage claims over sum insured.
Figures in parantheses in column 8&9 indicate percentage farmers benefitted over farmers covered.

It is, therefore, revealed from the above Tables that despite the implementation of three types of crop insurance schemes in the State, the percentage of farmers benefitted vis-a-vis the percentage of farmers covered is very less. Among the three schemes, WBCIS seems to be better in terms of both the percentage of farmers benefitted and claims over sum insured. However, the biggest challenge lies in expanding the WBCIS scheme which seems to be the basic risk, if the actual experience of weather risk (rainfall) in the neighbourhood significantly differs from the data recorded at the weather station. This is what happened actually at the field level due to climate change variations, which may not trigger a payout despite the occurrence of damages at an individual farm, or may trigger a payout when loss did not occur.This represents a significant barrier in scaling up of this product.

Chapter V

MAGNITUDE OF INDEBTEDNESS

Numerous studies and reports (Narasimha Rao and Suri, 2006; Mishra, 2010) have argued that one of the major factors associated with the agrarian distress in the late-1990s and 2000s was an increase in rural indebtedness, especially through moneylenders. Therefore, the institutional credit position for priority sector lending of the State was examined, based on secondary data sources.

Institutional Credit to Agriculture

During the last five years it was observed that 2013-14 was the year which witnessed a tremendous growth in credit to agriculture sector lending compared to 2010-11. While the increase in crop loan lending by the cooperative banks was 108 per cent during this period, the same for commercial banks was 76 per cent. Similarly in the overall agriculture sector lending, the cooperative sector has achieved an increase of more than 104 per cent during this period compared to commercial banks' achievement which was only 45 per cent. Besides this, an interest subvention of 2 per cent was made available to Public Sector Commercial Banks (PSCBs), cooperative banks and RRB's from 2006-07 and private sector scheduled commercial banks (in respect of loans given by their rural and semi-urban branches) from 2013-14 for their own funds used for short-term crop loans up to ₹ 3,00,000/- per farmer, provided the lending institutions make available short-term credit at the ground level at 7 per cent per annum to farmers. Besides, additional interest subvention @ 3 per cent will be available to the prompt paying farmers from the date of disbursement of the crop loan up to the actual date of repayment by farmers or up to the due date fixed by the bank for repayment of crop loan, whichever is earlier, subject to a maximum period of one year from the date of disbursement. This also implies that the prompt paying farmers would get short-term crop loans @ 4 per cent per annum during the year 2013-14. This benefit would not accrue to those farmers who repay after one year of availing such loans *. However, despite this, drastic decline in lending is observed

*This issue was raised by bankers during our field visits in the context of debt waiver. With the announcement of debt waiver by the political parties, the farmers have stopped repaying their dues. Since the debt waiver was applicable to only ₹ one lakh, this has benefited the SMF more, whose outstanding loan amount was in this limit. In case of LMF whose outstanding debt has crossed ₹ one lakh, were not covered under interest subvention due to non-repayment within in one year. Therefore, they have ended up in getting their loan rescheduled with the balance amount with commercial rate of interest.

in the succeeding year i.e., 2014 -15 by all the banks for agriculture as a whole. It is observed from Table 5.1 that the decline was more in case of cooperative banks compared to commercial banks during this period i.e., from 2013-14 to 2014-15 . While the cooperative sector lending for crop loans has declined by 241 per cent, the same in case of commercial banks was 195 per cent during this period. Drastic decline was observed in case of RRBs both for crop loans as well as total agricultural lending for the period 2013-14 to 2014-15. While the decline in former case, i.e., crop loans was 69 per cent, in the latter case i.e., total agricultural lending it was 104 per cent. *As per Agriculture Action Plan of Telangana, during 2015-16 the number of operational holdings were 55.53 lakh. Whereas, the number of accounts under direct finance to agriculture during 2013-14 were 77.14 lakh and 64.45 lakh during 2015-16. This refers to the case of multiple lending to the farmers.* In case of indirect finance, which refers to loans given to institutions that support agricultural production such as input dealers, irrigation equipment suppliers and Non-Banking Financial Companies (NBFCs) that lend to agriculture credit deepening was observed in the last three years compared to credit widening (Table 5.2). From 2013-14 to 2014-15 the number of accounts have come down from 2.78 lakh accounts to 0.83 lakh accounts and further to 0.37 lakh accounts by 2015-16. In terms of total amount, it has declined from 2013-14 to 2015-16 by 46.08 per cent. While the average loan amount per account in case of direct finance has increased from ₹ 26,118 in 2013-14 to ₹ 46,364 in 2015-16, the same in case of indirect finance has increased from ₹ 58,416 to ₹ 2,98,575 during this period.

Table 5.1: Year-wise and Bank-wise Achievements (₹ in Crore)

	Crop Loans		Agri Term Loans		Allied Activities of Agriculture		Total Agriculture	
2010-11	N	% Share	N	% Share	N	% share	N	% share
Commercial Banks	19166.8	63.4	9269.5	95.7	6650.3	83.0	35086.6	73.2
Cooperative Banks	5497.7	18.2	248.6	2.6	172.8	2.2	5919.1	12.3
Regional Rural Banks	5564.1	18.4	166.4	1.7	1193.6	14.9	6924.1	14.4
Grand Total	**30228.6**		**9684.5**		**8016.6**		**47929.7**	
2011-12								
Commercial Banks	25980.9	71.3	10813.5	95.7	8555.1	79.5	45349.4	77.5

(Contd...)

Table 5.1 (Contd...)

	Crop Loans		Agri Term Loans		Allied Activities of Agriculture		Total Agriculture	
Cooperative Banks	4698.7	12.9	353.8	3.1	159.4	1.5	5211.9	8.9
Regional Rural Banks	5771.1	15.8	133.6	1.2	2044.5	19.0	7949.2	13.6
Grand Total	**36450.7**		**11300.9**		**10758.9**		**58510.5**	
2012-13								
Commercial Banks	23798.62	64.1	4895.34	77.3	7771.28	81.7	36465.25	68.8
Cooperative Banks	6810.75	18.3	722.85	11.4	585.99	6.16	8119.60	15.3
Regional Rural Banks	6518.38	17.5	709.88	11.2	1154.89	12.1	8383.16	15.8
Grand Total	**37127.75**		**6328.07**		**9512.16**		**52968.01**	
2013-14								
Commercial Banks	33875.8 (+76.7)	65.2	9532.8	84.6	7688.7	74.8	51097.3	69.5
Cooperative Banks	11472.5 (+108)	22.1	543.4	4.8	93.0	0.9	12108.9	16.5
Regional Rural Banks	6607.0	12.7	1187.8	10.5	2493.1	24.3	10288.0	14.0
Grand Total	**51955.3**		**11264.0**		**10274.8**		**73494.1**	
2014-15								
Commercial Banks	11464.62 (-195)	61.2	2575.88	89.4	1837.27	63.9	15877.77	64.8
Cooperative Banks	3354.93 (-241)	17.92	58.97	2.04	153.07	5.33	3566.97	14.5
Regional Rural Banks	3898.42 (-69.47)	20.8	244.11	8.47	881.3	30.6	5023.83	20.53
Grand Total	18717.97 (-177.56)		2878.96		2871.64		24468.57	

Source : Annual Credit Plan and SLBC Reports.

*Total Agrl 2014-15 includes Indirect Finance to Agriculture.

Figures in parentheses in column two during 2013-14 indicate percentage increase over 2010-11. Similarly figures in parentheses in 2014-15 indicate percentage decrease from 2013-14.

