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Diversification and Livelihood Options: A Study of Two Villages in Andhra Pradesh, India 1975–2001

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Glossary of Terms

Gram panchayat	Village council
Hamali	Loading and unloading
Jagir	Type of land tenure granted to officers serving under the *Nizam*
Kacha	Temporarily constructed house
Khalsa	Direct administration
Kharif	Agricultural season between July and October
Malipatel	Official responsible for the collection of revenues
Mandal	Territorial and administrative unit (with a population of about 50,000 to 70,000)
Nizam	Feudal ruler of south-central India from the 17th Century to Independence
Patta	Tree for production of curry leaves
Patwari	Revenue official
Police Patel	Official responsible for maintaining law and order
Pucca	Permanent or properly constructed, e.g. house constructed with bricks and cement
Rabi	Agricultural season between October and June
Ryotwari	Freehold land tenure

Acronyms

AIDS	Acquired Immune Deficiency Syndrome
BC	Backward Caste
CPI	Consumer Price Index
CPR	Common Property Resource
DFID	UK Department for International Development
DWACRA	Development of Women and Children in Rural Areas
DWCUA	Development of Women and Children in Urban Areas
FC	Forward Caste
FYM	Farm Yard Manure
HH	Household
HYV	High Yielding Variety
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
NGO	Non-Governmental Organisation
ODI	Overseas Development Institute
PACS	Primary Agricultural Credit Co-operative Society
PDS	Public Distribution System
PRA	Participatory Rapid Appraisal
RFS	Regular Farm Servant
SC	Scheduled Caste
VLS	Village Level Study

Abstract

The diversification of rural livelihoods is the subject of a growing amount of conceptual and policy-based research. This paper reports on the findings from a re-survey and longitudinal panel survey carried out in the villages of Aurepalle and Dokur in Mahbubnagar District in Andhra Pradesh, India. This is a particularly valuable data source since these villages have been surveyed at intervals by ICRISAT since 1975 and have enabled an analysis of changing rural livelihoods over time.

Agriculture remains the most important source of livelihood in both villages, though the relative importance of crop cultivation has decreased, as has real income from crops. Agriculture has become an increasingly risky pursuit and households have sought other sources of income, most notably through migration for agricultural labour in other villages or for wage labour in urban areas such as Hyderabad.

Whilst there are a small number of cases where diversification has enabled households to lift themselves significantly above the poverty line, the overwhelming experience of diversification is as a coping strategy. Mahbubnagar District experienced drought in 1997–8 and between 1999 and 2001. The intervening years were characterised by only average rainfall. It remains to be seen, therefore, whether the diversification into non-farm activities is a short-term response to adverse agricultural terms of trade and ecological uncertainty brought about as a result of extended drought or whether diversification represents a long-term move away from agricultural livelihoods in rural areas that will be sustained. The prospects for a return to agriculture in the future will be diminished if population density continues to rise and limited by the gradual erosion of agricultural assets, such as land and large livestock like cattle and buffalo.

The findings from this re-survey of two villages raise important policy challenges for government and other stakeholders in Mahbubnagar District, in Andhra Pradesh and in the semi-arid tropics of India more generally. Whilst government policy and state interventions are made along sectoral lines, household livelihoods are highly diverse. Policy-makers need to reflect on the most suitable ways of supporting this diversity, for example by facilitating access to the assets that people draw on to diversify or by ensuring that agriculture is less risky and agricultural assets are not eroded during periods of uncertainty. Only with more appropriate policies that recognise the importance of diversity will it be possible for more people to make positive exits from poverty through diversification.

1 Introduction

Development practitioners are increasingly emphasising the importance of understanding livelihood systems and the complexity of rural livelihoods for effective policy formulation. To this end the UK Department for International Development (DFID) has funded four parallel three-year studies in Africa and South Asia that explore the complex nature of household livelihoods in rural areas and seek to address the links between understanding livelihoods at the micro-level and effective policy-making at the meso- and macro-levels. One of the these studies is the Livelihood Options Project, which is based at the Overseas Development Institute (ODI) and focuses on rural livelihoods in Andhra Pradesh, Madhya Pradesh and Orissa in India, and on Nepal and Bangladesh.[1]

The broad aims of the Livelihood Options Project are to understand how rural livelihoods have changed and diversified, to identify the conditions under which poor people have been able to obtain access to new and more productive livelihood opportunities, to understand how this process has affected the well-being of poor households and to identify the role of the state in these processes.

This paper reports on findings from one aspect of the research that has taken place in Andhra Pradesh, namely a re-survey of two villages, Aurepalle and Dokur, in the Andhra Pradesh district of Mahbubnagar. The re-survey of villages adds value to the study's analysis of livelihoods by contributing a strong temporal dimension to the analysis of livelihoods. Whilst the main study in Andhra Pradesh focuses on synchronic censuses of villages, year-long surveys and in-depth studies in various villages, Aurepalle and Dokur have been the subject of a substantial amount of high quality research by ICRISAT for three decades and offer, therefore, an opportunity to learn more about how livelihoods have changed over time, to see the impacts of policy change and economic transformation on livelihoods and, finally, to think about the types of livelihood trajectories that have enabled people to exit poverty.

1.1 Understanding the livelihoods of the rural poor: analytical concepts

Our understanding of livelihoods and poverty has undergone considerable change over the last few decades and this has implications for the way in which we define, research and analyse these concepts. In the 1970s, when the first major studies of Aurepalle and Dokur were underway, the focus of poverty analysis was on income. In rural areas this was assumed to be income from agricultural activity. At that time the main preoccupation of research at ICRISAT was with Andhra Pradesh as part of a bypassed yet extensive agricultural region. The early ICRISAT studies, reported in detail in Walker and Ryan (1990), considered agricultural household economics in predominantly dryland villages to thereby enhance 'the understanding of the dynamics of agricultural development in one of the poorest rural regions of Asia' (Walker and Ryan, 1990, p. 3).

More recently, there has been an increasing preoccupation with more holistic views of poverty and a recognition of the fact that a plethora of activities make up the livelihoods of the rural poor. This can, and often does, involve acknowledgement of the many non-agricultural activities that are carried out by poor people in rural areas. Whilst in sub-Saharan Africa, this diversification is frequently interpreted as a response to the difficulties that poor (and richer) households face in the context of structural adjustment and liberalisation (Bryceson, 1999; Ellis, 1998, 2000), the ways in which households in India are responding to the processes of liberalisation that began in the early

1 www.livelihoodoptions.info

1990s are the subject of increasing debate and continue to be disputed (Meenakshi and Ray, 2002; Datt and Ravallion, 2002).

Research elsewhere has shown that diversification is not necessarily a strategy pursued by poor people, nor is it just about coping. For some people it can help in mitigating risk or coping with vulnerability where risk remains high and in setting poor people on a cumulative path towards greater livelihood success (Davies, 1996). In addition to reducing the risk of livelihood failure (Gill, 1991; Alderman and Paxson, 1992), diversified livelihoods can also help to reduce seasonality in labour demands and consumption (Morduch, 1995), offset the impacts of natural risk factors on staple food availability (Reardon et al., 1992), add activities with higher returns to the household livelihood portfolio (von Braun and Pandya-Lorch, 1991), provide cash resources that enable household assets to be built up, and help people to hold onto the assets they already possess (Netting, 1993). Diversification across income sources helps households to combat instability in income and thereby increases the probability of their maintaining livelihood security. Poor people build diversification strategies sensitive to their context and livelihood strategies. A significant issue raised when studying diversification in the context of rural Andhra Pradesh is caste and its occupational categories. People in rural Andhra Pradesh may depend for their living and livelihood on various activities but the options that they can explore are limited by caste. In addition to changes in the availability of natural resources and other sources of livelihood, policy and the institutional environment may also affect peoples' livelihoods and livelihood security. Documentation of such changes provides scope for an improved understanding of household livelihoods and presents an opportunity to provide important inputs into the policy-making process. Only via effective policy can the best action be taken to support the diverse livelihoods of the rural poor and to enable them to cope with uncertainty and adversity.

1.2 Objectives of the study

This study documents changes in livelihood sources, quantifies levels and trends in livelihood diversification and investigates the factors responsible for changing livelihoods. Since it is not always clear whether diversification is a coping strategy that enables poor households to deal with contingencies (for example when the rains fail or market prices for agricultural crops fall) or an opportunity to accumulate wealth and capital and thereby exit poverty, changing levels of poverty and inequality are also explored. By simultaneously developing a clear picture of changing poverty and inequality, it is possible to understand the prospects for livelihood diversification as a strategy that leads to a positive exit from poverty. If inequality is increasing, it may be that richer households are involved in diversification in order to accumulate wealth rather than exit poverty. The main research questions are as follows:

- What are the main sources of livelihood in the villages of Aurepalle and Dokur and how have these changed over time?
- What are the characteristics of households that diversify? Have the sources of livelihood of different castes within Aurepalle and Dokur changed? Have small, resource-poor households diversified more or less than larger, resource-rich households?
- Why do households diversify their income sources and how is this linked to broader structural change and policy contexts? In what ways is diversification a response to the sources of uncertainty that people face? What are the coping mechanisms used by different households to respond to different shocks?
- What are the impacts of diversification on livelihood security? Under what circumstances does diversification lead to a decrease in inequality and poverty?

The next section of the paper outlines the methodological approach that was used in the re-survey of the villages of Aurepalle and Dokur. Whilst a longitudinal study offers a valuable opportunity to think about changing livelihoods and diversification over time, there are a number of constraints that arise when carrying out a re-survey, not least the fact that the original survey that began in 1975 had very different analytical objectives. Next, the two villages in which the study took place are introduced and their socio-economic and agro-ecological characteristics are reviewed.

The main section of the paper analyses the changes in livelihood and processes of diversification that have taken place in the two villages. The analysis is broken up into two sections. The first and larger section begins with a sketch of the main sources of livelihood in the villages and shows how these changed between 1975, 1989 and the re-survey in 2001. The next section of the analysis attempts to place these changes in their institutional, political and economic context and thereby uncover some of the driving forces behind the changes that have been identified. The final section of the analysis considers the impact of these changing livelihoods and interrogates changing poverty and inequality levels within the villages. The conclusion draws on some of the main findings to identify some potential policy contributions that arise out of the re-survey.

2 Methods, Context and Location of Study

Longitudinal research methods have great analytical strength in that they allow processes of change in households to be tracked. Whilst year-on-year surveys that sample a proportion of the population can provide a series of snapshots showing what proportion of the population is unemployed or has no land, in longitudinal studies it is possible to see who has become unemployed and who has lost or gained land. In the case of the Village Level Studies (VLS) carried out at ICRISAT, they were part longitudinal study, in so much as that they involved a census that covered every household in each village and households could therefore be traced from one round of the study to the next, and part year-on-year survey since they included a survey that did not cover the same households at every round (Singh et al, 1985).

The study in 2001 was based on information gathered through Participatory Rapid Appraisal (PRA), a household census and household survey and panel interviews in Aurepalle and Dokur villages. The data gathered in 2001 was then compared to data from the VLS in 1975 and 1989. In 2001, the household census was conducted for all households in each village, with the objective of providing a broad overview of the villages, land holdings, household sizes, castes and major sources of livelihood. This and the subsequent survey laid the foundations for a later in-depth panel study of households from the two villages.

2.1 Participatory Rapid Appraisal

Four focus group discussions took place, two in each village. In each village, one of the focus groups was constituted of a range of people of various castes and from the different operational land holding groups. These groups were asked to consider transformations in the village over the previous three decades and to focus particularly on changing assets, infrastructure (agricultural and other), cropping patterns, leasing and sharecropping and sources of income. The other group in each village focused on questions related to the non-farm economy, rural non-farm labour and income sources and on the reasons behind the shift into non-farm livelihoods. The results of the PRA were written up and are interwoven throughout the results section of this paper.

2.2 Household census

All households in the villages of Aurepalle and Dokur were interviewed using a structured questionnaire. Information related to the household and household head, household structure, resource base, consumer durables and sources of income were gathered. The questionnaire used for the household census is provided in Appendix 1. A total of 1,164 households were interviewed, 649 in Aurepalle and 515 in Dokur.

2.3 Household survey

At the survey stage, 121 households were interviewed 61 in Aurepalle and 60 in Dokur. Households were defined as consisting of people who shared a dwelling and kitchen and who ate together. Care was taken in the census and the survey to ensure that temporary migrant labourers were all recorded. Out of 121 sample households, 60 were mainly crop farming households (small, medium, large farms), four were involved in livestock farming and sheep rearing, 20 were landless

agricultural labourers. The remaining 37 were described as 'non-farm' households. The questionnaire used for intensive survey is provided in Appendix 2.

The development of this sample for the household survey was based on the original survey sampling technique that was used in 1975 and requires some further explanation. At the time of the census round (May 1975), the total number of households was 476 in Aurepalle and 313 in Dokur. Of these households, a sample of 40 respondent (30 cultivator and 10 labour) households was selected in each village to ensure representation of all categories of households – labour, small farmers, medium farmers and large farmers. The small, medium and large farm sizes were derived by ranking all census households by size of operational land holding and dividing them into three equally numerous terciles. Ten households were selected at random from each tercile. In 1989 a new sample (of 36 cultivator and 12 labour households) was derived in the same way and there are, therefore, different farm sizes for 1989 and 1975 (Table 1). So what farm sizes were to be used in the 2001 sample? The research team decided that, since understanding change was the primary goal of the research, the most appropriate method would be to use the same farm size categories that had been used in 1975 in order to construct the 2001 sample. Statistical representativeness gave way to a more direct comparison of the experiences of small, medium and large farmers, and of landless households.

