



SaciWATERs Working Paper Series

Social Safety Net Programmes in Selected Villages of Andhra Pradesh

Arjun Surendra, Neena Rao, Madhusudhan Bhattarai

Working Paper No: ICRISAT/02

2014

SaciWATERs

ICRISAT
Science with a human face

**International Crops Research Institute
for the Semi-Arid Tropics**

Citation

Surendra Arjun, Rao Neena, Bhattarai Madhusudhan. 2014. Major Social Safety Net Programmes in the Context of Dryland Farming: Review and Synthesis. Working Paper No. ICRISAT/01, The South Asia Consortium for Interdisciplinary Water Resources Studies, Sainikpuri, Secunderabad, India.

Acknowledgements

This research work was made possible through a funding from CGIAR Research Program on Policies, Institutions and Markets (or CRP- PIM) and co-funded from Village Dynamics Studies in South Asia (VDSA) project sponsored by the Bill & Melinda Gates Foundation to ICRISAT and consortium of its partners. SaciWATERS is one of ICRISAT's partner organisation.

First published in September, 2014.

Copy rights © SaciWATERS, 2014.

Attribution: You must attribute the work in the manner specified. Non-commercial: You may not use this work for commercial purposes. No Derivative Works: You may not alter, transfer, or build on this work.

Designed by: Raju Kakkerla

For further information please contact:

B-87, 3rd Avenue, Sainikpuri, Secunderabad - 500 094, Telangana, India.

Contact: +91 40 27116721

Telefax : +91- 04 - 27116721, 27117728

Email : info@saciwaters.org

SaciWATERs Working Paper Series

Social Safety Net Programmes in Selected Villages of Andhra Pradesh

Arjun Surendra, Neena Rao, Madhusudhan Bhattarai

SaciWATERs

 **ICRISAT**
Science with a human face

**International Crops Research Institute
for the Semi-Arid Tropics**

List of Authors

- Arjun Surendra Research Associate, SaciWATERS, Sainikpuri, Secunderabad, Telangana, India. email – arjun.esd@gmail.com
- Neena Rao Director of Project Implementation, SaciWATERS, Sainikpuri, Secunderabad, Telangana, India. email – Rao_neena@hotmail.com
- Madhusudhan Bhattarai Principal Scientist (Economics), Market, Institutions and Policies, ICRISAT, Patancheru, Hyderabad, Andhra Pradesh, India. email – b.madhu@cgiar.org
- 

Contents

Executive Summary	01 - 01
1 Introduction	02 - 04
1.1 Objectives and scope	04
2 Methodology	05 - 06
2.1 Selection of four villages in Andhra Pradesh	05
2.2 Methods used for eliciting information	06
3 Major issues faced in the selected villages	07 - 13
3.1 Changes in agricultural practices	09
3.1.1 Telangana region	09
3.1.2 Andhra region	09
3.2 Migration	10
3.2.1 Telangana region	10
3.2.2 Andhra region	10
3.3 Labour availability and other labour-related issues	11
3.3.1 Telangana region	11
3.3.2 Andhra region	11
3.4 Drinking water and sanitation	11
3.4.1 Telangana Region	11
3.4.2 Andhra region	12
3.5 Food security	12
3.5.1 Telangana region	12
3.5.2 Andhra region	12
3.6 Variability of purchase prices	13
3.7 Cold storage	13
3.8 Lack of infrastructure	13
4 Major social safety net (SSN) programmes operating in the selected village	14 - 27
4.1 Major formal safety net programmes	14
4.1.1 Public Distribution System (PDS)	14

4.1.2	Self Help Groups	16
4.1.3	Insurance and subsidies through the Agriculture Department	17
4.1.4	Subsidy for sprinklers and drip irrigation system	17
4.1.5	Social security pensions	18
4.1.6	INDIRAMMA	18
4.1.7	Loan facility through PACS, banks, and other organized sources	19
4.1.8	Milk co-operative society	20
4.1.9	Arogyasree and other health-care related schemes	20
4.1.10	MGNREGA	20
4.1.11	Midday Meal	23
4.2	Informal social safety nets	24
4.2.1	Friends and neighbours	24
4.2.2	Relatives and family	25
4.2.3	Chit funds	25
4.2.4	Money lenders and pawn brokers	25
4.2.5	Trade-agricultural buyers	26
4.2.6	Agricultural input suppliers	26
4.2.7	Village retail shop owners providing goods on credit	26
4.2.8	Income from remittances	27
5	Implication of social safety net programmes	28 - 32
5.1	Implications of social safety net programmes on selected welfare indicators	29
5.1.1	Impact of SSN programmes on wage rates	29
5.1.2	Impact on livelihood diversification	29
5.1.3	Impact on food and nutritional security	30
5.1.4	Impact on access to institutions	30
5.1.5	Impact on farm productivity, labour availability, and migration	31
5.2	Interactions of SSN programmes with each other	31
5.3	Shortcomings of the various SSN programmes	31
6	Conclusions	33 - 34
7	References	35 - 37
	<i>Appendix</i>	<i>a - c</i>

List of tables

Table 1. Overview of selected villages	05
Table 2. Number of Fair Price shops in the village	14
Table 3. Overview of the benefits of the Mana Beeyam Scheme	15
Table 4. Number of SHGs in the villages	16
Table 5. Pension beneficiaries in the selected villages	18
Table 6. Beneficiaries of INDIRAMMA in each village (from FGDs)	18
Table 7. Details of financial institutions in the villages	19
Table 8. MGNREGA in Andhra Pradesh in 2012	21
Table 9. Average days worked per household under NREGA	21
Table 10. Major work carried out under MGNREGA in the selected villages	22
Table 11. Quantity of Items Consumed by Children	24

List of Pictures

Picture 1. Discussion with Milk Cooperative representative in J. C. Agraharam	20
Picture 2. Land levelling under NREGA in Dokur	22
Picture 3. Removal of P.juliflora roots under NREGA in Aurepalle village	22

List of abbreviations

APGVB	Andhra Pradesh Grameen Vikas Bank
FAO	UN Food and Agricultural Organization
FGD	Focus Group Discussion
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
INDIRAMMA	Integrated Novel Development in Rural Areas and Model Municipal Areas
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NREGA	National Rural Employment Guarantee Act
PACS	Primary Agricultural Credit Society
PDS	Public Distribution System
SAT	Semi-arid Tropics
SHG	Self Help Groups
SPP	Social Protection Programmes
SSN	Social Safety Net
VDSA	Village Dynamics in South Asia

Social protection programmes are programmes instituted by governments or society that help protect citizens from “risks, vulnerabilities, and deprivations”. Social protection can be considered an insurance against poverty. It may be instituted by governments ('official' social protection) or otherwise ('unofficial' social protection). 'Social Safety Nets' are subsets of such programmes. Such protection is needed as poverty is a major issue in India, especially in rural areas, where

about 70 percent of the population still live. It is estimated that some 40 percent of them are below the poverty line. This is especially true for the semi-arid tropics (SAT) of India, where 40 percent of India's rural poor live, despite only covering 37% of the country's area. The rural poor in SAT India are faced with shocks and seasonalities that increase their vulnerability, such as water scarcity under increasingly variable climatic conditions, and issues of food and livelihood security. The SAT area in the state of Andhra Pradesh in South-India is a case in point. This paper examines the issues that had an influence on vulnerability in four selected villages in the state and examines how, if at all, social safety net programmes alleviate these issues. To this end, focus group discussions and informal interviews were carried out among landless and land-owning inhabitants of the villages.

The findings of the study are as follows. Though issues differ slightly from village to village, a common thread was seen in the form of lack of access to water resources for farming. This has far-reaching impacts on migration, labour availability, and food security. Other issues reported referred to sanitation, and fluctuating prices, the latter with respect to selling agricultural produce and purchasing essential commodities. A large number of safety nets function in these villages. Major programmes include the Mahatma Gandhi National Rural Employment Guarantee Scheme, Public Distribution Systems, Self Help Groups, health insurance schemes, housing schemes, agricultural subsidies, and loan waivers. Although official social safety nets were found functional in all villages, to varying degrees, their reception and impacts appeared mixed.

Of the official formal safety net programmes, only self-help groups were reported functioning excellently, and not many complaints were raised about it. With respect to other official safety nets, gaps were identified in the implementation on the ground, mostly due to lack of monitoring. There is room for improvement in this regard. Besides, respondents were telling that, even when fully functional, these programmes often do not help them with problems faced in the village.

People often resort to unofficial safety nets, due to urgent need or because official safety nets were ineffective in specific cases. Among these unofficial safety practices, borrowing from friends and relatives was found the most common and preferred method of obtaining money in times of need as well as buying on credit at local stores.

It was seen that current social safety net programmes do not fully address issues faced in the village. To get better results, it is important to increase transparency in the implementation process. In addition, even though there is already some convergence between government schemes, more convergence and streamlining would be beneficial. Another issue is the lack of ownership among beneficiaries, where community-led initiatives to solve problems are lacking. This could be addressed through advocacy and capacity building in a rights-based approach.

1 Introduction

Social protection can be thought of as an 'insurance policy' against poverty. It could also be used as a tool for inclusiveness in developments. According to the United Nations (2005), social protection programmes help the poor and vulnerable (or those otherwise in dire situations) attain or even rise above minimum standards of well-being. Such programmes usually include efforts made by the government as well as society to protect citizens "from risks, vulnerabilities and deprivations". These could be carried out in several ways such as providing livelihood, education, social welfare (through direct and indirect money transfers), health care, and part- or full-time employment. There is no single universal definition of the term (Gentilini and Omamo 2005).

Social protection programmes could be of four types (Devereux and Sabates-Wheeler 2004):

Protective: to provide relief from deprivation such as social pensions and social services (for example, free primary education),

Preventive: to prevent deprivation that may occur from shocks and seasonalities, such as medical and unemployment insurance,

Promotive: to increase real incomes, capabilities, and livelihood, and

Transformative: to address social inequity problems such as discrimination against specific groups.

Although formal social protection has become a common phenomenon in developing countries only recently, there is a significant thrust on social protection programmes in their policies. It is regarded an important tool for poverty eradication.

A subset of social protection programmes, are 'Social Safety Nets'. According to Gentilini & Omamo (2005), social protection is a broader concept than social safety nets. Scholars and developmental organizations use 'social safety net' for public and private mechanisms that help individuals maintain a minimum level of consumption (Paitoonpong et al. 2008). But the definition is not consistent in literature. A large number of synonyms used at the time of study include: social security, economic security, income security, cash transfers, welfare, and entitlements among others (Midgley 2012).

According to Paitoonpong et al. (2008), Social Safety Net programmes can be classified into public and private as well as formal and informal. Formal and informal safety nets can be distinguished by the concept of 'legal guarantee'. The first are those that legally guarantee individuals access to economic or social support, while the second provide a likelihood support, with no guarantee from the government.

Informal safety nets can be further classified as either private or public. 'Private' refers to support obtained from other individuals, community institutions, caste-based institutions, etc. Public informal safety nets originate from government authorities. They include programmes that may generate employment or generate assets and the like, to prevent individual people from falling below a minimum standard of living. The key difference between formal and informal safety nets is the guarantee of support (Reddy 1998).

Social protection, in terms of free food distribution to the poor, has a long history - from ancient India (Kattumuri and Singh 2013), to Egypt and Rome on to medieval England (Alderman and Hoddonit 2007).

Social protection as we know it today may be said to have started in Germany in the late 1800s (Rimlinger 1968), followed by many other western nations in the early part of the 20th century. As historical developments and needs of each country are different, social protection has evolved and works differently in different countries. Social protection programmes exist in both developed and developing nations. In the former, social protection was initially often geared to help overcome short-term income shortfalls among beneficiaries, or for retirement and health benefits. But in the latter, ground realities are different with chronic poverty and long-term deprivations. Here, social safety nets are more directed to addressing poverty and vulnerability (Barrientos 2010). In both cases it is those people who are prone to chronic or temporary declines in income that need such protection the most. They are most susceptible and likely to suffer unpredictable variations in spending ability, which affects their ability to survive shocks and stresses, and increases their vulnerability.

Obviously, the poor are most benefited by social safety nets. This is an important fact to consider, as there are over 1 billion people in the world living on less than US\$ 1 a day and 2.7 billion people subsisting on less than US\$ 2 a day. It is well-known that most of the world's poor live in developing countries. Of the 1.4 billion poor in the developing world, 70 percent live in rural areas (IFAD 2011). These comprise mainly subsistence farmers, landless labourers, pastoral groups, and artisans; many are indigenous peoples and migrants. All lack sufficient assets and capital, and are often worst hit by shocks and seasonalities, leading to increased vulnerability.