Table 5.2: District-wise Direct and Indirect Finance (₹)

	2013-14				2014-15				2015-16			
	Agrl Direct		Agrl Indirect		Agrl Direct		Agrl Indirect		Agrl Direct		Agrl Indirect	
	A/C	Amount (Cr.)	A/C	Amount(Cr.)	A/C	Amount (Cr.)	A/C	Amount (Cr.)	A/C	Amount (Cr.)	A/C	Amount (Cr.)
Adilabad	415408	1790.6	0	0	554768	2423.71	0	0	864043	3680.68	0	0
Karimnagar	1578794	2513.5	0	0	1127065	2748.26	20918	585.71	1294002	3586.57	0	0
Khammam	821241	1921.02	38444	867.24	887984	3188.32	0	0	1064640	3728.23	0	0
Mahbubnagar	452246	2994.7	0	0	317714	3455.65	0	0	513156	4657.92	0	0
Medak	212388	1433.3	3927	24.69	333468	2729	0	0	405022	2632.91	201	2.01
Nalgonda	2690983	2017.1	0	0	361268	2335.14	19256	578.17	410406	2575.49	17851	535.2
Nizamabad	182508	3111	0	0	422974	2862.01	22605	677.99	665217	3786.42	19165	575
Rangareddy	210828	9951.8	63751	248.80	262323	2666.63	0	0	235765	1616.44	0	0
Hyderabad	0	0	0	0	0	0	0	0	0	0	0	0
Warangal	550374	1806	172011	484.00	867022	2642	20715	341.09	993074	3618.51	0	0
Total	71,14,770	1808.53	2,78,133	1624.74	51,34,586	25050.72	83,494	2182.96	64,45,325	29883.17	37,217	1112.21
		26,118		**58,416.75**		**48,786.83**		**2,61,336.13**		**46,364.10**		**2,98,575.91**

Source : Annual Credit Plan and SLBC Reports.

Agricultural Term Loans

Banks give agricultural term loans in the form of both direct and indirect finance to cultivators to create assets facilitating crop production/income generation. Repayments span is not less than 3 years and not exceeding 15 years. Activities broadly covered are land development, minor irrigation, farm mechanisation, plantation and horticulture, dairying, poultry, sericulture, dryland, and waste land development schemes. The major share of lending of agricultural term loans was by commercial banks with 96.7 per cent followed by RRBs with 3.6 per cent and cooperative banks with only 1.7 per cent during 2010-11(Table 5.1). The share of commercial banks has reduced by 89.4 per cent while that of RRB's has gone by 8.47 per cent in the last five years. Same as in the case of crop loans or short-term loans the term loans extended by all the three sectorial banks have also increased during 2013-14 and 2010-11. However, the increase was more by cooperative banks and RRBs compared to commercial banks. The decline in term loans by commercial banks was drastic in 2014-15 with ₹ 2575.88 crore compared to ₹ 9532.8 crore in 2013-14 i.e., a decline of 270 per cent. The fall in the term loan disbursed by cooperative banks and RRBs from 2013-14 to 2014-15 was by 820 and 386.5 per cent, respectively.

The district-wise data regarding the component-wise lending in respect of term loans is presented in Annexure VII Tables 5.3 A to E. It is observed in Annexure Table 5.3 A that both the number of accounts and credit disbursed for dug wells has come down from 2010-11 to 2014 -15. The major share was cornered by Medak, Karimnagar, Nalgonda and Ranga Reddy districts during 2014-15. At the aggregate level there was rapid decline in the number of accounts of borewells and pumpsets from 87,287 in 2010-11 to 8579 in 2014-15 i.e., by 917 per cent and in amount from ₹ 28.93 lakh to ₹16.26 lakh i.e., by 77.9 per cent giving an indication of decline in institutional credit support to rainfed irrigation systems. The decline at such rapid level at the aggregate was due to rapid decline in accounts in Warangal district. (Annexures, Table 5.3 B). Maximum number of accounts were seen in Medak district followed by Nalgonda . While the increase in number of accounts for borewells and pumpsets was 42.6 per cent in Medak district from 2010-11 to 2014-15, the same in amount was 512 per cent. The institutional credit for borewells and pumpsets in Mahbubnagar district was seen only during 2013-14. The decline in number of accounts of irrigation pumpsets was 204 per cent during the last five years. (Annexures, Table 5.3 C)**.** Drastic decline in the number of accounts was observed in case of sprinkler systems and drip systems during the last five years at the aggregate level by 68.4 per cent and 37.6 per cent respectively. (Annexures, Table 5.3 D & E). Similar situation was observed in all the districts except Nizamabad district which has seen an increase in number of accounts under sprinkler systems during the last five years. This decline in institutional credit support systems to

these irrigation systems in the State has led the farmers resorting to non-institutional funding at a higher rate pushing them into debt trap which is discussed in the next section.

Institutional and Non-institutional Credit Details of the Sample Farmers

The extent of institutional and non-institutional lending to the sample farmers, their multiple sources of lending and the credit consumption details were examined in this section.The total amount of credit that was disbursed against all the family members of a farmer household was taken for the institutional credit details. All the sample farmers surveyed were covered under the institutional credit system. It is observed from Table 5.3 that out of 220 sample farmers surveyed under each of the categories of cooperative bank, commercial bank and RRBs, on an average a farmer under SMF category was having an amount of ₹ 1,56,033 as credit through various institutional sources. The same for LMF category was ₹ 4,98,500. In Narayanpet mandal of Mahbubnagar district farmers of LMF category were observed to be pledging the redgram crop for receiving the loan under warehouse receipt. The institutional lending to SMF category was catered more by RRBs followed by commercial banks and cooperatives banks. The same for LMF was more by commercial banks.

Fig. 6: Institutional Credit Details (₹) - Average per Household

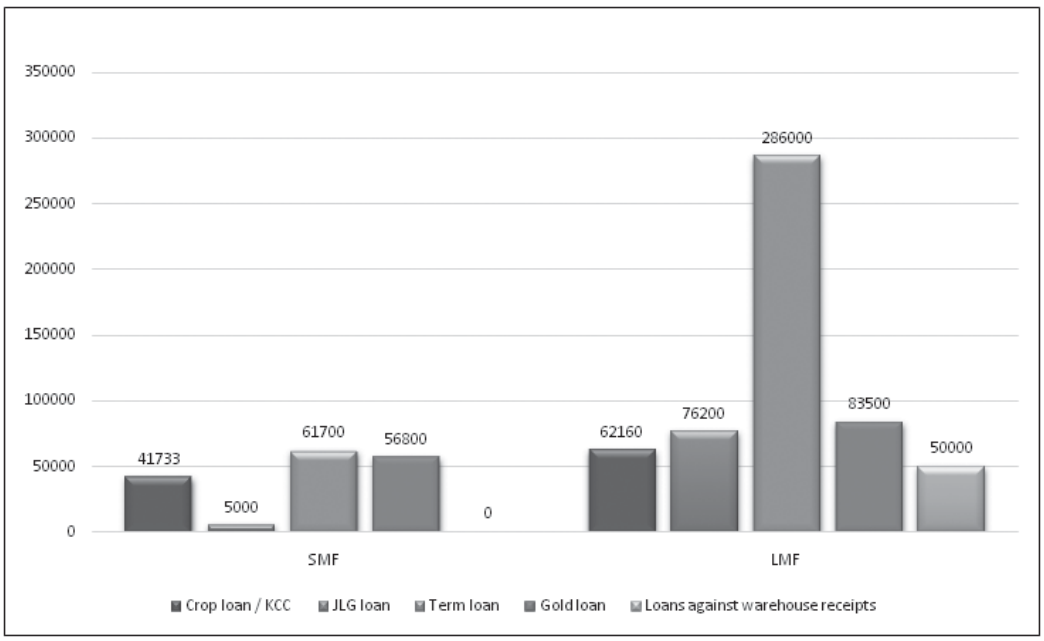


Table 5.3: Institutional Credit Details (₹)

Loan Amount (Average per Household)

Type of Loans	Cooperative Bank		Commercial Bank		RRB		Total	
	SMF (220)	LMF (220)	SMF (220)	LMF (220)	SMF (220)	LMF (220)	SMF (220)	LMF (220)
Crop loan / KCC	27900	43700	40500	61200	56800	81600	41733	62160
JLG loan	-	-	-	91800	50000	70000	5000	76200
Term loan	-	266000	62500	316000	60000	275000	61700	286000
Gold loan	47800	67200	55000	95300	67600	77700	56800	83500
Loans against warehouse receipts	-	-	-	-	-	50000	-	50000
Produce marketing loan	-	-	-	-	-	-	-	-
Total	75,700	3,76,900	1,58,000	5,64,300	2,34,400	554300	1,56,033	498500

Source : Primary Survey.