Table 1 Farmsize classification based on operational holding (ha) in the study villages

Farmsize class	**Operational holding (ha)**					
	1975		*1989*		*2001*	
	Aurepalle	Dokur	Aurepalle	Dokur	Aurepalle	Dokur
Small	0.20–2.50	0.20–1.01	0.20–1.01	0.20–0.81	0.20–2.50	0.20–1.01
Medium	2.51–5.26	1.02–3.04	1.02–2.43	0.81–1.62	2.51–5.26	1.02–3.04
Large	>5.26	>3.04	>2.43	>1.62	>5.26	>3.04

Note: Operational holding was calculated as: owned land minus land leased-out/share cropped-out plus land leased-in/share cropped-in. Operational holdings for 1975 are taken from the ICRISAT Village Level Studies and not from Walker and Ryan (1990), in which different operational holding sizes are quoted.

The next potential stumbling block was that non-farm households were not studied under the Village Level Studies in 1975 and 1989. Any households from the census that were not involved in agriculture (either as farmers or labourers) were not included in the sample. This left the research team in 2001 with a problem. How was it possible to retain a level of consistency in the sampling between 1975, 1989 and 2001, whilst enabling a focus on non-farm activities? How could the sample be constructed to ensure that households dependent on non-agricultural activities were not ignored? The research team selected ten households from each of the categories of landless labourers and small, medium and large farms in each village following the 1975 method. Then, an additional 41 households (21 from Aurepalle and 20 from Dokur) were selected on the basis of their involvement in non-farm livelihoods (Table 2). These were sampled from the remaining census households. A range of different livelihoods had been recorded in the census and a similarly broad range was used in the sample. Some of these were placed under the category of 'livestock' rather than 'non-farm', since those who made their living from, for example, shepherding goats, could not be classified under 'non-farm'. Therefore, all of the households in the non-farm group could also have been part of the small, medium, large and landless labour groups. Whilst there are a number of drawbacks to the sampling approach taken, especially that statistical comparisons between 1975, 1989 and 2001 are not strictly reliable, it was felt to be the most appropriate way of allowing some compatibility with the 1975 and 1989 samples whilst enabling an analysis of non-farm and diverse livelihoods.

Table 2 Distribution of sample households covered in the household survey, 2001

Household type	Aurepalle	Dokur	Total
Agriculture			
Landless	10	10	20
Small	10	10	20
Medium	10	10	20
Large	10	10	20
Livestock	4	-	4
Non-farm	17	20	37
Total	**61**	**60**	**121**

Note: Non-farm households include business, salaried job (government/private), caste occupation (barber, washerman, carpenter, toddy sale), migratory labour, contract labour, and non-farm work.

2.4 Longitudinal panel study

When the ICRISAT VLS was first established, the forty households each in Aurepalle and Dokur that formed the sample in 1975 were developed into a longitudinal panel and re-interviewed regularly over the next decade. In 2001, interviews with the same 40 households in Aurepalle and 40 households in Dokur were used to try and identify the key trajectories of household economic mobility that prevailed in each village. Thus, the same households that were panel respondents under the ICRISAT VLS between 1975 and 1989 were revisited. The interviews were carried out by ICRISAT researchers, both of whom had worked on the VLS since 1980 and lived in the two villages for a minimum of five years. The findings are used in Section Four to identify the key factors that have influenced economic mobility in the two villages between 1975 and 2001.

2.5 Aurepalle and Dokur: the study villages

Aurepalle is located 70 kilometres south of Hyderabad. From Hyderabad it is reached by travelling sixty kilometres to Amangal on the tarred Hyderabad-Kalwakurthy road and then ten kilometres east on a gravel road. Dokur is situated 125 kilometres south of Hyderabad and is reached via Devarkadara (120 kilometres from Hyderabad) on the Hyderabad-Raichur road. From Devarkadara, the village is 5 kilometres west on an untarred road.

The present Mahbubnagar district was part of the dominions of the Nizam of Hyderabad from the later part of 17th century, when the dynasty of this feudal ruler was established in this part of south central India, until 1949, when Hyderabad State was absorbed by independent India. In general, land tenure in Mahbubnagar was freehold (*ryotwari*). However, in 1901 half of the district was not under the direct administration (*khalsa*) of the Nizam but was granted to office holders as payment during the period they served the Nizam (*jagir*).

Although average rainfall was around 750 mm per annum, the district supported a considerable amount of rice cultivation with the help of irrigation from numerous runoff collection reservoirs, tanks and wells. Tank building was one of the important activities of kings and rulers for centuries in the uplands and semi-arid granitic areas (now western Andhra Pradesh and western Tamil Nadu), mainly to assure water for rice cultivation. Around 1998, under a government programme (see Appendix 3), new arrangements for getting potable water came to both villages. Before 1998, water was taken from wells but the supply was unreliable in terms of both quantity and quality. Around 1998 water tanks were built into which water was pumped from more reliable and safer boreholes some distance away. Thirteen drinking water wells were supplied to Aurepalle and eight to Dokur. In 2001, drinking water for village households was supplied in two ways and was controlled by the

gram panchayat (village council). First, there were taps for communal use at various locations around the village. Second, individual households could also have a tap fitted in their own yard for which an initial charge and then monthly consumption charges were payable.

Aurepalle was electrified in 1962 and Dokur in 1967. Whilst for some time electricity was used only for lift irrigation and relatively few houses were electrified, in 2001 at least 90% of households had a domestic electricity supply that was used for lighting and for powering radios and televisions. Villagers paid a standing charge of Rs 50 per month and were charged according to their consumption, though most of the meters were broken. When people were disconnected after failing to pay their standing charge, they sometimes made illegal connections to the power supply. Despite widespread availability of electricity, there was frequently only electricity supply for about ten hours each day.

There was a village *panchayat* in both the villages. The villagers elected the *panchayat* members and president every five years. The village president was responsible for collecting house taxes and getting funds from governments to fund education, sanitation, drinking water, roads and streetlights. In each village there was a village *patwari* (revenue official), a *Malipatel* and a *police Patel*. The *patwari* was responsible for maintaining land records, the *Malipatel* for the collection of revenues, and the *police Patel* for maintaining law and order in the village. In each village a Development Officer from the state government gave advice to the farmers and worked as an extension agent of the block development office. A television set was installed in the *gram panchayat* office in Aurepalle in November 1978. It was used for educating farmers in the use of new agricultural technologies.

In 2001, there were more than 10 small shops in each village that sold basic consumer goods. Most of the labourers and small farmers sold their in-kind wages and farm produce to and purchased provisions from these shops. Each village had a post office, a fair price shop, and flourmills. There were private medical practitioners in both the villages. Primary health centres were located in the respective block head quarters.

In 1975 there were 476 households in Aurepalle and 313 in Dokur (Table 3). By 1989, there were 664 households in Aurepalle and 444 in Dokur. By 2001, the total number of households in Aurepalle and Dokur was 649 and 515, respectively. Between 1976 and 2001 the number of households grew by over a third in Aurepalle and by two-thirds in Dokur. Total population in Aurepalle increased only marginally from 2,711 people in 1975 to 2,960 in 2001. Dokur saw a much greater population increase from 1,783 people in 1975 to 2,737 in 2001. Thus, whilst Aurepalle saw a population increase of less than 10%, in Dokur the increase was more than 50%. Twelve households are known to have migrated permanently from Aurepalle between 1989 and 2001, though this does not fully explain why population in Aurepalle has decreased in that time period. The overall rise in population density (Table 3) raises questions about the decreasing viability of agriculture as population pressure and fragmentation through inheritance lead to smaller and smaller holdings (Table 5). The implications of this for household livelihoods will be considered in a later section.

Table 3 Basic features of Aurepalle and Dokur villages, 1975-2001

Description	1975–6		1989–90		2000–1	
(areas in hectares)	*Aurepalle*	*Dokur*	*Aurepalle*	*Dokur*	*Aurepalle*	*Dokur*
Total geographical area	1,629	1,358	1,629	1,358	1,629	1,358
Non cultivable area	449	166	-	-	223	55
Irrigated area	142	381	-	-	142	84
Dry area	1,038	811	-	-	1,264	1,219
Total cultivable area	1,180	1,192	-	-	1,406	1,303
Total no. of households	476	313	664	444	649	515
Total population	2,711	1,783	3,487	2,550	2,960	2,737
Population density (per sq. km)	166	131	214	188	182	202
Total livestock	-	-	-	-	4,898	2,503
Bullocks, milk animals and young stock	-	-	-	-	1,098	747
Sheep and goats	-	-	-	-	3,800	1,756
Total land owners	322	226	-	-	489	422
Average family size	6	6	5.25	5.74	4.6	5.3
Total no. of castes	22	22	-	-	20	24
Percent of literacy	15	16	-	-	60	60

Source: For 2000/1 and 1989 data, Household Census and PRA conducted in 2001 except for large livestock figures which are from the survey; Asokan et al. (1991) for 1975 figures.

In the villages there were households belonging to forward, backward and scheduled castes. As many as 24 castes existed in both villages, among which the Brahmins, Reddys (Kapus) Vaisyas (Komati) and Velamas were generally more influential and rich. Mala and Madiga caste people (Harijans) were ranked as low caste people in the social hierarchy. In Aurepalle, more than 51% of households belonged to a backward caste followed by scheduled castes (36%), forward castes (11.4%) and about 1.4% households were Muslims. In Dokur, 63% of households were backward caste, 19.4% were forward caste and 16.4% were scheduled caste. About 1.5% households were Muslim (Table 4).

Table 4 Distribution of all households (by caste) in Aurepalle and Dokur villages of Andhra Pradesh, 2001

Caste	Aurepalle		Dokur	
	No of HH	*% of HH*	*No of HH*	*% of HH*
Forward caste	74	11.40	100	19.42
Brahmin	2	0.31	1	0.19
Reddy	54	8.32	90	17.47
Velma	9	1.38	0	0
Vysya	9	1.38	9	1.74
Backward caste	333	51.31	324	62.91
Balija	0	0	1	0.19
Battu	0	0	3	0.58
Bichhagalla	0	0	1	0.19
Boya	2	0.31	43	8.34
Chakali	20	3.08	10	1.94
Gowda	164	7.73	20	3.88
Hamsala	5	0.77	1	0.19
Jogi	0	0	4	0.77
Katika	5	0.77	0	0
Kamsali	0	0	1	0.19
Kummari	10	1.54	3	0.58
Kurma/Golla	69	10.63	43	8.34
Mangali	12	1.84	7	1.35
Medari	0	0	9	1.74
Munnuru Kapu Sevaka	4	0.61	0	0
Musti	0	0	34	6.6
Padmasali	9	1.38	3	0.58
Telaga	12	1.84	131	25.43
Vadla	21	3.23	9	1.74
Vasishta	0	0	2	0.38
Scheduled caste	233	35.91	83	16.12
Madiga	141	27.12	73	14.17
Mala	88	13.55	7	1.35
Yerukula	4	0.61	3	0.58
Muslim	9	1.38	8	1.55
Total	**649**	**100**	**515**	**100**

Source: Household Census, 2001 and 1989

Table 5 presents the broad agro-ecological and technological features of the study villages. Average operational holdings are difficult to compare because the basis on which holdings were calculated changed between 1975 and 2001. However, all the evidence does point towards a decrease in the size of operational holdings, largely as a result of fragmentation through land inheritance. Another significant change was the prevalence of new cropping patterns. Irrigation increased in both villages between 1975 until the early 1990s. Improved water supply enabled farmers to switch to commercial crops like cotton, paddy and castor. By 2001, difficulties with irrigation meant that farmers were experiencing problems with irrigated crops and some were turning back to coarse cereals that grew drawing on residual soil-water moisture. In a later section, the reasons behind the changing cropping patterns will be explored, with reference to the local institutions and policy environments.

Table 5 Agro-climatic, socio-economic and technological features of the study villages 1975–8, 1989–90 and 2000–1

Indicators	1975–8		1989–90		2000–1	
	Aurepalle	*Dokur*	*Aurepalle*	*Dokur*	*Aurepalle*	*Dokur*
Average size of operational holding (ha) from Household Survey. (Figures in brackets average based on Household Census).	5.6	3.7	- (1.95)	- (1.44)	2.55 (1.63)	1.91 (1.09)
Soil types	Shallow and medium deep Alfisols					
Irrigated area (% gross cropped area)	21	60	24.18	77.77	25.63	44.09
Common cropping systems	Castor, sorghum-pearl millet-pigeonpea mixture	Irrigated paddy, sorghum, groundnut pigeonpea	Castor, paddy, sorghum, pearl millet, pigeon pea, cotton	Cotton, paddy, castor, sorghum, pigeon pea, vegetables	Cotton, HYV paddy, castor, sorghum, pigeonpea, vegetables	Castor, HYV paddy, sorghum, pigeonpea, groundnut
Improved technologies partially adopted	HYV castor, fertiliser on irrigated land	HYV paddy, fertiliser	HYV castor and paddy. Limited use of tractors, power sprayers, plant protection measures.	HYV paddy. Limited use of tractors, power sprayers and plant protection measures.	HYV cultivars for dry and irrigated crops, fertilisers and plant protection measures. Increased use of tractors, power sprayers .	HYV cultivars for both dry and irrigated crops, fertilisers and plant protection measures. Use of tractors, power sprayers and threshers increased

Source: For 2000–1, Household Survey; for 1989–90, Household Census, For 1975–8, Singh, et al (1982).

