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Understanding Household Coping Strategies in Semi-arid India

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## 1. EXECUTIVE SUMMARY

### *1.1 Project purpose, outputs and activities*

The *purpose* of the project is to gain a comprehensive and sound understanding of household livelihood and coping strategies in semi-arid India in general, and in two focus districts in particular. In order to achieve this purpose the project had the following three *outputs* or objectives:

1. Information on macro-level trends and issues affecting semi-arid rural systems in different parts of India synthesized.
2. Household livelihood and coping strategies described and analysed and key components identified.
3. Explanations of changes in household livelihood and coping strategies developed, and researchable options identified.

*Output 1* had one associated activity: a review and analysis of secondary data and information, which was to be undertaken by Gujarat Institute of Development Research (GIDR). *Output 2* has five activities associated with it, namely a mixture of literature reviews and survey work, which together form the basis for a description of livelihood and coping strategies. The literature reviews were undertaken by GIDR and NRI; and the survey work was managed by the Society for the Promotion of Wastelands Development (SPWD), and carried out by local NGOs in the relevant districts. There were another six activities linked to *output 3*. The first four of these were related to the development explanations of why household strategies had changed over time; and the fifth to publication of the explanations. The sixth activity concerned the identification of livelihood options, particularly researchable ones.

### *1.2 Achievement of OVIs at purpose level*

The purpose level OVI, which comes from the NRSP log frame, is: “By 2001, in at least two targeted countries, of which one is India, livelihood strategies and assets understood, including *inter alia* employment opportunities, access to markets, structure of market systems.”

This project has been concerned with:

- the nature of livelihood strategies, and of coping strategies as one component of them;
- how and why these strategies have evolved over time; and
- the relationship between livelihood strategies in the two focus areas and trends in semi-arid India as a whole.

The project has been effective in collecting information, from a combination of primary and secondary sources, that provides a good description of the main livelihood strategies and groups found in semi-arid rural India, with particular reference to the two focus districts. It also provides explanations of why the livelihoods of these groups have changed in the ways that they have, from both micro- and macro-level perspectives. Thus, the project has to a large extent achieved the OVI. The one aspect of the OVI that has not received much attention in this project is the structure of market systems.

### *1.3. Contribution to attainment of NRSP purpose/project goal*

The NRSP purpose is: Diverse coping strategies for poor rural households in semi-arid systems developed and promoted. This project has taken a first step towards the NRSP purpose, by: (a) describing the main constraints on the livelihood and coping strategies of

poor rural households; and (b) by identifying several ways of easing these constraints, several of which are researchable.

## 2. BACKGROUND

### 2.1 *The goal of the project*

The project memorandum noted that there was “growing evidence that the livelihood systems and long-held adaptive strategies of people in semi-arid regions are coming under increasing strain”. This was reinforced by the field work results – particularly those livelihoods on which the poorest depend (traditional agricultural systems and common property resources). This is why there is a need for new livelihood activities and/or the removal of constraints on existing ones.

A fundamental premise of the project is that any interventions to support, develop or promote particular livelihood activities should be based on a sound understanding of people’s current livelihood strategies. In the past, lack of understanding, or misunderstanding, of such strategies has contributed to the creation of policies and programmes (e.g. relating to common pool resources, forests and credit provision) that are largely irrelevant, or even detrimental, to poor people’s needs (Beck, 1994). In recent years, and partly in recognition of such mistakes, there has been growing interest in the ways poor people adapt their livelihoods to short-term shocks and longer-term change, with a view to ensuring that interventions are compatible with, and build on, poor people’s successes. This project contributes to that body of knowledge.

### 2.2 *How the project built on previous work to derive ‘new knowledge’*

The Indian literature on *coping strategies* has been reviewed as an input to this project (see GIDR Report 2, by Rani and Dodia, in Annex 4). Most of the existing literature has several weaknesses or gaps. One is that the examples given are ‘snapshots’ of what a particular group did to cope with drought in a particular year: in other words, they lack a historical or temporal perspective. A second gap is that they are nearly all pre-occupied with drought: there is very little information about how households cope with other types of shock. A third gap is that most studies focus on short-term changes and short-term responses to those changes: relatively little work has been published on how households respond over many years to long-term changes. We have sought to address all of these weaknesses, or gaps, in this study.

The literature on long-term changes in *rural livelihood strategies* in India, particularly that regarding diversification into non-agricultural activities, has focused primarily on the analysis of macro-level data. Visaria and Basant (1994) observed that they did “not know of many ... micro-level village studies on this theme”. As far as we are aware there is still a dearth of such studies<sup>1</sup>. Thus, this is another area where the project sought to make a contribution, by combining: (a) macro-level work, including analysis of secondary data (particularly through GIDR Report 1, Annex 4); and (b) micro-level case studies.