Note: Figures in parentheses under the category of farmers indicate their total number.

The farmers in addition to borrowing from institutional finances are depending on multiple sources of non-institutional borrowing for various purposes. As observed in Table 5.4 almost 97 per cent of farmers belonging to LMF category and 100 per cent of the farmers belonging to SMF category are depending on non-institutional sources for various purposes. The main sources of non-institutional borrowing for both the groups are moneylenders and seed or fertiliser dealers. Commission agents in the market yards do play a role in providing credit to the farmers for various purposes. Majority of the sample farmers i.e., 71.85 per cent of SMF and 62.57 per cent of LMF depend on multiple source of borrowing. It was higher among the Mahbubnagar farmers with 77.08 and 71.22 per cent as compared to that of Karimnagar district with 66.06 and 69.09 per cent in case of SMF and LMF, respectively. It is observed that the farmers are depending on a combination of sources for various purposes. Maximum number of SMF (25 per cent) and LMF (21 per cent) are depending on Moneylender+Seed/fertiliser dealer +Commission agent+SHG followed by Money lender+Seed/fertiliser dealer+Commission agent.

Table 5.4: Non-institutional Credit - Multiple Lending Sources

Occupation	Karimnagar		Mahbubnagar		Total	
	SMF (330)	LMF (330)	SMF (330)	LMF (330)	SMF (660)	LMF (660)
A. Moneylender	75 (22.73)	43 (13.03)	42 (12.73)	39 (11.82)	117 (17.7)	82 (12.42)
B. Seed/Fertiliser dealer	19 (5.76)	29 (8.79)	5 (1.52)	24 (7.27)	24 (3.63)	53 (8.03)

(Contd...)

Table 5.4 (Contd...)

Occupation	Karimnagar		Mahbubnagar		Total	
	SMF (330)	LMF (330)	SMF (330)	LMF (330)	SMF (660)	LMF (660)
C. Commission agents	3 (0.91)	3 (0.91)	1 (0.30)	2 (0.61)	4 (0.60)	5 (0.75)
D. Micro Finance Company	-	4 (1.21)	1 (0.30)	1 (0.30)	1 (0.15)	5 (0.75)
E. SHG	15 (4.55)	14 (4.24)	24 (7.27)	29 (8.79)	39 (5.90)	43 (6.51)
F. Moneylender + Seed/fertiliser dealer	90 (27.27)	44 (13.33)	49 (14.85)	34 (10.30)	139 (21.0)	78 (11.81)
G. Moneylender + Seed/ fertiliser dealer + Commission agent	42 (12.73)	59 (17.88)	89 (26.97)	68 (20.61)	131 (19.8)	127 (19.2)
H. Moneylender + Seed/ fertiliser dealer + Commission agent +SHG	76 (23.03)	62 (18.79)	91 (27.58)	82 (24.85)	167 (25.3)	144 (21.8)
I. Moneylender +SHG	10 (3.03)	39 (11.82)	7 (2.12)	16 (4.85)	17 (2.57)	55 (0.83)
J. Seed/Fertiliser dealer+ Commission agent	-	24 (7.27)	21 (6.36)	35 (10.61)	21 (3.18)	59 (8.93)
K. Total	330 (100)	321 (97.27)	330 (100)	330 (100)	660 (100)	651 (98.6)

Source: Primary Survey.
Note: Figures in parentheses indicate percentage of the respective sample farmers.

Table 5.5 presents the amount of non-institutional credit availed by a farmer on an average, in addition to the institutional credit. This amount was not taken exclusively during this year or last year but perpetuated over the last five years due to the inability of the farmer to pay back. Only interest is being paid by the farmers ranging from 24 per cent to 48 per cent with the principal remaining. The debt burden of the farmers of LMF category was higher than SMF category. The farmers of Karimnagar were having higher debt burden than Mahbubnagar district. The debt burden of farmers who are taking land on lease was much higher with around ₹ 3 lakh for LMF and ₹ 2 lakh for SMF category (Table 5.6). The total debt burden of the sample farmers in both the districts is given in Table 5.7. While the debt burden of SMF category accumulated on an average over a period of time was ₹ 3,56,400, the same for LMF category was ₹ 8,17,600. While the share of non-institutional borrowing was more for SMF with 53.6 per cent of their total

debt, the share of institutional borrowing out of total borrowing was more for LMF with 68.3 per cent (Table 5.7).

Table 5.5: Extent of Non-institutional Borrowing on an Average by the Farmers with Own Land (₹)

Occupation	Karimnagar		Mahbubnagar		Total	
	SMF	LMF	SMF	LMF	SMF	LMF
1. Money lender	99200	121000	83400	107700	90500	109000
2. Seed/Fertiliser dealer	15600	20300	26800	32100	24000	30500
3. Commission agents	48300	75000	25000	33000	37500	57700
4. Micro finance company	-	25000	25000	30000	25000	22000
5. SHG	34400	41900	30100	35100	32900	39300
Total	197500	283200	190300	237900	191200	258500

Source : Primary Survey.

Table 5.6: Extent of Non-institutional Borrowing on an Average by the Farmers with Own Land +Leased-in Land (₹)

Occupation	Karimnagar		Mahbubnagar		Total	
	SMF	LMF	SMF	LMF	SMF	LMF
1. Money lender	125100	162000	93900	122000	99300	142000
2. Seed/ Fertiliser dealer	24100	36700	22500	43000	21100	42500
3. Commission agents	60,000	50000	40,000	55000	48,000	52500
4. Micro finance company	-	30000	-	-	-	30000
5. SHG	35100	36300	50000	28200	44600	34200
Total	2,44,300	3,15,000	2,06,400	3,70,200	2,13,000	3,01,200

Source : Primary Survey.

Table 5.7: Total Debt Burden of the Sample Farmers in Both the Districts (₹)

Source	SMF	LMF
Institutional	165200(46.3)	5,59,100(68.3)
Non-institutional	1,91200(53.6)	258500(31.61)
Total	3,56,400	8,17,600

Source : Primary Survey.

* Figures in parentheses indicate percentage of the respective sample farmers.

Chapter VI

CROP DEBT WAIVER SCHEME

The debt waiver as a mechanism to address the agrarian distress was introduced in the country during 1990-91 by the Union Government for an amount of ₹ 10,000 crore. Subsequently during 2008-09 another debt waive /debt relief was announced by the Union Government for the farm loans of around ₹ 60,000 crore of which the total value of overdue loans being waived for marginal and small farmers was estimated at ₹ 50,000 crore and the one time settlement relief for other farmers was estimated at ₹ 10,000 crore. The Governments of Telangana and Andhra Pradesh have implemented the debt waiver scheme during the last year i.e., 2014. The Government of Telangana has estimated the total debt of the farmers to be an amount of ₹ 17,000 crore which will be released in four instalments of ₹ 4,250 each. During the time of field visits of the study team second instalment amount was being released to the farmers.

In this section the implementation of the debt waiver scheme of Telangana and the observations of the sample farmers on the scheme was examined. The support systems that the farmers are expecting from the government have been presented in this chapter. The debt waiver scheme of Telangana covers short-term production loans and the loans for crop production against gold, disbursed by Scheduled Commercial Banks, Cooperative Credit Institutions and RRBs. The eligible amount for debt waiver is limited to the amount of loan (together with applicable interest) which is disbursed and outstanding as on 31 March, 2014 or ₹ one lakh per farmer family whichever is lower. The scheme is applicable to all the farmers, irrespective of dryland or irrigated conditions.

