

NATURAL RESOURCES SYSTEMS PROGRAMME
PROJECT REPORT¹

DFID Project Number

R8084

Report Title

Livelihoods
Annex E of the Final Technical Report of project R8084.

Report Authors

Ambrose-Oji, A.

Organisation

School of Agricultural and Forest Sciences, University of Wales

Date

2005

NRSP Production System

Peri-Urban Interface

¹ This document is an output from projects funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

Annex E

Livelihoods

Bianca Ambrose-Oji

Summary

This Annex reports on data collected to document and measure the effect on livelihoods of a range of strategies tested by the project. Three datasets were examined. Of the monitoring and impact data, 87% of the sample involved people directly involved with project interventions. This has limited the analyses of the impacts of the strategies being tested.

Existing livelihood options

The majority of households continue to rely primarily on agricultural livelihood activities. Non-NR based occupations are particularly important for women, although there was a substantial move into agricultural activities for women over the project cycle. A distinct difference exists between pattern of livelihood activities undertaken in villages closer to the city and those further from the city. A larger percentage of people categorised as 'poor' and 'very poor' are involved in agricultural labour in villages further rather than closer to the city. Wealthier groups appear to be holding on to their land and agricultural based livelihoods closer to the city. Over the period of the project, there was a general move out of crops more demanding of agricultural inputs and rainfall (e.g. sugar, vegetables, cotton), towards intercropped mixtures with millet and rice that provide more certain returns in buoyant markets. The data suggest maintaining crop diversity during periods of drought and difficult economic conditions is an important strategy to maintain agricultural income streams. The most important PUI related change respondents reported were increased opportunities for marketing of agricultural and other products (53% of responses), supported by better transport services (29% of responses), and increased access to city amenities (9% of responses). The impacts of these changes reported by both wealthier and poorer groups were increased levels of household income and an increase in the diversity of income sources. Poor and very poor wealth groups also mentioned the increased access to market goods which reduced household costs.

Which strategies promoted positive livelihood impacts?

The data suggest livelihood strategies for poorer groups need to be risk averse and based on a diverse portfolio of activities, which include regular, secure cash income. Activities based on minimal capital outlay are shown to provide positive livelihood choices. Responding to the strategies being tested, poorer groups felt they benefited most from the capacity building outcomes of the project interventions. This included increased feelings of empowerment, 'courage' and the ability to draw on new, strong and supportive social networks. These effects were particularly important for women. Micro-credit was an important component of the strategies. The greater value of both bank and revolving fund loans was used for livestock purchases (cattle/sheep & goats/poultry) and management costs, either forming new businesses or extending existing ones. The poultry were of particular importance to the very poor. SHG loans were used extensively for consumption credit to cover shortfalls in domestic needs. Agricultural and micro-enterprises were the next most important categories of loan use with bank loans and SHG used for this purpose. All SHG members reported the most important impacts of project micro-enterprises being an increase in income ranging from 25,000 to 500 rupees¹. Increases in natural capital assets were also seen as important, particularly in the provision of livelihood services. Marketing skills including increased access to market knowledge, were most significant to poorer groups, increasing potential livelihood opportunities. An index of the number of people taking up options combined with the total value of loans utilised for that purpose provides a proxy measure of 'strategy success'. Dairying and livestock activities rank the highest, followed by micro-enterprises such as bangle sales and food stuff trading. These are livelihood activities providing goods and services in high demand in the PUI and urban areas. They represent high value products from which households can expect reasonable and secure returns.

¹ An average daily rate for agricultural labour is approximately Rs 20 – 25 for women, Rs 30- 40 for men.

Context and Background

Also see Annex C, Chapters 5 and 10. During August 2002 a project workshop began the process of formulating the research questions and hypotheses that needed to be addressed (see Annex D, Section 3.2). This resulted in a set of 17 questions which were in turn refined further later in 2002 and early 2003. Those questions of direct relevance to a consideration of livelihood change are distributed across three groups as follows:

1. Questions relating to Livelihoods

- 1.1. What are the existing livelihood options?
- 1.2. What strategies will help improve existing livelihoods and create new livelihood options at group or individual level?
- 1.3. What is the impact of these strategies on livelihoods on each of the four different categories of the poor at group or individual level?
- 1.4. Which strategies did work or did not work out and why?

2. Questions relating to Human capital

- 2.1. What are the changes in human capital, skills and knowledge at the village level?
- 2.2. What capacity building measures have been undertaken and what is the impact?

3. Questions relating to the management of NR natural resources and the links to livelihoods

- 3.1. What are the existing NR strategies on which people base their livelihoods?
- 3.2. What NR based strategy will help improve existing livelihoods and create new livelihoods at both group and individual level?

This report looks at the data collected which pertains to livelihood change and the impact of project intervention strategies by interrogating the various datasets against each of the research questions.

Methods

Development interventions

The livelihood and NR management strategies that the project tested are outlined in Table 1. The main approach to implementing the activities which formed part of these strategies was through *sangha* or self help groups (SHG). New SHGs formed under the auspices of the project, as well as other existing SHGs, were exposed to various livelihood and NR based management options through a series of exposure visits (Annex C, Chapter 5). Options and activities of interest to individual members were then supported by project partners who provided training in those activities. In newly formed SHGs emphasis was also placed on training which introduced the concept of SHGs, provided training in basic numeracy and literacy skills, and supported the skills and attitudes required to begin individual and group savings. Through membership of SHGs members were also provided with increased access to Government and bank credit schemes. The money saved and loaned was used to fund any partially subsidised activities and options the SHG members had chosen to try. These activities could be conducted at either individual or group level, and concentrated on the establishment of micro-enterprises which could be either natural resource based or non-NR based. Interventions were not limited to SHG members, such as the vaccinations of livestock and soil and water conservation options.

Table 1. The livelihoods and NR based strategies planned during R7959 and being tested by R8084

NR management (community wide, pro-poor)	Livelihoods (household and individual, poverty focused)
<ul style="list-style-type: none"> • Increase or maintain tree cover • Improve water storage • Better livestock management • Improved soil management (erosion, water holding, pollution, fertility) 	<ul style="list-style-type: none"> • Improved management of household's own natural resources • Improved access to NRs for poor groups of people • Building capacity of the poor • Develop alternative livelihoods (or income generating activities - IGAs)

Source: Ambrose-Oji & Hillyer, 2002

Research methods

The research methods used to track livelihoods change were all questionnaire based. There were three main data collection activities that finally collected livelihoods based data. These were:

1. **Family Information Survey 1 (FIS1).** Originally intended as the baseline survey from which livelihood change would be tracked, the questionnaires were administered in November and December 2001, using a 100% sample of households in each of the 6 villages. The quality of data from Kotur village was questionable and has therefore not been included in the final dataset. The total number of households included in FIS1 is 2098 and includes information from a total of 8386 individuals. This FIS1 dataset has been fully edited, cleaned and coded, and is presented on the CD with this report.
2. **Family Information Survey 2 (FIS2).** This survey was based on 10% sample of households stratified by wealth rank and then randomly sampled within each rank, in each village, with a total of 294 households, and conducted in December 2004 to January 2005. This was essentially a repeat of the first FIS with some additional questions relating to, for example, the reasons why individuals had changed livelihood activities, the benefits of project interventions, and what the overall impact of living close to the city was. The FIS2 survey also asked respondents to describe the answer to each of the questions in terms of '3 years before' i.e. at the start of the project, and currently, i.e. at the end of the project. In this the data verifies the validity of FIS 1, and attempts to provide a more accurate picture for those households included in FIS2. This dataset is presented on the CD with this report, but has not yet been fully cleaned and edited.
3. **Self Help Group or Sangha survey (SHG).** This sampled a total of 18 SHGs (15 female groups and 3 male groups) and recorded information from a total of 243 individuals concerning i. loan utilisation patterns; ii. which project interventions and livelihood options had been taken up; iii. the reasons for taking up or dropping options; and iv. the impact of livelihood activity changes. The loan utilisation dataset has been fully cleaned, edited and coded and is presented on the CD with this report.
4. The income generating activity (IGA), reasons for change and impact survey data has not been fully cleaned edited and coded.

Other surveys and data collection periods covering the impact of NR based resource management options are considered in Annex D.

Data analysis methods and limitations

In the data collection and data management protocols developed the original intention was to use MS Access for the storage and manipulation of data, MS Excel for the publication of charts and cross-tabs and SPSS for descriptive statistical analysis where interesting patterns had been

discovered within the data. In the event data management was problematic, and the results presented here are limited to the use of charts using cross-tabs generated in Access and Excel. There has been no attempt at statistical description or more substantial analysis using SPSS.

More substantial analysis of the final data sets has been hampered by the way in which the survey questions have not directly addressed the key research questions. The understanding of livelihoods captured in the data is confined to the uptake of particular project interventions and counts of household assets. There is little consideration of the wider aspects of livelihoods which would report on changes to livelihood vulnerability and resilience and the dynamism of livelihoods in the PUI context.

The key issues in terms of the quality and scope of the final datasets include:

1. There are no real records of the impact of project interventions or of livelihood change. Where there is mention of impact this is anecdotal rather than quantified. In many of the data tables the perceived impacts of change do not relate specifically to the households taking part in the survey, but are respondents reports of perceived impacts in the PUI more generally;
2. The strategies being tested were not well defined and questions posed during the surveys do not relate directly to the impact of those new strategies introduced by the project.
3. The FIS 2 found that 87% of the sampled households had at least some experience of project interventions. As a consequence it has not been possible to look at overall patterns of livelihood change in the PUI and to understand the impacts of project livelihood strategies within these due to much wider impact of the project than originally anticipated.
4. There is sometimes inconsistency between various variables collected during the different surveys which limits the power of the individual datasets.

Results

Description of the sample: Differentiation by wealth and caste

The general patterns of wealth, caste and occupation are important considerations when trying to understand the livelihood dynamics within the Indian PUI context. This project was concerned primarily with understanding the dynamics of poverty in the PUI and selecting beneficiaries from the least wealthy strata of society for inclusion in the project activities. However, a tension between the stronger link between the wealthier groups and specific dimensions of natural resource management compared to the poorer groups, did not preclude a consideration of how the richer sections of society could be included in project work here aimed at producing community benefits e.g. increasing tree cover and increasing water storage.

A participatory wealth ranking exercise was conducted (see Annex C, Sections 10.1 and 10.2.). The general characteristics of the five wealth categories into which the quantitative household data is divided is shown in Table 2. These wealth rankings are largely based on material and measurable aspects of poverty, but do include more subjective aspects such as 'bad habits' and low social standing. There was a poor correspondence between the five wealth categories and recorded household income levels in FIS1. This further demonstrates that the participatory wealth rankings had taken into account more of the 'multi-dimensional' facets of poverty. For this reason, data analysis concentrated on disaggregation by wealth rank rather than income level.

Table 2. Typical characteristics of the five wealth categories

1. Rich	Small family size Landholding 8-24 acres with bore wells. Dairy animals Own their houses Own farm and other vehicles Engage in highly paid salaried employment
2. Upper medium	Fewer dependants Landholding 4-16 acres of fertile land with bore wells Dairy animals Own their houses Engage in SMEs and semi-skilled jobs such as drivers, conductors, teachers, and factory workers
3. Lower medium	Larger number of dependants Landholding 1-4 acres rainfed, may lease additional land Own their houses Engage in SMEs and petty trading, and poorly paid work semi-skilled work Men and women both working Alcoholic habits
4. Poor	Larger number of dependants Landholding 1-3 acres rainfed, may leased additional land, 1-2 dairy animals, 6-8 sheep and goat Janata (government provided) house Engage in low paid daily labour as agricultural and contract labourers Men and women both working Alcoholic habits
5. Very poor	Greater number of dependants Land less or part of extended family sharing up to 5 acres of rained land 4-5 goats Janata plot or rented house, Engage in low paid daily labour as agricultural and cooli labourers Men and women both working Alcoholic habits Lack assets

Source: Annex C, section 10.2.

The overall pattern of wealth across those villages taking part in this project is shown in Figure 1 and Figure 2. The majority of the population in those villages selected for inclusion in this project are shown to be poor and very poor.

However, whilst the indicators of poverty illustrated in Table 2 may have general purchase, they may not always be the strongest indicators of poverty in the PUI context. Data from FIS1 and FIS2 illustrate that rather than the poor living in the smallest dwellings, mean living space in particular villages (e.g. Channapur, Kotur and Mugad) is often greater for the poorer wealth categories than the wealthy, and the ownership of toilets in some villages (e.g. Gabbur and Daddikamalapur) is proportionally more prevalent in poorer wealth classes than richer. An important case in point is that of land ownership. The distribution of landholdings is skewed where 49% of the population have land holdings between 2-10 acres, 32% have holdings between 1 and 3 acres, and only 11% have holdings of more than 10 acres. Although the assumption is that the poor are generally landless, landlessness exists in all five wealth categories as shown in Figure 2. Therefore, land ownership is not as strong a predictor of wealth class within the PUI as it might be in other more rural locations. However, the ownership of white consumer goods (TVs, radios etc.) and larger capital assets such as vehicles and mechanised farm equipment does remain confined to wealthier groups.

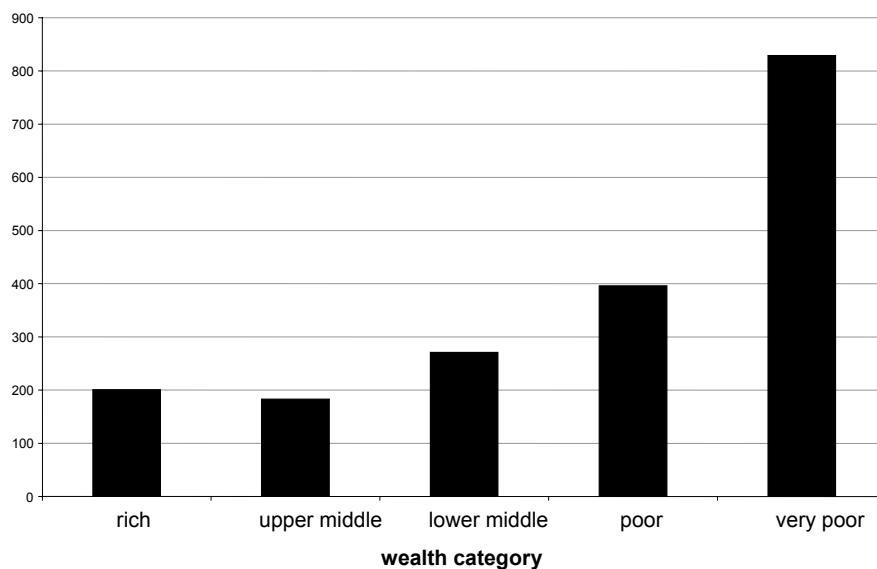
Figure 3 shows that there is variation in patterns of poverty by distance from the city, where there are fewer households in the bottom two wealth categories in locations closer to the city. This may indicate the benefits of the greater diversity in livelihood options for the poor in areas of the PUI subject to greater urban influence. In Channapur and Kotur 50% of households belong to the very poor category, in Mugad 43% of the households represent the very poor, whereas in

Daddikamalapur (closer to the city) and Mandihal (more distant) 34% belong to the lowest wealth category. Of all the villages Gabbur (closer to the city) had the lowest percentage at only 18% of households belonging to the very poor category.