3 Dynamics of Livelihood Options

This section considers how livelihood sources have changed between 1975, 1989 and 2001. The starting point is an analysis of the changing number of sources of income in the two villages between 1975 and 2001. The sources of income are then analysed to try and understand the relative importance of different activities within household livelihood repertoires. Thus, the changing proportion of agricultural income in total household incomes and the relative dependence by households on different activities are calculated. The data shows a decrease in the proportion of household income that is derived from agriculture. In the last part of this section the forces that have driven the diversification process in terms of assets and capital portfolios, agrarian change, migratory labour movements and social change are identified.

3.1 Quantifying diversity in Livelihood Options: who diversifies? How much?

One way in which diversity in livelihoods can be measured is by counting the number of sources on which households depend (Jodha et al, 1977). Tables 6 and 7 compare the number of different income sources of households in Aurepalle and Dokur between 1975 and 2001. In Aurepalle, the number of livelihood sources on which households depended increased. In 1975, households were recorded in the survey as drawing on at most three sources of income. The majority of the farmers had one (37%) or two (55%) sources. By 2001, the number of income sources increased to five and no households except those in the non-farm category had only one source of income. The majority of the farmers (59%) had between two and four sources of income. 16% of households had five sources of income. In Dokur the number of income sources also increased between 1975 and 2001. In 1975, most (58%) households depended on two sources of income for their livelihood. Only 6% of households had three sources of income. Whilst in 1975, more than one third of all households had only one source of income, in 2001, the comparable figure had decreased to less than 7%.

Referring to the 1975 data, Jodha et al (1977) argued that small farm households were more likely to have more than one source of income. They suggested that, where land holdings were small, households were more vulnerable to the exigencies of drought and unreliable yields. Diversification of resource use, particularly family labour use, was one of the ways in which the risky returns from land could be supplemented. In terms of operational land holdings, households from all land holding groups, including the landless, diversified between 1975 and 2001. Beyond this broad change, it is difficult to discern any other pattern regarding land holding groups and levels of diversification. However, if Jodha et al were correct that diversification was a response to risk then, in the context of the changing conditions under which agriculture was carried out in 2001, it becomes apparent that all households, not just small farm holdings, faced risk in agriculture and diversified in order to reduce their vulnerability to shocks and trends within the agricultural sector.

Table 6 Distribution of households of different farm size categories, according to number of sources of income in Aurepalle, 1975 and 2001

Farm size category	% of households with number of sources of income							
	2001					*1975*		
	1	2	3	4	5	1	2	3
Small	0.0	40.0	40.0	10.0	10.0	7.0	79.0	14.0
Medium	0.0	15.0	20.0	45.0	20.0	19.0	68.0	12.0
Large	0.0	25.0	50.0	8.3	16.7	53.0	42.0	5.0
Landless	0.0	50.0	50.0	0.0	0.0	65.0	33.0	1.0
Non-farm	6.7	40.0	13.3	20.0	20.0	-	-	-
All	**1.6**	**29.5**	**29.5**	**23.0**	**16.0**	**37.0**	**55.0**	**8.0**

Source: For 2001, author's calculation based on Household Survey data; for the year 1975, Jodha et al (1977).

Table 7 Distribution of households of different farm size categories according to number of sources of income in Dokur, 1975 and 2001

Farm size category	% of households with number of sources of income								
	2001						*1975*		
	1	2	3	4	5	6	1	2	3
Small	0.0	25.0	50.0	12.5	12.5	0.0	12.0	83.0	5.0
Medium	0.0	44.4	33.3	22.2	0.0	0.0	36.0	58.0	5.0
Large	4.5	31.8	40.9	13.6	4.5	4.5	48.0	44.0	8.0
Landless	10.0	30.0	20.0	30.0	10.0	0.0	57.0	39.0	5.0
Non-farm	18.2	36.4	27.3	9.1	0.0	9.1	-	-	-
All	**6.7**	**33.3**	**35.0**	**16.7**	**5.0**	**3.3**	**36.0**	**58.0**	**6.0**

Source: For 2001, author's calculation based on Household Survey data; for the year 1975, Jodha et al (1977).

Whilst Tables 6 and 7 quantify diversification by farm size, Table 8 shows levels of diversification by caste in the two villages. In Aurepalle, backward and scheduled caste households depended on more sources of income than forward caste households. About 56% of forward caste households had two sources of income and 11% of households had only one source of income. In backward and scheduled caste groups, no households had only one source of income. The majority of the backward caste households (30.8%) had four sources of income and 23% of households had five sources of income. Among scheduled caste households, 42% had three sources of income, while 17% of households had four sources of income and 8% had five sources of income. Like Aurepalle, in Dokur, backward caste households also depended on more sources of income than forward castes. In the case of forward and backward castes, the majority of households had between two and four sources of income but all scheduled caste households had only two sources of income. A much smaller number of forward and scheduled caste households had 4–6 sources of income. Diversity of income sources for different castes were not dealt with in previous studies, so comparison cannot be made between 1975 or 1989 and 2001.

Table 8 Distribution of households of different caste categories according to number of sources of income in Aurepalle and Dokur, 2001

Caste	% of households with number of sources of income										
	Aurepalle					*Dokur*					
	1	2	3	4	5	1	2	3	4	5	6
Forward caste	11.1	55.6	33.3	0.0	0.0	16.7	22.2	38.9	16.7	5.6	0.0
Backward caste	0.0	20.5	25.6	30.8	23.1	2.7	35.1	32.4	18.9	5.4	5.4
Scheduled caste	0.0	33.3	41.7	16.7	8.3	0.0	100.0	0.0	0.0	0.0	0.0
Muslim	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
All	**1.6**	**29.5**	**29.5**	**23.0**	**16.4**	**6.7**	**33.3**	**35.0**	**16.7**	**5.0**	**3.3**

Source: Author's calculation based on Household Survey data.

3.1.1 Income from agricultural and non-agricultural activities

Another way to measure rural livelihood diversification is to consider how the proportions of income that households derive from farm and non-farm activities has changed. Following Singh and Asokan (1981), income was defined as net returns to family-owned resources, encompassing family labour and owned bullocks, capital and land. Earnings and expenses from farm and non-farm activities were used to estimate household income. Both monetary and imputed values of all traded and non-traded goods, such as crop by-products and manure, figured in the computation of household income.

In Table 9, income is expressed per capita and not per household. No attempt was made to convert to equivalence scales to adjust for the age and gender composition of the household. Not using equivalence scales should lead to under estimating welfare for households with more members and more children because of potential economics of scale in consumption and because of children costing less than adults (Deaton and Mullbauer, 1982). However, this method allowed comparison with previous studies conducted in these two villages using the same computation method (Singh et al, 1982; Walker and Ryan, 1990).

Between 1976 and 2001, the level of dependence on agriculture as a source of income changed. In 1975, the major source of income in both villages was agriculture. More than 87% of the net income of Aurepalle villagers in 1975 and more than 96% of Dokur villagers' income was from agriculture (Table 9). In contrast, only 32% and 27% of the net income of Aurepalle and Dokur villagers in 2001 was from agriculture. Non-agricultural income accounted for 68% of net income in Aurepalle and 73% of net income in Dokur in 2001.

Table 9 Percentage of agricultural income and non-farm income to net household income, 1975–6 to 2001

Agricultual income	**2001**		**1975**	
	Aurepalle	*Dokur*	*Aurepalle*	*Dokur*
Net crop income	21.17	10.40	29.8	46.1
Net livestock income	4.57	9.25	25.5	2.0
Farm/casual labour	6.02	6.52	32.8	46.3
Regular Farm Servant (RFS)	0.57	1.21	-	-
Rental	-	-	-0.8*	2.2
Total agricultural income	32.27	27.38	87.30	96.6
Non-farm income				
Non-farm wages	1.71	1.33	-	-
Net migration labour	4.97	25.34	-	-
Remittances	1.34	0.20	-	-
Salaried jobs	16.85	4.75	-	-
Caste occupation	12.62	6.15	-	-
Business/trade and handicraft	9.59	7.58	11.60	1.10
Others	20.65	27.27	1.10	2.30
Total non-farm income	**67.73**	**72.62**	**12.70**	**3.40**

* The negative figure here is ascribed to losses from the rental of family-owned assets (Singh et al, 1982)
Source: For 1975–8, Singh et al (1982); for 2000–1, Household Survey.

In 2001, the predominant source of livelihood in Aurepalle was still agriculture and related activities (28% agriculture and 21% farm work) but in Dokur, income from seasonal migration (37% households) and income from agriculture and related work (18.3% agriculture, and 16.5% farm work) had equal importance. Compared to the situation of 1975–8, this was a significant change (Tables 10, 11 and 12).

Table 10 Primary occupation wise distribution of households (HH) in Aurepalle and Dokur, 1975, 1989 and 2001

Main occupation	1975				1989				2001			
	Aurepalle		*Dokur*		*Aurepalle*		*Dokur*		*Aurepalle*		*Dokur*	
	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH
Agriculture	201	42.2	167	53.4	123	21.47	165	44.47	179	27.58	94	18.25
Business	70	14.7	14	4.5	140	24.43	17	4.58	21	3.24	8	1.55
Carpentry	-	-	-	-	-	-	-	-	20	3.08	8	1.55
Farmwork	132	27.9	75	24	180	31.41	127	34.23	134	20.64	85	16.5
Govt job	13	2.7	10	3.2	13	2.27	9	2.43	8	1.23	9	1.74
Migration earning	-	-	-	-	-	-	-	-	51	7.85	191	37.08
Milk sale	-	-	-	-	-	-	-	-	3	0.46	4	0.77
Private job	-	-	-	-	-	-	-	-	3	0.46	11	2.13
Regular job	-	-	-	-	14	2.44	2	0.54	24	3.69	2	0.39
Sheep rearing	10	2.1	16	5.1	6	1.05	0	0	38	5.86	20	3.88
Toddy sale	-	-	-	-	-	-	-	-	105	16.18	11	2.13
Washing clothes	-	-	-	-	-	-	-	-	8	1.23	5	0.97
Contract labour	-	-	-	-	1	0.17	-	-	0	0	8	1.55
Others*	50	10.4	31	9.8	96	16.75	51	13.75	55	8.47	59	11.45
Total	**476**	**100**	**313**	**100**	**573**	**100**	**371**	**100**	**649**	**100**	**515**	**100**

Note: * For Aurepalle village in 2001 other occupation includes cart, commission agent, flour mill, money lending, permanent servant, pot maker, vegetable sale; and for 1989 includes rural crafts, caste occupations and others. For Dokur village in 2001, other occupation includes auto driver, bangle sale, broomstick making, cable operator, carpentry, electrician, filling air, grinding chillies, hiring out bullocks, jewellery making, lawyer, line man, lorry cleaner, mason work, mechanic, post master, priest, regular job, renting land, rice mill, saw mill, std booth; and in 1989 includes rural crafts, caste occupations and other activities

Table 11 Secondary occupation wise distribution of households (HH) in Aurepalle and Dokur, 1975, 1989 and 2001

Main occupation	1975				1989				2001			
	Aurepalle		*Dokur*		*Aurepalle*		*Dokur*		*Aurepalle*		*Dokur*	
	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH	No of HH	% of HH
Agriculture	174	36.5	140	45.0	377	65.79	189	50.94	228	35.13	128	24.85
Business	103	21.7	17	5.0	20	3.49	14	3.77	14	2.16	6	1.16
Farmwork	142	29.8	87	28.0	62	10.82	113	30.46	158	24.34	190	36.89
Govt job	24	5.0	14	4.5	15	2.62	8	2.16	3	0.46	4	0.77
Migration earning	-	-	-	-	4	0.7	-	-	7	1.07	23	4.46
Milk sale	-	-	-	-	-	-	-	-	22	2.77	22	4.27
Private job	-	-	-	-	-	-	-	-	8	1.23	6	1.16
Regular job	-	-	-	-	4	0.7	1	0.27	5	0.62	10	1.94
Sheep rearing	24	5.0	8	2.5	68	11.87	29	7.82	6	0.92	3	0.58
Toddy sale	-	-	-	-	-	-	-	-	27	4.16	2	0.39
Washing clothes	-	-	-	-	-	-	-	-	6	0.92	2	0.39
Non-farm work	-	-	-	-	1	0.17	-	-	36	5.55	16	3.1
Others*	8	2.0	47	15.0	22	3.73	17	4.58	129	19.88	103	20
Total	**476**	**100**	**313**	**100**	**573**	**100**	**371**	**100**	**649**	**100**	**515**	**100**

Note: The categories of occupations collected in 1975 and 1989 were different to those collected in 2001. For this reason the table has had to be reconstructed and not all categories are present for all surveys. The 1975 data is reconstructed from Jodha et al (1977) For Aurepalle village in 2001, other occupation includes cart building/rental, commission agent, flour mill, money lending, permanent servant, pot maker, vegetable sale; and in 1975 and 1989 may include some of those occupations listed in the table. For Dokur village in 2001, other occupation includes vehicle driver, bangle sale, broomstick making, cable operator, carpentry, electrician, filling air, grinding chillies, bullock rental, jewellery making, lawyer, line man, lorry cleaner, mason work, mechanic, postmaster, priest, regular job, renting land, rice mill, saw mill, std booth, and in 1989 and 1975, caste occupations and rural crafts.