The Process of Settlement of Debt Waiver: Field Observations

During 2014 when the Government of Telangana released the first instalment of debt waiver scheme, all the banks rescheduled their loans in the following manner:

- The farmers borrowed the crop loans from the cooperative banks by submitting the pass books and also borrowed crop production loans against gold from the commercial banks, by submitting a photo copy of the pass book. Thus multiple lending by different banks has become an issue while waiving off the debt. Therefore, during 2014, all the bankers at mandal level joined together and worked out the extent of crop loans and short-term loans against gold taken by the farmers and their family members from different banks.

- Though the interest subvention scheme was announced during 2013-14 in which the farmers who repay the loans within one year will be charged with only 4 percent interest majority of the farmers (Only few farmers interviewed in

Laxmipur village in Jagitial mandal have promptly repaid within one year) have not repaid the due, expecting a waive off. Therefore, at the time of calculation of first installment of debt waive off, all these farmers fell into the bracket of commercial rate of interest.

- If the combined loan amount for a farmer (SMF) does not exceed one lakh,the bankers have considered the entire loan for waiving off. Accordingly they have calculated his/her outstanding debt as in July 2014 with Principal + Interest (Now it is commercial rate as the farmers have crossed one year for the loan taken) and waived off 25 per cent and rescheduled the remaining amount to next year.

- If the total debt (including interest) of a farmer and his family members taken from different banks has not crossed ₹ one lakh then the entire debt was considered to be waived off in four installments.

- If their combined loan amount with interest has crossed ₹ one lakh, the waive off was considered in whichever bank has maximum loan amount. While waiving off the first installment the outstanding amount till date was considered with commercial rate of interest (as it crossed one year) and only 25 per cent of the outstanding amount was waived off and the balance amount was rescheduled to the next year. In the second year, when the second installment was announced in September, 2015 (i.e., at the time of our survey) the outstanding amount was again rescheduled with the interest rate of 4 per cent.

- In this way, the whole process of debt waive off through installments appeared to have helped the bankers to recover their NPAs but not of much help to the farmers. Had it been a onetime settlement,the farmers could have received fresh loans for farm investment.

- The announcement of debt waiver during 2013 has affected the repayment discipline of term loans to an extent of ₹ 8386 crore (Table 4.8). The farmers observations on debt waiver scheme is given below. Only 9 per cent among SMF and 3.7 per cent among LMF viewed affirmatively that debt waiver scheme is useful to them.

Table 6.1: Farmers' Observations on Debt Waiver Scheme

S No	Observation	SMF(660)	LMF(660)
1.	Whether the Debt Waiver Scheme is useful to you		
	Yes	60	25
	Yes, but	520	467
	Can't say	72	190

Source: Primary Survey.

Table 6.2: Farmers' Expectations from the Government (%)

S. No	Observation	SMF (660)					LMF (660)				
		Most wanted	Wanted	Desired	Acceptable	Not necessary	Most wanted	Wanted	Desired	Acceptable	Not necessary
1	Provision of irrigation	100	-	-	-	-	100	-	-	-	-
2	Support for digging wells/borewells	-	80	20	-	-	-	75	25	-	-
3	Support for livestock in the form of purchasing the animals	15	65	20	-	-	10	60	30	-	-
4	Support for infrastructure such as Shade nets	-	25	75	-	-	50	10	40	-	-
5	Extension services	80	20	-	-	-	100	-	-	-	-
6	Free power		50	30	20				80	20	
7	Better price for their produce (Procurement by the Government)	100					100				

Source : Primary Survey.

Table 6.3: Farmers' Expectations from the Government (%)

S.No.	Observation	SMF (660)	LMF (660)	Total (1320)
1.	Provision of irrigation	100.00	100.00	100.00
2.	Support for digging wells/bore wells	76.00	75.00	75.40
3.	Support for livestock	79.00	76.20	77.60

(Contd...)

Table 6.3 (Contd...)

S.No.	Observation	SMF (660)	LMF (660)	Total (1320)
4.	Support for infrastructure such as shade nets	65.00	82.00	73.60
5.	Extension services	96.00	100.00	98.00
6.	Free power	66.00	56.00	61.00
7.	Better price for their produce	100.00	100.00	100.00

Source : Primary Survey.

Majority of the farmers i.e., 80 per cent of SMF and 67 per cent of LMF felt that the debt waiver scheme would have been beneficial to them, had it been a onetime settlement (Table 6.1). Otherwise the instalment that is being released is only serving the purpose of rescheduling the loans without any provision for crop investment. Therefore, they were not completely sure about the point that the debt waiver scheme implemented in the State was beneficial to them. Surprisingly around 11 per cent of SMF and 25 per cent of LMF felt that very little relief was provided to them keeping in view of their total debts. This point is also corroborated with the figures in Table 5.8 which shows the outstanding debt of the farmers including institutional and non-institutional. It can, therefore, be derived that debt waiver scheme could mitigate 28 per cent of the outstanding debt of SMF (which is ₹ 3,56,400/) and 12 per cent of the outstanding debt of LMF (which is ₹ 8,17,600/). A scale was developed on certain parametres seeking out farmers expectations from the government. Accordingly, scores were arrived at. As observed in Table 6.2 and Table 6.3, if these support systems could be delivered by the government in terms of irrigation or supplementary livelihood sources such as livestock or low cost interventions such as shade-nets that protect the crop against unseasonal rainfall, heat waves or from any other climatic aberrations, as desired by the farmers, the impact on the farm economy would be higher.

Chapter VII

ISSUES AND RECOMMENDATIONS

Based on the discussion emanated from the previous chapters the following issues and recommendations are presented in this chapter.

1. ***Irrigation growth and share of irrigation by different sources:***. Growth in different sources of irrigation in the State of Telangana in three different time periods i.e., 1971-85, 1985 -2001 and 2001 to 2013 reflects the fact that an increase in irrigation growth was observed during the last period i.e., 2001 to 2013 compared to the previous time periods. The percentage contribution of each source of irrigation to the total irrigation in each district during the period 2001-01 and 2012-13 corroborates the fact that the private investment in irrigation through tubewells has grown up at an alarming high rate in Telangana compared to public investment. Karimnagar (Irrigated) district witnessed higher growth rate with 15.94 per cent compared to Mahbubnagar (Rainfed) district during the last time period.

2. ***Access to irrigation and investment on irrigation by the sample farmers:*** Increase in irrigation facility was higher among the LMF category of irrigated district with an increase in the growth rate under irrigation compared to the rainfed district. Compared to the other sources of irrigation, the percentage of farmers who depend exclusively on borewell was more with 42 in case of SMF and 52 in case of LMF. The number of farmers who depend rainfed farming either completely or partially was about 66 and 61 per cent in case of SMF and LMF, respectively. The dependency on rainfed farming was more in Mahbubnagar district for both the category of farmers. Access to micro irrigation facilities was only 8 and 12 per cent among SMF and LMF, respectively. Access to micro irrigation was more for the farmers in Karimnagar as compared to farmers in Mahbubnagar district.

3. ***Institutional lending for augmenting ground water source:*** Secondary data sources revealed that institutional lending for digging the wells/borewells and pumpsets has come down during the last five years which could be observed with decline in accounts by 917 per cent and in amount by 77.9 per cent. Drastic decline in the number of accounts was observed in case of sprinkler systems and drip systems in the last five years by 68.4 per cent and 37.6 per cent, respectively.