This, in turn, has brought about cases of distress sale of physical assets and reduced nutritional intake. Other reductions in human and social capital gave rise to coping mechanisms such as migration (Kabeer 2002).

This situation of poverty is also influenced by agro-climatic factors, with a higher incidence in areas prone to floods and drought, and areas difficult to irrigate.

The semi-arid tropical regions of the world are prone to scarcity and variability of rainfall. The incidence of poverty is higher in such regions. With high vulnerability, a large number of poor people are affected by shocks and seasonalities such as natural disasters, variability in income, heavy rainfall, and so on. Such uncertainties have an adverse effect on the poor weighing them down; they shape social, political, and economic relationships to the detriment of the poor. Obviously, social protection programmes are useful in alleviating the impacts.

In many cases, when implemented properly, social protection schemes have been shown to play a role in the reduction of poverty and vulnerability (Devereux 2002). Social protection may also provide some support for broader developmental objectives, such as improved nutrition, health, education. Social protection can also help promote empowerment of women (OECD 2009).

In India, about 70 percent of the population live in rural areas. It is estimated that some 40 percent of the rural population live below the poverty line, compared to 26 percent of those living in urban areas (IFAD 2011). Significantly, while the semi-arid tropics of India cover only 37 percent of the total area, around 40 percent of India's rural poor live there (Rao et al. 2000). Also, literacy rates are low in the SATs (Kerr 2000).

India has a number of social protection programmes and policies in place in an attempt to alleviate these problems, with a special focus on the rural poor. Some major protection programmes deal with food security, income security, women and child welfare, employment guarantees as well as conditional and unconditional cash transfers, such as non-contributory old-age pensions. In addition, schemes for

subsidized housing, water supply, and sanitation exist, along with more traditional subsidies to farmers.

The southern Indian state of Andhra Pradesh¹, the state of this study, has a large semi-arid region that is subject to rainfall variability, water scarcity, soil degradation, and other issues associated with drought and climate variability. This study examined issues faced by four selected villages in the state and assessed how social protection programmes help in reducing stresses caused by these problems.

1.1 Objectives and scope

To alleviate poverty and improve standards of living, the Government of India instituted several social protection programmes such as the Public Distribution System and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). There are state-specific adaptations in Andhra Pradesh.

This study set out to document, compare, and contrast functioning of these programmes, and to provide a base for understanding the Andhra Pradesh models of social protection. To that effect, it carried out an elementary situational analysis of the functioning of various official SSN programmes in four villages in rural SATs of the state. It also investigated informal safety net programmes operating in the target villages.

These were the specific objectives of the study:

- To identify major issues facing the selected villages,
- To investigate the functioning of formal and informal social protection programmes and how they help in addressing the issues faced, and
- To identify what issues were faced in terms of access to these programmes.

¹ The state of Andhra Pradesh was bifurcated on June 2nd 2014, creating a new state of Telangana along with the residuary state of Andhra Pradesh. The study was carried out prior to the division.

2.1 Selection of four villages of Andhra Pradesh

Four villages in two districts of Andhra Pradesh were selected as they were part of the VDSA project of the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT).

In this project, ICRISAT had been collecting panel data, ensuring data availability and logistical support.

The villages selected are presented in Table 1. (More information about them is given in Appendix 1.)

Table 1. Overview of selected villages

District/ State	Village/ Mandal	Details
Mehbubnagar / Telangana	Aurepalle/ Madgul	Aurepalle represents a region with medium to shallow alfisols and an annual rainfall of about 700 mm, distributed erratically. Soil depth ranges from 15 to 45 cm. Cotton, paddy, sorghum, pearl millet, castor, and pigeon pea are the major crops. As of 2010, Aurepalle had a population of around 4760.
	Dokur/ Devarkadra	Dokur represents the medium to shallow alfisol region. It has an annual rainfall of about 730 mm, distributed erratically. Major crops are paddy, groundnut, castor, pigeon- pea and cotton. As of 2010, Dokur had a population of around 3000.
Prakasam/ Andhra Pradesh	Pamidipadu/ Korisapada	The major soils of the village are shallow to deep black, (about 60 percent of the arable land). Red, sandy, and saline soils constitute the rest. Normal rainfall is about 840 mm. Crops grown are chickpea, tobacco, chillies, jute, vegetables, and pulses. As of 2010, the population was around 5380.
	Janapalacheruvu Agraharam (J.C.Agraharam)/ Bestavaripeta	The major soils of the village are red-sandy (40%), shallow to deep black (35 percent), and saline/alkaline (25 percent). Normal rainfall is about 760 mm. Cotton, paddy, pigeon pea and pearl millet are major crops in the kharif season, while in the rabi, sunflower, chickpea, cotton, groundnut, coriander, maize, and chilli are predominantly grown. Sweet lemon and papaya are important crops, grown perennially on 32 ha. As of 2010, the population was around 1600.

Source: Compiled by the authors.

2.2 Methods used for eliciting information

All four villages were visited twice over a span of 3 months, from February to June 2013. Focus group discussions (FDGs) were carried out with direct and indirect beneficiaries of Social Protection Programmes (SPPs), landless labourers as well as marginal farmers and large farmers. The discussions with these groups were held separately, 4 in each village, in 2 rounds.

Each group had between 5-8 persons from the labour groups. For the large-farmer category in Aurepalle and Dokur, two sessions with groups of 9 and 5 persons were conducted. In J. C. Agrapharam and Pamidipadu, discussion groups with large-farmers counted 5-6 members. A checklist of questions drafted beforehand was administered and discussion was encouraged at the sessions. At that time a so-called 'poker chip game' was used also, to clarify responses, especially to understand the duration of various programmes. Key-informant interviews were conducted with people who had worked under NREGA as well as with large farmers. These interviews were non-structured and open-ended. Questions pertained to the historical situation of the village in terms of cropping, water resources, and labour availability. Further questions dealt with the current situation of the same parameters as well as the various social protection programmes in existence in the village, and their functioning and impacts.

3 Major issues faced in the selected villages

A common theme running through villages in semi-arid tropics the world over, including the selected villages, is lack of water resources for irrigation.

This major issue has an adverse impact on poverty and vulnerability (Hussain and Hajara 2004). Especially since the region is subject to variable rainfall, depending purely on rain-fed irrigation is risky.

Irrigation benefits the poor directly and indirectly. It leads to higher crop yields, lower chances of crop failure, and as a result, leads to enhanced farm and non-farm employment opportunities (Namara et al. 2010). For small farmers, irrigation helps to diversify cropping and move from purely subsistence agriculture to more market-oriented cropping (Hussain and Hajara 2004).

It also has an impact on health and nutrition and economic equality. Along with this, improved irrigation has an important role to play in safeguarding the environment (Namara et al. 2010). Consequently, access to irrigation was examined in all four villages, because lack of water resources for farming leads to decrease in cropped area and reduced availability of work. Reduced regular availability of work in rural areas is one of the main reasons for rural to urban migration. This is increasingly becoming a factor, especially with increased construction activity in rural areas.

India has undergone rapid urbanization in the recent past, both due to a growing population and increasing rural to urban migration. Major causes for this migration trend are poverty, unemployment or lack of regular income, lower wages in rural areas, small size of land holdings, and lack of infrastructure development in villages. Besides, cities are seen to have more employment opportunities, in construction or other sectors with comparatively high wages, for less labour-intensive work (Khan et al. 2011).

A growing complaint among those involved in farming in rural Andhra Pradesh is the lack of availability of labour resources. The reasons for this are manifold, and the issue was examined in each village. The price fluctuation in purchasing farm produce also has an effect, not only on the farmer, but on all those who rely on agricultural and related activities for their livelihood.

Food security was another major issue examined in the target villages. It has been defined as “the situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO 2002). Issues facing the villages such as decrease in cultivated area, lack of water resources, migration, volatility in prices, shifting cultivation practices, and a reduced availability of agricultural labour - all have an impact on food security. This can be either directly or indirectly, by affecting the availability, stability, access, and utilization of food (Schmidhuber and Tubiello 2007).

These issues further increase stress on the poor and vulnerable. They are explored in each of the villages in the following section. Issues specific to each village are also discussed, where applicable.

Telangana region

Lack of water resources was a very big problem in both villages in Mehbubnagar district. In Dokur were two tanks that used to store water for irrigation, but due to low rainfall in the last few years the tanks had become empty. A stream used to run near the village, but unfortunately that had gone dry too. There was also an over-dependence on groundwater for irrigation. From discussions with residents it became clear

that ground water levels were falling every year in many places around the village. Besides, only one in five bore wells would work, causing farmers to incur huge expenses (over a lakh of rupees) for each successful bore well.

To compound the problem, impervious rock is found in many places in and around Dokur at around 170 feet below the ground. This means that groundwater, if any, would be found only above this level. With around 1300 hectares of agricultural land available, the gross irrigated area was only around 260 hectares. If irrigation is combined for crops in kharif and rabi seasons as well as perennial crops, it appears that only around 20 percent of the land is under irrigation.

Farmers reported that up to the 1980s, water used to be available at less than 50 feet in open wells. There used to be over 80 open wells in the village. During the rainy season, water in these wells would overflow. By the mid-1990s, due to an increase in the number of bore wells and electrified motors, groundwater abstraction increased. By 2000, the water level was around 90-100 feet, and fell below 110-120 feet by 2005. It improved with heavy rains that year to around 100 feet, but, due to low rainfall since then, has steadily fallen to 150-160 feet. At the time of study, no open wells were functional anymore. At the time of study the scenario is such that, to drill new wells, it often takes around 5 or even 10 attempts to find water, making the search an expensive enterprise.

This lack of water was a serious problem for many farmers. Some with 15 or even 20 acres of land had not cultivated in the year of this study, 2013, due water resource scarcity, some were cultivating only a fraction of the land or growing only one crop such as cotton or groundnut, with less productivity due to non-irrigation. Some farmers reported they were not even able to lease out the land due to lack of water.

There was water scarcity in Aurepalle too. Low rainfall combined with a lack of other irrigation sources had led to a huge dependence on groundwater for irrigation. There were two tanks in the village connected to each other by a canal - a common system across Telangana. But they did not contain water sufficient for irrigation any longer, and are often dry before Summer. At the time of study, groundwater had become the major, if not sole source of irrigation.

This dependence on groundwater has brought intense pressure on the water table. Groundwater levels have fallen from around 50 feet in 2003 to around 350 feet in 2013. Some farmers even reported having had to dig down to 500 feet to get water of enough quantity and pressure for irrigation. It was also reported that a large number of existing bore wells had stopped functioning, due to a decrease in the water level. More so, while digging new bore wells, only about 1 in 5 was said to be successful, which means high costs to obtain water.

Andhra region

Water scarcity in the Andhra region was slightly different, especially in Pamidipadu. Though Pamidipadu received good rains in both monsoons, it still had a lack of good water resources. While the groundwater table was high, with water available at less than 20 feet even in open wells, due to its proximity to the sea, the water was mostly saline and unfit for irrigation. There were no canals serving the village, so they depended on rain-fed irrigation as well as 5 tanks. Out of these perhaps only 3 were in usable condition. There were very few bore wells in the village, with only around 15 working, as reported in FGDs.

The total agricultural land available in the village was said to be about 2240 hectares, out of which around 1220 was cultivated in the rabi season, but only around 120 hectares were irrigated then. No land was irrigated in the kharif season, though 595 hectares were cultivated at that time (Siddappa et al. 2012). The lack of irrigation facilities affects the type of crops grown. For example, rice was not grown at all in the village for this very reason. More generally speaking, the lack of water resources has a bearing on every

aspect of life in agrarian communities. J. C. Agraharam, unlike Pamidipadu, is not located close to the sea. Their water resource issues are closer to those of the villages in Telangana. As with the other villages water resources, or lack thereof, was a major stumbling block for asset creation and livelihood diversification. In this village too, water tables had fallen regularly over the last 10 years, with groundwater at the time of study accessible at below 350 feet. Check dams had been built in the past, but were not working at the time of study or had been dismantled by the local population, who used the stones for other constructions. There were issues in building new check dams. The acquisition of land was proving to be difficult, as farmers were not willing to part with their lands, because they had seen that earlier attempts at building check dams were not fruitful.

With this decreasing water availability, there was a shift in how agriculture and allied activities function in the villages.