Table 12 Dependency level of households to different sources of livelihood in Aurepalle and Dokur, 2000–1

Source of livelihood	Percent of households having dependency level							
	Aurepalle				*Dokur*			
	Up to 25%	26–50%	51–75%	76–100%	Up to 25%	26–50%	51–75%	76–100%
Agriculture	18.64	17.57	18.49	6.32	33.40	14.17	14.56	3.88
Livestock	2.31	1.39	1.08	0.15	3.69	3.30	2.91	0.19
Caste occupation	1.69	10.48	16.64	2.00	1.36	3.11	6.41	1.75
Farmwork	16.18	15.56	10.48	4.16	23.88	27.96	11.26	2.72
Non-farm work	8.17	1.54	1.54	0.31	3.69	5.63	1.75	0.39
Migration	1.23	2.31	5.24	2.47	0.97	3.69	26.41	12.04

Source: 2001 Household Census

3.2 Explaining the driving forces that are behind diversification

The previous section has demonstrated that, between 1975 and 2001, households in Aurepalle and Dokur remained dependent on agriculture for the majority of their income, either as owners, lessees or labourers. However, the proportion of income coming from agriculture fell and households became increasingly dependent on other sources of income. Jodha et al (1977) argued that households on small operational holdings were unlikely to have a single source of income because they were particularly vulnerable to drought. This is unlikely to be the only explanation for the changes identified in the household economy, particularly because households with small, medium and large operational land holdings all diversified. In the remainder of this section, the economic, political and institutional forces that have driven the diversification process are explored. The discussion will have four elements. First, the changing asset and capital portfolios of households will be considered. Second, changes in the agrarian economy will be discussed to highlight the impact of structural changes in the broader economy and of agricultural policy. Third, it will be demonstrated how changes in the economy brought about an increasing dependence on migration. Finally, we consider how migration itself brings about social change within the village and further diversification.

3.2.1 Changing assets and capital

One of the main changes in the two villages was the size of land holdings. Within the survey sample, average operational holding decreased in Aurepalle from 5.3 ha in 1975 to 2.55 ha in 2001 and in Dokur from 3.7 ha to 1.91 ha (see Table 5).

> ‘Land holdings are more scattered and fragmented these days. Many land transactions were reported after 1990. Labourers and farmers belonging to small and medium size land holding groups had purchased land from large landlords. Many of these transactions were distress sales (a coping mechanism during drought years). At present it appears that marginal and small farmers leased in more land in order to use their excess human and bullock labour more productively. Large landowners were not in a position to cultivate their entire land holding due to the non-availability of regular farm servants and the increase in the maintenance cost of bullocks.’
> Unpublished PRA fieldnotes, G.D.N. Rao.

The key reasons for these changes are as follows. First, in the late 1970s large farmers lost land under the 1977 Land Ceiling Act which set an upper level for land holdings in both rural and urban areas in India. Second, between 1975 and 2001 the number of households grew by 36.3% in Aurepalle and 65.5% in Dokur. The modest increase in the total cultivatable area in both villages (Table 3) was not sufficient to soak up the growing population and family land holdings became fragmented through inheritance. Another reason for the decrease in operational land holdings is that many irrigation systems failed to provide sufficient water, so the amount of irrigable land declined in Dokur (Table 3). Land was left fallow and was, for the time being, out of operation. PRA exercises carried out by ICRISAT field researchers showed that between 1989 and 2001, irrigation water availability declined (see Table 13) leading, in Dokur, to the dramatic reduction in irrigated land that was shown in Table 3.

Table 13 Farmer's perception of rainfall, climate and irrigation, 1989–2001

	Aurepalle		Dokur	
	1989–90	*2001–2*	*1989–90*	*2001–2*
1. Rainfall pattern and climate	1. Adequate rainfall and good distribution (average more than 700 mm). 2. Greater number of rainy days. 3. Normal temperatures.	1. Distribution of rainfall is highly erratic. 2. Late monsoons and uneven distribution of rainfall at critical stages of crop growth. 3. Number of rainy days and quantity of rain reduced. 4. Changes in temperature have been observed. Higher temperatures were noted in all seasons compared to earlier years.	1. Adequate rainfall and good distribution (more than 800 mm). 2. More rainy days 3. Normal temperatures.	1. Distribution of rainfall is highly erratic. 2. Late monsoons and uneven distribution of rainfall at critical stages of growth. 3. Number of rainy days and the quantity of rainfall has have declined. 4. Three out of five years are drought years. 5. Temperatures have increased in all seasons compared to earlier years.
2. Irrigation	1. Only a few farmers had access to irrigation. 2. One irrigation tank and 120 open dug wells were important sources of irrigation. 3. Around 80 ha of land irrigated under tank and 120 ha under open dug wells (on average 2–3 ha land irrigated on each well).	1. More farmers now have access to irrigation as many farmers drilled borewells because of low cost and subsidy from the government. 2. Tank and open dug wells dried up completely except for 4–5 wells. 3. Number of borewells increased and farmers are drilling bores more than 150 feet 4. Probability of finding water about 25%. 5. No major change in irrigated area though more farmers now have access to irrigation as irrigated area is limited under borewells.	1. Only a few farmers had access to irrigation. 2. Three irrigation tanks and more than 70 open dug wells were important sources of irrigation. 3. Around 250 ha of land irrigated under these tanks and an average of 2–4 ha of land irrigated under each well. Total irrigated area was more than 300 ha under tanks and wells.	1. Very few farmers had access to irrigation under bore wells with very limited coverage (less than 1 ha under each bore well). 2. Tanks did not receive water since 1992 except on one occasion in 1998. 3. Open dug wells have dried up completely. 4. The number of bore wells increased and a few farmers drilled bores than 150 feet deep. Government provided a 50% subsidy for bore wells to scheduled castes and backward castes with less than 2 ha of land. 5. Probability of striking water is about 25%. 6. Irrigated area has drastically declined.

The numbers of bore wells and dug wells increased in Aurepalle between 1989 and 2001 but farmers faced problems with the availability of water as the water level in many of the wells was precariously low. In Dokur, fewer bore wells and dug wells were actually reported in 2001 than had been recorded in 1989. (Again, this is reflected in Table 5 which shows a sharp reduction in the irrigated area as a proportion of the gross cropped area in the same time period.) In the PRA focus groups, householders argued that three out of five years were drought years in the villages. Annual rainfall statistics from the Andhra Pradesh Directorate of Economics and Statistics show that drought was experienced in Mahbubnagar District in 1997–8, 1999–2000 and 2000–1. Rainfall in 1995–6 and 1996–7 was average and there was slightly more rain in 1998–9 (www.andhrapradesh.com/apwebsite/tables). In the years immediately preceding the ICRISAT re-survey, the increase in the number of wells and tube wells, coupled with low rainfall, led to a lowering of the water table (see Table 14).

Table 14 Wells in Aurepalle and Dokur, 1989 to 2001

Farm size	**1989**		**2001**	
	Aurepalle	*Dokur*	*Aurepalle*	*Dokur*
Landless	24	23	62	13
Small	43	74	174	60
Medium	94	51	91	77
Large	160	88	82	75
Total	**321**	**236**	**409**	**225**

The changing livestock assets of households are shown in Table 15. The number of large livestock in Aurepalle decreased between 1989 and 2001, whilst in Dokur, numbers of bullocks and cows decreased but numbers of buffaloes increased marginally. The reasons for this are discussed below but are linked to changing crop patterns and the decreasing availability of both fodder and communal grazing land. The marginal increase in Dokur of buffaloes can be attributed to preference in villages for milk production from buffaloes rather than more expensive varieties of cows that are difficult to maintain.

Table 15 Livestock in Aurepalle and Dokur, 1989 to 2001

Farm size	**1989**						**2001**					
	Aurepalle			*Dokur*			*Aurepalle*			*Dokur*		
Livestock	Bull	Cow	Bff	Bull	Cow	Bff	Bull	Cow	Bff	Bull	Cow	Bff
Landless	8	0	19	0	3	9	43	7	22	0	0	4
Small	70	14	36	31	7	42	282	39	88	30	8	53
Medium	226	43	111	55	15	75	143	30	59	52	4	164
Large	349	68	191	198	89	192	98	30	59	81	18	117
Total	**653**	**125**	**357**	**284**	**114**	**318**	**566**	**106**	**228**	**163**	**30**	**338**

The increased mechanisation of the villages was another factor behind the reduction of livestock in both villages. The number of tractors increased to 8 in Aurepalle and 9 in Dokur. Tractors were used in place of draught livestock for ploughing and threshing.

Table 16 Numbers of tractors in Aurepalle and Dokur between 1989 and 2001

Farm size	**1989**		**2001**	
	Aurepalle	*Dokur*	*Aurepalle*	*Dokur*
Landless	0	0	1	0
Small	0	0	2	0
Medium	0	0	3	4
Large	0	4	2	5
Total	**0**	**4**	**8**	**9**

Threshers were also introduced in Dokur. Whereas in 1975 landless labourers with livestock had rented out their bullock pairs for ploughing, in 2001 a rental market for tractors, threshers and sprayers had been established. In 2001, a greater proportion of farm produce and inputs was transported by tractor. New forms of transportation opened up markets for both labour and agricultural crops. A large portion of the road between Aurepalle and the small market town of Amangal was tarred in 2002. From Amangal the road is tarred through to Hyderabad. Privately operated jeeps (funded by subsidies from the government aimed at supporting private individual enterprise), state-run and private buses all operated between Aurepalle and Amangal.

There were significant changes in household portfolios of human and financial capital between 1975, 1989 and 2001. The availability of household labour was largely dependent on household size

and stage in the household development cycle. In both Aurepalle and Dokur, the average household size decreased gradually between 1975 and 2001 (Table 17). Should this decline continue, there would be fewer people available in the household for agricultural work (either on household land holdings or as agricultural wage labour).

Table 17 Average household size

Year	Village	
	Aurepalle	*Dokur*
1975	6	6
1989	5.25	5.74
2001	4.6	5.3

Educational levels have also improved (Table 18), with significant increases in the education level of people within the villages and varying impacts on livelihoods in both villages. Education facilities existed within the villages to study up to high school level (tenth standard) in Aurepalle and up to seventh standard in Dokur village. There were some private (convent) schools within the villages and nearby villages that provided additional opportunities to study. The supply of free textbooks to school-going children and a midday meal programme encouraged low-income households to send their children to school (see Appendix 3). As a result, there were large increases in the number of years of schooling in all landholding classes (Table 18 and 19). In terms of gender, the average number of years of schooling of males increased from 1.92 years in 1975 to 5.57 years in 2001. Whilst the schooling of women increased from 0.78 in 1975 to 4.03 years in 2001, the education of girls and women still lags behind that of boys and men. A large increase in education level amongst boys was seen amongst landless labour households but within these same households, the education of girls remained very low. In 2001, for both the male and female members, the level of education within the non-farm category was the highest (5.5 years for male and 4.03 years for female). Increasing levels of education may be a positive impact of cash income on human poverty. Alternatively, it could be the case that education is an important precursor for entering the non-farm economy.

Table 18 Level of educational attainment by landholding class in Aurepalle, 1975

Age	Average number of years of schooling										
	1975					*2001*					
	Land less	Small	Medium	Large	All	Land less	Small	Medium	Large	Non-farm	All
6–10	1.00	0.38	2.46	3.33	2.14	-	3.00	2.58	2.80	3.80	2.90
11–15	0.00	0.00	2.89	2.73	1.62	-	0.00	4.88	7.00	6.93	5.59
16–20	0.00	0.00	3.14	4.42	2.74	13.5	3.20	9.64	5.67	8.33	8.21
21–25	0.00	0.00	5.17	6.65	2.63	0.00	1.60	4.67	8.40	9.78	6.61
26–35	0.00	0.00	0.00	0.89	0.40	5.00	0.33	4.20	2.06	5.50	3.09
36–45	0.00	0.00	0.33	0.50	0.23	6.00	0.25	1.74	2.60	2.00	1.98
46–60	0.00	0.00	1.57	1.42	0.88	-	0.00	1.38	5.67	4.11	3.28
60+	0.00	0.00	1.00	1.00	0.40	0.00	0.00	0.25	0.00	0.60	0.17
All	**0.15**	**0.10**	**1.91**	**2.51**	**1.46**	**4.00**	**1.03**	**3.91**	**3.10**	**5.68**	**4.03**

Table 19 Level of educational attainment by landholding class in Dokur, 1975 and 2001

Age	1975					2001					
	Land less	Small	Medium	Large	All	Land less	Small	Medium	Large	Non-farm	All
6–10	0.00	0.00	2.00	2.30	1.43	3.55	1.80	2.00	2.58	2.05	2.53
11–15	0.00	1.50	2.67	3.36	2.31	5.43	2.50	4.00	6.86	5.80	5.10
16–20	0.00	0.50	4.50	5.61	3.29	9.75	2.20	14.00	6.76	11.25	7.23
21–25	0.00	0.00	2.21	5.81	2.82	7.75	0.11	10.00	5.79	5.67	4.62
26–35	1.00	0.00	2.81	1.20	1.33	6.67	0.00	5.00	3.45	6.67	4.22
36–45	0.40	0.36	0.67	0.40	0.43	2.00	0.83	3.90	4.27	5.20	3.51
46–60	0.00	0.00	1.36	0.40	0.63	1.40	0.00	4.00	1.92	1.00	1.76
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	1.11	2.37	1.25
All	**0.31**	**0.40**	**1.92**	**2.31**	**1.45**	**4.33**	**1.10**	**3.55**	**4.33**	**4.70**	**3.71**

In terms of healthcare facilities, the number of private medical practitioners increased. Health workers appointed by the Government were providing services to the villagers and a primary health centre (30-bed hospital) was located within 10 km of one of the villages. The supply of protected drinking water through a pipeline was available, though the hours during which drinking water could be collected were restricted in both villages.