4. ***Production vulnerability:*** Production vulnerability was tried to assess through cropping pattern in the event of crop failure. More vulnerability was observed

among the farmers in rainfed district where the percentage of SMF following monocropping was 68 and the same for LMF was 63. Whereas the same in case of irrigated district was 44 and 28 per cent by SMF and LMF, respectively. While both the categories have been intensively cultivating their lands as reflected through their cropping intensity, it is the LMF of Karimnagar who were in better condition in this aspect compared to others. The degree of intensification was also examined through Crop Diversification Index (CDI) and observed that except the LMF of Karimnagar district, the SMF category of both the districts including the LMF of Mahbubnagar district appeared to be vulnerable with respect to their cropping pattern.

5. ***Occupational vulnerability*:** Occupational vulnerability of the sample farmers was assessed through their dependence on multiple sources of livelihood inversely. The occupational vulnerability of both the categories seems to be high with 55 per cent in case of SMF and 52 per cent in case of LMF, depending only on agriculture sector. The number of farmers who depend on livestock in addition to agriculture were in the range of 26 to 33 per cent in case of both SMF and LMF categories. This was slightly better in case of irrigated district as compared to Mahbubnagar district. The number of households who engage in non-farm activity were limited to around one per cent in both the category of farmers whereas the all India figures on non-farm activities contribute around 25-35 per cent of the total household income in rural India.

6. ***Financial vulnerability:*** Profitability Index was worked out based on the reported input costs by the farmers and gross value of farmers output. Except cotton crop which was the major crop in rainfed district, the profitability index of other major crops signifies profitability. However, if the economic costs would have been taken into consideration all the major crops cultivated by the farmers in both the districts would lead to substantial losses. The average monthly income of a farm family for SMF category was worked out to be ₹ 3842 and the same for LMF was ₹ 7449. This was very less when compared to the All India estimated report on monthly income based on 70th round., i.e., ₹ 7348 and ₹10,730, respectively, for these categories. Only, the LMF category of Karimnagar district with ₹10, 624 was on par with the All India estimated average monthly income figures.

7. ***Coping mechanisms (Ex -Ante) :*** The major coping mechanisms identified in both the districts being implemented by the farmers were diversification to plantation crops like mango and orange and dependency on livestock as an additional source of income. The land under plantation crops in irrigated district

was more among LMF with 13.8 per cent compared to SMF with 6.8 per cent. The percentage of farmers who depend on livestock in addition to agriculture was 26 and 33 in case of SMF and LMF, respectively. This percentage was higher in Karimnagar district as compared to Mahbubnagar district for both the categories. Land leasing was seen as an important coping mechanism by the farmers to augment their production base in the study districts. The number of leased-in farmers were found to be higher among LMF category as compared to that of SMF category.

8. ***Crop insurance:*** The major coping mechanism being implemented by the State is crop insurance. However, not even one farmer out of 1320 sample farmers was observed to be benefitted out of crop insurance scheme in the last ten years. The secondary data sources between the years 2010-11 and 2013-14 regarding the implementation of different crop insurance schemes revealed the fact that, Weather Based Crop Insurance Scheme (WBCIS) appeared to be reaching out the beneficiaries in a better way as compared to NAIS and MNAIS in terms of percentage of farmers benefitted, out of total farmers covered.

9. ***Institutional borrowing:*** Secondary data sources reveal that in the last five years drastic decline in agricultural lending was observed during 2014-15 compared to the previous year i.e., 2013-14, with the expectation of announcement of debt waiver scheme. The decline in crop loans in cooperative sector, commercial banks and RRBs was to the extent of 241 per cent, 195 per cent and 104 per cent, respectively. The percentage decline in terms of loans was much more drastic with 820 , 386.5 and 270, respectively by cooperative banks, commercial banks and RRBs.

While the number of operational holdings in the State was 55.53 lakh, the number of accounts under direct finance to agriculture during 2013-14 was 77.14 lakh and 64.45 lakh during 2015-16. This refers to the case of multiple lending to the farmers. In case of indirect finance credit deepening was observed in the last three years compared to credit widening with a decline in number of accounts from 2.78 lakh in 2013-14 to 0.37 lakh in 2015-16 and increase in average loan amount per account from ₹ 26,118 to ₹ 46,364 during the same period.

10. ***Magnitude of indebtedness of sample farmers:*** Majority of the sample farmers i.e., 71.85 per cent of SMF and 62.57 per cent of LMF depends on multiple sources of borrowing. It was higher among the Mahbubnagar farmers with 77.08 and 71.22 per cent as compared to that of Karimnagar district with 66.06 and 69.09 per cent in case of SMF and LMF, respectively. The debt

burden of SMF categoryaccumulated on an average over a period of time was ₹ 3,56,400 and the same for LMF category was ₹ 8,17,600. While the share of non-institutional borrowing was more for SMF with 53.6 per cent of their total debt, the share of institutional borrowing out of total borrowing was more for LMF with 68.3 per cent.

11. ***Implementation of debt waiver scheme in the State :*** Majority of the farmers i.e., 80 per cent of SMF and 67 per cent of LMF felt that the debt waiver scheme would have been beneficial to them, had it been a onetime settlement. They observed that the instalment that was released has served the purpose of rescheduling the loans without any provision for crop investment. Around 11 per cent of SMF and 25 per cent of LMF felt that very little relief was provided to them keeping in view of their total debts.

Recommendations

- Public investment on ground water must be considered where there is no provision to augment surface irrigation. Access to ground water must be under the control of State/Panchayats particularly in the areas which are identified as dark zones by the ground water department. This prevents over exploitation of the ground water and excess investment by the farmers on ground water which is the main factor leading them to vicious debt trap.
- Supporting micro irrigation facilities like drip and sprinkler systems is important in rainfed districts. Institutional lending for these must be given priority.
- Developing knowledge base on synergic blending of crops and livestock and disseminating it is imperative to reduce the vulnerability of farmers in rainfed areas.
- The debt waiver scheme could have much better impact on the farmers had it been a onetime settlement and keeping in view of magnitude of indebtedness in rural areas.
- Investment on rural infrastructure such as low-cost storage structures, shade-nets that protect the crop against unseasonal rainfall, heat waves or from any other climatic aberrations would go a long way in benefitting the farmers than short-term relief measures in the form of debt waiver.

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ANNEXURES

Annexure-I

Proceedings of Workshop on
"Agrarian Distress, Coping Mechanisms and Ramifications of Debt Waiver Scheme"

(Sponsored by NABARD)

(Held at Karimnagar and Mahbubnagar in August, 2015)

Introduction

The programmes were organised with the support of NABARD, DDM, and Lead Bank Manager of Karimnagar and Mahbubnagar districts. The participants include District Bank Managers of Commercial Banks, Cooperative Banks and RRBs. Leading NGOs of the district and progressive farmers have also attended the programme and participated in the discussion. The total participants were around 100 (50 in each of the workshops).

Concerns Expressedby the Farmers

- Increase in the cost of cultivation in agriculture with an increase in input cost and labour charges. Shortage of labour due to implementation of MGNREGS programme.
- High cost of the seed and seed failure .
- No inputs from the agriculture department on package of practices to be followed.
- While contingency plans are being given by the department, there is no mechanism in place to provide the timely availability of recommended variety of seed during the time of droughts.
- The price of paddy has increased in the last decade from ₹ 800 to ₹ 1400 i.e., by 75 per cent, where as the price of DAP has increased from ₹ 480 to ₹ 1200 per bag i.e., by 150 per cent.

- No payment of crop insurance despite regular deduction of premium through crop loans. Payment of premium for crop insurance should be left to willingness of the farmers.
- Multiple factors are there for farmers suicides which act cumulatively sometimes. Though increase in expenditure for bore wells is the main culprit, other factors do play a role such as increase in expenditure for education, health, marriages, etc.