Any consideration of livelihoods and poverty in India needs to take into account caste groups (see Box 1, this Annex, for a further consideration of this issue, using data taken from an earlier project, Lamond, 2004). Despite progressive attitudes and legislation changing the traditionally strict links between caste and occupation, caste may still have some influence on the skills base, expectation, choice of occupation and available livelihood options open to different groups. Figure 4 examines the pattern of caste type across the PUI villages and indicates that the majority group are the middle caste group which includes Lingayats, Gainigers and Muslims as the majority groups. Figure 5 examines the pattern between caste and wealth and shows that there is a relatively even spread of caste groups by wealth category. There is therefore no evidence to suggest that the poorest groups in society are necessarily drawn from the lower (e.g. Hanmur, Harijan, Hadpad, Uppar and Koruba) and occupational caste groups. Mugad was the most diverse village in terms of the numbers of different caste groups present with Daddikamalapur and Channapur being the least diverse dominated by Goulis (diary and milk vendors) in the case of Daddikamalapur and Harijan and Kuruba castes in Channapur.

Figure 1. The pattern of wealth across 4 villages as shown by FIS1

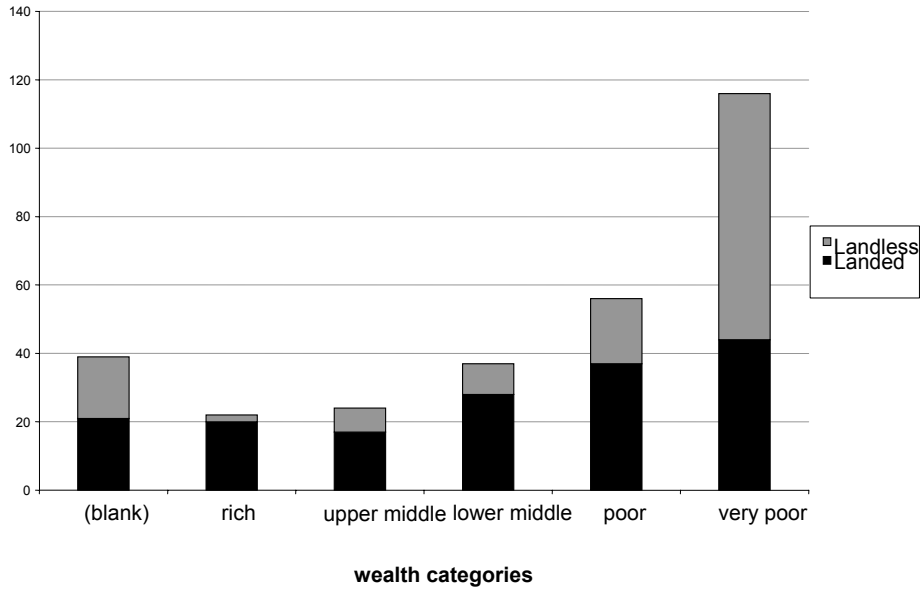
number of households



Source FIS1

Figure 2. The pattern of wealth and landlessness across 6 villages

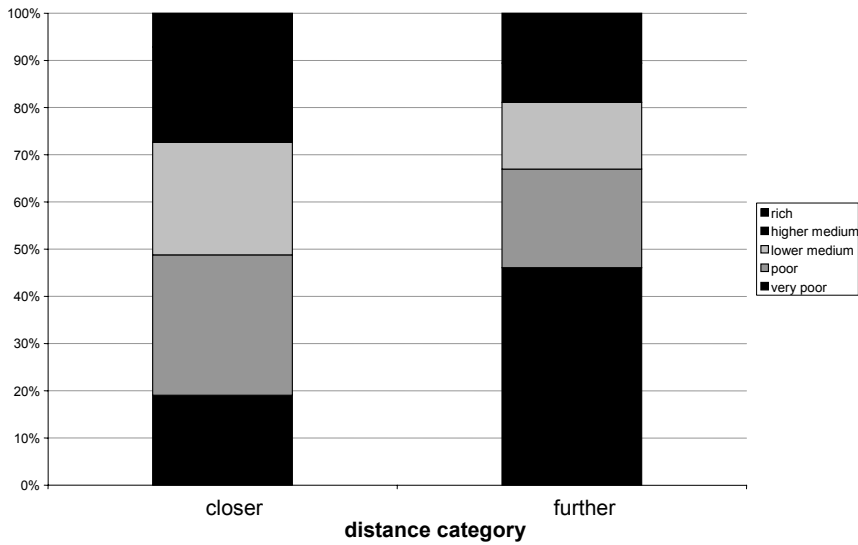
number of households



Source: FIS2

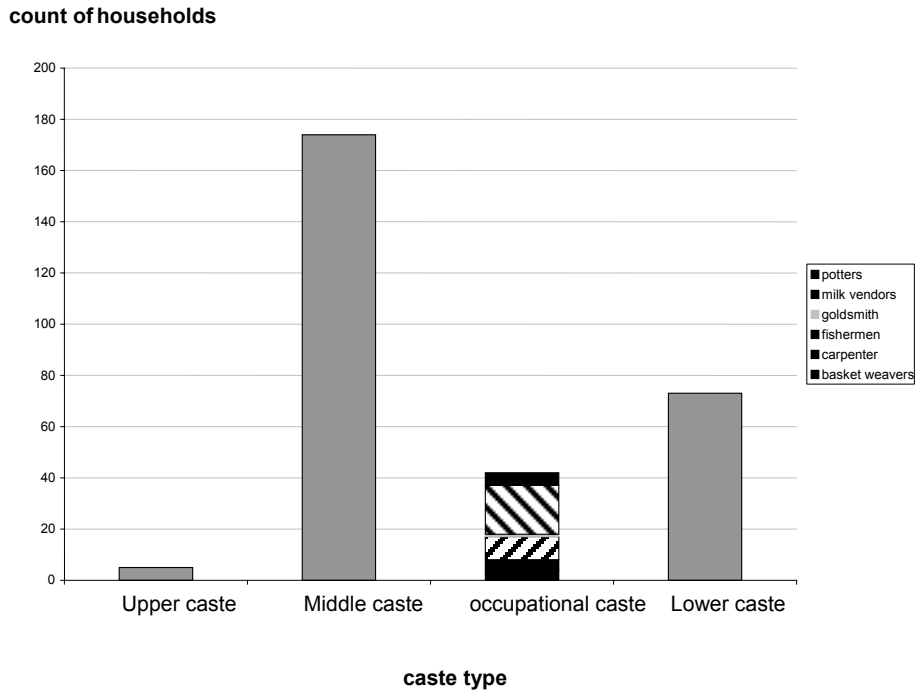
Figure 3. Differences in household wealth category by distance from city (n=1793)

% sampled households



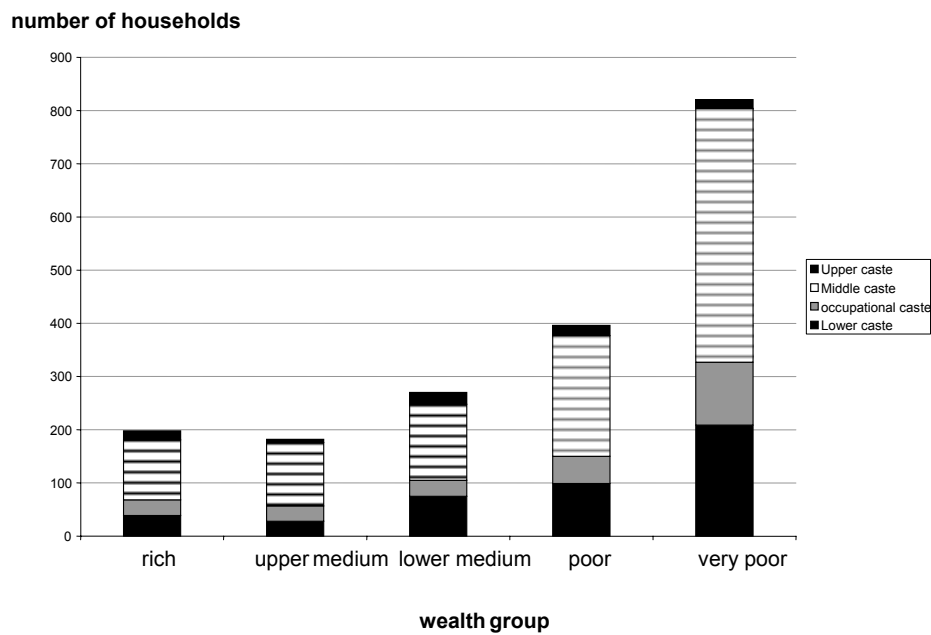
Source: FIS1

Figure 4. The pattern of caste type across 6 villages in the PUI (n= 294)



Source: FIS2

Figure 5. The pattern of caste type and wealth category across 4 villages in the PUI (n=1867)



Source: FIS1

Box 1.
Caste and Religion

*M. R. Lamond,
School of Agricultural and Forest Sciences,
University of Wales, Bangor*

This box is provided to present more background on the matter of castes and religion, which are factors of great significance in India. During the course of a livestock survey during project R7867, farmers were asked to name the caste to which they belonged. The answers given reveal that they understood the question to mean religion or tribe if they were not Hindus. The question was open ended, so they named their caste, tribe or religion, rather than choosing from a list, which led to some confusion: it was often unclear if names represented separate castes, or sub castes, or were variations in the spelling or alternative names for a single caste. Information gleaned from a wide range of sources cleared up most, but not all the confusion. The castes listed in Table 1 show all the different caste/tribe/religious group names given by farmers that did not appear to be spelling variations.

The term caste applies only to Hindus: these include both Caste Hindus and Untouchable Hindus, also called Harijans or Dalits. The Jat (Hindu for caste, which is an English term) of 'Caste Hindus' belongs to one into the four traditional Varnas of Brahmin (priest), Kshatriya (warrior), Vaishnya (merchant, peasant), Shudra (servant). Untouchable Hindus are defined as 'Scheduled Castes' (SC) by the Indian government and also consists of many hierarchical Jats or castes, all of which are considered untouchable and inferior by the majority of Caste Hindus (Fuller, 1992).

Throughout India, there are also many different tribal communities which practice their own, usually animistic, religions and cultures: these are defined as 'Scheduled Tribes' by the Indian government (Fuller, 1992). Peoples of different religions often also have different social classes, usually twofold (professional/manual workers) for Christians, Muslims and Buddhists, and similar to Hindu castes for Jains and Sikhs, but without having untouchables (Baird and Bloom, 1971). Certain castes/Jats, particularly the Lingayats which originated as a Bhakti yoga sect devoted to Shiva, in turn consist of many hierarchical sub-castes, which do not generally intermarry, although they will eat together (Fuller, 1992). From the literature it appears likely that some of the farmers' given castes may actually be Lingayat sub-castes: notably Uppar, Reddy, Sadar, Swami, Hugar, Madival and Barber (Ainapur, 1986). In the survey, the Muslims, Christian and Jains gave only their religion. Many of the Scheduled Castes did not identify their specific caste. Of the tribals, it was unclear whether all the seven spellings of Kabber, Kurbur, Kurub, Kuruba, Kurubar, Kuruber, Kurubur referred to the same tribe: usually spelt Kuruba (Ainapur, 1986).

The religious groupings used for data analysis are listed in Table 1. They were deduced by reading literature regarding the various castes and tribes. However, religion and tribe may not be definitely mutually exclusive designations: it cannot be assumed that all tribe members practice animistic religions. In particular, it is possible that some members of scheduled tribes and scheduled castes had converted to other religions, but remain a member of their caste or tribe to retain government privileges (Ainapur, 1986).

The religion of the farmers is of interest in relation to livestock farming, because of religious laws governing diet, and also caste or tribal traditional occupations. It has been observed that Muslims in Indian rural villages are more flexible than Hindus with regard to changing occupation, and this may be reflected in openness to starting new livestock enterprises (Ainapur, 1986)

Caste Hindus are commonly vegetarian, avoiding both meat and eggs, but not milk. Similarly Jains are vegetarian, and forbidden to kill (some Jain monks even wear facemasks to avoid breathing in tiny insects (Baird and Bloom 1971): thus it may be expected that both these groups do not keep chickens, and certainly do not slaughter their livestock themselves. Their milk consumption may also be higher, as it is a good source of protein in a meat free diet. The cow is venerated as holy by Hindu's: even those who eat meat almost invariably do not eat beef (Lensch, 1987). On the other hand, Muslims generally eat meat and eggs, but are strictly forbidden to eat pork, and Christians may or may not eat pork, but will eat other meat and eggs (Sarwar, 2000). Tribal religions, and also Scheduled Caste Hindus do not usually have a tradition of vegetarianism, and may have a tradition of animal sacrifice, as do some Hindu sects, particularly devotees of Kali (Fuller, 1992). Some

Untouchable Hindu Jats are even traditionally scavengers that eat carrion (Fuller, 1992) Many tribes do not have a tradition of agriculture: some are nomadic, and others historically dwelt in the jungle and subsisted by hunting and gathering (Ainapur, 1986): On the other hand certain Hindu Vaishya Jats have a centuries old tradition of livestock keeping (Ainapur, 1986) The stringency with which caste divisions are maintained socially and in the work place is increasingly less in urban areas: thus this, if somehow measured could be used as an indicator of urbanisation in the villages (Fuller, 1992). Unfortunately no data was collected in this respect.