Financial capital came from varied sources in both villages. Access to a cash income, rather than payment in kind, had grown since 1975. For those who did not have access to their own land in 1975 the mode of wage payment for agricultural work in Aurepalle was mainly in kind. 85% of labourers received payment in kind whilst only 15% received payment in cash. In contrast, the mode of payment in Dokur was predominantly in cash. In 2001, almost all labourers in both villages received their wages in cash. This change in traditional farm-labour arrangements resulted in a change in relationship between employers and labourers. The new system of cash payment provided more freedom to labourers than the traditional farm servant arrangement. Labourers no longer worked as Regular Farm Servants (RFS) in the villages. In Aurepalle and Dokur, the shift from payment in kind to wage labour had implications for the choices that were available to labourers in terms of how they disposed of their incomes. It enabled labourers to invest in alternative sources of livelihood and to take loans under the terms of which they provided half the funds themselves.

In the PRA focus groups, respondents commented that credit markets were more efficient than they had been in the past. The timing of these improvements corresponded with an increased government intervention and the formalisation of credit markets. A broader range of loans was available from a wider range of institutions than previously and the importance of village moneylenders was reported to be decreasing. The majority of farmers had borrowed from the Primary Agriculture Credit Co-operative Society (PACS) that had offices in both villages. The tendency was for households to have long-term loans with PACS and short-term loans with the village moneylenders.

The size of outstanding loans increased between 1989 and 2001 (Table 20). The increases were greater amongst large and medium farm size households and smallest amongst landless and small farm size households. Whilst outstanding loans had increased, the number of households who were saving had fallen. In 1989, people from all land holding groups had savings. Most people kept their savings in a bank but others kept the money at home so they could access it more easily in a crisis. In comparison, in the 2001 survey, only 5 households reported savings. These were both in Aurepalle village and were from the landless and small farm classes. No medium or large farmers reported saving and no households reported lending money to others.

Table 20 Average outstanding loans per household in Rupees

Farm Size	1989		2001	
	Aurepalle	*Dokur*	*Aurepalle*	*Dokur*
Landless	1,295	1,720	6,211	1,600
Small	937	2,260	4,865	4,158
Medium	1,642	2,093	10,000	13,530
Large	3,241	3,582	35,000	45,591

Thus far, changes in the capital assets that people have drawn on to develop different livelihood activities have been reviewed. Some assets have improved or increased, though the benefits have not be felt across all land holding groups, by both men and women or across different caste groups. Elsewhere, assets, particularly physical and natural capital, were eroded with consequence for the livelihoods of all. In the next section some of the processes by which these changing asset portfolios resulted in diversification are considered, with particular reference to agrarian change, agricultural policy and migration.

3.2.2 Diversification within agriculture: agrarian change and agricultural policy

Table 5 identifies the major changes in cropping patterns in the two villages. In both villages, coarse cereal (sorghum and pearl millet) cultivation decreased and farmers switched to commercial crops such as castor, cotton and paddy. In Aurepalle, cotton replaced sorghum and millet, whilst in Dokur castor replaced sorghum except in the *Rabi* season, where previously paddy had been adopted but because of water shortages sorghum had been planted. There were a number of forces driving this change.

Until 1982, the minimum support prices for sorghum and millet were the same as that of paddy, but after 1982 the government announced support prices for coarse paddy that were much higher than those for the coarse cereals (Rao, 1999). This was the first factor that led farmers to produce more paddy and to decrease their cultivation of coarse cereals. In 1985, faced with the lack of purchasing power held by many rural and urban households and with growing reserves of wheat and paddy, the Indian government established a Public Distribution System (PDS) through which poor households could access subsidised food (see Appendix 3). In Andhra Pradesh, the level of subsidy was higher than the national level. With cheaper food available to buy, farmers were able to decrease their dependence on staple food crops, such as pearl millet and sorghum, and move into the production of cash crops such as cotton or irrigated paddy. The shift to castor was part of India's 'yellow revolution' or the rapid spread of the cultivation of oilseeds resulting from government support (Gulati and Kelley, 1999). In the mid-1980s, India had been importing about 30% of its edible oils and sought to become self-sufficient in edible oils in order to improve its balance of payments. With the imposition of import tariffs, the domestic market grew steadily. The implication for cropping patterns in Aurepalle and Dokur was manifested in a dramatic increase in the cultivation of castor.

Both the villages experienced labour abundance in lean season and a labour shortage in peak season. Growing highly labour-intensive crops such as cotton and paddy created more demand for labour, and hence the bargaining power of labourers increased considerably. Households that acquired more land had to tap into the labour market in which wage rates had increased by 8–10 times between 1975 and 2001. The shortage of labour that pushed up labour costs was also driven by an increase in migrant labour. This will be discussed in a later section.

3.2.3 Diversification out of agriculture: adopting non-farm livelihoods

Real incomes from crop cultivation declined in both Aurepalle and Dokur. This was due to the fact that agricultural crops, especially coarse cereals such as sorghum and millet, saw only modest price increases compared to non-agricultural products. At the same time, both the costs and risks involved in the cultivation of coarse cereals, irrigated paddy and cotton and oilseeds increased. Farmers also faced increasing operating costs as the price of inputs rose. Competition for land and the reduction of communal areas increased the costs associated with keeping draught animals because fodder became more expensive. At the same time, richer farmers invested in tractors which were leased by other farmers at a price that was less than the maintenance costs of animals.

The outcome of the factors outlined above meant that crop cultivation became an increasingly risky activity. In Aurepalle, for example, 31% of households had either negative or no income from cultivation. As Jodha et al argued as early as 1975, adopting additional sources of livelihoods (or changing cropping patterns) reduced the vulnerability of households to shocks and trends in agriculture. In the context of the risks faced by those gaining their livelihood from agriculture, seasonal labour migration became an increasingly common phenomenon in Mahbubnagar district between 1975 and 2001. Whilst the 1989 census and survey did not include labour migration as an income category, it is clear from the findings that, with the exception of those involved in business, the numbers of people leaving the villages to seek non-farm work were much lower than in 2001. This change was largely due to diminishing and increasingly unreliable returns from cropping and a lack of local employment opportunities throughout the year. Thus, many households in the two villages depended mainly on labour earnings despite owning some land (Tables 9 and 12). Household members, and occasionally entire households, periodically migrated to other cities for their livelihood. Some people travelled to Hyderabad whilst others ventured as far as Pune, Goa, and Mumbai in Maharashtra, and Surat, Baroda and Ahmadabad in Gujarat. There they sought non-farm work, e.g. driving, mud work, construction, watchmen, canal digging, or found employment in their caste occupations as washers of clothes, carpenters, goldsmiths and toddy tappers.

Villagers received information about migration mainly from migrants who visited the village for festivals and from relatives who were staying in the urban areas. Up-to-date information about the chances of employment opportunities, nature of work, terms and conditions and wage rate for different work for male and female workers at Hyderabad and other towns was important for successful migration. Those educated up to 10^{th} standard or more worked in monthly salaried jobs (part- and full-time) and others worked as day labourers. Beyond the broad findings that scheduled and backwards castes were more likely to migrate than people of forward caste and the importance of social networks within villages for accessing migrant labour opportunities, there were some important differences between the two villages. For this reason, the discussion of migration will deal with each village in turn.

Around 350 people (12% of the population) from Aurepalle village, including men, women and children, migrated to cities and towns such as Hyderabad, Kalwakurthi, Mal and Mahbubnagar to seek employment opportunities. Around 300 of all the migrants went to Hyderabad because it had relatively more employment opportunities and better transport facilities than other nearby destinations. Seasonal out-migration from Aurepalle began in the early 1980s (though it wasn't counted in the 1989 data) and increased gradually over time. The main reasons for migration reported by the migrants were:

(a) not getting employment throughout the year within the village;

(b) negligible alternative employment opportunities locally;

(c) high population pressure, and

(d) low wage rates for farm and non-farm activities.

Some migrants also reported a lack of interest in working as labourers within the village, a decline in the importance of and remuneration for their for caste occupation within the village, a decline in the area under irrigated crops which had provided employment opportunities, a lack of employment opportunities for educated persons in the village, a surplus of family labour compared to family land holdings, and the desire to lead an enjoyable life in an urban area. A smaller number (10 or 15) of households had left the village permanently to take advantage of larger markets in towns.

Landless households and people participating in the Aurepalle labour market generally migrated for the whole year and visited the village for festivals and family functions. Small and marginal farmers migrated in the month of August after completion of the major farm operations. Old people (parents) took over responsibility for housekeeping, childcare and agricultural activities during migrants' absence. Migrants received a monthly salary of around Rs 1,500 for part-time work or Rs 3,000 for full-time work. Daily-rated work earned them around Rs 60–80 per day. Migrants reported that they got an average 22–25 days employment in one calendar month. They received no benefits such as bonuses, medical and educational allowances and food except for a few cases where the employment was regular in nature. Migration helped to improve the conditions (both economical and social) of households in terms of standard of living, assets position, awareness of livelihood opportunities, education of their children, and their ability to buy food and clothing. Seasonal migrants' families did not face any negative attitudes in the village and the children of those who migrated were more eligible for marriage than those who had never left the village for work.

Seasonal out-migration from Dokur village began in the 1970s but on a very small scale. Out-migration increased more rapidly after 1992–3 because of the increase in population (leading to fragmentation of land holdings), the lack of work within the village throughout the year, the higher wage rates that were offered outside the village and the evolution of a young generation that were attracted towards urban life. Around 910 people out of 2,737 (more than 30% of Dokur's population) were seasonal migrants to Hyderabad, Nizamabad, Pochampadu and Mahbubnagar within the state, and to Gujarat and Maharashtra outside Andhra Pradesh.

Irrigated paddy, the most labour-intensive crop, was grown in both rainy and post-rainy seasons in Dokur. Farmers faced labour shortages in peak season from around 1995. At that time the village labour force (both male and female) could find work within the village throughout the year. By 2001, the situation had changed dramatically. Drought and uneven distribution of rainfall at critical stages of crop growth led to a decline in the productivity of both irrigated and rainfed crops. The area under paddy crop decreased drastically due to the non-availability of water in tanks and wells and the failure of borewells. In the face of this decline, villagers sought alternative employment opportunities elsewhere. About 30 servicing caste households (washermen and barbers) migrated permanently to Goa and Pune. The majority of labourers migrated to Hyderabad for mud work, construction, *hamali* (loading and unloading) and private monthly salaried jobs such as watchmen, telephone booth operators, drivers and waiters at hotels and lodges. Labourers received Rs 60–75 per day depending upon the type of work and their gender. Monthly salaries varied between Rs 1,500 and Rs 3,000.

Out-migration to Maharashtra and Gujarat increased in Dokur from around 1998 when a local labour contractor began offering advance payments of between Rs 7,000–10,000 for migrant labour contracts. Advances were useful for clearing old debts, repairing or reconstructing houses and for meeting marriage expenses. Workers were employed for 9–10 months with a monthly salary of Rs 750–800 with free accommodation and food. Monthly salaries were adjusted against advances.

3.2.4 Changing lifestyles: social and cultural change in the villages

Whilst migration was one way in which people diversified their livelihoods, it also appeared to be one of the driving forces of diversification, even amongst those who did not migrate. Labour migration brought the villages closer in a cultural and social sense to urban life and opened up a whole new range of products, fashions and lifestyles. People migrating to urban areas brought a broader range of food products, new styles of clothing and other consumer goods back to the villages when they returned from contracts. This had the effect of changing consumption patterns (both real and aspirational) in the villages. Migrants also brought back information about migrant labour opportunities and therefore encouraged other people to migrate. Migrants helped their neighbours to find work and passed on knowledge about conditions of work and pay.

Other information sources came from the television sets and radios brought back from urban areas. In 1978, there was one television set in Aurepalle and no set in Dokur. The television set in Aurepalle was frequently used to show programmes reviewing new agricultural techniques and the most efficient use of inputs. By 2001, there were 69 television sets and 180 radios in Aurepalle and 86 television sets and 106 radios in Dokur. In Aurepalle 35 households had a telephone whilst in Dokur the figure was 11.

As a result of migration, and of government food distribution policy, the perceived consumption needs of village households changed. As rice became available more cheaply through public food distribution programmes, preference for sorghum or millet declined. Children that grew up eating government-subsidised paddy became reluctant to eat sorghum or pearl millet (pers. comm. P. Parthasarathy Rao, 3/09/02). The shifts in lifestyle and consumption that resulted from public distribution programmes and from migrant labour had implications for achieving food security and ensuring the livelihoods of the rural poor (Government of India Planning Commission, 2001).

A final issue relating to social and cultural change is that of caste. As is shown in Table 8, households of all caste groups adopted increasingly diverse livelihoods. For some households this required a move away from their caste occupation. Backward caste households had diversified the most. The options for diversification amongst forward caste households were more limited, especially where women were not able to leave the house to work. Scheduled caste households appeared to have found it more difficult to move away from their caste occupation whilst remaining in the village. In Aurepalle, scheduled caste households still lived at the edge of the village, away from the centre of the village where trade was at its greatest and where landowners found labour on a daily basis. A combination of different types of exclusion limited their participation in entrepreneurial activities and their access to the resources that would be required in order for them to pursue new non-farm livelihoods.