Concerns Expressed by the Bankers

- The crop loan estimated for Karimnagar district is about ₹ 5000 crore, whereas the actual loan disbursed is about ₹ 2000 crore. It is important to identify the gaps both in supply side and demand side in loan disbursement mechanism.
- The scale of finance for VLR facility is only up to ₹ one lakh but it should be extended as per the acreage. It is all the more problematic at the time of renewal as the farmers are not in a position to get any additional benefit for further investment. Further it is observed that debt waiver is not implemented for the rescheduled loans and also the rate of interest is more pushing the farmers into debt wrap.
- Most of the farmers are diverting their short-term loan i.e., crop loan to purposes such as digging the bore well. If it fails they are unable to meet neither the investment cost of the crop nor irrigate the crop sufficiently, which is leading to a vicious cycle of depending on the non-institutional finance at a higher rate of interest.
- At present interest subvention is applicable only to crop loans which should be extended to long-term loans.
- Timely implementation of interest subvention.
- Installment release of debt waiver is not serving the purpose.
- As the tenant farmers are not getting any institutional finance, there is a programme by NABARD to organise them into JLGs. There is potential for 20,000 JLGs in Karimnagar district, whereas there are only 3000 registered RMG and JLGs now. However, the existing JLGs are not actively functioning as there is no external support for them like SHGs which are getting support through IKP.

- At present tenant farmers are also eligible for institutional finance under loan eligibility cards (LECs). The government is not issuing any loan eligibility cards since last year. They have to be issued for 5 years instead of 1 year.
- After the announcement of debt waiver 30 per cent of the SHG are going for investment credit. JLGs also should go for the same.
- Bank managers are not aware about the parametres or the conditions under which insurance could be paid to the farmers. Some exposure is needed for them in this area.
- The system of estimating the loss of crop on the basis of last 5 years average crop cutting experiments is not giving the correct picture of actual loss being incurred by the farmer during the respective year.

Concerns Expressed by the Department of Agriculture

- Shortage of staff at all levels in the agriculture department is a major concern. A decade ago, there was one AEO for 1000 acres, the same person is looking after 2000 acres at present i.e., for 4 revenue areas there is one AEO.
- There is an increase in burden on AEOs with so many works assigned to them-conducting surveys, acting nodal officers for Swachha Bharat and Gram Jyothi in addition to their regular departmental administrative works which is affecting the upgradation of their knowledge and also transfer of this knowledge to the fields.
- Deskilling of labour because of MGNREGS is another issue.

Annexure-II

List of Participants of One-day Workshop for Research Study on "Agrarian Distress, Coping Mechanisms and Ramifications of Debt Waiver Scheme" at Karimnagar on 25th August, 2015

S. No.	Name and Designation	Address	Phone No & E Mail
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3	Penchala Ramaiah, Farmer	Gattududdenapalle	9490562696
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5	A. Tirupathi Reddy, Farmer	Bhoopalapatnamvillage VChappadandi	8801413717, 9866255057
6	N. Srinivas	Bhoopalapatnam village V Chappadandi	9848996349
7	M.Ganga Reddy, PACS Chairman	Konaraopet (v) & (M)	08723 227066, 8008501710
8	L.Sheel, Branch Manager	Telengana Grameena Branch, Arnalwada Branch, Choppadandi (M)	9491041844
9	G. Mahipal	Mallapoor (V) Dharmaram (M)	9010159909
10	Y. Brahmananda Rao, Manager	K D CC Bank LTD, Kaimnagar	7702700508
11	Md Riyazuddin, A G M	2-6-76, Sikhwadi, Head Office, DCC Bank Kaimnagar	0878 2262192, 7702700505 banking.kdccb@gmail.com riyazsaco123@gmail.com
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15	V. Ram Reddy, Farmer	Pothur Village Illintakunta (M)	9948526150
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27	Muchaachyutyh Reddy, AAO	Mulkanoor Co Operative society C/o MCRB&MSLTD, Mulkanur	08727 248221, 9959105602 achyuthreddy@gmail.com
28	Tokala Devender, Project Manager	A.K Viswanatha Reddy Rural Development Society, Mulokanur	08727 248221, 9441404783 mcrbms1956@gmail.com devender1502@gmail
29	B. Satish Reddy, Project Manager	Gramanava Nirmana Samithi, Manthany	9395149035 seishreddy252002@gmail.com
30	K.Madhusudhanarao, CEO	SEWS watershed, Old Urban Colony Sangeetha Nilayam, Vemulavada	9440701904
31	M. Narasimhareddy, CEO	Gramana Vanirmana Samithi, H No 6-1-40/1, Mulkanur road, Godavarikhani	9849411749 muddasani_n@yahoo.com
32	DrN.Venkateswara Rao, Senior scientist & Head	KrishivigyanKendra, Jammikunta	O8727 253550, 098485 73710 beelamrao2000@gmail.com
33	Kanakanala Raghotham Reddy, Branch Manager	Telangana Grameena Bank, Jammikunta	9491041848
34	V. Rajasekhar Rao, Branch Manager	Telangana Grammena Bank, Laxmipur Branch, Jagityal	9491041831 varugantiraj.1957@gmail.com
35	T. Vijay kumar, Branch Manager	Ramadugu	08782273460, 9491041852 tamgad123@gmail.com
36	Enaganti Prasad Rao, Branch Manager	Telangana Grammena Bank, Choppadandi	9491041833,9866578306 prenganti@gmail.com
37	G.S.S.S.Ramakrishna, Dy Manager	SBH, ADB, Peddapally	9985301599
38	U.N.Srinivasa Rao, Branch Manager	SBH, Kamanpur	08728 286927, 9866014673 kamanpur@sbhyd.co.in
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Annexure-III

List of Participants of One-day Workshop for Research Study on "Agrarian Distress, Coping Mechanisms, Ramifications of Debt Waiver Scheme" at Mahbub Nagar on 27th Aug, 2015.

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Annexure-IV

Study on "Agrarian Distress, Coping Mechanisms and Ramifications of Debt Waiver Scheme" Questionnaire

1. Date:

2. Farmer Name in Full:

3. Husband's Name (In case of women farmer):

4. Full Address :

Village	Tahasil/Mandal	District

5. Caste : SC/ ST/ BC/ OC

6. Age: /Yrs

7. Education level: Illiterate/Elementary School/ High School / Intermediate/ Degree/ PG

8. Size of Family : Wife, Son : Major (Number) Minor (Number), Daughter- Major (Number) Minor (Number) /others

9. Area of land under cultivation : Ac
   Of the above area : a) Land owned : Acres
   b) Leased : Acres
   c) Assigned Land (Acres):

   Of the above area under Cultivation : a) Irrigated area : Acres
   b) Un irrigated area : Acres

10. Source of Irrigation : Canal /Tank/ Borewell

11. Investment on
    a) Irrigation through borewells : (Number) Amount (₹) :
    Land Irrigated (Acres) :

    b) Micro Irrigation (Drip/Sprinkler) : (Acres) Amount (₹) :
    Subsidy Received (₹) :

    c) Land Leveling Cost : (Acres) Amount (₹) :

12. Assets Owned :

1. Household : a) House : Own/Rent ; Kuccha/Pucca ; Toilet Y/N
b) Scooter : Y/N c) Car : Y/N d) Bicycle : Y/N
e) Mobile Y/N (No) f) TV Y/N g) Refrigerator : Y/N

2. Agricultural Implements : Tractor : Y / N, Power Tiller : Y/N,
Other Agri implements : Y/N Specify:

3. Livestock : a) Cows (No) Buffalos (No)
b) Goat/ Sheep/ Piggery : Y /N Nos
c) Poultry Y/N Nos

13. Crops Grown during 2014-15 i.e., Last Kharif, Rabi and Summer

Name of the Crop	Kharif			Rabi			Summer			Long-term Crops		
	(Ac)	Prodi on kgs/ Q)	Price /Q	(Ac)	Prodi on kgs /Q)	Price /Q)	(Ac)	Prodi on kgs /Q)	Price /Q)	(Ac)	Prodi on kgs /Q)	Price /Q) /kg tonne

14. Inputs Application during 2014-15 /per Acre

	Input	Quantity	Source		Amount Spent (₹)
			a) of Information	b) of Purchase	
Crop 1	Seed				
	Fertiliser				
	Pesticide				