Existing theories of structural and livelihood change were also reviewed – providing a conceptual framework against which the research results could be considered.

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<sup>1</sup> During the course of the project an important book was published that is also based on a combination of macro-level work and village case studies (Unni, 2000). Some of Unni’s findings have been discussed in the project report contained in Annex 1.

### *2.3 How demand for the project was identified*

DFID is now placing a strong emphasis on understanding people's livelihood systems before planning and undertaking development interventions, and building on the strengths of those systems. Other agencies - including one of the collaborators, the Society for the Promotion of Wastelands Development (SPWD) - are also emphasising this, and SPWD had been supporting related research (SPWD, 1998). The NRSP call was discussed with SPWD, who agreed that the research was important, and hence agreed to collaborate.

The research was in line with DFID's country strategy paper, which stated that DFID will pursue a range of largely new initiatives aimed at greater empowerment of the poor and disadvantaged groups; and that DFID will help Government promote strategies for sustainable development and livelihood improvements. The concept note was shared with DFID Advisers, one of whom wrote that the proposed research was "of great interest to us", and noted its consonance with DFID's livelihood approach.

## 3. PROJECT PURPOSE

The project's purpose is: (a) to provide a sounder understanding of current livelihood and coping strategies of poor rural households in semi-arid areas of India; the factors constraining them; and the macro-level forces shaping their evolution and adaptation: and (b) to identify effective options for strengthening livelihood and coping strategies.

This research was seen by the NRSP managers as a stage 1 project that would provide the basis for a stage 2 project involving the development, validation and adoption of a range of interventions that will reduce poor people's vulnerability and strengthen their coping capacity and livelihood options.

## 4. OUTPUTS

The project outputs are:

1. Information on macro-level trends and issues affecting semi-arid rural systems in different parts of India synthesized.
2. Household livelihood and coping strategies described and analysed and key components identified.
3. Explanations of changes in household livelihood and coping strategies developed, and researchable options identified.

### *4.1 Output 1: macro-level trends*

The trends at national-level are discussed in the GIDR report "Development Trends in Drought-Prone Areas of India: State and District-Level Analysis" (GIDR Report No 1, in Annex 4) and summarised in section 3 of the synthesis report (Annex 1). The GIDR report contains data on a wide range of trends including literacy, poverty, infrastructure, employment and agriculture. Analysis of official data on states and districts posed some methodological problems, which are more fully described in section 3 of the synthesis report.

In the broadest terms, the national data point to less reliance on agriculture as a livelihood in DP areas and a greater tendency towards migration (rural-rural migration and rural-urban migration). This finding is principally based on:

- (a) lower population densities but higher rates of urbanisation in states where at least one third of the districts are DP; and

(b) lower employment shares in agriculture in DP states.

Ironically, this “forced” economic diversification<sup>2</sup> appears to have had long-term benefits. The drought-prone states have lower poverty rates and higher per capita net state domestic product (NSDP). Perversely, there is now a lower incidence of rural poverty in the DP states than in the NDP states, but higher urban poverty (though this difference is less marked than the rural poverty differential). However, DP districts have lower literacy rates than NDP districts.

A possible explanation of the better performance of the DP states in respect of rural poverty is that: the benefits of lower population densities and larger land holdings now outweigh the agro-ecological advantages of the more densely populated NDP states; rural communities in DP states enjoy better access (determined by the better rural services available in higher income states) to larger urban markets than rural communities in NDP states; migrants from DP areas send money back to families in DP rural areas; and NDP states, where agriculture offers a reliable if not particularly lucrative livelihood, and forests help provide an income supplement, have retained their poor rural populations much longer<sup>3</sup>.

The national-level data also give some clues to agricultural strategies in DP areas relative to NDP areas. There is a smaller area share devoted to forest and tree crops in DP areas, and a higher percentage of area is sown. DP states devote a smaller share of area to cereals and a higher share to oilseeds. Coarse grains are much more important in DP states than NDP states. A smaller percentage of the cropped area is irrigated. Cattle are more important in NDP areas and sheep markedly more important in DP areas. Although agricultural production strategies are less intensive in the DP areas, there is nonetheless a clear trend towards intensification and greater use of purchased inputs.

Average land-holding size is falling particularly rapidly in DP areas (though holdings are almost twice as large as those in NDP areas). Worryingly, there is a much stronger trend towards less equal distribution of land in DP areas than in NDP areas.

Boxes 1 and 2 summarise the distinguishing characteristics and trends in DP areas.

<b>Box 1: How are DP areas different from NDP areas?</b>
Lower population density Lower literacy Larger holding size Smaller share of the population employed in agriculture less urban (in the immediate area) agriculture less intensive smaller percentage of the rural population is poor higher percentage of urban population is poor higher migration rates (though much of it seasonal) less forest less irrigation higher percentage of area is cultivated (annual crops)

<sup>2</sup> Forced in the sense that it seems that people are “pushed” out of agriculture because of low potential.