The capacity of different caste groups to migrate also influenced the level and nature of diversification. In 2001, when more than 21% of households in Aurepalle and 48% households in Dokur had at least one household member involved in seasonal out-migration as a source of livelihood, most of the migrant households belonged to the backward castes (BC) and scheduled castes (SC) (Table 21). In Aurepalle, more than 50% of the migrant households belonged to the Gouda (BC) and Madiga (SC) castes, whilst in Dokur about 60% of the migrant households belonged to the Telaga (BC) and Madiga castes.

Table 21 Seasonal migration by caste in Aurepalle and Dokur, 2000–1

Caste	Aurepalle			Dokur		
	No of HH	% of HH	% of migrant HH	No of HH	% of HH	% of migrant HH
Boya (BC)	1	0	0.72	27	5.24	10.89
Chakali (BC)	5	0.77	3.60	10	1.94	4.03
Gouda (BC)	31	4.77	22.30	4	0.77	1.61
Madiga (SC)	51	7.85	36.70	55	10.6	22.18
Musti (BC)	0	0	0	21	4.07	8.47
Mala (SC)	15	2.31	10.72	2	0.39	0.81
Reddy (FC)	12	1.84	8.63	25	4.85	10.10
Telaga (BC)	3	0.46	2.16	90	17.47	36.30
Vadla (BC)	12	1.84	8.63	2	0.39	0.81
Others*	9	2.00	6.47	12	2.33	4.84
Total	**139**	**21.42**	**100.00**	**248**	**48.15**	**100.00**

Note * Others include Padmasali. For Aurepalle, others include Barber, Katika, Kurma, Velma and Muslim. For Dokur others include Balija, Brahmin, Golla Jogi, Hamsala, Mangali, Medari, Vysya, Yerukula.

Scheduled and backward castes were better placed to migrate for a number of reasons. First, it was socially acceptable for the women of scheduled and backward caste households to carry out various labour roles, whilst women of forward caste households were expected to occupy themselves only with household work. Even if their activities in the village were limited, scheduled and backward caste women could seek out migrant labour opportunities for themselves, or take over the agricultural and other work usually done by men in the village when men themselves migrated. Second, whilst for forward caste households, involvement in many of the labour opportunities available would represented a step down the social ladder, for scheduled (and sometimes backward) caste households, labour opportunities were often either commensurate with their current social status or represents a step up the social hierarchy. Finally, there were certain caste occupations that were particularly valued and required special skills (for example blacksmiths or teachers). These activities tended to be those of forward or backward castes and were forcefully protected by households to prevent people of other castes entering the occupation. Thus, for some forward or backward castes, there was an advantage to be had by focusing on a particular niche activity. A small number of these households (belonging to weaving, business, goldsmith and service castes) migrated permanently to towns where they could access larger markets.

4 Income, Inequality and Economic Mobility in Aurepalle and Dokur

Thus far, we have seen how rural livelihoods became increasingly diversified in the context of increasing risks within agriculture and new opportunities in the non-farm sector such as migration and social change. What are the outcomes of this process of diversification? What changes in income levels, poverty and inequality have accompanied the shift to more diverse household livelihoods? Has diversification enabled households to make positive exits from poverty?

Table 22 shows the change in actual and real incomes in Aurepalle and Dokur between 1975, 1989 and 2001. The table demonstrates that gross and net household incomes and net per capita incomes all increased since the first study. In both villages, net real incomes grew, marginally in Aurepalle between 1975 and 1989, but significantly in both villages between 1989 and 2001. In 1975 and 1989, the large gap between gross and net household income resulted from the increasing costs associated with buying inputs for agricultural production. The increase in the price of inputs was greater than the increase in crop prices, thus eroding the profitability of agriculture. The reason for the decrease in the difference between gross and net household income between 1989 and 2001 is that people are increasingly involved in activities outside agriculture that do not require such high input costs.

Table 22 Total Income from all sources over cropping year (Rs) in 1975–8, 1989–90 and 2000–1

Villages	**1975–8**		**1989–90**		**2000–1**	
	Aurepalle	*Dokur*	*Aurepalle*	*Dokur*	*Aurepalle*	*Dokur*
Average gross household	21,759 (4,564)	28,753 (6,031)	53,510 (21,315)	75,416 (30,041)	59,397	72,371
Average net household	11,256 (2,361)	14,145 (2,967)	12,640 (5,035)	31,060 (12,371)	39,928	58,417
Average per capita	2,012 (422)	2,270 (560)	2,782 (1,108)	5,786 (2,305)	8,284	9,577

Note: Main figures indicate adjusted real income in 2001 in Rs. Figures in the parentheses indicate actual income in Rs. Real income is calculated from the Andhra Pradesh Consumer Price Index for Agricultural Labour based on 1960–1 = 100 (www.ap.gov.in/apbudget/tab17_2.htm) and 1986–7 = 100 (Andhra Pradesh Economic and Statistical Bulletin, various issues)
Source: For 1975–8, Singh et al (1982); for 1989–90 and 2000–1, Household Survey.

Analysis of inequality in income and in productive assets is very important since it provides meaningful insights for understanding and taking necessary policy actions. To understand whether diversification contributes to poverty reduction, it is useful to know whether only poor people benefit from diversification, or whether successful diversification is something that is only achieved largely by those who already have stable incomes that allow them to invest in other activities. Given that a sampling strategy was drawn on that allows only partially representative comparisons to be made between 1975, 1989 and 2001, only basic income distributions were estimated in this study. Household income distributions are given in Table 23 for Aurepalle and Dokur villages between 1975, 1989 and 2001.

Table 23 Distribution (%) of households across net income group in the study villages, 1975–8, 1989–90 and 2000–1

Net (real) income group (in 2001 Rupees)	1975–8		1989–90		2000–1	
	Aurepalle	*Dokur*	*Aurepalle*	*Dokur*	*Aurepalle*	*Dokur*
Negative	5	3	28	19	0	0
0–6,810	29	16	30	35	11	2
6,811–13,619	33	38	20	13	18	7
13,620–20,429	11	16	4	15	15	12
20,430–27,238	8	9	2	8	10	13
27,239–34,048	2	8	4	0	11	17
34,049–68,096	7	6	7	6	21	30
68,097–102,144	3	3	2	4	7	12
102,145–136,192	3	0	2	0	2	5
>136,192	0	2	2	0	5	3
Total	101	101	101	100	100	101

Note: Equivalent income in 2001 is calculated by the author using Consumer Price Index (CPI) for rural areas in Andhra Pradesh.
Source: For 1975–8, Singh et al (1982). Totals equal 101 because of rounding.

Results of the income distribution analysis are provided in Table 24. The table shows that in Aurepalle the income share of the poorest 40% of households increased from 4% to 11% between 1975 and 2001, whilst the income share of the richest 5% of households decreased slightly from 29% to 28%. In Dokur, the income share of the poorest 40% of households also increased from 13% to 16% whilst the share of the richest 5% decreased more sharply from 27% to 20%. The income shares of households in 1989 have not been included in the table as the proportion of household who experienced negative or no income was very high in 1989 (see Table 23). This increase in the prevalence of negative incomes would suggest increasing inequality of income between 1975 and 1989, and decreasing inequality of income between 1989 and 2001.

It has already been demonstrated that diversification is important for all categories of farm size and this analysis of the distribution of income further supports the finding that diversification is important in both resource-rich and resource-poor households. Furthermore, the declining inequality of income suggests that poorer households may even be diversifying more successfully than their richer neighbours. Diversification by those with large operational landholdings has not enabled them, in general, to accumulate wealth and capital. In fact, given that households with large operational landholdings that have invested heavily in irrigation systems that are now failing, diversification appears to be a coping strategy for both richer and poorer households in the two villages. Richer households may even be less adaptable than poorer ones where they are dependent on large amounts of investment in irrigation and on a high proportion of agricultural labour, and when caste limits their options for diversifying.

Table 24 Degree of inequality in the distribution of per capita income in Aurepalle and Dokur, 2001

Income group	% Share of total income			
	1975–8		*2000–1*	
	Aurepalle	Dokur	Aurepalle	Dokur
First quartile (poorest)	-	-	5.44	7.88
Second quartile	-	-	12.19	14.50
Third quartile	-	-	21.34	24.03
Fourth quartile (richest)	-	-	61.03	53.59
Poorest 40%	4	13	11	16
Richest 5%	29	27	28	20

Note: Inter-quartile comparisons of income are not made with 1975 and 1989 because, in the case of 1989, the first quartile is wholly made up of households within negative net income (see Table 21).

The relative successes and failures of households' attempts to diversify can be considered by a longitudinal comparison of households in Aurepalle and Dokur that were interviewed in the 1975 VLS. Walker and Ryan (1990) documented economic mobility in Aurepalle between 1975 and 1984. They observed considerable reshuffling of households in relative income positions and showed how the economic conditions of different households had improved, declined or remained static over time. These changes were due to household behaviour, social actions and transformation, government economic policy and changing asset bases.

Based on the information gathered from visits to 1975 panel households, it was found that 75% of the respondents of Aurepalle village improved their economic status while no changes were observed in 10% of respondents and remaining 15% of respondents' status declined over time. During the same period in Dokur village, 60% of respondents' condition was improved, no change was observed in 20% of households and the remainder of households experienced a decline. The findings from the panel study tally with those from the 2001 census and survey and demonstrate that income and well-being increased in both villages and that inequality decreased. What follows is an attempt to identify some of the key factors that enabled some households to improve their economic situations and the factors that prevented upward mobility amongst others.

In both the study villages, cases of landless households were documented where there had been a steady rise in economic status until the household had become one of the wealthiest in the village. This extreme upward mobility tended to follow a particular trajectory, though it typically took two or more generations for upward mobility to manifest itself. An example is given in Box 1. In each example a pseudonym is used to protect the identity of the respondent. Frequently, one generation took on a low-paying but secure post as a regular farm servant, benefited from government land redistribution programmes and relied on family labour to cultivate household land holdings. Other household members migrated and sent remittances through which agriculture could be funded. Another source of upward mobility was being selected to participate in government agricultural programmes or projects. The household of VMR had fairly large landholdings (5.48 ha) but these were rainfed and poor quality and VMR was dependent on local agricultural technology. In 1979, the VMR household was selected as part of farming systems research programme based at ICRISAT and they received free inputs and technical advice. The following years saw bumper harvests that enabled the repayment of outstanding debts, investment in irrigation and bore wells and the establishment of paddy cultivation in two seasons. In the 1990s, VMR became one of the village's key money lenders. In Dokur, the household of NCHR provides a good example of where diversification, enabled by strong kin relations and co-operation, has lead to the accumulation of wealth and capital. In 1975, the household had a single income from agriculture and four dependants. As the children grew up, they began to contribute to the household. The eldest daughter learnt tailoring skills (an example of people moving into the caste occupations of others in order to

gain additional income), and the eldest son leased a telephone booth in Hyderabad. Another son began to trade in second-hand electric pump sets, whilst the youngest son sold milk in the nearby town. Profits from the business and income from the dowries received at the marriages of each son enabled the household to drill borewells and purchase additional land. The household also opened a hardware shop and began to act as village moneylenders.

Box 1 Labourer turned large farmer

In 1975 GL lived in Aurepalle and was part of a household that had no land and was dependent on agricultural labour to make a living. Based on this dependence on labour, GL's household selected under the labour group for the VLS during 1975. The household consisted of GL, his wife and five children, out of which four were boys. In 1975 the children were too young to work and entirely dependent on their parents.

In 1975, GL worked as a Regular Farm Servant (RFS) with a large landowner. He earned 45 kg of paddy per month. GL's wife worked as day labour, mostly in GL's employer's field. She also worked as maidservant and earned Rs 25 per month. GL was trapped in labouring for the large landowner. He had borrowed cash and in-kind loans from the employer to feed his family members and to meet other expenditure because household income was not enough to sustain the household. As a result, his employer regularly deducted a portion of his monthly wages as repayment of the loan. GL was trapped in a cycle of debt. Based on household income, GL would not have repaid the loan in his lifetime as he was continuously borrowing loans (kind and cash) for consumption purposes. As soon as GL's sons were old enough, two of them were taken on as RFSs with the same landowner and two worked as RFSs for another farmer. The household continued to depend on these low-paying but secure annual labour contracts until 1995.

In 1995, GL's households were beneficiaries of government schemes in Aurepalle. They received a house worth Rs 8,000 free of cost under the housing scheme and then received 0.8 hectares of land from the government. The income from this small parcel of land supplemented the existing household income. When GL's sons were married, whilst they received very little as a gift from their in-laws houses to meet the expenses of their marriage, four daughters-in-law brought more income into the house by participating in the daily agricultural labour market. Two of GL's sons left their RFS job and also sought casual employment in the agricultural labour market where wage rates were significantly higher. They also migrated periodically to Hyderabad for off-farm employment and in doing so were able to clear most of the debt incurred by their father. The household came to an agreement with the large landholder to pay a fixed rent for fruit trees located on the landholder's field. They were then able to sell the fruits. From the late 1990s onward, they had plentiful yields of mango and tamarind and made a significant profit. GL used these profits and past savings accumulated from migration income to purchase a further 0.8 ha of land. He also purchased goats. Young goats were sold annually to provide another source of household income.