	Input	Quantity	Source		Amount Spent (₹)
			a) of Information	b) of Purchase	
Crop 2	Seed				
	Fertiliser				
	Pesticide				
Crop 3	Seed				
	Fertiliser				
	Pesticide				

15. Employment

a. No of labour days for your family in a year (Last year)

	Agrl Operations	MGNREGS	Other sources (Name them)		
			1	2	3
Husband					
Wife					
Others					
1.					
2.					
3.					

b. Labour hired for agriculture operations in your land (Last year) /Per acre

	Crop (Name)		Crop (Name)		Crop (Name)		Crop (Name)	
	No of days (Total person days)	Wages paid/day	No of day	Wages paid/day (Total person days)	No of days	Wages paid/day (Total person days)	No of days	Wages paid/day
Men								
Women								

16. Expenditure Incurred for Hiring Machinery in Agriculture Operations (₹)

Crops	Land Levelling /Primary tillage	Weeding	Harvesting	Any other
Crop 1-				
Crop -2				
Crop-3				
Crop-4				

17. Sources of Livelihood of Your Family (Pl tick against the respective box) (2014-15)

	Agrl	Livestock	Daily wage labour	Enterprise /Trading	Service	Any other (Pl specify)
Approx monthly/ Annual income from each category						

18. How do you cope up during bad climate years ?

19. Source of fodder for livestock during bad climate years :

20. Are you aware of the loan facilities available from bank :

a) Kisan Credit Card : Y/N

b) Gold Loan : Y/N

c) Produce Marketing Loan : Y/N

d) Loans against Warehouse Receipts : Y/N

e) Joint Liability Group Loan : Y/N

21. Banking Facilities Availed
Name of the Bank :

Type of Loan	Bank	Loan Amt (₹)	Datelast availed	Present dues (₹)
Crop loan / KCC				
JLG loan				
Term loan				
Gold loan				
Loans against warehouse receipts				
Produce marketing loan				
Any Other loan				

22. Loans Availed from Others (Other than Bank):

Lender	Purpose		Amount taken (Rs)	Rate of interest
	1	2		
Money lender				
Seed/Fertiliser dealer				
Commission agents				
Micro Finance Company				
SHG				

23. If Loan availed from Micro Finance Company /SHG if any :

a) Name of the Company :

b) Name of the Borrower : (Self or family member) :

24. If not paid on due date/ not at all paid / paid with delay / loan rephased reasons for not paying the loan in time.

25. Indicate your preference regarding the following parameters that you are expecting the government (please tick your score starting with 5 as highest preference)

Parametre	5	4	3	2	1
Provision of irrigation					
Support for digging wells / bore wells					
Support for livestock					
Support for infrastructure such as shade nets					
Extension services					
Free power					
Better price for their produce					

26. If any member of your family died , Reasons for death :

a) Natural death ; Y/N) Chronic illness: : Y/N

c) Suicide : Y/N

d) Reason for Suicide :

e)Any compensation paid by Govt/ if not , reason for delay:

f) Any other reason (Specify) :

27. Crop Insurance:

Name of the crop	Kharif / Rabi	Insured / Not insured	Premium paid

28. For how many times you have paid the premium amount and how much ?

29. Whether crop loss has declared any time ? If so when ? How much amount you have received? If not received, reasons for non-settlement

30. During 2014 assembly elections several political parties announced debt waiver:

How much is your outstanding loan amount :_____₹.

Have you not repaid expecting the debt waive off : Yes / No

How much is your loan waived off so far : _____₹.

In how many installments it will be waived off and when : _____

What are your observations on debt waiver scheme

31. Any other comments / Observation:

Date : Signature (Optional)

Name & Address of the Investigator :

Annexure-V

Table 4.1A : District-wise and Source-wise Share of Irrigation (2001-02) (Ha)

	Canals	Tanks	Wells	Other Sources	Total
1. ADILABAD	24180 (31.8)	21481 (28.2)	29871 (39.2)	580 (0.8)	76112
2. KARIMNAGAR	64659 (24.6)	28897 (11.0)	167004 (63.5)	2298 (0.9)	262858
3. KHAMMAM	46178 (29.8)	33689 (21.7)	54906 (35.4)	20295 (13.1)	155068
4. MAHBUBNAGAR	16862 (10.3)	7402 (4.5)	133181 (81.4)	6161 (3.8)	163606
5. MEDAK	2778 (2.1)	8079 (6.2)	118591 (91.1%)	761 (0.6)	130209
6. NALGONDA	62678 (32.3)	13511 (7.0)	105622 (54.4)	12249 (6.3)	194060
7. NIZAMABAD	24584 (14.6)	17988 (10.7)	121291 (72.1)	4450 (2.6)	168313
8. RANGAREDDY	2849 (4.0)	2948 (4.1)	64600 (89.8)	1507 (2.1)	71904

	Canals	Tanks	Wells	Other Sources	Total
9. WARANGAL	3323 (1.1)	58819 (19.5)	236127 (78.2)	3732 (1.2)	302001
Total	248091 (16.3)	192814 (12.7)	1031193 (67.7)	52033 (3.4)	1524131

Source: Directorate of Economics and Statistics Andhra Pradesh.
* Figures in parantheses are percentages.

Table 4.2 B: District-wise and Source-wise Share of Irrigation 2013-14 (Ha)

	Canals	Tanks	Wells	Other Sources	Total
1. ADILABAD	15160 (11.3)	21658 (16.1)	95004 (70.6)	2720 (2.0)	134542
2. KARIMNAGAR	103403 (15.6)	45984 (6.9)	513141 (77.4)	629 (0.1)	663157
3. KHAMMAM	87179 (31.8)	52369 (19.1)	116582 (42.6)	17857 (6.5)	273987
4. MAHBUBNAGAR	37126 (10.7)	9764 (2.8)	283920 (82.0)	15500 (4.5)	346310
5. MEDAK	3604 (1.3)	22391 (8.2)	246083 (89.6)	2447 (0.9)	274525
6. NALGONDA	142783 (30.6)	24069 (5.2)	276942 (59.4)	22075 (4.7)	465869
7. NIZAMABAD	59191 (14.6)	20279 (5.0)	318168 (78.3)	8810 (2.2)	406448
8. RANGAREDDY	1495 (1.5)	2867 (2.8)	96192 (94.3)	1414 (1.4)	101968
9. WARANGAL	20433 (4.1)	83486 (16.8)	389483 (78.3)	3782 (0.8)	497184
Total	470374 (14.9)	282867 (8.9)	2335515 (73.8)	75234 (2.4)	3163990

Source: Directorate of Economics and Statistics Andhra Pradesh.
* Figures in parantheses are percentages.

Annexure-VI

Table 1 : Implementation of NAIS in Karimnagar District for Loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2010-11	79379	25643	137229	31961	828.25	261 (122)	7236 (9.1)	1847 (7.2)
2011-12	87585	40988	166206	45350	1158.46	1850 (25)	16873 (19.3)	19242 (46.9)
2012-13	78701	26446	135427	45139	1259.66	18 (2512)	808 (1.0)	0
2013-14	75926	29015	119922	48820	1084.13	138 (355)	2778 (3.7)	0
Total	321591	122092	558784	171270	4330.5	2267 (76)	27695 (8.6)	21089 (17.3)

* Insured to Claim Ratio ** Formers benefitted as a percentage of farmers covered.

Table 2 : Implementation of NAIS in Mahbubnagar District for Loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2010-11	104910	50860	263141	43882	1095.23	72 (609)	615 (0.6)	4454 (8.8)
2011-12	111615	90811	336212	68108	1637.21	4388 (16)	40419 (36.2)	50570 (55.7)
2012-13	119736	51892	287576	66351	1851.04	292 (228)	1224 (1.0)	11603 (22.4)
2013-14	124487	58779	291233	85397	2456.23	300 (285)	43 (0.0)	9001 (15.3)
Total	460748	252342	1178162	263739	7039.71	5052 (52)	42301 (9.2)	75628 (30.0)

* Insured to Claim Ratio ** Formers benefitted as a percentage of farmers covered.