3.1 Changes in agricultural practices

3.1.1 Telangana region

In Dokur, due to the lack of water resources, the total area under cultivation as well as the yield per acre has reportedly decreased. Out of a total of around 1300 hectares of agricultural land, less than 25 percent was said to be used. As a result, those who depended on agriculture and related industries were affected. It was reported that this was a large shift from the situation prevalent earlier. In the 1980s and early 1990s, the village was more prosperous, as a larger percentage of the cultivable area was under cultivation, especially paddy. At the time of the study, those who were poor and whose entire livelihood depended on agricultural labour were deeply affected and unable to find work. This situation had not spared large farmers either, going by reports on those possessing even 15 or 20 acres of land often unable to cultivate more than 10 percent of their own lands, thereby getting less income. This has led to widespread migration from the village, particularly by the youth. Those who were middle-aged or old had no choice but to stay back. It would be fair to conclude that those who are in abject poverty, without any assets to leverage and diversify their incomes, would need assistance from the government in the form of social safety net programmes to survive.

In Aurepalle, there was reportedly a shift in cropping patterns in the last 6-7 years. A majority of the farmers were growing cotton in the kharif season. It is estimated that 75 percent of the total cropped area at that time was under cotton, while food crops covered less than 25 percent of the area. As cotton is a labour-intensive crop, the demand for labour was extremely high during harvest time, causing problems of labour availability. In this region, it is almost exclusively women who are involved in harvesting cotton. The high demand had led to an increase in wage rates for women, while men were not much engaged in the harvesting process.

3.1.2 Andhra region

In Pamidipadu, it was stated that the change in cropping patterns occurred in the 1970s, with a shift in cultivation from more traditional grains like millets to rice. In more recent times no large-scale shift of crops has been reported.

“Only those of us who have no other option stay here, those who can leave, do so” –
A farmer in Dokur

In J. C. Agraharam, not much change in cropping pattern was reported. But there were reports of agricultural productivity becoming low in some fields in the village, compared to surrounding villages. According to inhabitants, this was because of increased salinity of the soil as well as bad soil management practices and overuse of agricultural inputs. But this was, reportedly, only a small fraction of the total area available for cropping, and in most fields the yields had been similar for the last few years.

3.2 Migration

Migration was indeed an issue, It can be seen as a positive in terms of people moving out to improve livelihood options, it can also be a coping mechanism under distress conditions, as migrating often reduces social and political capital. This study was examining the issue of migration and reasons for it.

3.2.1 Telangana region

Migration or daily communication is a serious issue in Dokur: a large number of those engaged in daily casual labour migrate/ communicate due to lack of livelihood opportunities in the area. In a focus group discussion, it was estimated that around 400 people used to leave the village daily. Those who migrated would be engaged in many occupations, most commonly in construction. People migrated from Dokur to places like Hyderabad, Mumbai and Gujarat. Some had even travelled abroad for work, to countries like the UAE.

Migration reduced post 2006 with the implementation of NREGA. But when those who had taken part in NREGA work had not been paid properly in 2012, migration went up again in the summer of 2013. The number of people who had migrated at that time was said to be over 800. People did not, and do not want to risk not getting work or not getting compensated fairly for work done under MGNREGA. For a village with an estimated population of around 3000, this number of 800 means a large percentage of people migrating. In the case of Aurepalle, since the village is only around 60 kilometres away from Hyderabad, migration occurred due to its proximity to the state capital. This was especially true in the case of the more educated inhabitants, since a number of educated people (around 30 persons) had permanently moved there to work in government and private sectors. Around 100 people who were less educated, were working in Hyderabad and other major cities in non-agricultural industries such as construction – both as skilled and unskilled workers. People had also moved to Hyderabad for service jobs, such as maids and drivers (around 20 families).

Another reason to move to Hyderabad to work for those with moderate levels of education or skills, is the fact that opportunities available in the village and surrounding areas are not commensurate with their qualifications. These include people who work as welders and fitters and others with a technical education. Some people commute regularly for this kind of work, while they continue to live in the village.

No significant change in migration pattern since 2006, the start of MGNREGA, was reported.

3.2.2 Andhra region

Seasonal migration was wide-spread in Pamidipadu. Every year 300-400 inhabitants would leave the village between December and March to work in the tobacco industry (curing tobacco). This is a problem for agriculture, because rabi crops - chickpeas, black gram, tobacco, and chillies - are grown extensively in the village. Due to this migration labour availability is less in those months. Besides, many who were educated, migrated to places like Ongole and Hyderabad for work, as they found no appropriate work in the village. Around 30 people moved to countries like the UK and USA for work in fields such as software.

About 150-200 people had migrated from J. C. Agraharam to places like Ongole, Hyderabad, and Mumbai. They were said to be mostly involved in construction. The reported cause of this migration were the low wages in the agricultural sector compared to high wage rates (double) in the construction sector in urban centres. It was also thought that agricultural labour is often seasonal, whereas construction, especially on contract basis, was more 'secure', because workers were guaranteed work every day. Sometimes the terms of contract would even include accommodation and food. The implication of this kind of migration is serious, as it implies reduction and diversion of the work force in the village. This

brings us to discuss how labour availability has changed in the villages as such.

3.3 Labour availability and other labour-related issues

Various factors influence the availability of labour: from competition between other industries to low wages in the agricultural sector. It affects farming, livelihoods, and food security.

3.3.1 Telangana region

In focus group discussions and interviews in Dokur, farmers thought there had been a decrease in the availability of labour. This was due to various factors. Firstly, because of a lack of water resources in the village, the area cultivated was limited and so, provided less regular work. Villages around Dokur did not face this problem, since they have a large area under cultivation.

Labourers from Dokur are hired in surrounding villages, at higher wages. Sometimes this comes to more than Rs. 200 a day for men, and around Rs. 150 a day for women, with food and toddy included. This is driving up the wages in their own village as also reducing the number of labourers available to do work there. Secondly, the system of contract labour, where labourers are offered a lump sum in advance to work for construction projects outside the village, also had an effect. Thirdly, people are engaged as non-agricultural labour in the nearby Mandal headquarters of Devarkadra, where they earn up to Rs. 300 a day for jobs such as off-loading trucks.

This scarcity of labour in the village has led to a demand for higher wages but also higher wage costs and, as a consequence, high production costs for the farmer. Farmers also blamed the MGNREGA, for in their opinion, those who got work through that scheme, have become used to getting a good wage for relatively 'light' work. Labour groups disagreed, though. They thought it was primarily because of the more attractive wages from outside, that they would go out to work elsewhere.

In Aurepalle, despite migration, there was no report of scarcity of labour. Farmers were saying, though, that labour had become prohibitively expensive. This was because over 75 percent of the crop grown in the kharif season in the village was cotton, and at harvest time there was a huge demand for labour. This drives up the wages at such times. Traditionally, only women do cotton picking. At peak harvest times they can make between Rs. 300 to Rs. 400 a day. A few labourers also do cotton harvesting on contract basis, whereby they are paid on the basis of the amount or weight of cotton harvested. Some farmers say they have seen that harvesting is done quicker this way, but the quality of the harvested cotton is not the best.

3.3.2 Andhra region

In Pamidipadu, people said that wages were low compared to nearby villages, and also in Ongole town, where they could get more money for working in the construction industry. There was also localized migration of around 300-400 people to work in tobacco leaf processing. Rabi crops such as chickpeas, black gram, tobacco, and chillies were grown extensively in the village, since it gets much rain in the northeastern monsoons. Labour availability was slightly less during these months.

In J. C. Agrapharam, not much shortage of labour was reported. Many who migrate for construction jobs, did so in the non-agricultural months. Since the village is more than 13 km away from the mandal headquarters, many people do not find work elsewhere.

3.4 Drinking water and sanitation

3.4.1 Telangana Region

Aurepalle reported no major drinking water and sanitation issues, because they have a water delivery

system in place that had been funded by ICRISAT. Interestingly, respondents informed us that they had been fully involved in making the delivery system functional, and that they had taken ownership of the project to ensure proper functioning. According to them, this kind of ownership is not seen in the case of government schemes.

In Dokur too, there were no major sanitation issues reported. Both villages mentioned there had been some progress in constructing toilets by the government for individual houses as part of various schemes. These toilets were in various stages of completion at the time of study.

3.4.2 Andhra region

In Pamidipadu, there was a lack of sanitation facilities, especially in the area populated by those belonging to Scheduled Castes (SCs). There was a demand from local inhabitants to build toilets, with people complaining about problems associated with unhygienic open defecation. Government programmes have attempted to address this issue, but have met with limited success. Only around half of the 1200 households in the village had toilets at the time of the study. It was reported that the prevalence of households without toilets was higher at places populated by economically backward sections. So there is scope for improvement in this area.

In J. C. Agraharam, despite large-scale government investment in the WASH sector over the last few years, much remains to be done. A major complaint about the lack of adequate water and sanitation facilities came from SC communities in the village. Less than 20 percent of households had toilets. Though drinking water was being supplied from 6 bore wells, respondents felt the distribution system was inadequate. Often they purchased drinking water from a local vendor, who supplies water in cans, an additional expense burden to already economically stressed households.

3.5 Food security

3.5.1 Telangana region

In Dokur, farmers were increasingly inclined to grow cash crops, due to high input costs of food crops as well as price variation. At the same time, due to lack of water resources, much cultivable land is left unfarmed. This has led to a lack of income earning opportunities for both farmers and labourers alike, which means reduced financial capital and lower purchasing power.

The variability in climatic conditions and rainfall (unseasonal and irregular rains) is reportedly playing havoc with crop production, which in turn causes stress on food security. Moreover, it was noted that prices of food grains and other essential commodities are increasing. Such variability in prices affects food and nutritional security. Respondents were saying that because of these high prices, they were forced to compromise on eating nutritious food, which affects the long-term health of adults and physical and mental development of children. On the other hand, children do get a free mid-day meal in the government-run schools in the village, which ensures at least one good meal a day.

Apparently, government programmes like the PDS system in convergence with SSN schemes like the mid-day meal play an important part in addressing these concerns. The situation was similar in Aurepalle: with most of the land being converted to grow cash crops, there was little self-sufficiency in terms of food crops. Food grains needed to be purchased, and the variation in prices affected the poor.

3.5.2 Andhra region

In Pamidipadu, as irrigation is mostly rain-fed, they sometimes faced similar problems as those reported in Telangana. Here too, not much rice or other food grain was grown.

3.6 Variability of purchase prices

In Dokur, the fluctuation in purchase prices of agricultural produce had an effect on all those involved in the agricultural sector. A farmer reported that in 2008, the price for cotton was above Rs. 6500 per quintal, but had fallen to Rs. 3500 per quintal the following year, which was below his input costs, so he suffered losses. A rise in input costs was said to be due to increased labour costs and higher costs of components such as fertilizers and pesticides. Many farmers are also using hybrid or Bt seeds, which they report are more expensive than regular seeds. A similar issue was reported by farmers growing rice. According to them, the cost of production in 2010 and 2011 exceeded the minimum support price for rice as well as the market price. They attributed the rise to increasing input costs including labour. Remarkably, though, that year saw a bumper rice harvest.

There seems to be a demand for the government to raise minimum support prices of crops such as rice and cotton. A similar scenario was reported in Aurepalle. There was a marked variability in the purchase price of cotton, and high costs of Bt. cotton seeds. The variability in purchase prices in Pamidipadu was slightly offset by the access of farmers to cold storages, whereby they could save their produce to sell at a more favourable time.

3.7 Cold storage

In Pamidipadu, there are a large number of cold storage units for agricultural produce in the region. This has helped farmers store produce to sell when the price is right, which has buffered effects of price fluctuations to some extent. But if prices of the stored commodity continue to fall post-harvest, then the loss is great for the farmer of course. For instance, in the case of chillies, chillies are mostly harvested between January and April throughout the state leading to a glut in the market, farmers sometime prefer to place their crop in cold storage, to sell when the prices are more favourable.

Besides, banks provide loans on produce stored in cold storage. According to farmers, around 60 percent of the value of crop was given as a loan, but repayment time was reportedly low for these loans (maximum 10 months), and they were mostly taken for short-term purposes. The interest rate was around 15 percent. The farmer has to pledge the receipt given by the cold storage to the bank and has to place his stock only in bank-approved facilities.

In addition, private money lenders also give money on crops in cold storage. This is especially beneficial to those farmers growing chilli or chickpeas. In the case of chickpeas it is beneficial for those who have had a late harvest. For, if the crop is harvested close to March, prices are low, but if one is able to wait till June, often prices are higher.

All this offsets the stress experienced by fluctuating purchase prices.