In the late 1990s, GL died and his four sons inherited his land. The four sons divided the land and assets such as livestock equally between them, though they jointly arranged the marriage of their sister and spent Rs 10,000 on her dowry and her marriage expenses. Their capacity to incur the costs of their sister's marriage is a reflection of their increasingly secure economic position compared to 1975. As wage rates for agricultural labour continued to climb because landowners now competed with wage rates in urban areas and the number of economically active members of the household also grew, household income continued to increase. Two of the brothers continued to migrate to Hyderabad when agricultural labour was not available in the village. All the households were able to purchase more land (4.2 ha in total). The second eldest brother spent Rs 20,000 drilling a bore well and began growing higher value crops including cotton, castor and pigeonpea. The brothers also constructed their own houses, acquired bullocks for cultivating their land and began to lease in land from other villagers in order to get the most out of their productive assets. Whether the family as a single household or as four separate and independent households, all experienced a considerable increase in wealth and well being since 1975.

Therefore, there were both structural and lifecycle factors that enabled households to establish themselves on an upward trajectory of accumulation and to exit poverty. Changing markets for agricultural produce, access to knowledge and information and timely involvement in agricultural projects were all important. A common factor in all cases where households managed to lift themselves out of poverty was reaching a later stage in the household developmental cycle. It is no coincidence that households that made positive exits from poverty over time had gone from having

young dependants in 1975, to having large amount of (free) adult household labour and skills to draw upon in 2001. Thus, within households, co-operation between household members and the pooling of labour and resources were crucial.

There were also cases of extreme downward mobility in which households with large landholdings were forced to sell their land due to the failure of sharecropping contracts and increasing indebtedness. An example is given in Box 2. In these cases, the caste relations that originally enabled households to acquire land and establish a position of status in the village often became a constraint as households faced increasingly risky conditions of agricultural production. Another common factor in all the cases of those who had experienced severe downward mobility was the failure or breakdown of kin relations and co-operation within the household. Whilst households that had moved out of poverty were effectively managing and co-ordinating the livelihood activities of all household members, those whose economic position had deteriorated had often experienced fragmentation, out-migration without subsequent remittances and a lack of co-operation between household members.

Box 2 Debts and deterioration

In 1975 the household to which AS belonged was selected under the VLS within the large operational holding group. AS had inherited about 45 hectares of land (5 ha irrigated and 40 ha dry) from his parents when he separated from the family at marriage. He also inherited valuable assets such as livestock, gold, silver, 2 irrigation wells and cash. Between 1975 and 2001, AS's income and assets both decreased. By 2001, AS had 3 daughters and 2 sons. The household belonged to the Brahmin (forward) caste and as a consequence, neither AS's wife nor his daughters were allowed to labour in their own fields. AS relied on increasingly costly agricultural labour, supervision of which fell to AS alone. Whilst other members of the household did not contribute to household income, their social status in the village meant that they expected to live well, consume good food, have good quality clothing and have money to spend on leisure.

Unable to cultivate the land alone, and in the context of rising agricultural labour rates, AS began to lease out land to tenants at nominal land rent. Frequently, his tenants failed to pay their land rent and said that, due to drought or low market prices for crops, they incurred losses. AS attempted to reduce the riskiness of agriculture by investing in agricultural inputs, digging new open wells (Rs 15,000) and borewells (Rs 50,000). AS also faced expenditure arranging marriages for his daughters (about Rs 200,000) and paying for the education of his sons in Hyderabad. Whilst households of backward and scheduled castes might have spent much less on the marriages of their children, AS's spending was deemed necessary to maintain his status in society. AS's relationship with his sons deteriorated as they became immersed in urban living in Hyderabad and their interest in farming and a return to Aurepalle waned. Back in Aurepalle, AS's wife became ill in the 1990s and required regular (and expensive) medication for her condition. AS himself became ill and was hospitalised for an operation and his son was involved in an accident and his treatment cost more than Rs 50,000. Whilst in the 1970s, AS had been able to save money, expenditure on healthcare, marriage, education and investments in agriculture meant that AS had used all this savings by the early 1990s.

In the 1990s, AS began to regularly borrow money at high interest rates from village moneylenders and financial institutions in order to meet his expenses. However, he was unable to repay the loans within the prescribed time limit because of the low crop production and other commitments. The loan amount increased year after year. Eventually, he started selling off portions of his land to repay the loan. In 2001 he had only 8 hectares of land remaining and had been forced to sell when land prices were very low (Rs 1,500–2,000 per hectare). He also sold livestock and jewellery. However, whilst the household's livelihood trajectory saw a significant downturn in the 1990s, they still maintained a high level of material wealth compared to other households in the village.

Information about gender relations was not explicitly considered in interviews with panel households so it was not completely clear how changing power relations in households, particularly the empowerment of women, might have affected household livelihoods. However, out of the four households where in-depth interviews were carried out about deteriorating economic position, two were headed by women. Women were exceptionally vulnerable to the death of their husbands,

especially if they did not inherit any land or assets. KG was the female head of a household in Dokur when she lost her husband (and the land and assets that he would have inherited) and then faced the debts incurred through spending on medical treatment and funeral costs. Her son was accused of stealing gold from the owner of land on which he was labouring and the household's relations with other villagers soured. It became more difficult to get agricultural labour and so the son migrated to Gujarat for non-farm work. He sent no remittances.

Whilst the precise dynamics of gender relations were not clear, it was possible to detect growing generational conflict, especially in households which had to sell land and assets to survive. In such households, young people were often not interested in staying in Aurepalle and Dokur and sought alternative livelihoods in Hyderabad. When households that were straddled over long distances ceased to co-operate in the allocation of labour and resources, this was one way in which income and assets were gradually eroded. Other households on downward trajectories found themselves at the sharp end of household developmental cycles because they had many dependants or were saddled with payments for marriages or funerals that left a heavy debt burden. Some households had spent savings and income on medical treatment, especially for tuberculosis, and were then unable to cope when drought came and their crops failed. Other reasons for downward mobility were failed investments, particularly in irrigation, that led to increasing indebtedness.

There were households that, between 1975 and 2001, were 'treading water' and experienced little or no change in their economic position. In most of these cases, households had attempted to invest in agriculture or other activities, with a view to accumulating wealth and assets, but this had been constrained by various shocks. A more detailed example is given in Box 3. In these cases, the gains made through investments were eroded but households were coping and holding on to their productive assets. The main shocks that households faced were related to agricultural production and health. The drought in Aurepalle and Dokur and the failure of irrigation systems led to widespread crop failure. Households sought alternative income within the village but demand for agricultural labour had also declined because many large landowners had left a large proportion of their land fallow. Thus, the most important coping strategy became migration (either for farm or non-farm work) to other villages or to towns and cities. Here migrant labour enabled households to avoid findings themselves on a downward trajectory.

Box 3 Treading water

CN lived in Dokur in 1975 in a household categorised by ICRISAT as a small operational landholding. CN's father owned some land and when CN married, left the household in which he had grown up and formed a new household, his father gave him 1.8 ha of land. Of this, 1.2 ha was rainfed and the remaining 0.6, irrigated. CN's operational landholding was much smaller because, though he had inherited 1.2 ha dry land, he left the land fallow for more than 15 years. The land had poor soil, very low productivity and was located far from CN's home. He cultivated only the irrigated land but was able to produce at least two paddy crops annually using water from the community tank. As irrigation systems failed in Dokur due to the drought and non-replenishment of groundwater, CN also faced increasing costs. He did not have his own draught for ploughing and threshing and relied on hired bullocks and labour to cultivate. With such small operational landholdings, CN's household also depended on agricultural labour earnings to supplement their cropping income. Only CN and his wife were available for agricultural labour because his children (two sons and one daughter) were attending school. He invested in their education hoping that it' might pay dividends in the future. CN also invested at home, spending Rs 15,000 of his savings to construct his house in 1996. Previously he spent precious labour hours repairing his house each season after the rains. Following these investments, CN faced some difficult years, as, due to drought and lack of irrigation water, his income from crop cultivation was negligible. He also paid for the funeral preparations and ceremony after the death of his mother-in-law, who had been staying with his family. Scarcity of irrigation water also reduced opportunities for agricultural wage employment in the village. To mitigate the drudgery of drought and to cope with reduced employment opportunity in the village, CN and his wife temporarily migrated to Hyderabad for non-farm work leaving the children at home for the last 6–7 years. For this household, diversification into non-farm migrant labour was a coping strategy during periods of reduced income from agriculture.

There was a disproportionate number of female-headed households amongst those that were ‘treading water’. VP was the head of a household in Aurepalle. Compared to the household of KG, VP was better placed following the death of her husband because she inherited his 5 palm trees. Her income from toddy tapping was modest because she had to pay a male neighbour to carry out the work for her but she could sell the palm juice in the village. In the slack season for tapping she participated in the village labour market. Her modest income enabled her to continue to tread water, though her position was highly precarious.

The re-survey of the 80-household panel from the 1975 to 1989 round of the VLS lends weight to the findings from the 2001 survey and census. The panel demonstrates the ways in which dependency on livelihoods that focus on agriculture became increasingly precarious. The strongest testimonies came from households which had seen their land and other productive assets (especially livestock) decline between 1975 and 2001 and had sought sources of income from non-farm livelihoods. There was evidence that land distribution programmes offered a route out of poverty but that certain poor households were not able to take advantage of the opportunity because of non-routine expenditure, especially for medical treatments and rite of passage ceremonies.

5 Concluding Remarks

The story of agriculture in the villages of Aurepalle and Dokur between 1975 and 2001 paints a rather depressing picture for agricultural livelihoods in the Mahbubnagar District of Andhra Pradesh. Whilst agriculture remained the most important source of income for the majority of households in Aurepalle and Dokur, the proportion of income that was derived from agricultural activity decreased and there was a growing dependence on migration and non-farm livelihoods. Alongside a decline in the relative proportion of income derived from agricultural activity, real income from cultivation has also decreased. This results largely from disproportionately low price increases for agricultural crops, especially coarse cereals such as pearl millet and sorghum, compared to other goods and from the lower yields resulting from drought and the failure of irrigation systems.

In order to cope with the loss of real income from cultivation, households have developed an increasingly broad repertoire of livelihood activities. There has been both a change in cropping patterns (increasingly towards commercial crops in the context of liberalisation, infrastructure development and government food distribution policies) that represents diversification within agriculture, and diversification into non-farm activities, especially labour migration in the non-farm sector. Opportunities to migrate for non-farm work are mediated by caste rules that are more constraining for some castes than others, and by social networks and kin relations. Migration, however, is no 'magic bullet'. For most households, migration required some investment, for example to pay for transport costs or accommodation. This eroded the returns and remittances from the activity. Furthermore, maintaining household relationships and co-operation across long distances is difficult. Migration sometimes raised the expectations of younger members of the households and, in extreme cases, led to a breakdown in household relations.

Diversification was a strategy taken up by landless households and by small, medium and large farmers. Those with large land holdings and productive assets were not immune to the risks faced in agriculture. In fact, there was only limited evidence of diversification enabling households in Aurepalle and Dokur to accumulate wealth and assets in significant measures. The story of GL (in Box 1), for example, was in stark contrast to the testimonies of the majority of households for whom diversification was solely a coping mechanism. Those who experienced an erosion of income and assets were then forced into the non-farm sector because there were no opportunities for them in agriculture, except perhaps as very low-paid regular farm servants. The investments made by others in irrigation and machinery, or the benefits accruing to people who received land under distribution programmes offered a life-line to many households in the context of drought and crop failure. Whilst some of the diversification strategies within and outside agriculture appear to have increased incomes in real terms in the villages, diversification strategies are not themselves free of risk and, in the prevailing agro-economic climate, often offered little more than an opportunity to cope and mitigate risk or to tread water and hold on to productive assets for the future.

The findings beg an important question about the process of diversification in Aurepalle and Dokur and in the semi-arid tropics of India more generally. Whilst both villages faced drought and a subsequent dearth of water for irrigation, it was not clear whether years of drought, and only average rainfall in intervening years, had brought about short-term or intermediate coping strategies or a more meaningful and long-term change in the livelihood strategies of households. Given that very few households accumulated significant wealth through diversification, it may well be that, if future rainfall is both plentiful and timely, then there will be a return to an overwhelming dependence on agriculture and agricultural labour, and a parallel decline in migrant labour and other non-farm activities. However, even if there is a will to return to agriculture when improved rainfall conditions prevail, it also remains to be seen whether households have, during the drought, disposed

of too many of their agricultural assets to make a serious return to farming. Similarly, whilst in Aurepalle, population density declined between 1989 and 2001, population pressure in Dokur continues to increase. The population of both villages increased between 1975 and 2001. This also has implications for the future of agriculture since a continued rise in population pressure diminishes the possibility of households gaining a livelihood from cultivation.

The diversification process, coupled with uncertainty over availability of agricultural assets in the future, also raises important policy questions. Above all, there remains a challenge for the structure in which government policy is made and state interventions are carried out. Whilst policy and interventions are implemented largely along sectoral lines, household livelihoods are highly diverse. How might the linkages between farm and non-farm livelihoods be exploited within existing policy channels to help generate new sources of livelihood? One appropriate strategy here might be to encourage forward and backward linkages to agriculture by supporting enterprises that either enable better agricultural production (for example village repair services for agricultural machinery and implements) or the process of adding value to agricultural production before it leaves the village (for example milling, food processing, packaging and transportation).