Box 1, Table 1. Castes, Tribes and Religions

Caste (from survey)	Religion (from literature)
Ambigar/Ambiger/Ambiga	Tribal
Badiger	Hindu (Caste)
Barber	Hindu (Caste)
Bhavsar	Hindu (don't know)
Christian	Christian
Dasar	Hindu (Untouchable)
Ghaniger/Chaniger	Hindu (Caste)
Hugar	Hindu (Caste)
Jain	Jain
Kabber/Kurbur	Tribal
Kurub/Kuruba/Kurubar/Kuruber/Kurubur	Tribal
Lingaya/Lingayat/Lingayath	Hindu (Caste)
Madival	Hindu (Caste)
Maratha	Hindu (Caste)
Medar	Tribal
Muslim	Muslim
Pattegar	Hindu (don't know)
Reddy	Hindu (Caste)
Sadar	Hindu (Caste)
SC/CS (Scheduled Caste)	Hindu (Untouchable)
Swami/Swami (Jangam)	Hindu (Caste)
Talwar	Hindu (Caste)
Uppar	Hindu (Caste)
Walikar/Walmiki	Tribal

References

Ainapur, L.S. (1986) Dynamics of Caste Relations in Rural India. Jaipur: Rawat Publications. Online version: <<http://www.saxali.com>> Accessed 09/08/04.

Baird, R.D. and Bloom, A. (1971). *Religion and Man: Indian and Far Eastern Religions*. Harper and Row Publishers Inc., New York.

Fuller, C.J. (1992). *The Camphor Flame: Popular Hinduism and Society in India*. Princeton University Press, New jersey.

Lensch, J. (1987). Problems and Prospects of Cattle and Buffalo Husbandry in India with Special Reference to the Concept of 'Sacred Cow'. Krempe/Holstein, Hamburg.

Sarwar, G. (2000). *Islam: Belief and Teachings*. The Muslim Educational Trust, London.

What are the existing livelihood options including those based on natural resources?

A detailed examination of the livelihood strategies of a sample of households in certain PUI villages was explored in some detail in the previous project R7867. This demonstrated that the choice of occupation of the poor and very poor wealth classes depends in large part on the regularity of work as well as the level of pay. The same work also examined the diversity of livelihoods and concluded that the poor generally have more diverse livelihood strategies than the richer groups. It was concluded that diversity in livelihood activity portfolios was a key determinant mediating the livelihood vulnerability experienced by these groups.

In the PUI context institutional, economic and social dynamism and change have been identified as important influences on livelihood choices and outcomes. It is therefore important to establish the baseline situation in those villages involved in this project which are different to those included in previous research. It is also important to try and uncover the overall trends and patterns of change dominating the PUI during the project lifetime. The overall trends and baseline situation are described using data from the FIS1 database, with additional information about changes during the period of the project drawn from FIS2. Although FIS1 provides a broad picture of livelihood patterns in the 5 villages the data for Gabbur and Mandihal are restricted to the primary and secondary occupations of individuals rather than the full complement of livelihood activities. Using FIS2 data describing the situation at the start of the project, a total of 23.6% of the sample (n=215/912) individuals have second occupations and 2.9% of the sample (n=26/912) have three or more occupations. By the end of the project the ratio had changed slightly where a total of 20.0% of the sample (n=144/719) individuals have second occupations and 2.4% of the sample (n=17/719) have three or more occupations, indicating that livelihood activity diversity remains an important consideration for many of the poorest individuals and households (NB these figures do not include students, the retired, unemployed and unspecified 'others').

An interrogation of the livelihood strategies being followed by different groups in the PUI was based on a very broad characterisation of strategies into three main classes, namely Agriculture, NR based livelihoods and non NR based livelihoods; the types of livelihood activity which fall into these categories are shown in Table 3.

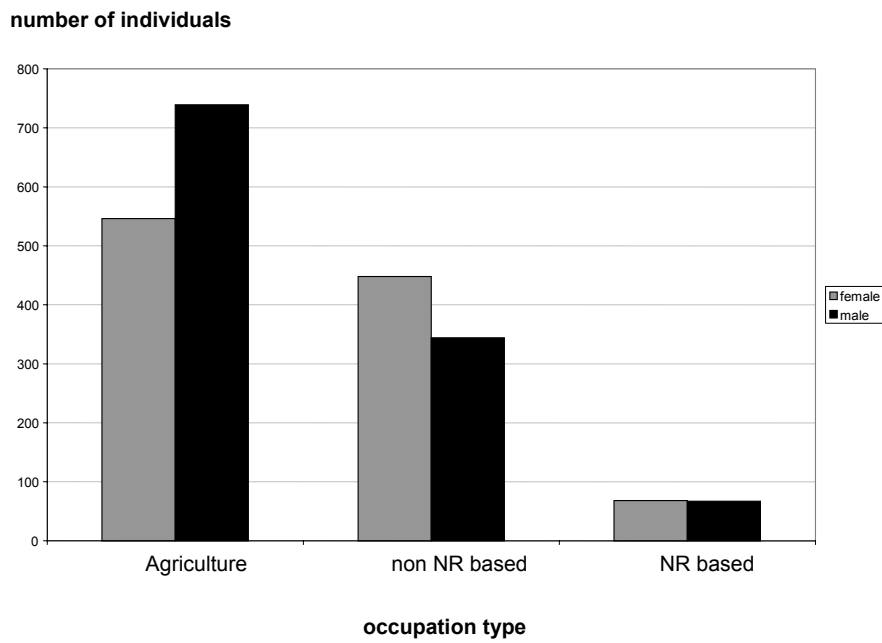
Table 3. Classification of different occupation types

Agriculture	Agriculture and horticulture, agricultural labour, sheep and goat rearing, dairying and poultry
NR based	Potter, basket maker, fisher, stone cutters, leaf plate making, NTFP collection, milk and vegetable vending, brick making, firewood selling
Non NR based	Goundi (mason), carpenter, blacksmith, private and government service, kirana (small grocery) stores, drivers, pipe line workers, tailoring, hotel workers
unemployed	Unemployed
others	Students, school drop-outs and the retired

Figure 6 shows the overall pattern of primary livelihood strategies or occupations for those employed and of active working age (10-65 years) disaggregated by male and female activities. The majority of households continue to engage in agricultural livelihood activities which are particularly important for men, with non NR based occupations being more popular than other NR based activities. The non NR based activities are particularly important for women. Trends in livelihoods over the project cycle are shown in Figure 7 and Figure 8, which show that for both men and women there was an overall reduction in the number of unemployed, and a substantial move into agricultural activities for women with a slight decrease in this sector for men. The degree of change over all categories of livelihood was less for men than it was for women. This move into agricultural activity is interesting and probably illustrates a continuation of the trend already documented by the previous project (R7867), where declines and shortfalls in the pool of available agricultural labour caused by male migration into other city based activities and quarry labouring are filled by women who were previously not active in local labour markets. It is also interesting that the three years of drought and poor agricultural conditions in the project area do not seem to

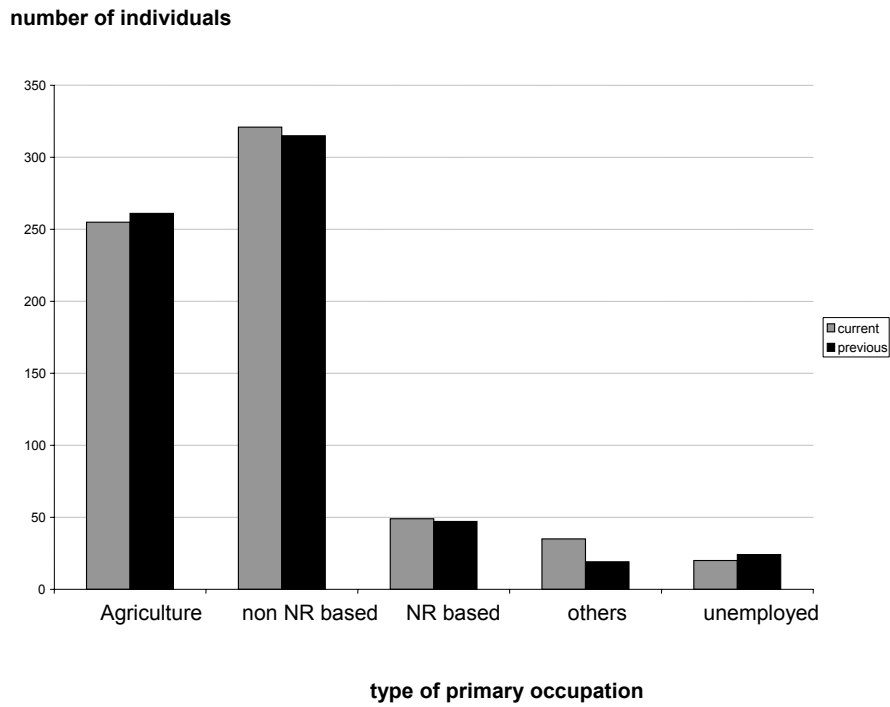
have pushed a substantial number of people out of the agricultural sector. These conditions may be behind the slight decline in other NR based primary livelihood activities.

Figure 6. Primary occupation type across all villages showing differences by males and females (n=2212)



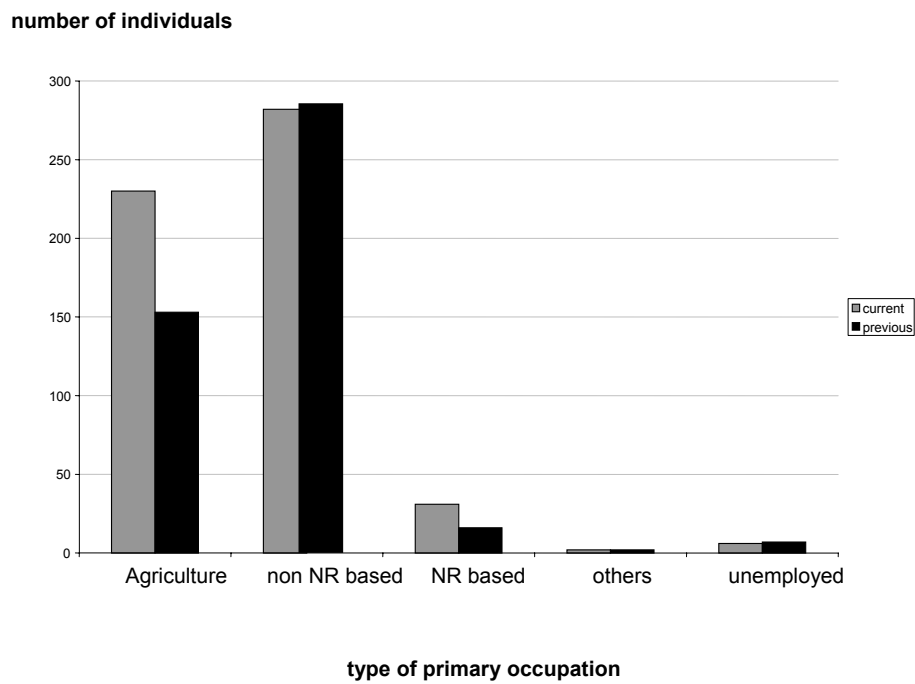
Source: FIS1

Figure 7. Recorded change in the primary occupations of male respondents (n=1346)



Source: FIS2

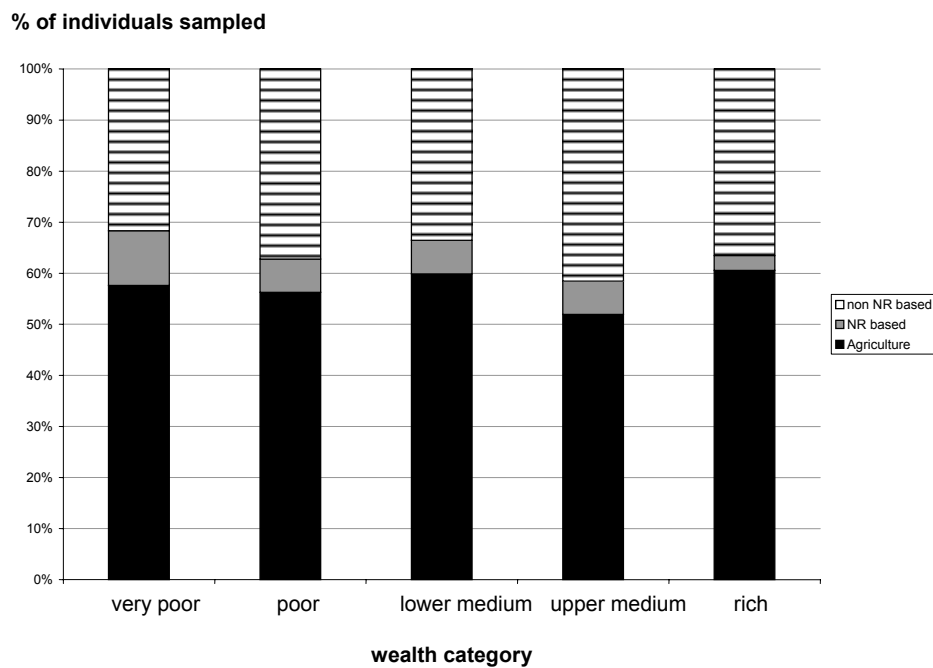
Figure 8. Recorded change in the primary occupations of female respondents (n=1014)



Source: FIS2

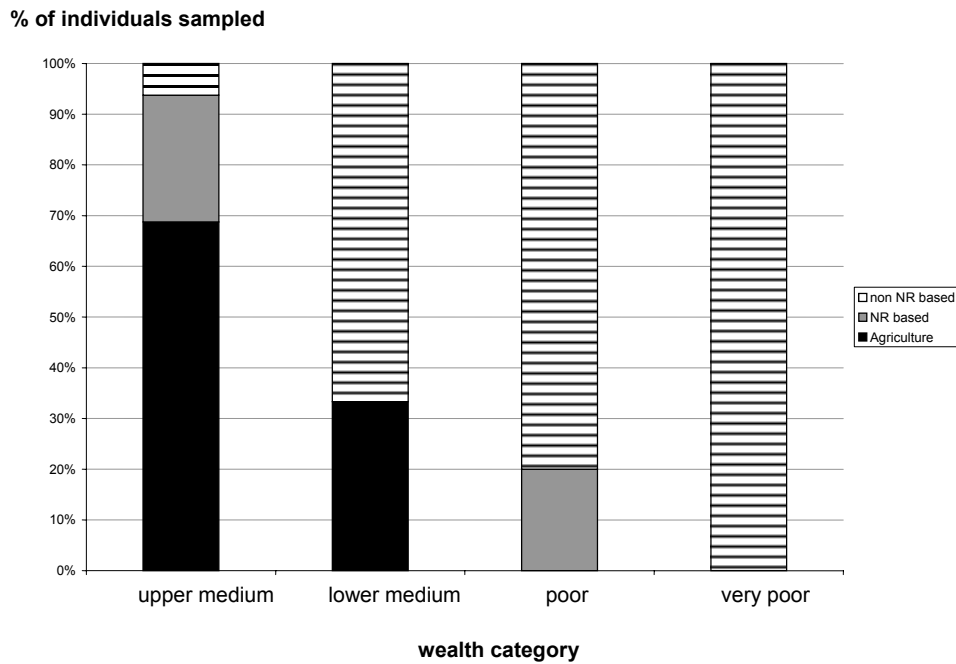
Figure 9 shows the proportional patterns of primary occupation for both males and females according to different wealth categories. Sales of labour figure prominently as the main income earning activities for the poorest groups. It is interesting that individuals from the very poorest category are less likely to be involved in quarrying and brick kilns which are a major income source in the PUI context. However, overall there do not appear to be any significant differences in the segmentation of livelihood activities between the poorer and wealthier groups. There is, nevertheless, a distinct difference between pattern of livelihood activities undertaken in villages closer to the city and those further from the city as shown in Figure 10 and Figure 11. For poor the poor and very poor categories a larger number of people are involved in agricultural labour in further villages compared to closer villages (albeit, deduced from a small sample). Those in closer villages are more likely to be engaged in construction and commercial labouring activities. It is the wealthier groups who appear to be managing land use and economic changes in the PUI by holding on to their land and agricultural based livelihoods closer to the city.