3.8 Lack of infrastructure

This was a complaint reported in J. C. Agraharam, which has only one concrete road, laid in 2009; the remaining village streets are unpaved. There was a huge demand among the inhabitants to lay more roads in the village.

Another issue was connectivity: there was no regular bus service to the village to get to the mandal headquarters at Bestavaripeta, and people had to rely on irregular share auto-rickshaws. These were unreliable, though, and would affect those trying to sell their daily produce, go to financial institutions, or buy agricultural inputs and raw materials for cottage industries, etc. This has increased stress on villagers.

4 Major social safety net programmes operating in the selected villages

4.1 Major formal safety net programmes

4.1.1 Public Distribution System (PDS)

The public distribution of food grains has been an extremely important issue in Andhra Pradesh since the 1980s, when the state government introduced the subsidized rice scheme to increase consumption levels among the weaker sections of society in so-called Fair Price shops (now over 44,500). Distribution of food grains was an important topic in electoral battles in the 1980s and through the 90s. By now, the AP Government has one of the largest public distribution networks in the country.

Table 2. Number of fair price shops in the village

Village name	Number of Fair Price shops
Dokur	1
Aurepalle	2
Pamidipadu	6
J. C. Agraharam	1

Source: Primary survey.

The PDS has been functioning in the concerned villages for 40 years reportedly, and has evolved in that period. Some respondents said it started functioning well since the mid-80s, when ration cards were introduced.

The number of Fair Price or 'ration' shops in each village can be seen in table 2.

At the time of the field visit, beneficiaries could obtain rice, dal, sugar, palm oil, and kerosene at subsidized rates from these shops in Dokur, Aurepalle, and J. C. Agraharam. Pamidipadu had recently started the supply of additional commodities in a phased manner, under the Beeyam Scheme, described further on.

Other schemes were in place through the PDS system such as the Antodaya Anna Yojana Scheme. It provides 35 kilo rice a month at Rs. 3 a kilo to families who have been identified as extremely poor. The Annapurna scheme was another scheme working in the villages. Under this scheme, 10 kilo rice is provided to those who are eligible for benefits under the National Old Age Pension Scheme but are not receiving a pension.

Most recently, the Andhra Pradesh government had launched the Mana Beeyam scheme, which had come into effect in a phased manner from April 2013. Under this scheme, rice that is locally milled, is supplied to PDS beneficiaries. Nine other commodities are made available such as red gram dal, turmeric and chilli powder, wheat flour, sugar, iodized salt, and palm oil (table 3).

In Pamidipadu, the Mana Beeyam scheme has been in effect since May 2013. Under this scheme, the aforementioned commodities were supplied but not always do supplies match demand as the above quote shows.

Table 3. Overview of the benefits of the Mana Beeyam Scheme

S. No	Commodity	Quantity per cardholder	Consumer price (Rs.)	Open market price (Rs.)	Cardholder benefit (Rs.)
1	Red gram dal	1 kg	50/-	73/-	23/-
2	Palm oil	1 ltr	40/-	58/-	18/-
3	Whole wheat flour	1 kg	16.50/-	25/-	8.50/-
4	Wheat	1 kg	7/-	18/-	11/-
5	Sugar	½ kg	6.75/-	17/-	10.25/-
6	Salt (iodized)	1 kg	5/-	14/-	9/-
7	Chilli powder	¼ kg	20/-	35/-	15/-
8	Tamarind	½ kg	30/-	40/-	10/-
9	Turmeric powder	100 gms	10/-	12/-	2/-
Total			185/-	292/-	107/-

Source: <http://cm.ap.gov.in/15jan13press.asp>

Beneficiaries found these schemes increase their food security, as they could get four kilos of rice per person at Rs. 1 per kilo. This reduces the amount of rice they would have to buy from the open market. The money saved from this scheme can be utilized for other purposes such as buying additional food items like vegetables and fruits, which is good for a diversification of diet. Especially with the phased introduction of the Mana Beeyam Scheme, this seems to have a positive effect of increasing diet diversity.

Some respondents mentioned there was a proposal to supply even onions and potatoes through Fair Price shops -which would further lighten the burden on the vulnerable-, but this had not yet been implemented in the villages under study.

But there are some drawbacks. Beneficiaries complained that the quality of goods obtained through the ration shops was not very good. Another, frequent complaint was that the PDS shops run out of stock very quickly. There were also allegations across the villages of irregularities and diversion of stock meant for PDS by the powers that be. Field observations, in turn, showed up that families who were relatively well off, were taking advantage of schemes meant for the poorest of the poor.

Irregularities were also seen among beneficiaries: some would buy rice at Rs.1 a kilo at the Fair Price shop and sell it at a higher rate in the open market. This happened more with families who grow their own rice. Additionally, in three of the six ration shops in Pamidipadu, the shop management insisted that a beneficiary may not buy items individually but must buy all items offered. This posed a problem, because beneficiaries thought that the quality of items was not as good as that of the same goods in the open market, and they would prefer to take just rice, sugar, salt, oil, or kerosene from the ration shop. They also complained that being forced to buy all the nine goods was upsetting their calculations for monthly expenditure.

These shortcomings need to be addressed.

4.1.2 Self Help Groups

Self Help Groups function in all the villages studied. Like elsewhere, they are mostly financial in nature with their main focus on micro-savings and loans. In the four villages, the groups have only women participants reportedly.

Table 4. Number of SHGs in the villages

Village Name	Number of SHGs
Dokur	35
Aurepalle	51
Pamidipadu	120
J. C. Agraharam	28

Source: <http://cm.ap.gov.in/15jan13press.asp>

The general opinion is that SHGs have lower rates of interest compared to money lenders or even the unsecured loans from banks. The interest rates for loans from the SHGs range from 12-14% per annum. Recently, with government launched schemes such as 'Pavala Vaddi', the government provides partial reimbursement of interest to SHG members who have completed 6 months of loan repayment and are regularly repaying loans. The subsidized interest rate amounts to 3 percent per annum.

In the FGDs the following uses of money from SHGs were reported:

Debt swapping: Since rates of loans from SHGs are usually less than those of loans outside, beneficiaries used the money from SHGs for debt swapping, where they exchanged high interest debt for low interest debt.

Income generation: Some people used loans from SHGs to buy livestock, open small village shops, etc. to generate additional income.

Tiding over slack periods: Loans from SHGs are often used to tide over difficult periods when work is not available. This is especially so for households that had agricultural labour as primary income source. Loans would be used for day-to-day expenses in the slack season, when agricultural or other labour is not available. They would pay back in instalments, when work becomes available again.

Agricultural inputs: Sometimes the money was used to buy inputs for growing crops such as fertilizers and pesticides for small holders, when they were not able to avail subsidies and loans offered by the agriculture department.

Land leasing: Some respondents reported using loans from SHGs to lease farmland, and pay back the interest once crops are harvested. But some said this proved difficult sometimes, because money from a harvest comes only at the end of the growing season and they would have to struggle to make repayments in the interim. So, to make ends meet, they would diversify income sources.

In Aurepalle and Dokur, it was seen that people who had financial acumen, were really able to leverage the benefits from SHGs to acquire assets that would lead to income generation such as livestock. In J. C. Agraharam, in addition to handling microcredit and lending, SHGs were part of a Milk Cooperative, where

around 120 women members received training, education, and financial incentives for participating in the government cooperative programme. The Cooperative deals with soft loans or makes available gifts of livestock or other relevant items such as milk cans. In addition, the price of milk per litre is set slightly higher than that of private cooperatives.

Default rates were said to be lower because of lower interest rates and, more importantly, societal pressures, since SHG members, who were stakeholders, were all people from the village.

Women respondents said that SHGs had enhanced their financial well-being and independence, and they now believed they, too, could make financial decisions. Further, they were able to get some training in financial management through SHGs as also from their peers, - other SHG members. Access to official institutions such as banks had also become better. Some observed even, that they were the only members of the family with bank accounts and that their male family members did not have any. Apparently then, SHGs have contributed to women's empowerment in the villages to some extent. Overall it appears SHGs are accepted remarkably well and respondents have a positive view of them.

4.1.3 Insurance and subsidies through the Agriculture Department

A major support given by the government of Andhra Pradesh is the free supply of electricity to farmers for 7 hours a day. There were mixed opinions on this, because power supply was reportedly erratic and was subject to power surges that damage bore well motors (pumps). Many indicated they would prefer to pay for power, if it meant regular and reliable supply of power.

Crop damage recovery was seen in Dokur, where over 400 members had received financial compensation for drought and pest damage of crops. The amounts given were small in some cases. For instance, those growing castor were paid only around Rs. 300 per acre, while those growing paddy received around Rs. 25,000 per acre. In Aurepalle, compensation had been released, too, with amounts ranging from Rs. 500-3000 an acre, depending on the crop grown.

Waivers for agricultural loans were also noted, some with a loan write-off of around Rs. 30,000 (in Dokur). In other places (J. C. Agraharam, Aurepalle) there had been interest waivers, that is to say, though the principle needed to be repaid, the interest was waived.

Besides, the agriculture department runs a soil testing service. In Pamidipadu, there were reports of reduced yields in chickpeas over many contiguous fields. Soil samples were taken and sent for analysis through the agriculture department. But the turnaround time has been long and the results would take many months to materialize.

Subsidies have been beneficial to small and large farmers alike, and have helped them to a small extent. There are subsidies for fertilizers and nutrients from the agriculture department; about 50 percent subsidy on selected inputs is given. This has not been taken up by many farmers, though, as they preferred buying from private sources, because private traders are able to supply the inputs required instantly, and often on credit.

4.1.4 Subsidy for sprinklers and drip irrigation system

Such subsidies existed in all four villages. Drip irrigation systems worth Rs. 25,000 were being provided under this scheme by a one-time payment of Rs. 1800. Sprayers worth Rs. 12,000 were also being supplied. But in all villages the number of beneficiaries was low, sometimes in single digits. Awareness of this scheme was low among many small farmers, but those involved in horticulture knew about it.

Larger farmers in Aurepalle said they mainly grew cotton and did not use drip or sprinklers for growing. It

seems then, that this scheme has not had a major impact on the village as a whole.

4.1.5 Social security pensions

At the time of study, the government provided those above 65, widows, and physically handicapped people with a regular pension. The amounts received were small: old-age pensions and pensions for widows amounted to Rs. 200 a month, the physically handicapped were getting Rs. 500 a month. All beneficiaries must belong to the BPL category.

Table 5. Pension beneficiaries in the selected villages

Village	Pension beneficiaries (as reported in FGDs)	Pension beneficiaries (as reported in government database)
Aurepalle	300	287
Dokur	300	309
Pamidipadu	700	709
J. C. Agraharam	200	266

Source: Govt. of AP Habitation Scorecard (<http://115.254.91.21/>)

Though the villages have other government programmes such as Food for Work and MGNREGA, for those who are unable to work, these pensions provide a regular, albeit small income. So they were considered important in all four villages. The rationale behind it is that, even if a beneficiary is unable to work, he or she gets a regular income which allows him or her to buy essential food through other government schemes like the PDS and the Antodaya Anna Yojana.

The other benefit of this scheme is that the income is regular, unlike income from agriculture; it is not affected by seasonalities. It also acts as a diversification of income. Not surprisingly, though, respondents said, that while they were receiving pension regularly, they would like to see the amount raised. Nevertheless, the pension programme in conjunction with the PDS programme seems to have improved the lives of the poor considerably.

4.1.6 INDIRAMMA

The Integrated Novel Development in Rural Areas and Model Municipal Areas (INDIRAMMA) Scheme had been rolled out in all four villages. The scheme aims to make available pucca houses, drinking water supply, sanitation, and electricity to every household. It also seeks to provide roads, pensions, and education. Further, it aims to ensure better nutrition and health for adolescent girls, and pregnant and lactating women (APSHCL nd²).

Table 6. Beneficiaries of INDIRAMMA in each village (from FGDs)

Village	Number of households benefited (as reported in FGD)	Total number of households in village
Aurepalle	450	984
Dokur	200	545
Pamidipadu	350	1214
J. C. Agraharam	300	382

² Nd refers to No Date available for the given reference.

The uniqueness of this scheme lies in providing assistance to build houses and latrines. This is what respondents identify this scheme with, while the other benefits show some convergence with existing central and state government schemes.