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Appendix 1 Household Census Schedule for ODI/ICRISAT Collaborative Project on Livelihood Options

Module 1: Household Census Schedule (HCS)

1. Village Information
1.1. Village: Aurepalle/Dokur **1.2. Mandal: Madgul/Devarkadra**
1.3. District: Mahbubnagar **1.4. State: A. P.** **1.5: Census code No.----------**

2. Household Information
2.1. Name: ---------- **2.2. Fathers' Name:----------**
2.3.Caste: ---------- 2.4. Education: ---------- 2.5. Main occupation: ----------
2.5. Secondary occupation: ----------

3. Family Structure

Family members	**Working on own farm**	**Caste occupation**	**Farm wages**	**Off-farm work**	**Migration**	**Others**
Male						
Female						
Children (<15)						
Total family size						

4. Assets
4.1. Land (Acres)

Particulars	Dryland area	Irrigated area	Total area
Own land			
Leased/shared in			
Leased/shared out			
Operated area (owned area + leased/shared in – leased/shared out area)			

4.2. Livestock

Particulars	Number	In milk
Bullocks		
Cows		
He Buffaloes		
She Buffaloes		
Young Stock		
Goat		
Sheep		
Pigs		
Others		

4.3. Machinery

Particulars	Number
Tractor	
Thresher	
Oil engine	
Power sprayer/duster	
Iron/wooden plows	
Seed drill	
Blade harrows	
Bullock cart	
Manual sprayer/duster	
Rice/floor mills	
Others	

4.4. Irrigation wells **% share**

4.4.1. No. open dug wells ---------- ----------

4.4.2. No. bore wells ---------- ----------

4.4.3. No. of pump sets ---------- ----------

5. Other household assets

5.1. Television sets ---------

5.2. Radio sets ---------

5.3. Refrigerator ---------

5.4. Cooking gas ---------

5.5. Telephone ---------

5.6. Motor cycle/Scooter ---------

5.7. Others ---------

6. Sources of income

	% share to total HH income	**% time spent**
6.1. Agriculture	----------	----------
6.2. Livestock	----------	----------
6.3. Caste occupation	----------	----------
6.4. Regular job	----------	----------
6.5. Farm work	----------	----------
6.6. Non-farm work	----------	----------
6.7. Business (trade)	----------	----------
6.8. Migration	----------	----------
6.9. Sale of CPR products	----------	----------
6.10. Others	----------	----------

Appendix 2 Household Survey Questionnaire for ODI/ICRISAT Collaborative Project on Livelihood Options

Name: _____ **H.H.No._____**

Fathers' Name: _____ **Caste:_____**

Village: _____ **Mandal:_____**

District: Mahabubnagar **State: Andhra Pradesh** **Category: _____**

1. Family Information:

Name	Relationship with head	Age	Sex	Education	Primary occupation	Secondary occupation	Annual Income (Rs)

Mention persons unable to work, school going children, disabled/ill

2. Land holding in 2000-01 (Acres)

	Irrigated	Dry	Grazing	Fallow	Total
Own					
Leased/shared-in					
Leased/shared-out					
Total operated land					

3. Crops grown during 2000–01

Plot No	Area (Acres)	Land Tenurial status	Irrigated/ Dry	Crop		Ratio for intercrop/ Mix crop	Kharif				Rabi			
				Kharif	Rabi		Main produce (Kg)	Price Rs/Kg	By Product (Qt)	Price Rs./Qt	Main produce (Kg)	Price Rs/Kg	By Product (Qt)	Price (Rs/Qt)

4. Plot wise Input/output details (For one representative plot for each crop/crop combination)

Crop (s): _____ Plot size (Ac): _____ Plot No. _____

Season: _____ Ratio/Proportion: _____

Description	Quantity	Unit	Price/unit	Amount (Rs)
1. Labour cost				
Land Preparation+Manure application		**Days**		
Seeding/Transplanting		**“**		
Weeding/Inter culture		**“**		
Fertiliser application		**“**		
Plant protection		**“**		
Watching		**“**		
Harvesting		**“**		
Threshing		**“**		
Others		**“**		
2. Bullocks/Machinery cost				
Tractor		**Hrs**		
Power/manual sprayer		**“**		
Others		**“**		
3. Seed cost				
Crop1: _____		**Kg**		
Crop2: _____		**“**		
Crop3: _____		**“**		
4. Material cost				
Farm Yard Manure		**Qt**		
Sheep Penning		**Days**		
Fertilisers		**Kg**		
1.		**“**		
2.		**“**		
3.		**“**		
5. Pesticides cost		**Rs,**		
1.		**“**		
2.		**“**		
3.		**“**		
4.		**“**		
6. Irrigation cost		**Rs.**		
		“		
7. Transport/ Marketing cost		**Rs.**		
		“		
8. Output (Production)				
Crop1: Main Product		**Kg**		
By Product		**Qt**		
Crop2 :Main Product		**Kg**		
By Product		**Qt**		
Crop 3 : Main Product		**Kg**		
By Product		**Qt**		

D- Days, H- hours, L-litres and Kg-kilograms

5. Livestock

5.1. Income from selling animals and animal products

Sources	Quantity	Price/unit	Income (Rs)
Milch animals (Bullocks/cows)			
He and she buffaloes			
Sheep and goats			
Milk sale			
FYM sale			
Sale of wool			
Income from hired-out (Draught animal)			
Others (specify)			
1			
2			

5.2 Livestock maintenance cost (Month/Year)

Description	Quantity	Unit (kg/qt)	Price/unit	Total Cost
Fodder (dry and green)				
Concentrates				
Medical (Vaccination)				
Grazing cost				
Labour cost				

6. Income from other sources

Sources	Type of Work	Place of work	days/ month	Wage rate	Total
Farm / Casual labour					
Non-farm wages					
Govt Employment					
Pvt. Jobs					
Business					
Trade					
Caste Occupation (Specify)					
Remittances (Dowry, Pension, gifts etc.)					
Sale of CPRs (Firewood, Fruits)					
RFS					
Stitching cloth					
Others (specify)					
1.					
2.					

7. Seasonal migration

Sex	Place of work	Distance	Type of work	Work period (Days/Months)	Wage (day/month)	Amount Received	Amount spent

8. Assets position of the household

Particulars	Number	Price/Unit	Total (Rs)
Land			
Dry (Acres)			
Wet (Acres)			
Livestock			
Draft power			
Milch animal			
Young cattle			
Goat & Sheep			
Others			
Machinery			
Tractor			
Thresher			
Flour mills			
Electric motors			
Power sprayers			
Bullock cart			
Minor implements			
Unproductive assets			
Residential House Pucca, Semi pucca, Kacha etc.			
Residential plot			
Household articles (TV, Fridge, Two wheeler, fan etc.)			
Jewellery			
Consumer durable			
Household utensils			
Others			

9. Financial and Assets

Type	Amount	Purpose	Rate of interest	Source	Outstanding loan amount
Borrowings					
1.					
2.					
3.					
Lending					
1.					
2.					
Savings					

10. Expenditure

Type	Quantity (Kg/L)	Month/Year	Price/Unit	Total Amount
Cereals				
1. Rice				
2. Sorghum				
3. Pearl millet				
4. Wheat				
5. Others				
Pulses				
1. Pigeonpea				
2. Chickpea				
3. Greengram				
4. Cowpea				
5. Others				
Oils				
1. Groundnut				
2. Ghee				
3. Others				
Vegetables				
Education				
Travel				
Ceremonial				
Entertainment				
Clothing				
Medical				
Farm inputs				
1. Material inputs				
2. Labour wages				
3. Farm electricity				
Inputs purchased for handicrafts				
Other expenses				
1.				
2.				

11. Utilisation of farm produces

Crop	**Main production (kg)**	**Consu mption**	**Labour wages**	**Other purpose**	**Sold in the market**	**Price/ Unit**	**By product (Qt)**	**Sold**	**Price**

12. Does any member of the household a Position/s of responsibility in any of the village organisations (either formal or informal)?

Yes / No

What is/are these organisation/s?
(*Gram Panchayat, Mandal Panchayat*, PACS or any other body of village institutions)

Yes/No

If Yes, Please provide the information:

What type of ration card do you have? White: _____ Pink: _____

What type of items are you getting per month?

1. Rice: ---------- 2. Wheat: ---------- 3. Sugar: ---------- 4. Kerosene: ----------

Which of the Govt.schemes and programmes do you benefit from these programmes?

Yes/No

Programme	Yes/No	Benefits
Self Help Groups		
Janma Bhoomi		
Other Progrms		
Prog1.		
Prog2.		
Prog3.		

13. What benefits did you receive from the following Government programmes during 2000-01?

Programmes	Approximate amount in Rs.
PDS	
Housing Schemes	
Old Age Pension	
Widow Pension	
Amount deposited by the Govt. when HH given birth a female child	
NGO programmes	
1.	
2.	
Local *Panchayat*	
Educational allowance	
Other	
Prog 1.	
Prog 2.	
Prog 3.	

Name of the Investigator: _____

Appendix 3 Summary of Government Programmes on Rural Livelihood in Andhra Pradesh

Programme title	Focus	Highlights
Mahila Janmabhoomi	Focus on issues relating to women	Distribution of assets and assistance to women under all government programmes including old age pensions, widow pensions, girl child protection scheme, revolving fund under DWACRA and DWCUA. Gas connections under Deepam, enrolment of girl child, review of self help groups and identification of beneficiaries under all government programmes.
Water conservation, drought, health	Focus on issues relating to health, drought and water conservation	Extension activities of agricultural department, distribution of input subsidy under drought, identification of community land for plantation.
Micro planning	The micro plans are prepared to realise the goals set in Andhra Pradesh vision-2020	Micro plans cover all households and from them; an integrated database is created integrating the human development survey with the multi-purpose household survey. Preparation of infrastructure profile, Preparation of action plan for the self help groups.
Pension schemes	Improving pension schemes	These schemes are assisting vulnerable groups like the aged, disabled, and widowed persons.
Public distribution system	Focus is on effectively targeting programme to make it pro-poor	This ensures food security for all groups requiring such assistance. Provides relief to genuinely vulnerable groups. Supply of rice, sugar, and kerosene on subsidy basis.
Anganwadi centres	To improve nutrition and health.	To combat malnutrition and augment healthcare for infants, young children below five years, women (particularly pregnant and lactating mothers) and adolescent girls.
Back-to-school programmes	To prevent dropping out and encourage enrolment	To bring drop-outs back to school. It helps dropouts to re-enter the formal education system.
Adarana	For aiding all artisans	To upgrade skills, increase income and value addition and reduce drudgery. Modern and power tools are supplied to all artisans in these villages.
Women's self help groups (SHGs)	Self-help movement through savings has been taken up by women.	The group corpus consists of savings, government assistance and bank loans. Members use the loan out of the group corpus for their personal needs and income-generation activities. The SHGs are popularly called DWACRA groups. Due to constant efforts of the government, women have become very active and are concerned with the issues relating to them and their surroundings.
Free health camps	General health camps conducted on free of charge	The camps provide treatment for general ailments and identify critical cases of tuberculosis, AIDS, Gastro-enteritis, Malaria, and cataracts.
Free veterinary camps	Free veterinary camps conducted	General treatment of animals and identifcation of critical cases. Deworming of sheep taken up for the entire sheep population
Disabled welfare (*Cheyuta*)	Special camps conducted for all welfare programmes	Distribution of financial benefits (scholarships, pensions, economic assistance) and distribution of house site *patta*s etc. Necessary surgical corrections will also be taken up wherever required.
Water user association	Linkage between irrigation department	Place the irrigation system on a sustainable basis through involvement of farmers in irrigation management.

Programme title	Focus	Highlights
(*Neeru, Meeru*)	and farmers organisations	Expansion of effectively irrigated areas in existing systems. This process enabled the farmers to acquire experience in undertaking maintenance works and also to understand the complexity of maintaining and operating the irrigation systems.
Protected drinking water	Supply of protected drinking water	Supply of protected drinking water through storage tanks connected to the pipelines to individual households. From each connection, the *Gram panchayat* collects Rs.10/- each month for maintenance, electricity charges and the salary for the operator.
Adult education	To increase percentage of literacy in the village	To educate the illiterate, the government is encouraging adult education during night hours. Supply of books and slates etc free of cost.
National family benefit scheme	To support a family when an earning member suddenly dies	Support a family with Rs. 10,000/- when an earning member suddenly dies
Housing Schemes	To construct a house for those who do not have any house.	Providing house plot to construct a house and in some cases providing a loan to construct a house with a subsidy amount.
Bonded labour	Identification of bonded labour and permanently release from landlords.	Identification of bonded labour; support with an amount to start a new life.
Annapurna Padhakam	Food security	Supply of 10 kg of rice with free of cost.
Antyoday anna yojana Padhakam	Supply of rice to poorest of the poor	Supply of 25 kg of rice with a cost of Rs.3/-
Jatiya Prasuti Sahaya Programme	Supply of nutritious food for pregnant women	Provides Rs 1,000/- to pregnant women before and after delivery to get nutritious food.
Construction of toilets for the public	Maintain cleanliness of the village	Provides Rs. 2,000/- for the construction of individual toilets to maintain cleanliness of the village
Banning child labour	To eliminate child labour	Enforce the ban on child labour and prevent the practice by addressing this problem. The state will enforce the child labour abolition act and ensure that all vulnerable children have access to education and parents will be made responsible for ensuring that their children go to school.