Figure 9. Differences in wealth categorisation and the primary occupation of both male and female members (n=1775)



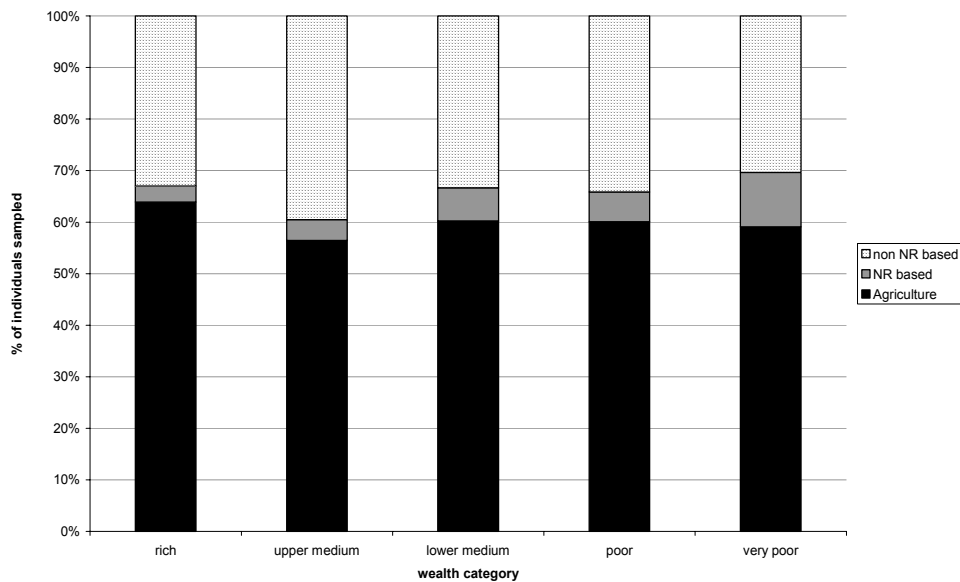
Source: FIS1

Figure 10. Differences in primary occupation according to wealth categorisation of households closer to the city (n=39)



Source: FIS1

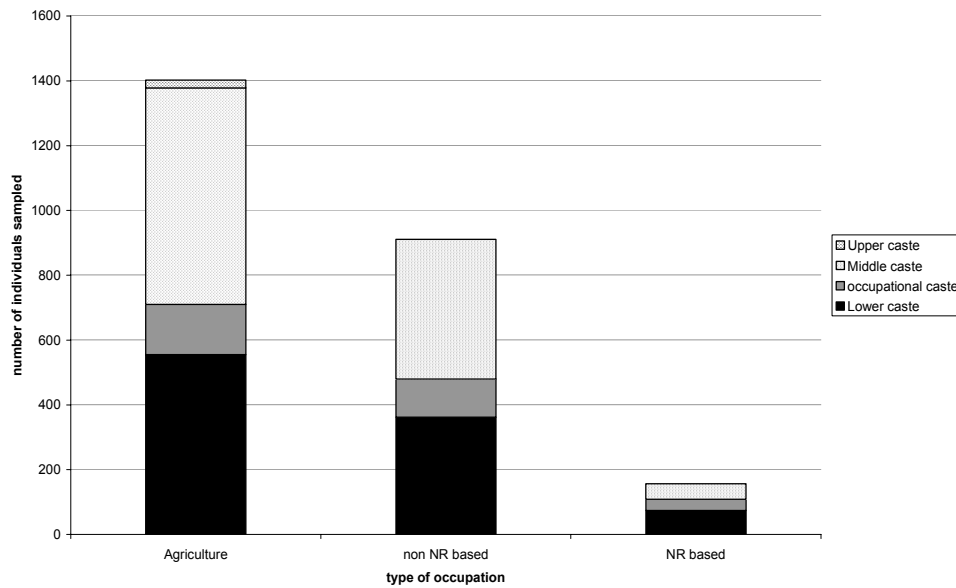
Figure 11. Differences in primary occupation according to wealth categorisation of households further from the city (n=1486)



Source: FIS1

In the Indian context occupations and livelihood activities remain linked to traditional expectations of the caste system. Using data from FIS1, Figure 12 makes reference to the relationship between caste and primary occupation type, and shows that whilst there is some evidence to suggest that the upper castes (i.e. Brahmins and Jains) are more likely to be engaged in livelihoods based on agriculture and land ownership, there is no distinct pattern in the kind of livelihood strategy (i.e. agricultural, NR based or non NR based) being followed by any of the main caste groups.

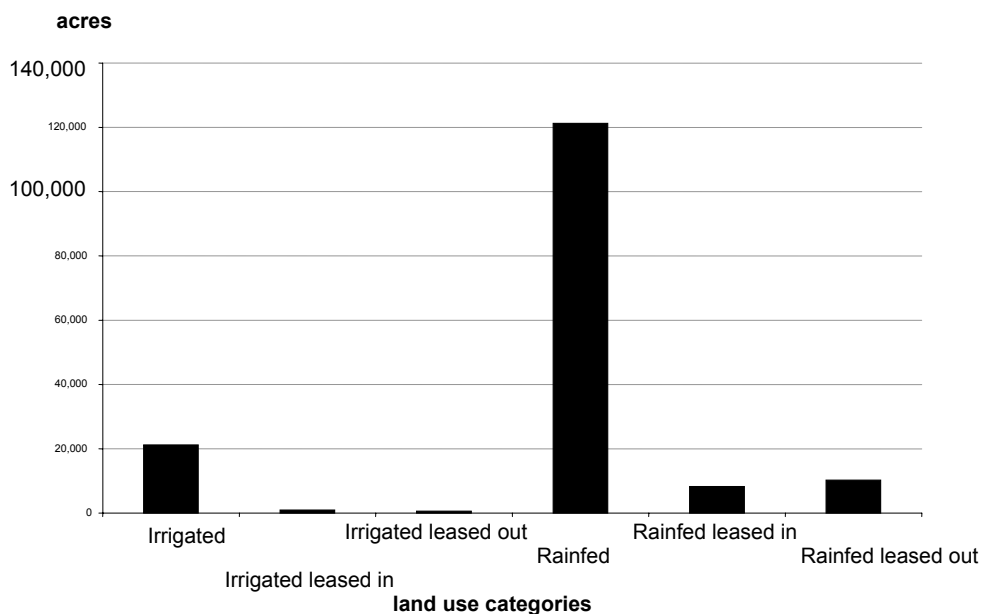
Figure 12. The pattern of caste type and occupation type across 5 villages (n=2468)



Source: FIS1

Looking more closely at the components of agricultural livelihood activities, Figure 13 shows the overall pattern of land use and tenure type by area in the selected villages. As indicated by the wealth characterisation criteria it is the richer groups who maintain access to irrigated plots. It is interesting to note however, that there is an increasing trend for poorer households to lease out their best land, which in some cases includes irrigated land, as they devote more time to sales of their labour rather than investing it in agricultural activity.

Figure 13. Total area of different agricultural land types and tenure over 5 villages (n=1793)

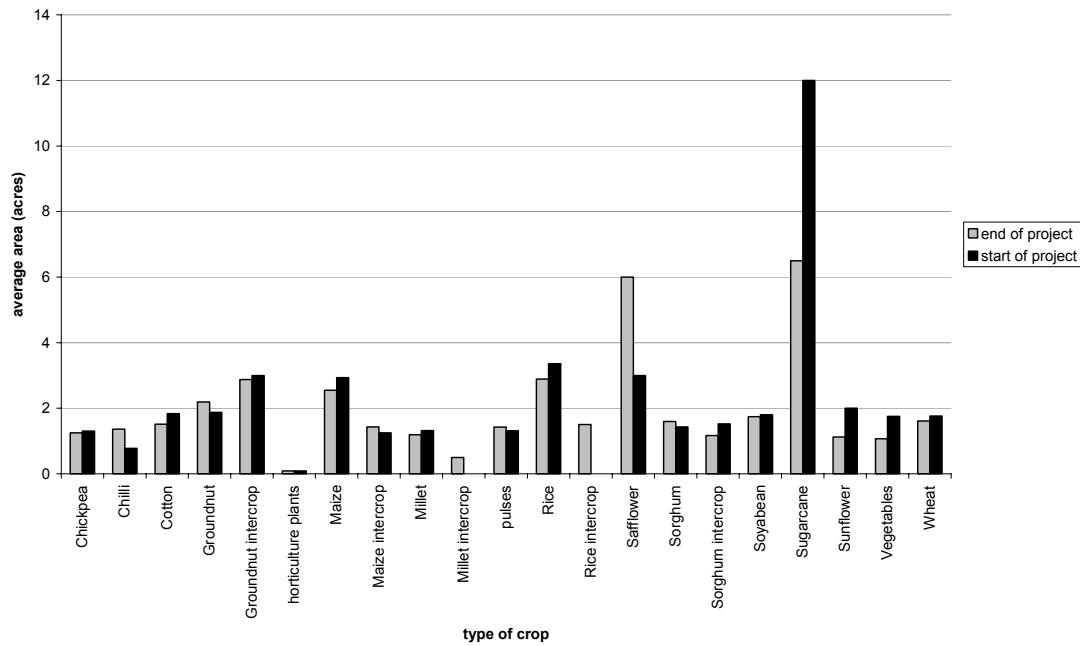


Source: FIS1

The type of crops grown and the change in cropping patterns by area is indicated in Figure 14. There has over the period of the project been a general move out of crops such as sugar cane, vegetables, rice, cotton and sunflowers which are more demanding of agricultural inputs and

adequate rainfall, and a general increase in crops such as safflower, chillis, groundnuts and intercropped mixtures with millet and rice which provide more certain returns and buoyant markets.

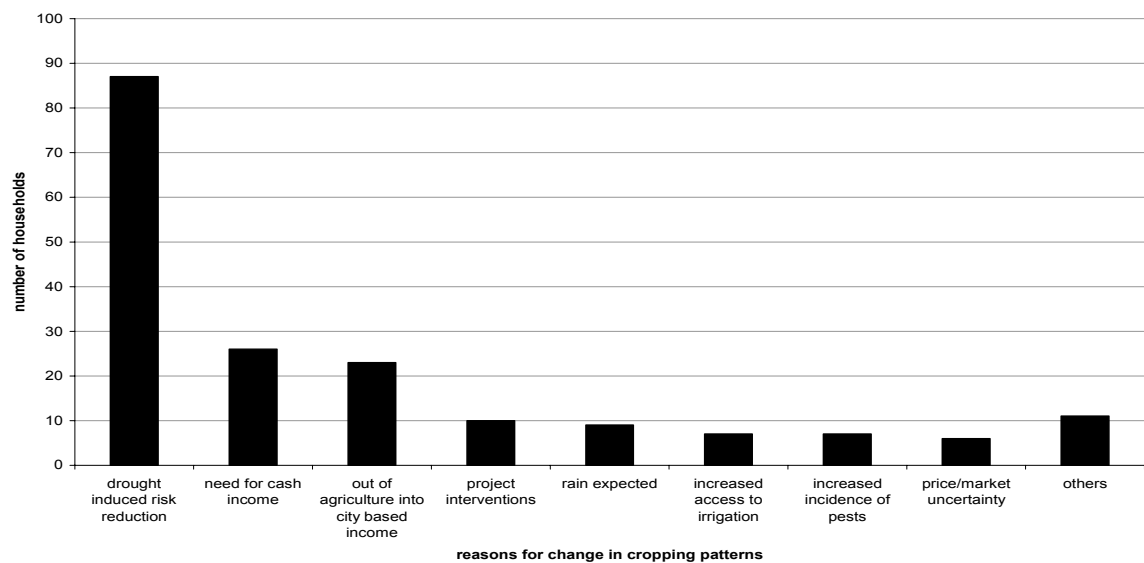
Figure 14. Changes in cropping patterns (average areaper farming household) over all villages



Source: FIS2

The reasons respondents changed their cropping patterns are given in Figure 15, where the overwhelming motivation behind changes to the area put down to different crops was drought induced risk reduction, followed by the need for cash income and a switch out of agriculture into more certainly remunerative city based income generating activities.