The implementation of the construction is carried out by the Andhra Pradesh State Housing Corporation Limited, which is a state government undertaking. When the programme was launched, the subsidy provided to rural house construction was as follows. A total assistance of Rs. 54,250 was provided with the break up as follows, Rs. 13,200 would be given as subsidy, Rs. 17500 as a loan, Rs. 500 would be the beneficiary contribution, and Rs. 3050 would be provided for constructing a toilet. Additionally, Rs. 20,000 would be provided as a bridge loan through SHGs (SERP nd). A large number of households have benefitted in the four villages, because they received assistance to build houses and latrines. Especially in J. C. Agraharam, which had quite a few houses with thatched roofs. Once there was a large fire in the village that burnt down a number of them. They were rebuilt with subsidy from this scheme. The scheme was thought of as helpful, but there was some dissatisfaction in villages as to the speed with which funds were released and the quantum of funds.

Respondents said the amount released was too small, as costs of construction have risen steeply recently, including costs of construction labour and raw material. The government of Andhra Pradesh revised the rates in May 2013. OC and OBC beneficiaries now will receive around Rs. 70,000 per house in rural areas, and SCs and STs will get Rs. 1 lakh and 1.2 lakhs respectively (The Hindu 2013). Another common complaint was that some found it difficult to register for the scheme, and even if registered, there was a long delay in the release of funds.

An approximate number of beneficiaries of the scheme is provided in Table 5.

4.1.7 Loan facility through PACS, banks, and other organized sources

Access to financial institutions exists in all villages. If not directly in the village itself, they are available in nearby villages or towns. Loans are generally given subject to security. In Pamidipadu, loans were given on crops (chickpea) kept in cold storage. Generally it was larger farmers or those who have some assets already who could avail of these loans. Tenant farmers without proper documentation of tenancy found it difficult to get loans sometimes. They would rely on Self Help groups, through their wives to get loans. Even so, there was a report that, though a number of people had opened accounts in nearby banks, many were not yet confident operating them. Besides, getting unsecured loans from banks was not easy, though unsecured loans up to Rs. 1 lakh could be given. Short and long-term loans are available at varying interest rates.

Table 7. Details of financial institutions in the villages

Village	Financial institution present in village	Details
Aurepalle	Yes	State Bank of Hyderabad (SBH)
Dokur	No	SBH, Andhra Bank, Primary Agricultural Credit Society (PACS) in Devarkadra village nearby, Andhra Pradesh Grameen Vikas Bank (APGVB)?
Pamidipadu	Yes	PACS, SBH, APGVB
J. C. Agraharam	No	PACS, SBH in nearby villages

Source: Primary survey.

Apart from these monetary facilities, insurance can also be availed of through banks, both for personal use and for crop cultivation.

4.1.8 Milk cooperative society



Picture 1. Discussion with Milk Cooperative representative in J. C. Agraharam

Both privately and government run milk cooperatives are found in the villages. In Pamidipadu, respondents complained that the government run cooperative was not operating properly, so they preferred to join the privately run cooperatives. In J. C. Agraharam, the government run cooperative was linked to SHGs, so, only women were members, whereas men were part of the private cooperatives. In Dokur, the complaint was that the price for milk in cooperatives was lower than what they could sell it for outside, by themselves.

4.1.9 Arogyasree and other health-care related schemes

The Arogyasree or Rajiv Arogyasree Scheme was initiated in 2007. Its aim is to provide quality health care to the poor. Awareness about the scheme was present in all villages. Though many people had applied for and received cards, they had not yet had the need to use the scheme's facilities, since they had not yet faced any major illnesses. Interestingly, though specific cards are provided under this scheme, people said it was possible to make use of this scheme even with a ration card. In Dokur, Aurepalle, and J. C. Agraharam, not many people had faced any serious illness, so only an average of 5 or 6 persons a year would avail of this scheme for major surgery and treatment. In Pamidipadu, perhaps because it is larger in size and population, it was estimated that around 15 people a year might use this facility for major surgery.

While it was felt that the programme is good for serious health risks, respondents stressed the need for access to more health-care facilities locally, because getting to major hospitals was not easy, especially with someone seriously ill. E.g., in Aurepalle, people reported that for major illnesses they would take the patient to Hyderabad rather than the government PHC facility in nearby Amangal. In Dokur, villagers have access to a charitable hospital, though they have to go to Devarkadra or Mehbubnagar for serious illnesses or accidents.

4.1.10 MGNREGA

A large proportion of rural poor in India is completely dependent on daily wages from unskilled labour, especially in agriculture. They are vulnerable to shocks and seasonalities such as insufficient labour demand, health problems, or natural disasters that adversely impact their livelihood security. To address this, wage employment programmes provide people with short-term employment in public works that are beneficial to the community or the environment, such as construction, water resources development, soil erosion prevention, or building public utilities like village roads and schools. This wage employment is usually provided in non-agricultural seasons for a few months, to provide additional income, when there is no agricultural work. It is with this background and learning that the Government of India passed the National Rural Employment Guarantee Act (NREGA), also known as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in 2005 (Gazette of India 2005). The Act mandates that 100 days of wage employment in a financial year be guaranteed to every rural household, whose adult members volunteer to do unskilled, manual work.

The Mahatma Gandhi National Rural Employment Guarantee Scheme was launched in 2006 in 13 districts in Andhra Pradesh. It has been considered a well performing state in terms of NREGA

implementation. According to government data, with regard to the total number of households that worked under NREGA in 2012, Andhra Pradesh was second only to Tamil Nadu³. This is also the case with the number of person days generated that year.

An overview of the functioning of MGNREGA in Andhra Pradesh is given in table 7.

All 22 districts of the state are covered as well as all rural mandals. With over 13 million job cards issued in the state affecting nearly 19 million persons, the scheme has been generating over 2 billion person days of work till date (table 8).

Table 8. MGNREGA in Andhra Pradesh in 2012

Total No. of districts under EGS	22
Total No. of mandals	1,098
Total No. of gram panchayats	21,862
Total No. of habitations	69,071
Total No. of job cards Issued	1,34,99,622
Total No. of labour (SSS) groups registered	613,098
Total No. of labour in labour groups	11,356,709
Total No. of works	39,86,746
Total Expenditure (Rs. in Lakhs)	28,31,652

Source: <http://ap.nrega.nic.in>

Table 9. Average days worked per household under NREGA

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Andhra Pradesh	31	42	48	66	54	58
National average	43	42	48	54	47	43

Source: <http://ap.nrega.nic.in>

Official data make it seem that NREGA is functioning well in the state. When its on-ground functioning was examined as part of this study, it was found that MGNREGA is functioning in all respective villages but with different degrees of success.

In Dokur and Aurepalle, MGNREGA was implemented in phase 1 in 2006, while in J. C. Agraharam and Pamidipadu this was done in second phase in 2007.

Though the statutory maximum number of days worked under MGNREGA is 100 days per household per year, villages in areas declared drought hit in Mehbubnagar have a special dispensation, where members of a household can work 150 days in a year.

³ See: http://164.100.129.6/netnrega/dash_brd.aspx?fin_year=2012-2013

Picture 2. Land levelling under NREGA in Dokur



Picture 3. Removal of *P.juliflora* roots under NREGA in Aurepalle village



Table 10. Major work carried out under MGNREGA in the selected villages

- Clearing of *P.juliflora* (bush cutting and uprooting) from farm land with the intention of converting unused agriculture land to arable land, especially for SC and ST lands
- Construction of field bunds and field channels
- Silt application on farmland
- Land levelling
- Closing off unused wells
- Desalination of tanks

In addition:

- A road was built in Dokur
- In J.C. Agraharam percolation tanks were constructed
- In Pamidipadu, land levelling was done and fields were cleared of stones. Also, a few latrines were said to have been built in the SC colony. Road works were also carried out.

Source: <http://ap.nrega.nic.in>

MGNREGA functioning

In the first few years, payment of wages was not done on the basis of assessment of work done, only after 2009. For example, the amount of acres of land cleared of *P. juliflora* or tractor loads of earth moved for land levelling work would be a metric for measurement.

The wage rate under MGNREGA varies from village to village and year to year, often depending on the kind of work done.

In Dokur, there were reports of delays in wage payments. Workers were also not clear on how calculation of wages had been done in 2012. The wage rate paid had been as little as Rs. 30 a day in some cases. Similar complaints were heard in Pamidipadu. The scheme had not been functional since 2012. Only 20 days of work had been initiated in 2012, and only a few labour groups had been able to participate.

Other, wide-spread complaints referred to extremely low wages or non-payment of wages.

Facilities provided to MGNREGS workers

Though the Act requires that drinking water, shade for rest, and child care facilities were to be made available, they had not been provided in any of the villages at the time of study. In Dokur, people said that they used to be provided in the initial years, but no longer so.

Overall feeling about MGNREGS

Those involved in labour thought proper implementation of MGNREGA was important. They did so because it guarantees wages in the agricultural off-season, when they would otherwise have no source of income.

Besides, according to workers, work carried out under MGNREGA is easier than farm labour, because one may work fewer hours under NREGA. It was also noted that workers would often carry out work under MGNREGA in the morning, then, after a brief period of rest, move on to farms to work there, thereby further increasing their income.

Land owners were not that optimistic about MGNREGA, though. They pointed to the scheme as one of the main reasons for higher wage rates, and, so, increased input costs of farming. They also claimed that the scheme had led to a decrease in labour supply. They would like MGNREGA work to be carried out with their inputs and that work under the scheme be carried out on their farms. Labour groups, in turn, were not happy with that suggestion. They opined that, as the wage rate under the NREGA is often half of what they could get for farm work, they would be at a loss, if this were to occur.

More investigation into the role and meaning of the MGNREGA is needed; a household survey may be conducted among beneficiaries in selected villages of AP and other semi-arid states in India.

4.1.11 Midday Meal

The Midday Meal Programme aims to provide a hot cooked meal to children in primary and upper primary classes enrolled in educational institutions. These could be government schools, government-aided schools, Alternate Innovative Education Centres (AIE), National Child Labour Project (NCLP) schools, and Education Guarantee Scheme schools (EGS). The scheme also covers those madrasahs and maqtabas that are supported under the Sarva Shiksha Abhiyan. The midday meal is supplied to students on all working days.

According to a majority of the respondents the scheme is excellent in principle, but there are huge gaps in its implementation. Complaints were made about the poor quality of food being supplied to the children,

Table 11. Quantity of Items Consumed by Children

Item	Quantity per child	
	Primary	Upper Primary
Food Grain	100 g	150 g
Pulses	20 g	30 g
Vegetables	50 g	75 g
Oil and fat	5 g	7.5 g
Salt and condiments	As required	As required

Source: SSAAT-RD, 2013

with issues such as stones in rice, children suffering from stomach problems after eating at school, and so on. Some people preferred to give their children packed food from home to keep them from eating at school.

Another major issue reported about the Midday Meal scheme was that it is linked with the school timings. It is during the slack season that people have money problems that affect their food consumption. The slack season is usually in summer, though, when schools are closed and on vacation, and so, no midday meal is provided. Interestingly, there is a government scheme to provide a mid-day meal to children in drought affected areas in the summer months.

In Dokur and Aurepalle, respondents whose primary income source was labour, were asked if the midday meal was responsible for ensuring that children go to school. They thought it was not a major factor. Since they were involved in the struggle for daily work, they would prefer their children to become educated and achieve more things in life. This was for them the driving factor in sending children to school. In Pamidipadu, many were aware of the benefits of education too, and so, this was the driver to get their children educated - though the midday meal certainly helped in this goal.

Additional to Focus Group Discussions, informal interviews were also held with government officials from village level to high ranking officials, on being asked about the official safety nets in the villages, they stated that though there may be gaps in implementation, the government is taking note of these and moving quickly to address them.

4.2 Informal social safety nets

Informal safety net programmes include sharing and insurance mechanisms within communities (Gentilini and Omama 2009). When subjected to sudden shocks, such as harvest failure, illness, death, or even things like unplanned expenses, it is often seen that the formal system of social protection may not immediately be able to help. In such cases, recourse is taken to informal means, through existing social networks such as family and friends (Oduro 2010).

4.2.1 Friends and neighbours

When there is an urgent need for monetary assistance, people prefer to approach friends and neighbours, in all villages. It was said that friends often lend money, on low or without interest; they do not require pledging of assets as collateral and so on. Whenever interest was charged, it was reportedly lower than the one taken by the bank. Some respondents observed that procedures for borrowing from banks were confusing and sometimes lengthy, whereas borrowing from friends and neighbours meant they could get the money without hassle.