Table 3 : Implementation of NAIS in Karimnagar District for Non-loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2010-11	0	0	0	0	0	0	0	0
2011-12	567	0	1002	102	2.31	0	1(0.2)	0
2012-13	0	0	0	0	0	0	0	0
2013-14	0	0	0	0	0	0	0	0
Total	567	0	1002	102	2.31	0	1(0.2)	0

Table 4 : Implementation of NAIS in Mahbubnagar District for Non-loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2010-11	12	0	13	1	0.02	0	2(16.7)	0
2011-12	69149	21154	167103	15993	365.63	2149 (7)	32291 (46.7)	20973 (99.1)
2012-13	22048	0	39913	5467	134.85	0	0	0
2013-14	10977	0	12975	2681	79.67	0	0	0
Total	102186	21154	220004	24142	580.17	2149 (11)	32293 (31.6)	20973 (99.1)

Table 5 : Implementation of WBCIS in Karimnagar District for Loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2011-12		0	0	0	0	0	0	0
2012-13		0	0	0	0	0	0	0

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2013-14	6802	509	9692	3193	161.62	383 (8)	6509 (95.7)	74 (14.5)
Total	6802	509	9692	3193	161.62	383 (8)	6509 (95.7)	74 (14.5)

Table 6 : Implementation of WBCIS in Mahbubnagar District for Loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2011-12	0	2	8	4	0.2	0	0	0
2012-13	0	0	0	0	0	0	0	0
2013-14	0	1	0	4	0.21	0	0	0
Total	0	3	8	7	0.41	0	0	0

Table 7 : Implementation of WBCIS in Karimnagar District for Non-loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2011-12		1042	1550	928	53.35	68 (14)	0	597 (57.3)
2012-13		180	366	247	14.18	59 (4)	0	168 (93.3)
2013-14	13	0	9	3	0.14	0	13 (100.0)	0
Total	13	1222	1925	1177	67.67	127 (9)	13 (100.0)	765 (62.6)

Table 8 : Implementation of WBCIS in Mahbubnagar District for Non-loanee Farmers

Year	Number of Farmers Covered		Area Insured in Hectares	Sum Insured	Net Premium	Claims*	Farmers Benefitted	
	Kharif	Rabi					Kharif"	Rabi"
2011-12	0	912	1161	663	38.14	22.49 (29)	0	682 (74.8)
2012-13	0	3	5	3	0.19	0	0	0
2013-14	0	0	0	0	0	0	0	0
Total	0	915	1166	667	38.33	22.49 (30)	0	682 (74.5)

Annexure-VII

5.3 A:District-wise Total Lending for Dug wells (₹ in Thousand)

	2011-12		2012-13		2013-14		2014-15	
	A/C	Amount	A/C	Amount	A/C	Amount	A/C	Amount
Mahbubnagar	0	0	0	0	421	12900	0	0
Medak	1357	77298	1357	77298	1628	92758	1956	417221
Nizamabad	48	5980	0	0	0	0	0	0
Adilabad	79	2300	79	2300	32	2200	32	2200
Karimnagar	6941	247674	6938	245614	3018	221540	1217	97740
Warangal	7	4000	10	12000	0	0	0	0
Khammam	725	52560	778	56376	869	62568	1391	85716
Nalgonda	560	6680	590	7300	590	13100	1180	23553
Rangareddy	60	17995	328	63560	145	140356	0	0
Hyderabad	0	0	0	0	0	0	0	0
Total	14062	1090780	10080	464448	6703	545422	5776	626430

Source : Annual Credit Plan and SLBC Report.

5.3 B: District-wise Total Lending for Bore wells and Pumpsets (₹ inThousand)

	2011-12		2012-13		2013-14		2014-15	
	A/C	Amount	A/C	Amount	A/C	Amount	A/C	Amount
Mahbubnagar	120	1442	52262	317354	2728	83900	0	0
Medak	2946	193616	2946	193616	3535	232339	4201	1185102
Nizamabad	1050	307359	1968	408133	1968	509335	1170	130951
Adilabad	428	15300	428	15300	391	18900	566	12500
Karimnagar	5480	285264	5619	778453	4815	521050	265	40698
Warangal	329	29108	629	54000	0	0	0	0
Khammam	1250	112410	1254	112770	1233	10745	847	84311
Nalgonda	57224	359369	61115	356700	61315	439200	1530	172707
Rangareddy	3503	92018	4315	171799	6492	83932	0	0
Hyderabad	0	0	0	0	0	0	0	0
Total	87287	2893402	130536	2408125	82477	1899401	8579 (917)	1626269 (77.9)

Source : Annual Credit Plan and SLBC Report.

5.3 C District-wise Total Lending for IP Sets (₹ in Thousand)

	2011-12		2012-13		2013-14		2014-15	
	A/C	Amount	A/C	Amount	A/C	Amount	A/C	Amount
Mahbubnagar	138	3905	24	138	6	200	0	0
Medak	1065	41619	1065	61619	1278	73943	1545	195220
Nizamabad	568	52991	552	75275	552	91953	938	54474
Adilabad	7397	125100	7397	125100	3275	64500	1456	41100
Karimnagar	3030	154367	3030	154367	3643	112526	2321	69300
Warangal	31034	167117	4034	267000	3370	257609	3668	281692
Khammam	1903	55187	1643	47647	1749	47753	2794	145051
Nalgonda	0	0	0	0	0	0	5097	294715
Rangareddy	124	27625	124	27625	124	27625	47	8515
Hyderabad	0	0	0	0	0	0	0	0
Total	54358	1094012	17869	758771	24078	1151279	17866	1090067

Source : Annual Credit Plan and SLBC Report.

5.3D : District-wise Total Lending for Drip (₹ in Thousand)

	2011-12		2012-13		2013-14		2014-15	
	A/C	Amount	A/C	Amount	A/C	Amount	A/C	Amount
Mahbubnagar	13341	121453	210	798	1822	56000	0	0
Medak	176	3283	176	32833	211	39400	262	233558
Nizamabad	560	90001	1782	153097	1782	190682	1498	112337
Adilabad	0	0	0	0	0	0	0	0
Karimnagar	2538	89002	2535	86933	19705	85120	259	9360
Warangal	8048	95811	4048	106000	3823	254046	3747	256897
Khammam	5506	17531	5075	16226	5351	79170	4520	136821
Nalgonda	8292	63627	6330	52600	6330	70400	1450	108816
Rangareddy	1605	52764	1605	52764	1605	50664	0	0
Hyderabad	0	0	0	0	0	0	0	0
Total	55887	1438217	21761	501251	53360	1678335	11736	857789

Source : Annual Credit Plan and SLBC Report.

5.3 E : District-wise Total Lending for Sprinkler (₹ in Thousand)

	2011-12		2012-13		2013-14		2014-15	
	A/C	Amount	A/C	Amount	A/C	Amount	A/C	Amount
Mahbubnagar	234	193	396	40995	1242	38200	0	0
Medak	60	1438	60	9438	72	11326	91	9780
Nizamabad	218	28002	218	38715	218	48372	729	27321
Adilabad	0	0	0	0	0	0	0	0
Karimnagar	2005	46812	2003	44703	5405	25027	269	6084
Warangal	37776	96399	3776	110500	3410	215331	3188	210742
Khammam	1613	332	1405	294	924	15485	1248	37440
Nalgonda	5743	52181	3475	45400	3475	58900	1247	46785
Rangareddy	245	8261	245	8261	245	8261	0	0
Hyderabad	0	0	0	0	0	0	0	0
Total	53123	513603	11578	298306	19095	690345	6772	338152

Source : Annual Credit Plan and SLBC Report.

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