Figure 15. Respondents' reasons for changes to cropping patterns

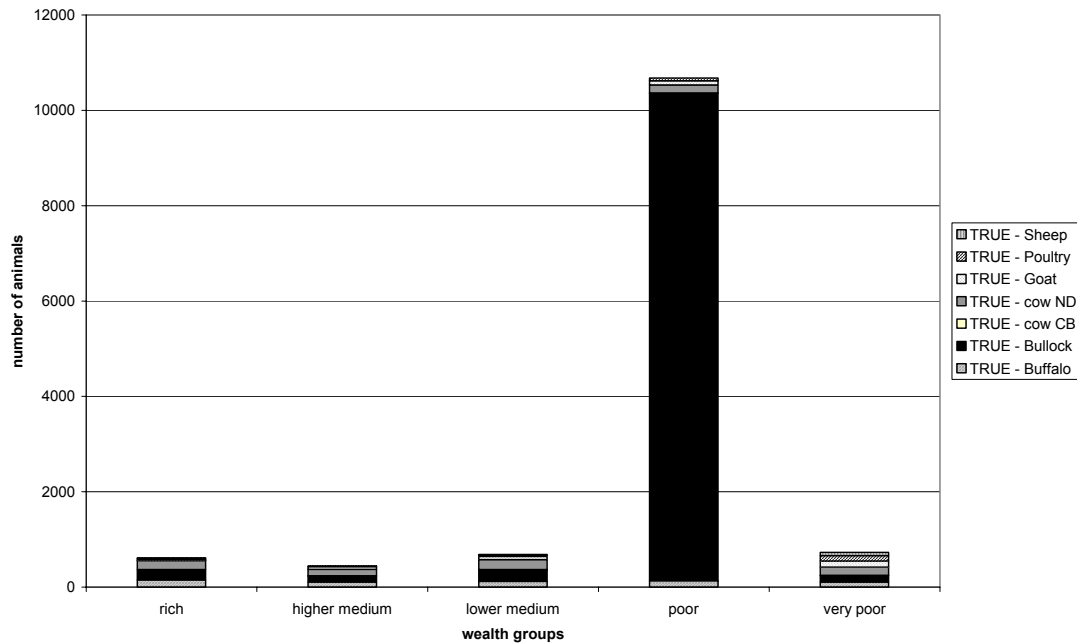


Source: FIS2

The other important income stream derived from agricultural activity is that generated by livestock and dairying activities. Figure 16 shows the pattern of livestock holding (numbers of animals)

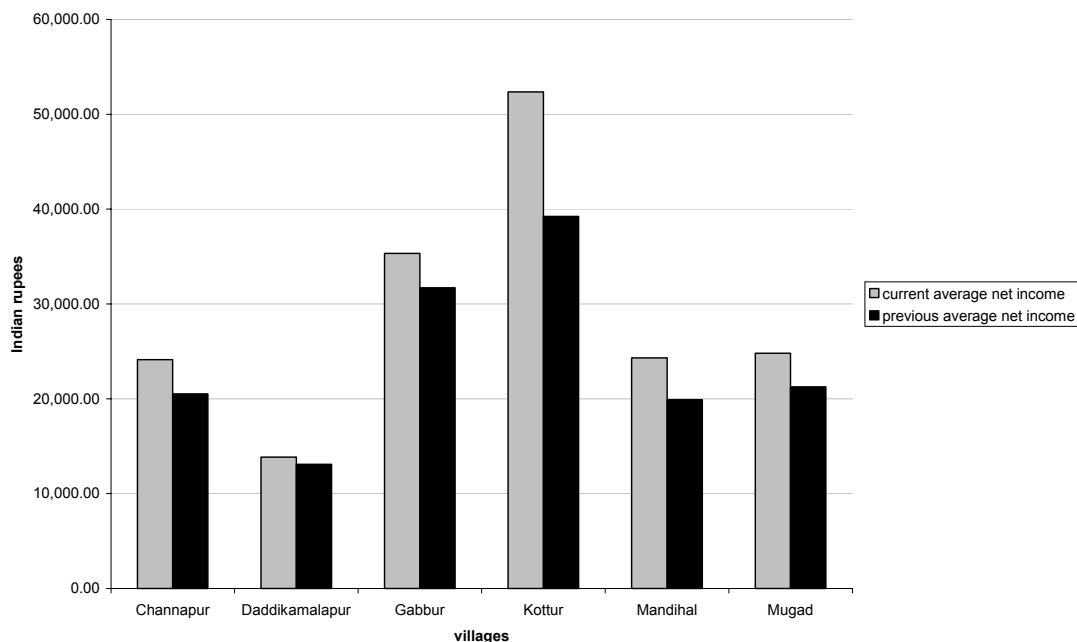
diasaggregated by wealth categories, and shows that it is the poorer groups who own the majority of livestock, most particularly bullocks. The very poorest section of society owns a smaller absolute number but more diverse range of smallstock rather than larger animals, and the richer wealth groups are more likely to own cows than other wealth groups.

Figure 16. Livestock holdings in 5 villages disaggregated by wealth category



Source: FIS1

Figure 17. Recorded changes to agriculturally derived household incomes by village



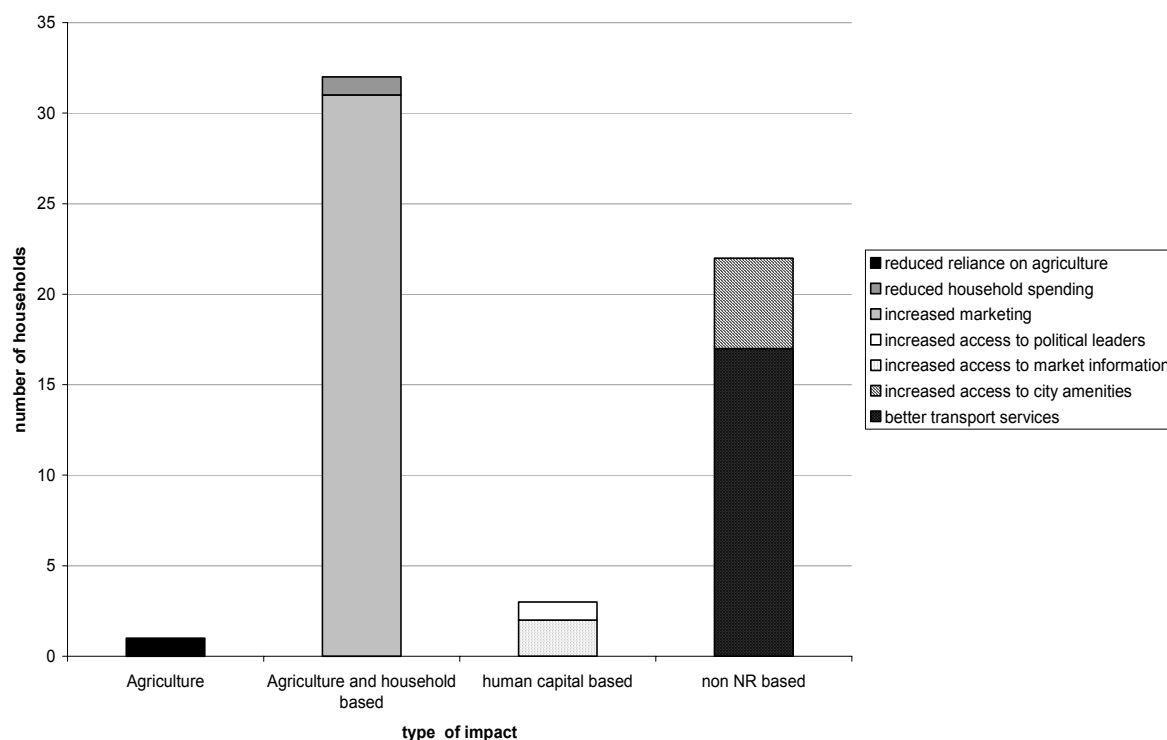
Source: FIS2

The changes in agriculturally derived incomes over the project period are illustrated in Figure 17. The level of income at the end of the project period (i.e. after the end of the drought) is greater for each of the project villages. The change in Kottur was the greatest and in Daddikamalapur was the smallest. Kottur is located on better red soils rather than the very poor red soils in Daddikamalapur, and ranked first in terms of the diversity of different crops grown overall (17 crop types) compared to Daddikamalapur which ranked bottom in terms of cropping diversity (crop types). In addition

Kotur also ranked first in terms of the total area cropped (75 acres) and diversity of crops grown (7 crop types) during the rabi season compared with the other villages where households in Daddikamalapur cropped only 0.5 acres of land to pulses during the rabi season. This suggests that maintaining crop diversity during periods of drought, difficult climatic and economic conditions is an important strategy to maintain agricultural income streams. It is also important to note that much of the agricultural activity in Daddikamalapur is based on dairying activities and the sale of milk. There may be less variability, or more stability, in the inputs and markets for milk, and supplies of fodder might only be compromised by very prolonged periods or very severe periods of drought.

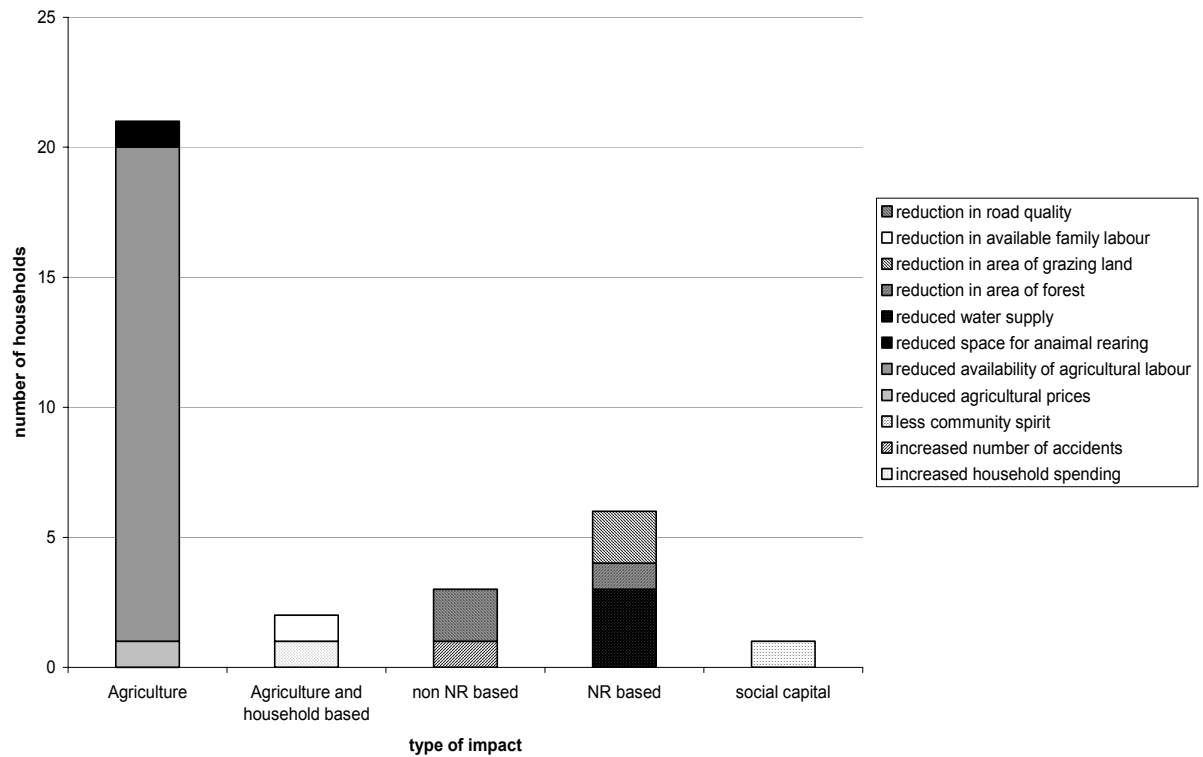
Figure 18 and Figure 19 illustrate some of the other positive and negative key peri-urban influences respondents perceived to have had some impact on their livelihoods during the last three years. The most important positive impact respondents mentioned (53% of all responses) was that there were increased opportunities for marketing of agricultural and other products, supported by better transport services (29% of all responses) which also facilitated increased access to city amenities (9% of all responses) that included access to government line agencies, education and banks. It is interesting to note too that only 2% of all responses mentioned a reduced livelihood reliance on agriculture as being a positive livelihood trend. In terms of the most important negative influences affecting households in the six villages 58% of all responses related to the decrease in the availability of agricultural labour including changes to the available supply of family labour (3% of all responses), with a reduction in access to grazing land (6% of all responses) and a reduced water supply (9% of all responses) important NR based issues. The changes in available labour supply add further evidence as to why this is a growing sector for women in the PUI, and also underscore the way in which individuals supplying labour are fluid in their choice of labour market.