In all villages, this seems to be a clear favourite. In one focus discussion group in Pamidipadu, someone remarked that borrowing money from friends may affect friendships if the repayment is not prompt, thereby reducing the size of social networks. Besides, in cases of default, it would be difficult to borrow money in future, as word would spread across the 'friends circle' or the social network about defaulters, because these kinds of borrowings are very common. So, it was said that prompt repayment was really important.

4.2.2 Relatives and family

Relatives are another an informal source of assistance, both monetary and materially. Across the four villages, opinions on the importance of family in providing a safety net were divided. Some felt that family would rank first when seeking assistance; others thought it would be somewhere lower down in their order of preference, on account of circumstances and politics within their extended family. Although it depends on the situation of the individual family, there appears to be no doubt that this is an extremely important social safety net.

During the focus group discussion, stories of help in non-financial ways came to light. For example, there were reports in Dokur of sharing food during slack time instead of money. Help in education expenses of children was also mentioned in all villages, apart from providing loans. An important task related to income generation is child care, so women can go out and work. Often the official mechanism for child care, such as anganwadi centres, is not preferred for they do not meet the needs of everyone, for various reasons. In such cases, child care by family members indirectly affects the income-generation capability of the concerned mother.

But, people observed, many times the extended family would find itself in similar financial conditions, and so it was necessary for them to identify other sources of help.

4.2.3 Chit Funds

A chit fund consists of a group of people who enter into an informal agreement that each of them will contribute a certain sum of money in periodic instalments (monthly or biweekly) over a definite time period. At fixed time intervals, usually a month, lots are drawn and the winner receives the entire amount in the pot, and is then forbidden from further drawings, but must still contribute until everyone has had his or her turn.

Such chit funds existed in all the villages. Since these are generally unorganized, respondents were not able to estimate the number of chit funds operating in their respective village. People said that only those who were comparatively better off, and had some money to spare, would invest in chit funds. This would also require a regular income. For the extremely poor, with erratic incomes, the regular extra investment of even a few rupees a month would not be possible.

Those who did take part were finding it extremely beneficial to get a lump sum in one go, which they could use for large expenses. Participants reported that they had used the amount obtained from chit funds to buy livestock or luxury items such as televisions, or to spend for marriages and social functions. Moreover, as chit funds require regular meetings with fellow subscribers, it was reportedly contributing to expand social networks.

4.2.4 Money lenders and pawn brokers

Money lenders existed in the villages. Some large farmers indulged in money lending to supplement their income, while some did it as their sole profession and source of income. J. C. Agharam, Dokur and Aurepalle had around 20 moneylenders each, while Pamidipadu had over 200 money lenders operating

in the village. When it was asked why there was such a large number of money lenders in Pamidipadu, people explained that there was an appreciable difference in economic status in the village, with a section of people extremely prosperous, while others, especially in marginalized communities, were not so prosperous. This disparity was pointed out as the reason why many, more affluent people were turning to money lending apart from their main source of income.

Money lenders were not the preferred source according to respondents, since they have high lending interests, sometimes as high as 50% per annum, and paying such interest over a long term would lead to a cycle of debt.

Caste-based money lending groups were reported in Dokur. Here some BC communities, such as the Mudirajs, had a small group that enabled them to lend money to each other at reasonable interest rates. People said default rates were lower in this kind of lending group, due to social pressure to repay.

Pawnbrokers were present in all the villages. But those who were extremely poor, were unable to reap its benefits, because they had no assets to pawn. Pawnbrokers, like money lenders, were not the first choice for people to approach in times of distress. They felt they would be exploited by them.

4.2.5 Traders - agricultural buyers

In some villages farmers were able to get money at the beginning of the season from agricultural buyers for agricultural inputs and other farm related requirements. This was done on the basis that, once the crop was harvested, either the amount was repaid with interest or the buyer would buy at a lower rate or be compensated in kind (crops).

In the villages under study, though occasionally it had been happening reportedly, it was not a regular feature, and not accessible to all farmers. This was especially due to water resource and climate variability making crop yields estimates difficult.

4.2.6 Agricultural input suppliers

Agricultural input suppliers in nearby towns did provide loans for the purchase of pesticides and fertilizers, but in Dokur, Aurepalle, and J. C. Agraharam, there were no such input suppliers, except for Pamidipadu.

In all villages, loans were reportedly given only to a few people with whom suppliers had a rapport or long-standing business relationships. It was not easy for a person without the same rapport getting agricultural inputs on a loan basis. The loans often carried extremely high interest rates, even over 3 percent per month as reports go. The time frame of repayment was usually short, while the money was expected to be repaid after harvests.

4.2.7 Village retail shop owners providing goods on credit

Village shops do provide goods on credit in all the villages. This was said to be an extremely important informal social safety net, as it ensures that people are able to obtain the bare essentials, even when they have no money in hand.

Obtaining goods on credit was said to be a lifeline during the slack season, when regular income was not available. Significantly these days, even with the institution of MGNREGA during the slack season, credit is still required, as payment from the scheme is done only once in two weeks. In Dokur, people said this delayed scheme payment had made shopkeepers slightly more liberal with credit limits.

4.2.8 Income from remittances

Migration was an issue in many villages. But it may also be considered a coping strategy, and need not always be related to distress only. In many families it has been happening that, with the younger more educated generation having migrated, these young people were now in a position to send back money from their work places. Even those who left the village for work in construction labour were sometimes able to send back money.

As a matter of fact, income from remittances was substantial in villages where people migrate. In Dokur, for instance, some people worked in construction or other non-agricultural activities in Hyderabad and other metro-cities and sent back money regularly to their dependants. Similarly in Aurepalle, due to its proximity to Hyderabad, many people who were going to work there occasionally managed to send back money. In Pamidipadu, many educated people had migrated abroad and regularly sent remittances both to their families and for social causes in the village such as building temples, community halls, etc.

But not everyone who migrates is in a position to remit money. For instance, a respondent once narrated that, though his son lived in Hyderabad and made a decent salary, the cost of living and education in Hyderabad was so high, that he was unable to send back money to his parents because of his own high expenses.

5 Implication of social safety net programmes

The selected villages have many common issues that act as stresses, and increase vulnerability. Social protection programmes are in theory supposed to address these specific issues to alleviate such stresses. One of the aims of the MGNREGS, supposed to build durable assets, was to address the issue of lack of water. But in all the villages, it was seen that much MGNREGS work had been focused on land improvement rather than water resource management. A new scheme called the Indira Jala Prabha is a programme meant to provide bore wells to marginalized communities, working in convergence with MGNREGS. People observed that this programme was yet to take off fully in the villages under study.

But drilling bore wells is not a solution to water scarcity, and will only exacerbate it. Holistic integrated water resource management is lacking, as also on-ground convergence with other government programmes that improve water resource access, such as watershed development programmes.

Such programmes, too, have not had much success in the villages: most villagers could not even recall any work done with regard to building check dams and other such activities in Dokur and Aurepalle, whereas in J. C. Agraharam, check dams that were built around 10 years ago, were reportedly dismantled by the local population for unknown reasons.

This also shows that there is a lack of ownership in relation to these programmes in the village. It is essential that this be cultivated to maintain assets that are created through these programmes.

Informal safety net programmes do not have much of a bearing on improving the water resource scenario, but can be helpful in cases where water sharing occurs between neighbouring farmers, where one has a working bore well and the other does not. These cases, though rare, were reported in the villages in Aurepalle and Dokur, and could be considered as an unofficial safety net.

This issue is linked to the question of labour availability. When there are water resources and large areas of land are farmed, more labour is required. This means providing regular wage work reduces migration. According to farmers, labour availability had gone down. This was both with respect to increased wage rates as well as actual numbers in the labour force. But for the labour class, this was seen as beneficial. There was a demand from farmers to increase minimum support price (MSP) to reflect increased costs of production due to increased labour and input costs.

Migration was also prevalent, both long and short-term. It could be counted as a coping mechanism to deal with shocks and stresses, as discussed earlier. But migration also carries with it problems such as health and safety concerns when moving to big urban centres, where housing is generally in temporary structures like hutments. Also it was seen that migrants would not have access to many government schemes such as the PDS, since their ration cards were registered in their native villages. So, apart from unsafe accommodation, there was also a lack of access to various facilities.

The MGNREGA attempts to address this concern, and it has reportedly had an effect. For instance in Dokur, when the scheme was functioning well, the rate of migration had come down. To reduce migration, and safeguard the interests of the rural poor it is very important therefore, that these official schemes function well.

Changing in cropping pattern was reported in all villages. This too, is an issue that is linked to labour availability but also to water resources and climate variability. With uncertainty in rainfall, farmers preferred to adopt a strategy that would give them maximum profits. As was seen in Aurepalle, there was

a huge shift towards growing profitable cash crops such as cotton. In Pamidipadu, the focus was on growing chickpeas, chillies, and tobacco, along with jute. Dokur is a special case, because the change in area cropped was not due to a farmers' choice but because of the lack of water resources, In J.C. Agraharam, it was more mixed, with the kharif crop being distributed between rice, cotton, and pigeon pea (toor dal). The increase in cotton and pigeon pea was reported due to a higher profitability, compared to traditional crops like millets, which had high input costs, with lower yields per acre and a low selling price. Besides, there was not much demand for these crops and limited government procurement of them. With the newly introduced Food Security Bill –that has a provision for the supply of millets and sorghum-, it is hoped that procurement increases and growing traditional grains picks up again. In addition, revision of the MSP was a common demand in all villages.

Household food security was another issue linked with the three issues discussed in previous paragraphs. It could largely be addressed, directly, by the public distribution system and the different government schemes. Various other schemes such as SHGs and MGNREGS also helped, if more indirectly. SHGs would provide low interest loans to tide over tough times. When required, they would also help in livelihood generation and sustainability, thereby reducing the impact of various stresses. MGNREGS attempts to provide wage employment in the agricultural off-season to ensure that more regular access to funds would be available. However, due to various implementation issues, it was seen that MGNREGS was not as effective as could be to reduce vulnerability.

5.1 Implications of social safety net programmes on selected welfare indicators

5.1.1 Impact of SSN programmes on wage rates

Wage rates increased in all villages over the last 7 years. The reasons given for this increase vary. There is a multitude of factors that affect wage rates, not just SSNs. When asked, the response from labour groups was that as the cost of living had increased, it necessitated an increase in wages in turn.

In Aurepalle, since a large number of farmers were growing the same crop i.e. cotton, wage rates during peak harvest seasons were high, as there was a huge demand for labour. In Dokur, Aurepalle, and J.C. Agraharam, due to a lack of water resources, the area under cropping had reduced. But there were villages nearby where irrigation was present, and productivity was high, along with a labour shortfall in their own villages, so they would hire people from other villages including from these three, at higher rates to get their crop harvested, and so, wage rates were driven up.

Besides, higher wages from the construction industry in urban centres as also from an increase in construction in rural areas would often be a competing factor. , This increase in construction projects was caused by schemes such as INDIRAMMA and other housing schemes, where loans and grants are provided to the poor to build houses.

Farmers felt that MGNREGA has contributed to some extent to wage rise. In combination with other factors discussed in this section, this means that labour groups now have achieved some bargaining power. Apart from it all, access to free education for the younger generation is an often overlooked point in the discussion on wage rates and labour availability. Young people tend to be better educated, and prefer to engage in activities other than manual labour for livelihood. This means there are fewer people willing to enter the work force as labourers on daily wages, and so a shortage is created, driving up rates.

5.1.2 Impact on livelihood diversification

Social safety nets have provided scope for beneficiaries to create assets and diversify their livelihoods.

Here are some examples of livelihood diversification in the context of SSN schemes-

Milk cooperatives, both government and privately run, provide loans and implements to those involved in milk production. This has stimulated beneficiaries to invest more in livestock and get training in the latest methods of animal husbandry, and make milk production a more viable option for livelihood.

SHGs, on their part, give loans at comparatively lower interest rates. This has allowed beneficiaries to invest this money into small businesses such as small shops and food stalls.

They do this in addition to wage labour in some cases, thereby diversifying their incomes. There was the case of a woman-headed household in Dokur, for example, where the woman entrepreneur ran a small tea shop in the morning and evening, and worked as an agricultural hand during the day.

The MGNREGS provides an option to those interested in manual labour to have an additional source of income. In the four villages it was noted that farmers who had land, were also participating in MGNREGA activities. Respondents said that they had worked under the MGNREGA, as income from farming, especially marginal farming was volatile due to drastic price fluctuations in cash crops. This had given them an additional income of Rs. 8,000-10,000 during the slack season, which they could use to live on or use towards the purchase of inputs for the kharif season.