Figure 18. Respondents' perceptions of the positive impacts living close to the city over the project period



Source: FIS2

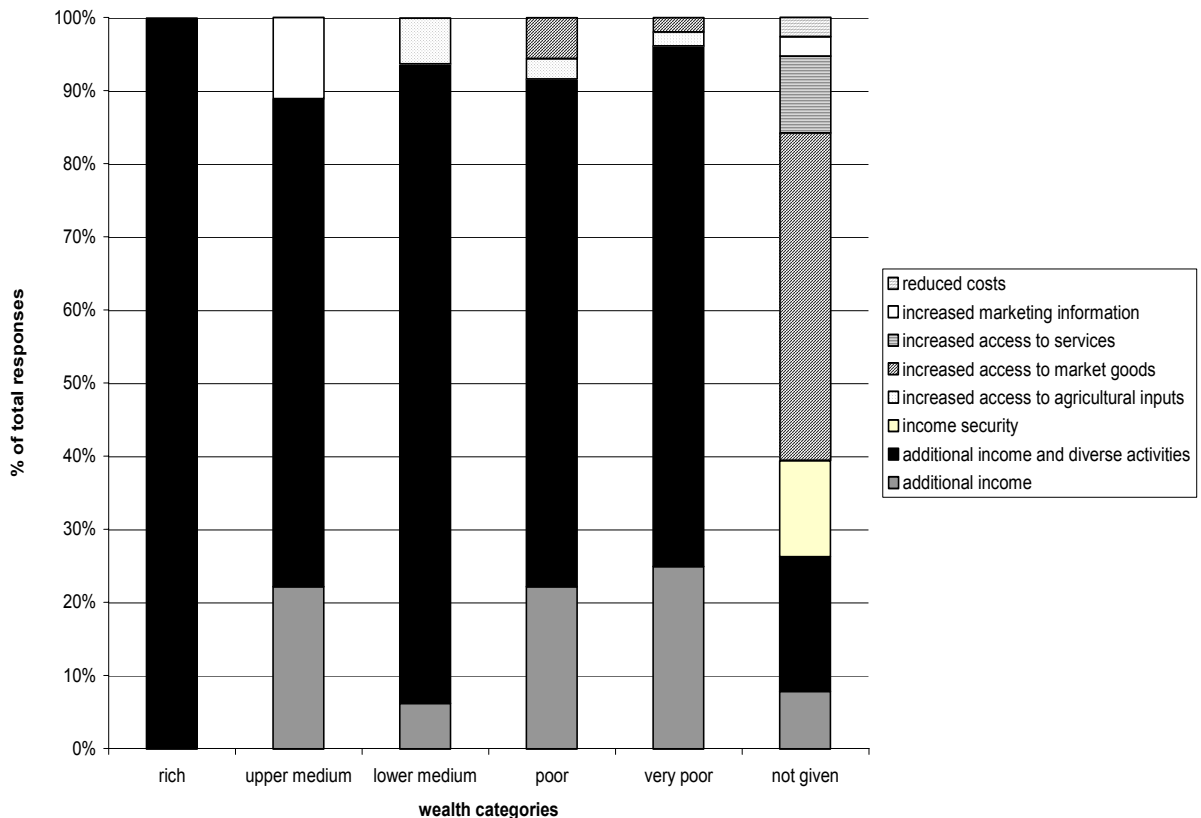
Figure 19. Respondents' perception of the negative impacts living close to the city over the project period



Source: FIS2

Disaggregating the responses further Figure 20 charts the reported direct livelihood impacts experienced in the PUI according to different wealth groups. The majority of responses from all wealth categories mention increased levels of household income and an increase in the diversity of income sources. For the poor and very poor groups this income comes from an increased diversity in labour markets, and, of those keeping milking animals increased sales of milk and curds (45% of all responses given by livestock owners). Poor and very poor wealth groups also mentioned the increased access to market goods and reduced household costs. Looking at the direct negative impacts on livelihoods only the poor and very poor mentioned (1% of all responses) reduced income and increased spending on household goods as affecting their situations.

Figure 20. Direct positive livelihood impacts of living close to the city mentioned by respondents from different wealth categories (n=209 households)



Source: FIS2

What strategies will help improve existing livelihoods and create new livelihood options at group or individual level? What is the impact of these strategies on different groups?

The livelihood options open to households and individuals in the peri-urban villages are varied, but the data presented in the previous section suggests that for the poorest wealth groups livelihood strategies based on risk reduction through a diversity of livelihood activities, with a significant component of regular, secure and cash earning opportunities, combined with activities based on minimal capital outlay provide positive livelihood choices for these more vulnerable groups. Because of the nature of the data collected, the focus on SHG formation and the duration of skills training needed to make these SHGs and livelihood strategies viable, as well as the relatively short time span between the introduction of project interventions and the end of the project cycle, it is not possible to answer the question of which strategies actually improve the livelihoods of the different wealth groups. It is only possible to look at which types of interventions were taken up, what the reported benefits were, and to judge the appropriateness of certain activities by comments made by those interviewed.

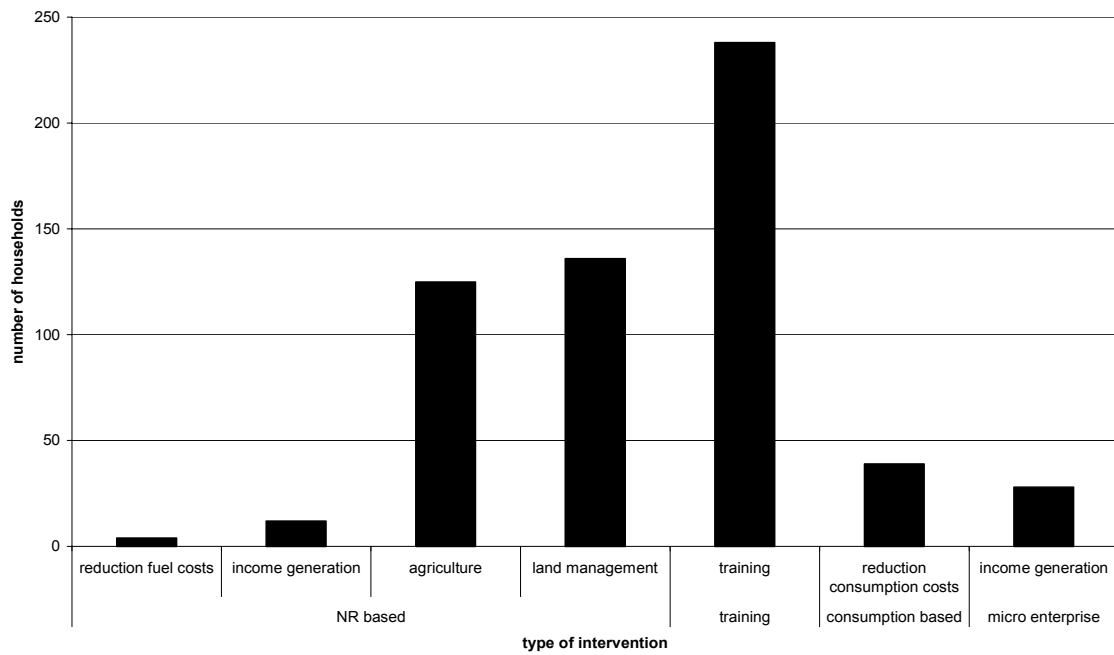
Table 4 explains the links between different characterisations of project activities and interventions and outlines how these fit in with the strategies being tested. Figure 21 illustrates the numbers of households engaging in each of the different project facilitated interventions. Of those households who engaged with the project 43% undertook up to three different activities. The majority of households undertook some form of training whether NR based or SHG related, with agricultural and land management interventions being the next most important categories.

Table 4. Categorisation of project interventions

Main categorisation	Sub-category	Project activities	Project strategy
NR based	Agriculture	Agro-forestry, tree nursery	Increase or maintain tree cover and improved soil management
		Purchase of buffalo/cow, fodder, purchase of goat/sheep, IPM, kitchen garden, poultry	Improved management of HH's own NR
	Income generation	Vermicompost	Alternative IGAs and improved soil management
	Land management	Bunding and wadis, farm ponds, silt application, tank repair	Improved water storage and improved soil management
Consumption based	Reduction fuel costs	Biogas, chula – smokeless stoves	Building capacity of the poor
Micro-enterprise	Income generation	Agarbatti (incense stick), soap powder making, tailoring, value addition to savi (little millet)	Alternative IGAs
Training	Reduction in consumption costs	Group purchase, nutrition intervention	Improved management of HH's own NR
	training	Exposure visits, farm level demonstrations (FLDS), other NR based training	Improved management of HH's own NR and better livestock husbandry
	training	SHG membership, SHG group skills training	Building capacity of the poor

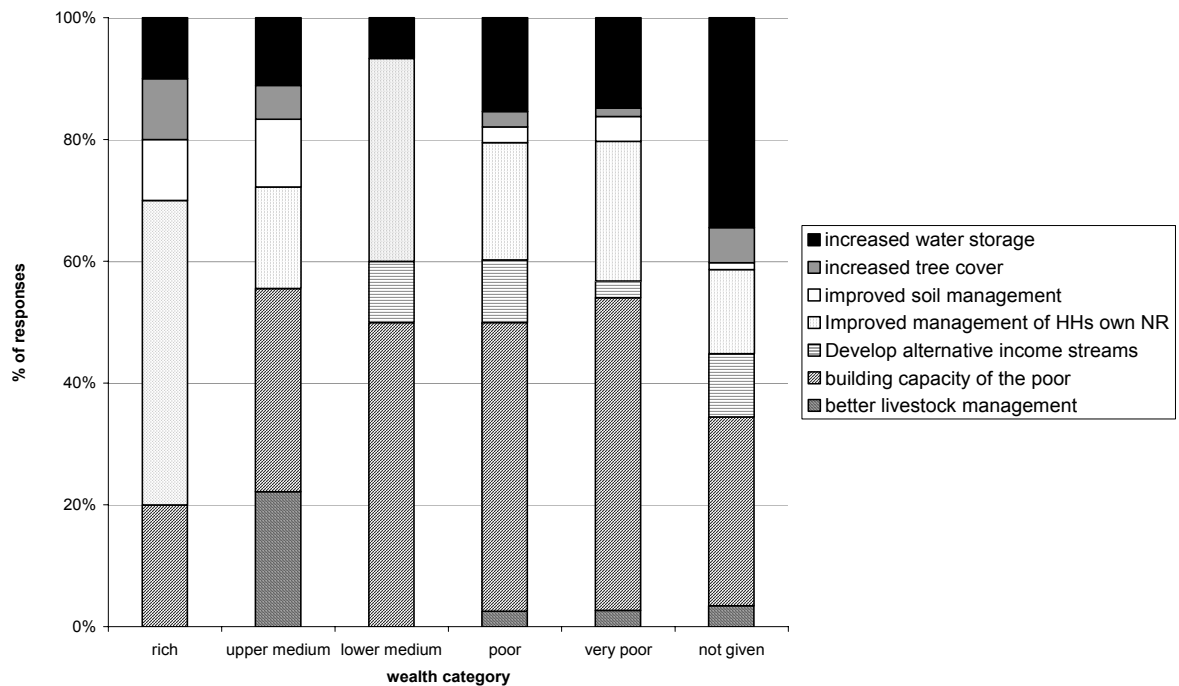
Figure 22 charts the pattern of perceived benefits from taking part in these activities disaggregated by wealth categories. It is clear that the poorer wealth groups felt they benefited most from the capacity building outcomes of the project interventions. This included increased feelings of empowerment, 'courage' and the ability to draw on new, strong and supportive social networks. Many female respondents mentioned that they had now been able to 'come out of the house' and engage in new social and economic activities in a way which they could not before and this had provided them with new social and economic options supporting the process of positive livelihood change.

Figure 21. Pattern of strategy types and intervention actions across 6 villages (n = 209 households)



Source: FIS2

Figure 22. Respondents perceived benefits of project strategies disaggregated by wealth category (n = 209 households)



Source: FIS2

Of those responses indicating successful or useful new income streams, these were largely confined to the lower medium and poor groups with some impact having been felt by the very poorest group. All wealth groups mentioned the improvement to their own natural resources, with distinct improvements to water storage and access to water for both domestic and agricultural purposes being important to all of the households surveyed. in animal health and therefore income being an important sub-category under the ‘natural resources’ banner.

Further investigation of the way in which the strategies tested have helped or impacted on the livelihoods of different groups in the PUI villages is can be done by examining the SHG dataset. This is documented in some detail in Annex F. The SHGs are usually unregistered self managed groups of men and/or women which operate on the principles of self help, mutual trust and co-operation and whose primary purpose is normally the mobilisation of financial resources through their own efforts to save. There are three main sources of micro-credit provided by or open to SHG members: loans of SHG savings, SHG revolving funds, formal bank loans (Annex F). The SHGs also provide a forum for social interaction and social support, and may represent the main mediator of the improved social networks mentioned by respondents in the FIS2 dataset. Each SHG has a unique system of organising and managing its own finances and operates as an independent institution.

Of those SHG members sampled in the SHG survey 71% were illiterate, 14% had primary education, 12% secondary education and only 2% had graduated from high school. Land holdings within the sample showed that 53% of members were landless, whereas 29% held 1-2 acres of land, 14% 3-5 acres of land and only 3% had 6-10 acres of land, with just 1% of members holding more than 10 acres of land. There is therefore a strong correspondence with the overall patterns displayed in both the FIS1 and FIS2 surveys.

Figure 23 charts the use of the different types of loans. The greater value of both the bank loans and revolving fund loans was used for livestock purchase and livestock management. Three main uses are account for these figures: the purchase of buffalos and other cattle as income generating activities through the production of diary produce and both new enterprises and extensions of existing enterprises are represented; the purchase of sheep and goats again as income generating activities; the purchase of poultry. The poultry were of particular importance to the very poor wealth category. Consumption credit used to cover shortfalls in domestic needs, hospital expenses and to pay for social occasions and important cultural events e.g. marriages were the next most important group of uses, and this accounted for the largest value share within the SHG loans. It is also interesting to note that bank loans were used for consumption purposes. Agricultural and micro-enterprises were the next most important categories of loan use with a tendency for more of the value of bank loans and SHG loans to be used for this purpose.

Using an alternative categorisation which groups data into three different categories, namely Agriculture i.e. productive purchase of agricultural inputs, costs of land improvements, purchase of seeds and also of land IGAs i.e. micro-enterprises and livestock activities and non IGAs i.e. consumption credit, educational fees, house repairs and purchase of consumer white goods Table 1 Table 5, Table 6, and Table 7 disaggregate these figures by wealth category and show that the greater value of all bank loans and SHG revolving fund was channelled into IGA activities.

Although the greater proportion of the SHG loans went into non-IGA purposes, according to activities, the poor (26% of members) used 40% of funds and the very poor (25% of members) used 36% of funds to invest in IGAs. In the case of agriculture, both poor and very poor SHG members shared an equal proportion of fund usage (29% and 28% of funds utilized by 26% and 30% of members respectively) which represented a greater share than that of the rich and higher medium class SHG members. In all wealth classes dairying was the activity which represented maximum fund utilisation. Very poor SHG members utilized 26% of funds to establish new dairy enterprises. The trading and vending of fruit stood second where 3% of SHG members utilized 24% of SHG funds for this purpose. For the poor wealth group members utilized funds again mainly for dairy, but also for other micro-enterprises including bangle businesses (using IGAs funds of 35%, 25%, 22% by 41%, 14%, and 5% of SHG members). Rich, higher medium and lower medium SHG members also invested greater amounts of funds towards dairying activities in comparison to other IGAs.