5.1.3 Impact on food and nutritional security

Government schemes related to the Public Distribution System have improved food and nutritional security generally. Beneficiaries found that these schemes had enhanced their food security, because they could get 4 kilo rice per person at Rs. 1 a kilo. Those in abject poverty often could qualify for special schemes under the PDS, whereby they would receive up to 30 kilos of food grain from schemes such as the Antodaya scheme. Such schemes reduce the amount of rice that needs to be bought from the open market. The money saved from these entitlements maybe utilized for other purposes such as buying additional food items such as vegetables and fruits leading to a diversification of diet. In addition, sugar, palm oil and other commodities are available at subsidized rates. Though there are complaints about the quality of food obtained under the various schemes implemented through the PDS, beneficiaries are mostly happy.

This scheme in conjunction with other schemes, such as various pension schemes, have brought more food and nutritional security according to preliminary surveys. Additional income from the MGNREGA had also helped beneficiaries in diversifying their diet to include more vegetables, fruits, meat, etc. For young children going to school, the midday meal programmes have been beneficial by providing nutritious food. Anganwadis have helped provide nutrition to babies, pregnant and lactating women, thereby improving their nutritional security as well as that of their children when they are at their most vulnerable.

5.1.4 Impact on access to institutions

Access to institutions had increased due to government intervention programmes. Agricultural cooperative banks had been set up that serve all four villages, where farmers were able to get loans for agricultural purposes. In addition, the 'Total Financial Inclusion' initiative allows the poor to open no-frills bank accounts, even with zero balance.

Self Help Groups have been a major influence on women opening accounts, enhancing their financial independence. Many women interviewed informed that the first time they opened an account, had been through an SHG. SHGs also provide training in the management of finances and savings, which further helped beneficiaries.

The MGNREGA had introduced many people into the process of opening a post office account. Finally, the INDIRAMMA scheme had also assisted beneficiaries, who till then, had no bank account to receive the benefits of the scheme.

5.1.5 Impact on farm productivity, labour availability, and migration

The main issue affecting farm productivity is water. In the opinion of the farmers surveyed, though agricultural input subsidies and other farmer friendly government programmes were functional, in the absence of water their positive effect was nullified. Though there are programmes for the drilling of bore wells, such as the then newly launched Jalaprabha scheme, these schemes are generally only applicable for those belonging to SCs and STs.

As discussed earlier in the paper, there are a number of factors affecting labour availability. The effect of NREGA on labour availability needs to be investigated further.

With respect to migration, in Dokur, it was seen that around 400 people migrated on a regular basis, till the implementation of the MGNREGA. Then the number of people migrating had come down to around 100 people. But due to a delayed payment of wages under the scheme in the previous year, in the year period under study more people migrated again. An estimate during a focus group discussion was that around 900-1000 people had migrated. MGNREGA reportedly did not have much effect on migration in Aurepalle, J.C. Agraharam, or Pamidipadu.

5.2 Interactions of SSN programmes with each other

As mentioned earlier, the pension scheme in combination with PDS had a great impact on food and nutritional security. Apparently they were working well in combination with each other. Similarly, the wage income from MGNREGA had had an effect on various other safety nets. Increased regular income means that lenders, institutional or private, are more confident of lending money, since an additional wage income (separate from their usual livelihood), would lessen the chance of default.

In Aurepalle, Dokur, and J. C. Agraharam, beneficiaries informed that they now received more credit at local shops for this same reason. In a few cases it was seen that additional wages from the MGNREGA combined with savings or loans from banks, and funds from the INDIRAMMA scheme had all helped to build a pacca house for a few people. Extra wage income in some cases also allowed people to buy gold jewellery, which they set away for a rainy day. Additional income also helped in repayments to chit funds and Self Help Groups as well as pay off loans. An additional wage income could also be used to buy subsidized agricultural inputs.

5.3 Shortcomings of the various SSN programmes

Programmes were generally functional and seemed to be beneficial to those who qualified. But there were some shortcomings of some of the major programmes.

The Public Distribution System (PDS): The PDS has often been plagued with allegations of corruption and diversion of stock. It was not very different in these villages. Additional problems were the low quality of goods supplied, and limited stocks. These affect the well-being of those who are meant to benefit by these schemes.

Self Help Groups: No explicit shortcomings of SHGs were mentioned. Apparently, beneficiaries have a good opinion of these groups.

Loans from financial institutions: Those who were landless or tenant farmers said it was difficult for

them to get loans without collateral. Others said that even after obtaining loans, it was often difficult to pay back on schedule as returns on investment were not guaranteed in the agricultural sector. Further, tenant farmers informed that often, tenancy agreements were oral in nature, and so they could not prove to banks that they were actually farming. Worse, sometimes the land owner had already obtained a loan using the same piece of land.

Insurance and subsidies through the Agriculture Department: As in the previous situation when no proof of tenancy exists, it is often the land-owner who collects the insurance in the case of crop failure, leaving the tenant farmer to incur the losses. Awareness of the Andhra Pradesh Licensed Cultivators Act of 2011 is lacking. It gives protection to tenant farmers in terms of availing credit as well as insurance. Besides, those who were receiving crop insurance, complained that the amount paid to them was not enough to cover their losses. In addition, there were allegations of cronyism and corruption in the allotment of subsidized facilities such as sprinklers.

Social security pensions: This scheme was largely thought of in a positive light. Only a few respondents mentioned that it was a complicated process to register and obtain pensions. In a few cases, though they had registered, they had not yet received the pension. People were of the opinion that the amount received as pension needed to be raised.

Milk Cooperative Society: In only one village complaints were put forward, that people received less money from the cooperative than they would by selling the milk door to door in a nearby town. Generally, wherever milk cooperatives were functional, they were considered beneficial.

MGNREGA: There were concerns regarding MGNREGA such as delayed payment of wages, non-functioning of the programme, and discrepancies in wage amounts. There were also allegations that some of the work done under MGNREGA was not productive, such as cutting of P. Juliflora. The idea behind this was to convert wasteland into arable land. But for reasons like the non-availability of water, and the high costs and risks of agriculture in the region, these lands often had remained uncultivated. The exception to this was Aurepalle, where large areas of land that had been improved this way, had been used to grow cotton.

So, there is a clear demand that MGNREGA work take into account the needs of the stakeholders in the decision-making process. Farmers also felt that MGNREGA is the cause of labour shortages and increase in wage rates, so they thought that MGNREGA could be used to carry out agricultural work as well. Some farmers even suggested a 50:50 sharing mechanism under such circumstances.

Despite the various shortcomings listed, these programmes were considered essential and, if functioning properly, were proving of great benefit to recipients.

6 Conclusions

The selected villages were seen to face a number of serious issues that impacted people's livelihoods, food security, and income generation capacity. This document examined both the major formal and informal social protection programmes that existed in the selected villages.

It was found that though many official social protection programmes were operating in the villages, only some had made an impact. Overall, the official schemes were thought to be functioning, and the feeling was that more accountability would only improve the programmes. With respect to informal social safety nets, it is seen that people resort to borrowing money from friends and relatives before approaching the more formal mechanisms of bank, often due to lack of collateral or credit history. For women this is different, as the facility of loans through the SHGs is sometimes better. Pawnbrokers and money lenders are looked on as the last resort, as they usually charge high interest rates. Not everyone has access to other forms of credit from agriculture produce buyers or input sellers, thus these have only had a limited impact on the villages as a whole. Credit from village shops is seen as essential, especially in the non-growing seasons, the credit worthiness of people has improved after NREGA.

The major issue facing the villages is that of lack of water resources. Though the government has instituted programmes such as water shed development schemes and additionally, a portion of MGNREGA work, was to create water resource assets in the village. However these do not seem to be addressing this issue, which has implications on livelihoods, food security, farm productivity and overall well-being of people. In the current context of climate variability, this makes people more vulnerable to shocks and seasonalities. This leads to decreased livelihood options, often causing those working in the labour sector to migrate. Farmers indicate a high labour wage rate and general lack of labour availability. They often blame this on MGNREGA but field investigations found there are multiple factors influencing labour availability in each village. MGNREGA, when functioning well, could actually serve to bring down the rural to urban migration. Food security is being attempted to be addressed by schemes such as the PDS, with mixed success.

Water and sanitation are major issues that need to be addressed, the government schemes to build toilets and sanitation facilities has not yet fully been implemented, though it is hoped that soon, everyone will have access to toilets, and better sanitation infrastructure.

So, the need of the hour is to ensure transparency in the functioning and implementation of the programmes, to ensure that the targeted beneficiaries receive the benefits of these programmes.

There have been attempts to do this, for example with the Management Information System (MIS) system for MGNREGA, where details of work accomplished are posted on the web. The social audit system is also beneficial. Such initiatives must be taken and implemented in other schemes as well.

There is also a need to focus the schemes on local level needs, i.e. modify them with respect to the local context. For instance, much land improvement work may happen in a water scarce region under the MGNREGA, as seen in Dokur, but if the work were to focus more on water resources development that would benefit to the entire village. Further, there needs to be more convergence between government schemes. There have been attempts in this respect, such as the planned combining of the Indira Jala Prabha scheme with MGNREGA or the convergence of NOAPS (National Old Age Pension Scheme) with INDIRAMMA, in terms of providing pension to beneficiaries. But more coordination between the different schemes as well as convergence is advocated.

A major concern was the lack of ownership among the public, where assets created, especially community assets, were not maintained, whereas the villagers felt that it is the government's job to provide facilities to that effect.

Next to an urgent need to inculcate a sense of ownership and responsibility in all stakeholders concerned, it is important to instil in the local people the confidence to demand what is due to them through a rights-based approach.

7 References

- Alderman H** and **Hodddinot J.** 2007. Growth Promoting Social Safety Nets. 2020 Focus Brief on the World's Poor and Hungry People. IFAD. Available at: http://www.ifpri.org/sites/default/files/publications/beijingbrief_alderman.pdf (Accessed on 13 May 2013).
- Barrientos A.** 2010. Social protection and poverty. *International Journal of Social Welfare*, 20, 240-249.
- FAO. 2001. The State of Food Insecurity in the World. Rome, Italy, Food and Agriculture Organization of the United Nations. Available at: <http://www.fao.org/3/a-y1500e.pdf> (Accessed on 15 May 2013).
- Devereux S.** 2002. Can Social Safety Nets Reduce Chronic Poverty? *Development Policy Review*, 20 (5), 657-675.
- Devereux S** and **Sabates-Wheeler R.** 2004. Transformative Social Protection. IDS Working Paper 232, Brighton: Institute of Development Studies, University of Sussex.
- Deshmukh-Ranadive J.** 2004. Women's Self-Help Groups in Andhra Pradesh: Participatory Poverty Alleviation in Action. The International Bank for Reconstruction and Development / THE WORLD BANK. Available at: http://web.worldbank.org/archive/website00819C/WEB/PDF/INDIA_AN.PDF (Accessed on 25 May 2013).
- Gentilini U** and **Omamo S.** 2009. Unveiling social safety nets. Working Paper No. 20, Rome, Italy: Policy, Planning and Strategy Division, World Food Programme, November.
- Hussain I** and **Hanjra M.** 2004. Irrigation and poverty alleviation: review of the empirical evidence. *Irrigation and Drainage*, 53(1), 1-15.
- IFAD.** 2011. Enabling poor rural people to overcome poverty in India. Rome, Italy: International Fund for Agricultural Development.
- Kattumuri R** and **Singh M.** 2013. Historical development and goals of social protection in India. in Midgley J and Piachaud D (eds). *Social Protection, Economic Growth and Social Change: Goals, Issues and Trajectories in China, India, Brazil and South Africa*. Cheltenham, UK: Edward Elgar Publishing Limited, 77-101.
- Kabeer N.** 2002. Safety Nets and Opportunity Ladders: Addressing Vulnerability and Enhancing Productivity in South Asia. Working paper 159, London, UK: Overseas Development Institute.
- Kerr J.** 2000. Development Strategies for Semi-arid South Asia. Brief 6 of 9, 2020 Focus 4- Promoting sustainable development in less-favored areas. Washington, DC: International Food Policy Research Institute, November.
- Khan J H, Hassan T** and **Shamshad.** 2011. Socio-Economic Causes of Rural to Urban Migration in India. *Asia-Pacific Journal of Social Sciences*, 3(2), 138-158.
- Midgley J.** 2012. Social protection and Social Policy: Key Issues and Debates. *Journal of Policy Practice*, 11(1-2), 8-24.