Figure 23. Use of loans/credit as a proportion of total amount loaned from different sources by SHG members (source: SHG database)

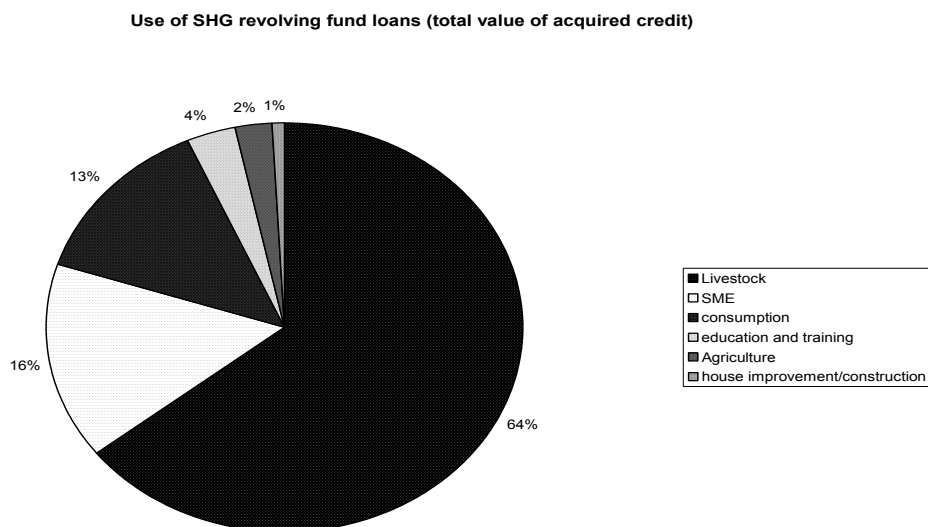
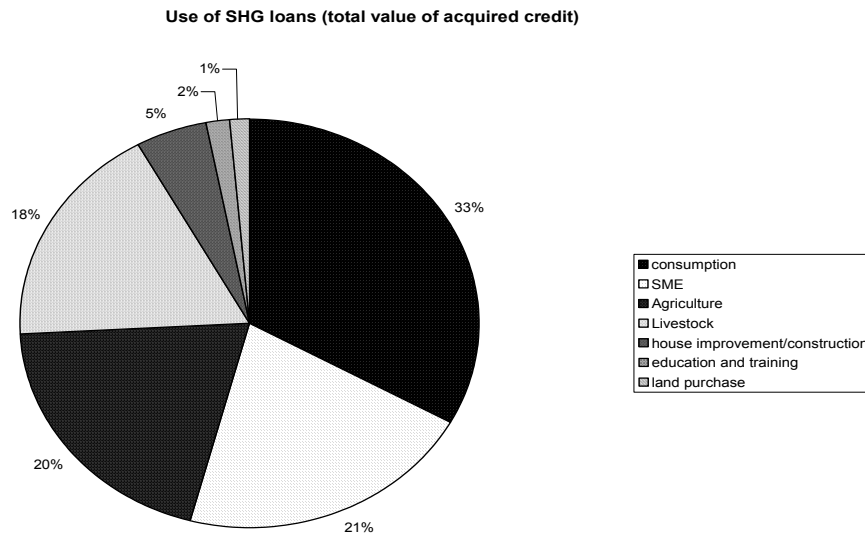
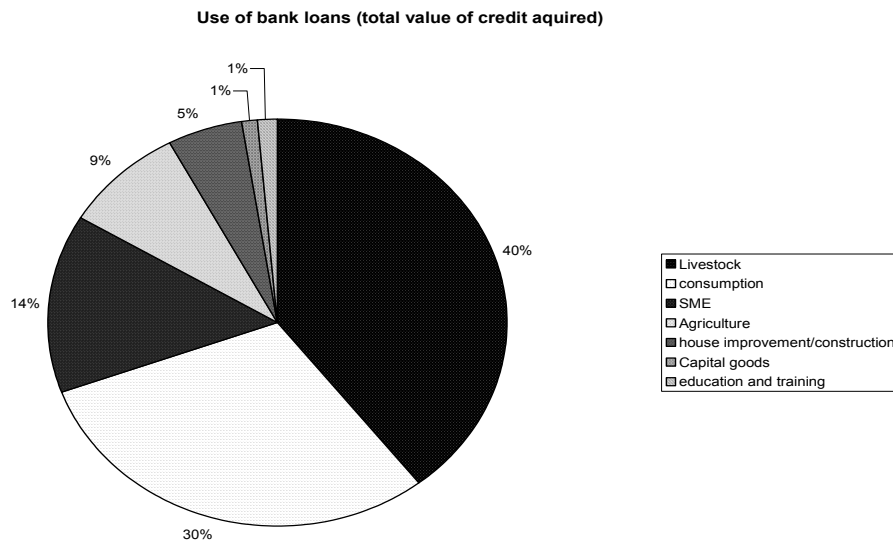


Table 5. Percentage of SHG funds utilized by SHG members according to wealth class

Wealth class	Agriculture		IGA		Non-IGA		Grand Total	
	No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)
Rich	2 (3.77)	1800 (1.16)	7 (8.14)	18200 (7.23)	13 (5.42)	17300 (4.57)	22 (5.80)	37300 (4.75)
Higher medium	7 (13.20)	28700 (18.44)	8 (9.30)	24600 (9.73)	20 (8.34)	27400 (7.24)	35 (9.24)	80700 (10.27)
Lower medium	14 (26.42)	36800 (23.65)	18 (20.93)	46170 (18.33)	50 (20.83)	61800 (16.34)	82 (21.64)	144770 (18.42)
Poor	14 (26.42)	44400 (28.53)	22 (25.58)	101210 (40.17)	59 (24.58)	110950 (29.33)	95 (25.07)	256560 (32.65)
Very poor	16 (30.19)	43900 (28.22)	31 (36.05)	61820 (24.54)	98 (40.83)	160850 (42.52)	145 (38.25)	266570 (33.91)
Grand Total	53 (100.00)	155600 (100.00)	86 (100.00)	252000 (100.00)	240 (100.00)	378300 (100.00)	379 (100.00)	785900 (100.00)

Table 6. Percentage of bank loan utilized by SHG members according to wealth class

Wealth class	Agriculture		IGA		Non-IGA		Grand Total	
	No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)
Rich	1 (4.76)	1000 (3.45)	3 (4.10)	5500 (4.55)	3 (3.90)	4000 (4.35)	7 (4.09)	10500 (4.32)
Higher medium	3 (14.29)	3000 (10.34)	6 (8.23)	9500 (7.85)	12 (15.58)	11500 (12.50)	21 (12.28)	24000 (9.92)
Lower medium	5 (23.80)	8000 (27.58)	16 (21.92)	31500 (26.03)	22 (28.57)	25000 (27.17)	43 (25.15)	64500 (26.65)
Poor	9 (42.86)	12000 (41.40)	19 (26.02)	27500 (22.73)	16 (20.78)	20500 (22.28)	44 (25.73)	60000 (24.80)
Very poor	3 (14.29)	5000 (17.23)	29 (39.72)	47000 (38.84)	24 (31.17)	31000 (33.70)	56 (32.75)	83000 (34.30)
Grand Total	21 (100.00)	29000 (100.00)	73 (100.00)	121000 (100.00)	77 (100.00)	92000 (100.00)	171 (100.00)	242000 (100.00)

Table 7. Percentage of revolving fund utilized by SHG members according to wealth class

Wealth class	Agriculture		IGA		Non-IGA		Grand Total	
	No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)
Rich	0 (0.00)	0 (0.00)	8 (7.40)	6046 (4.95)	0 (0.00)	0 (0.00)	8 (6.30)	6046 (4.31)
Higher medium	2 (25.00)	2000 (31.75)	7 (6.48)	14837 (12.16)	3 (27.27)	3200 (27.36)	12 (9.45)	20037 (14.31)
Lower medium	1 (12.50)	1000 (15.87)	19 (17.59)	29174 (23.92)	3 (27.27)	4000 (34.18)	23 (18.11)	34174 (24.41)
Poor	3 (37.50)	1500 (23.81)	23 (21.30)	21156 (17.34)	2 (18.19)	2000 (17.09)	28 (22.05)	24656 (17.62)
Very poor	2 (25.00)	1800 (28.57)	51 (47.23)	50787 (41.63)	3 (27.27)	2500 (21.37)	56 (44.09)	55087 (39.35)
Grand Total	8 (100.00)	6300 (100.00)	108 (100.00)	122000 (100.00)	11 (100.00)	11700 (100.00)	127 (100.00)	140000 (100.00)

Figures in parentheses indicate percentages

Source: Annex F.

Of the bank loans a greater proportion of the funds (34%) were utilized by very poor SHG members followed by the lower medium group (27%) and the poor category (25%). Richer and higher medium groups used less bank credit (4% and 10% respectively). Examining the activities to which these funds were put to use the very poor utilized 39% of the bank loan towards IGAs, while lower medium class SHG members utilized 26%, followed by poor people (23%). For agricultural activities the poor utilized 41% of funds compared to 28% by the lower medium class and 31% by the very poor category. All wealth groups concentrated the use of bank loans on the establishment and extension of dairy activities, as well as goat rearing activity. The very poor used a greater proportion of their credit for dairying (28%) and small businesses (27%), with goat rearing using 19% of credit. The poor showed similar trends using 31% of funds for dairying and 25% for goat rearing.

Of the SHG revolving funds were accessed by the very poor 49% (of funds by value) followed by the lower medium and poor classes (24% and 18% of funds respectively). Of these funds the percentage share used for productive IGAs was higher in the very poor category (47%) in followed by lower medium class (24%). In the case of agricultural IG activities it was the lower medium class who dominated using 34% of funds followed by the very poor using 29% of fund value. The most popular investments of the credit were again goat rearing and dairying.

Looking at the data by gender it is interesting that men accessed a greater value of the SHG revolving funds, and it was only women from the older more established SHGs who accessed bank loans. Newly established SHGs relied more heavily on SHG loans.

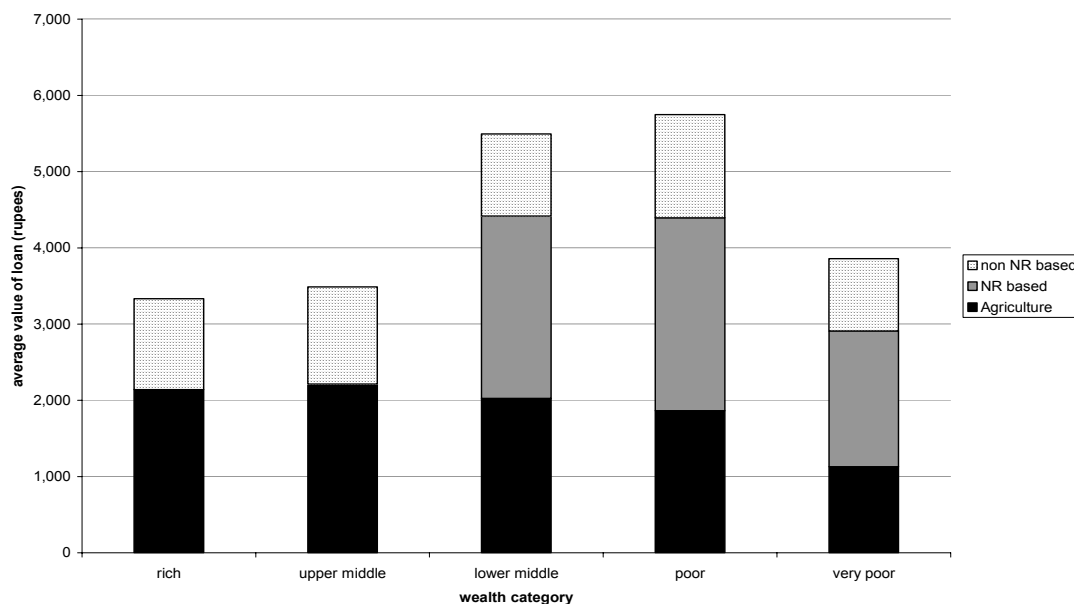
Figure 24 examines the use of credit for agricultural, NR based and non NR based livelihood strategies using the average value of loans by different wealth groups. The lower income groups took out larger individual loans to invest in NR based activities (largely fodder, flower, vegetable and fruit trading and vending businesses), and similar sized loans to invest in agricultural enterprises (including livestock). The smaller loans were confined to non NR based uses (including consumption credit). The wealthier groups took out larger loans for agricultural purposes, but also used similar sized loans compared to the less wealthy groups to meet consumption demands. Table 8 shows the total value of loans invested in these different livelihood activities and illustrates an implied equal importance of agricultural activity (including livestock) with other trade based enterprises.

Figure 25 illustrates the reported impact of the IGAs to all SHG members. The greatest impact was a tangible increase in income where total increases during the period of the project varied from 25,000 rupees to 500 rupees. The increase in natural capital assets was also seen as important, as were the combined benefits of increased income alongside new skills. The new skills of greatest importance to SHG members were marketing skills including increased access to market knowledge, and the skills required to access loans and banking services (e.g. literacy, numeracy, use of savings books etc.).

Other reported benefits of project IGA interventions included a decreased reliance on informal money lenders, as shown in Figure 26.

In toto the overall impacts of project interventions as reported by survey respondents concentrated heavily on increasing natural capital assets (e.g. numbers of animals, improved soil quality) and financial assets (e.g. savings), with human and social capital ranking lower overall (see Figure 27).

Figure 24. Use of loans (average value of loan) according to activity type disaggregated by wealth groups



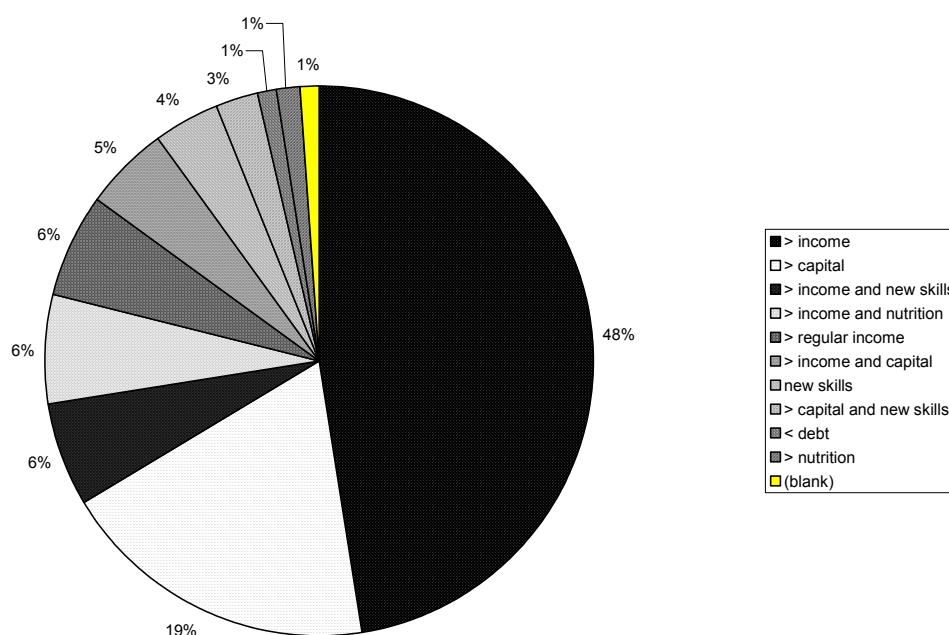
Source: SHG database

Table 8. Overall pattern of loan use (total value of loans rupees) by livelihood strategy type

loan source	Agriculture	NR based	non NR based	Total
Bank	110,500.00	3,500.00	121,000.00	235,000.00
SHG loan	557,121.00	61,000.00	621,200.00	1,239,321.00
SHG revolving fund	113,500.00	3,800.00	52,700.00	170,000.00
Total	781,121.00	68,300.00	794,900.00	1,644,321.00

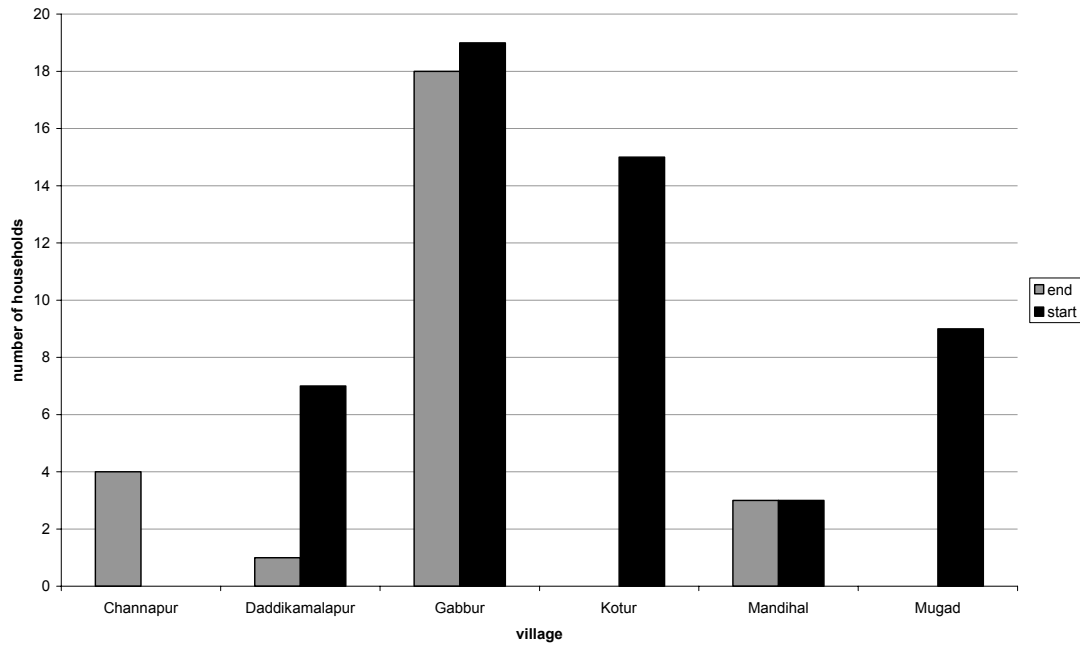
Source: SHG database table

Figure 25. Respondents reported impact of IGAs (n=219 members)



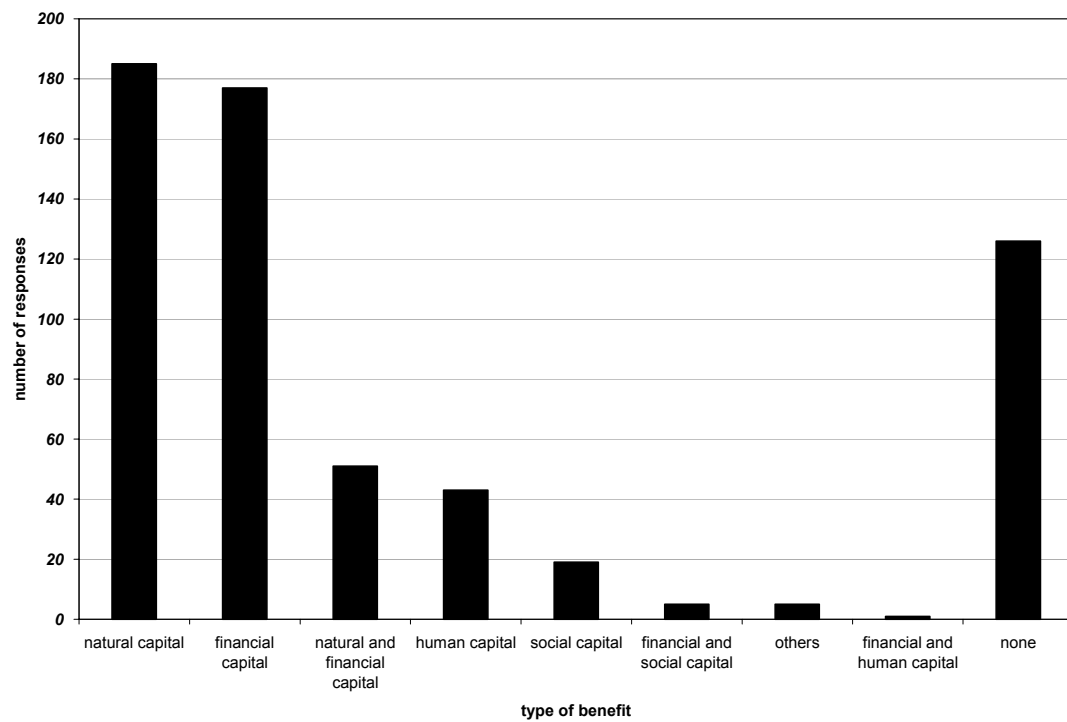
Source: IGA survey database table

Figure 26. Reported changes in SHG member households use of money lenders



Source: SHG survey database

Figure 27. Reported benefits of project interventions, using sustainable livelihood framework categories of assets (Scoones, 1998)



Source: FIS2

Which strategies did work or did not work out and why? Including impacts and links to NR management.

It is difficult to assess the overall success of any of the project strategies in stark terms. The impact on livelihoods in terms of quantitative impacts was not captured by the data collection techniques. Furthermore, the relatively short time period that has elapsed since SHG members and others first began to undertake the various activities require the passage of more time before longitudinal quantitative and attitudinal surveys can reveal real success. Table 9 provides a proxy measure of ‘strategy success’ by presenting a popularity rankings based on an index of the number of people taking up options combined with the total value of loans utilised for that purpose. Unsurprisingly the dairying activities rank the highest, followed by micro-enterprises and other livestock enterprises, all of which are livelihood activities which are well suited to the PUI context providing as they do goods and services in high demand in the PUI and urban areas, as well as representing high value products from which households can expect reasonable and secure returns.

Micro-enterprises proved to be particularly successful according to SHG member anecdotes. Fruit trading, the making and selling of bangles, and trading flowers in particular made best use of the easily accessible markets for the purchase of raw materials with demand for products coming from the populations of the villages themselves which reduced the costs associated with bus and material transport charges, and the time taken to collect, manufacture or trade the final products. Nearness of the city area, convenient bus service, lower bus charges and less time required for commuting to city and village. The success of increasing the capacity of poor groups of people to undertake marketing activities is indicated by the uptake of MOVE the training and motivation system devised and developed by the project (see Annex H). In addition to this these micro-enterprises required smaller sized loans which could be paid back quickly based on the level of profit brought in by sales of products.

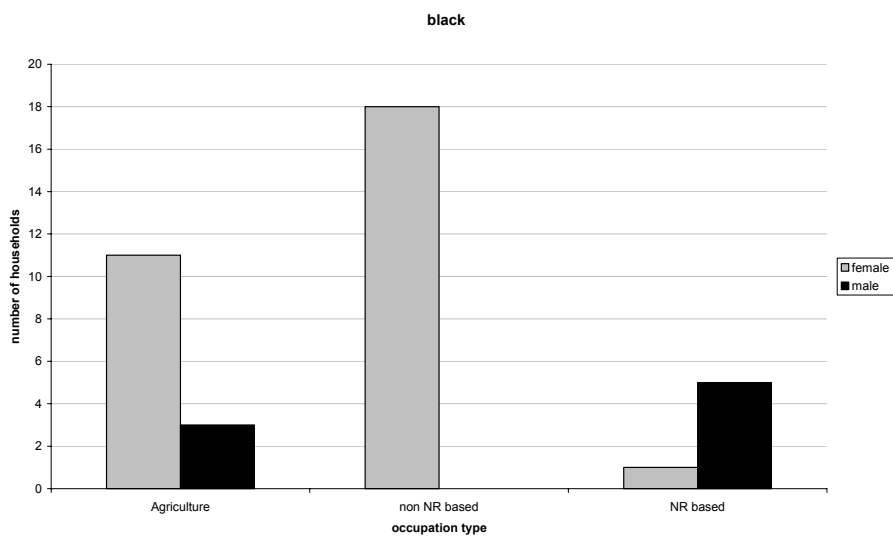
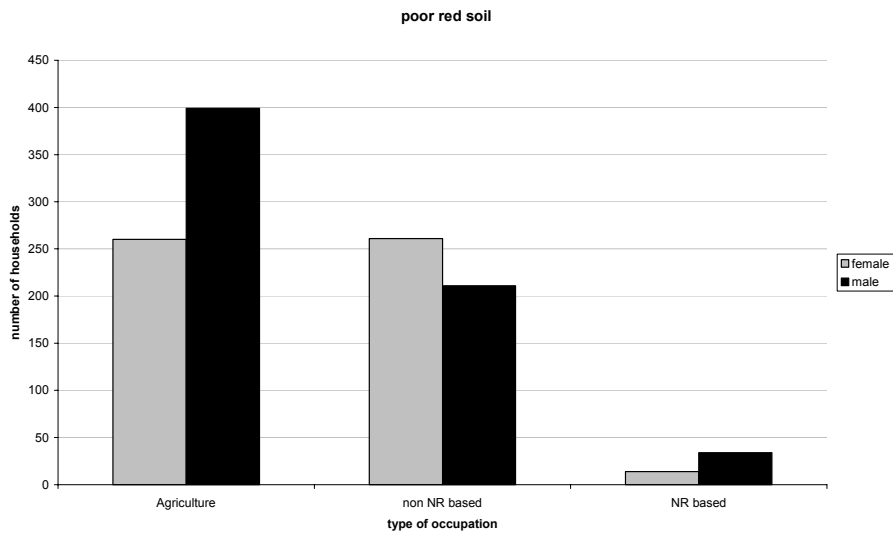
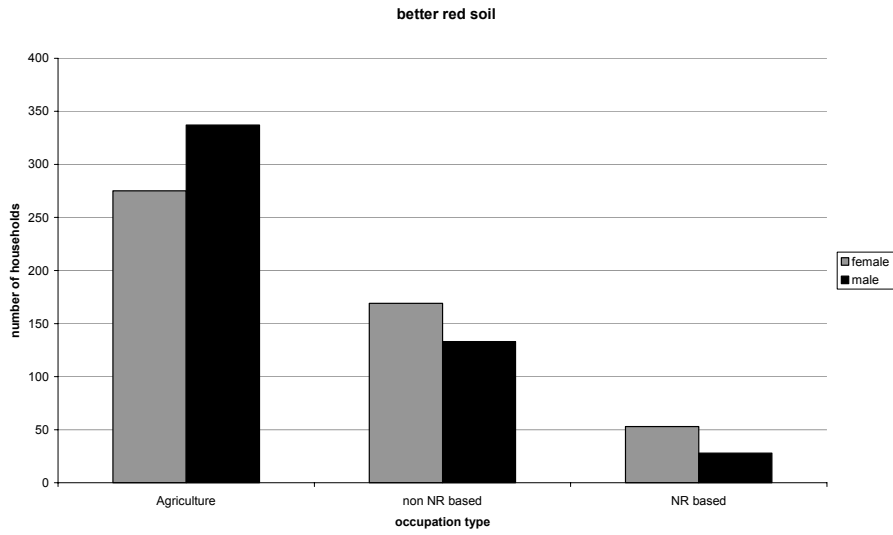
Table 9. Ranking of project intervention activities

Activities	Proportionate of people	Proportionate of funds utilized	PP+PFU	Rank
Dairy	40.7	48.06	88.75	I
Business	9.3	16.47	25.77	II
Goat & Sheep rearing	12.79	4.76	17.55	III
Trade business	11.63	1.07	12.7	IV
Bangle Business	2.33	9.48	11.81	V
Grocery shop	6.98	3.06	10.03	VI
Tailoring	4.65	2.86	7.51	VII
Fruit business	1.16	5.95	7.12	VIII
Poultry	3.49	0.95	4.44	IX
Fodder business	1.16	2.78	3.94	X
Brick making	1.16	1.59	2.75	XI
Flower business	1.16	0.99	2.15	XII
Petty shop	1.16	0.79	1.96	XIII
Vegetable business	1.16	0.79	1.96	XIII
Carpentry	1.16	0.4	1.56	XIV

Source: Annex F

The SHG study revealed some of the reasons why people dropped some of the activities they first began. Most of these related to livestock enterprises where households lost animals (cattle, goats and poultry) to disease and predators (cats, dogs and rats), and where animals particularly poultry caused sufficient nuisance to discourage individuals from continuing with those enterprises.

FIS 1 patterns of livelihood type according to soil type



References

Lamond, M. R. (2004) Effects of Urbanisation on Livestock Farming Systems in Peri-Urban Villages around Hubli-Dharwad, India MSc dissertation, University of Wales Bangor

Scoones, I (1998) Sustainable rural livelihoods – A framework for analysis. IDS Working paper No 72