- Oduro A.** 2010. Formal and informal social protection in Sub-Saharan Africa. European Report on Development, European University Institute. Available at: http://erd.eui.eu/media/2010/Oduro_Formal%20and%20Informal%20Social%20Protection%20in%20Africa.pdf (Accessed on 16 September 2013).
- OECD.** 2009. Social Protection, Poverty Reduction and Pro-Poor Growth. Policy Guidance Note: Social protection. Available at: <http://www.oecd.org/development/povertyreduction/43573310.pdf> (Accessed on 02 July 2013).
- Paitoonpong S, Abe S and Puopongsakorn N.** 2008. The meaning of 'Social Safety Nets'. Journal of Asian Economics. 19, 467-73.
- Rama Krishna N et al.** 2011. Dokur Village at a Glance. Patancheru, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics. Available at: <http://vdsa.icrisat.ac.in/Include/vaag/dokur.pdf> (Accessed on 22 April 2013).
- Ramesh G et al.** 2012. J.C. Agraharam Village at a Glance. Patancheru, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics. Available at: <http://vdsa.icrisat.ac.in/Include/vaag/jcagraharam.pdf> (Accessed on 22 April 2013).
- Rimlinger G V.** 1968. Social Change and Social Security in Germany. Journal of Human Resources. 3(4), 409-21.
- Rao K et al.** 2005. Overcoming poverty in rural India: focus on rain fed semi-arid tropics. Patancheru, Andhra Pradesh, India. Available at: <http://oar.icrisat.org/1198/> (Accessed April 22 2013).
- Ramana Reddy K et al.** 2011. Aurepalle Village at a Glance. Patancheru, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics. Available at: <http://vdsa.icrisat.ac.in/Include/vaag/aurepalle.pdf> (Accessed on 25 April 2013).
- Reddy, S.** 1998. Social funds in developing countries: recent experiences and lessons. Staff Working Papers, Evaluation, Policy and Planning Series, Number EPP-EVL-98-002. New York, USA: United Nations Children's Fund, Programme Publications.
- Scherr S J et al.** 1996. Social Audits in Public Distribution System: A case study from Andhra Pradesh, 2011. Accountability Initiative, Research and Innovation for Governance Accountability, Policy Brief. Available at: <http://www.accountabilityindia.in/article/policy-brief/2378-social-audits-public-distribution-system-case-study-andhra-pradesh-new> (Accessed on 15 March 2013).
- SERP (Society for Elimination of Rural Poverty).** nd. Available at: <http://www.serp.ap.gov.in/BL/files/banklinkage/IndirammaHousingforpoor.htm>. (Accessed on 2 December 2013).
- Schmidhuber J and Tubiello F N.** 2007. Global food security under climate change. Proceedings of the National Academy of Sciences of the United States of America (PNAS), 104(50), 19703-8.
- Siddappa A et al.** 2012. Pamidipadu Village at a Glance. Patancheru, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics. Available at:

<http://vdsa.icrisat.ac.in/Include/vaag/pamidipadu.pdf> (Accessed on 25 April 2013).

Singh R and Hazell P B. 1993. Rural Poverty in the Semi-Arid Tropics of India: Identification, Determinants and Policy Interventions. *Economic and Political Weekly*, 28 (12-13), A9-A15.

Subbarao K et al. 1997. Safety Net Programmes and Poverty Reduction: Lessons from Cross-Country Experience. *Directions in Development*. Washington, DC: The World Bank. Available at: http://www-wds.worldbank.org/servlet/WDSContentServer/IW3P/IB/1997/03/01/000009265_3971229180803/Rendered/PDF/multi_page.pdf (Accessed on 26 May 2013).

The Hindu. 2003. Indiramma housing unit cost goes up. May 8. Hyderabad, India. Available at: <http://www.thehindu.com/news/national/andhra-pradesh/indiramma-housing-unit-cost-goes-up/article4694807.ece> (Accessed on 25 November 2013).

A brief introduction to the villages selected for the study

Mehbubnagar District

Aurepalle

Aurepalle (16° 51' N 78° 37' E) is situated in Madgul mandal in the Telangana Region of Andhra Pradesh. The village represents a region with medium to shallow alfisols and an annual rainfall of about 700 mm, distributed erratically. Soil depth ranges from 15 to 45 cm. Cotton, paddy, sorghum, pearl millet, castor and pigeon pea are the major crops cultivated in the village. As of December 2010, Aurepalle had a population of around 4760 (Reddy et al. 2011).

The village has a Gram Panchayat established in 1966 and composed of eleven members including a president. They are directly elected by the villagers every five years. Reservations in the local body elections started 25 years ago to uplift the vulnerable groups (SC/ST, BC, and women). The Gram Panchayat is responsible for the day-to-day administration and implementation of welfare and development programmes. It also takes care of raising financial resources in the form of taxes from the villagers and grants from the government and utilizing them for village development in terms of providing better education, maintaining sanitation, providing drinking water, constructing roads, and installing street lights, as well as the general maintenance of all infrastructure.

Agriculture and related activities such as daily labour are the main occupations of a majority of the households, followed by occupations such as toddy tapping, and non-agricultural labour. There is diversification of livelihood supported by government development programmes. Income sources include multiple sources from crop, farm and non-farm labour, business, migration for work, monthly salary, and livestock rearing. Household incomes were enhanced by diversification into high-value crops and investments in livestock (especially sheep, goat, and milch animals), and a shift from non-profitable caste occupations to non-farm activities and migration. Education levels had improved in the last 30 years, leading to the adoption of new technologies for agricultural and non-agricultural income generation as well as a capability to get salaried jobs.

There has been an impact of the construction of the International Airport in Shamshabad, which is around 50 kilometres from the village, by increasing land values. In addition, some industries had opened up nearby, leading to a socio-economic change in the village.

Access to a Primary Agricultural Credit Co-Operative Society (PACS) is available in the nearby mandal headquarters in Madgul. There are around 50 Self-Help Groups in the village. A branch of the State Bank of India, a co-operative bank, and a milk cooperative society are operating there as well.

Aurepalle has 3 primary schools, 2 secondary schools, and 1 high school. In addition, there are 3 Anganwadi centres serving the needs of children, pregnant, and lactating women.

Dokur

Dokur village (16° 36' N and 77° 50' E) is situated in Devarkadra mandal. The village is drought prone and adequately represents the semi-arid tropics. It has an annual maximum temperature of 40°C and minimum temperature of 20°C, while the normal rainfall is 730 mm, distributed erratically. Dokur represents the medium to shallow alfisol region. The major crops grown are paddy, groundnut, castor, pigeon pea, and cotton. As of 2010, Dokur had a population of around 3000 (Ramakrishna et al. 2011).

The village has a Gram Panchayat composed of 11 members including the President. The Panchayat has the same tasks as in Aurepalle village.

Agriculture was the main occupation of the majority of the households 30 years ago. But persistent drought and the drying up of irrigation sources have led to a drastic decline in farm income, which resulted in diversification of means of livelihood beyond agriculture. Less than 50% now depend on agriculture or agriculture labour as their main source of income. Others have taken up non-farm labour including that which requires migration. Other non-farm work ranges from driving auto-rickshaws, to milling rice and flour, selling milk, running petty businesses, and working in monthly salaried jobs with the government or in NGOs.

Migration is extremely prevalent in Dokur: due to lack of agricultural labour work many migrate to work in nearby cities and other states. Remarkably, though, despite the general decrease in agricultural productivity, household and per capita incomes of inhabitants are increasing over the past few years.

While there is no formal financial institution within the village, the villagers have access to banks namely, the Andhra Bank and the State Bank of Hyderabad in Devarkadra, the mandal headquarters, which is around 6 kilometres away. Devarkadra has other credit institutions such as the Andhra Pradesh Grameen Vikas Bank (APGVB) and a Primary Agricultural Credit Society.

There are around 35 Self Help Groups operating in Dokur itself. Two Anganwadis, one primary, one secondary, and one higher secondary school are taking care of the educational needs of the village.

Prakasam District

Pamidipadu

Pamidipadu village (15° 42' 41.8" N and 80° 06' 40.4" E) is located in Korisapadu mandal of Prakasam district, 28 km away from Ongole town. The major soils of the village are shallow to deep black, constituting about 60% of the arable land. Red, sandy, and saline soils make up the rest. The normal rainfall in the village is 842 mm. Crops grown are chickpea, tobacco, chillies, jute, vegetables, and pulses. As of December 2010, the population was 5380.

The Gram Panchayat system was started in this village in 1965. The Panchayat consists of 14 ward members of which 6 posts are reserved for people belonging to Scheduled Castes (SC) (4 men and 2 women), 3 to Backward Castes (1 man and 2 women), and 5 to the General Category (4 men and 1 woman).

Agriculture is the main occupation of the households (58 percent), followed by agricultural labour (25 percent), non-agricultural labour (9 percent), caste-based occupations (5 percent), and others (3 percent). Migration is observed in the village during the slack period - about 600 members from the SC community migrate for 3-4 months a year (December to March) to do tobacco processing, earning about Rs. 8000 per month. More than 25 people who had migrated to the USA, Britain, and other countries for employment have been sending huge remittances to their family members in the village. More than 300 people are working on monthly salaried jobs in surrounding cities.

The villagers have access to A Primary Agricultural Credit Society, while two banks have their branches in Pamidipadu, namely the Grameen Vikas Bank and the State Bank of India. There are about 120 Self Help Groups and 7 milk cooperatives, 6 of which are privately run. The village has 6 Anganwadis, 5 primary schools (3 of which are government-run), and 3 high schools (1 government run).

Janapala Cheruvu Agraharam (J. C. Agraharam)

J. C. Agraharam village (15° 28' 39.5" N and 79° 09' 10.5" E) is located in Besthavaripeta mandal. The major soils of the village are red sandy (40 percent), shallow to deep black (35 percent), and saline/alkaline soils (25 percent). The normal rainfall is 763 mm. As of 2010, the population was around 1600 (Ramesh et al. 2012).

Agriculture is the main occupation for more than 51 percent of the households followed by earnings from labour (30 percent), caste occupations (5 percent), and others (14 percent). Crop productivity is relatively low because of factors such as poor soil (saline/alkaline), uneven distribution of rainfall, frequent droughts, and wild boar damage. Soils in the area became saline due to excessive application of chemical fertilizers.

Rearing of milch animals, sheep, and goats is also an important source of income for the households. Livestock income is increasing year after year. Land values have doubled (from Rs. 0.12 million to 0.25 million per ha) in the last two years because of the implementation of the Velugonda irrigation project. The pace of agricultural development is expected to increase after completion of this project. There are 3 dairy co-operatives in the village, 1 government run and 2 privately.

The Gram Panchayat system was started here in the 1960s. There are no formal financial institutions within the village; the villagers meet their credit needs from the Primary Agricultural Credit at Galijerugulla and a nationalized bank (State Bank of India) at Pitikayagulla. Farmers also get petty loans from about 20 village moneylenders for various purposes - at high interest rates. There are 28 women's SHGs functioning in the village, which provide loans to their members at low interest rates. A government run milk cooperative society exists, which is linked with self help groups, and so, has only women members. Apart from buying milk, the society provides training on animal husbandry and animal welfare as well as loans for implements such as milk cans.

2 Anganwadis are functioning in the village as also a primary school with classes up to standard VII.

About SaciWATERS

SaciWATERS, the South Asia Consortium for Interdisciplinary Water Resources Studies, is a policy research institute based in Hyderabad, India. From its inception in 2001, it has focused on critical issues related to water resources management in south Asia. A key endeavour at SaciWATERS has been to enhance the dominant water resources management paradigm in the region with a consideration of all issues using a pro-poor human development approach. The emphasis is on the accumulation of new knowledge through a combination of research, capacity building, and advocacy. Accordingly, it partners with universities and academic institutions from across global north and south to fundamentally reshape water resources knowledge systems in south Asia.

South Asia is endowed with vast water resources, yet there seems to be a perpetual shortage and uneven water distribution. Moreover, global changing scenarios such as urbanization and climate change are contributing to the profound water insecurity. Hence, a holistic approach to cater to this problem is required. SaciWATERS aims to achieve water security in south Asia through a pro-poor human development approach.

About SaciWATERS: www.saciwaters.org

About ICRISAT

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a not-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometres of land in 55 countries, the semi-arid tropics have over 2 billion people of whom 644 million are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks – a strategy called Inclusive Market-Oriented Development (IMOD).

ICRISAT is headquartered in Patancheru near Hyderabad, Telangana, India, with two regional hubs and six country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.

About ICRISAT: www.icrisat.org

ICRISAT's Scientific Information: <http://EXPLOREit.icrisat.org>