<sup>3</sup> In DP areas, severe but erratic droughts can lead to an uneven exodus. Moreover, once large numbers of DP community members have migrated (seasonally or more permanently), it is easier for others to follow. There are large numbers of poor in NDP areas but less incidence of crisis migration arising from a particularly severe drought.

**Box 2: What are the trends in DP areas?**

Becoming more densely populated  
 Holding size becoming smaller  
 Agriculture becoming more intensive, more monetised and more market-oriented  
 Agriculture becoming more specialised – less diversity in varieties and species  
 Extreme pressure on groundwater resources  
 Permanent or seasonal migration and daily commuting becoming more common  
 Better road and transport links, facilitating migration, commuting and market access  
 Less CPR and what is there has to be shared among more people  
 More farms worked almost exclusively by women, elderly and children

There are several aspects in this analysis that give rise to concern over the future sustainability of rural livelihoods in DP areas:

- (a) on average, land holdings are rapidly becoming smaller, and this is accompanied by a trend towards more unequal distribution of land; it implies an increasing incidence of landlessness or near-landlessness;
- (b) the sown area share is already much higher than in NDP areas, so scope to increase production from increased area is becoming more limited
- (c) forest area is less in DP districts but judicious tree cover would contribute to improved water resource management in these water-scarce areas (limited forest cover also means less use of CPR as an income supplement)
- (d) groundwater is becoming particularly short; DP areas depend substantially on water from bore-wells
- (e) populations in DP districts are less literate than those in NDP districts – exacerbating their inability to access the more remunerative categories of non-farm employment<sup>4</sup>

*Output 2: household-level coping strategies described*

Box 3 summarises changes in livelihood and coping strategies in DP areas.

**Box 3: How are livelihood and coping strategies changing in DP areas?**

<b>In the past</b>	<b>In the future</b>
More subsistence and food crops	More market-oriented and cash crops
Own storage of food crops	Purchase of food crops
Quasi-protective patron–client relations	More dependence on the state and PDS
Reduce risk through crop diversification	Specialise to increase income
Low-yielding drought-tolerant species	More use of HYVs and purchased inputs
Use own stores and livestock as savings	Use cash savings, also land and home
Credit from local lenders in community	Wider choice of lenders including banks
Low interest rates but other obligations	Higher interest rates but fewer conditions
More attached labour	More wage labour and seasonal migration
Migration an activity in crisis	Migration a normal or preferred option
Less irrigation	More irrigation
More groundwater	More pressure on water resources
More CPR to supplement livelihoods	Less availability of CPR

<sup>4</sup> However, Lanjouw and Shariff (2000) point to other important constraints on access to non-farm employment in India. Lower castes, even when educated, are under-represented in better paid work.

However, the situation in the two research districts (Anantapur in Andhra Pradesh and Udaipur in Rajasthan) was somewhat different – so separate analysis is important.

Asides from the general information relating to the area characteristics, there are three important contextual features to the *Anantapur* study:

- (a) Andhra Pradesh has made significant inroads on poverty and this seems to partly explain very marked improvements in rural livelihoods in Anantapur over the last 20 years<sup>5</sup>
- (b) Anantapur is suitable for groundnut cultivation, and as a result of GoI policies to encourage oilseed production, groundnut has become the dominant crop and significantly boosted incomes in the study area
- (c) the groundnut market has recently collapsed due to policy reform that permits the import of Malaysian oil palm; bar a policy reversal, a full recovery of the groundnut market seems extremely unlikely<sup>6</sup>; this situation has placed Anantapur in a situation of crisis and uncertainty

Chambers *et al* (1989) identified three livelihood objectives: survival, security and self-respect. Once the first is achieved, people tend to pursue the second and third.

In the past in Anantapur (i.e., prior to the state-led poverty-reducing measures and the ascendancy of the groundnut crop), livelihood objectives were probably a mixture of survival (based on stable subsistence) and security (based on assets and risks). Livelihood strategies were then characterised by risk reduction (e.g., through cultivation of drought-tolerant crops, traditional food crops, and a diverse range of crops) and insurance substitutes (with savings held as livestock and food stores). When survival was threatened (for instance, due to a severe drought), people migrated. (Some interviewees reported more migration in the past than presently).

For the larger farmers in Anantapur (i.e., those with more than 2 has), livelihood objectives now seem to straddle security and self-respect (based on independence and choice) whilst smaller farmers are still pursuing survival and security objectives. Intensification and concentration of agricultural activities (notably on groundnut, but also into other cash crops) has been a strategy of choice (facilitated by the *de facto* insurance provided by the state PDS). The corollary of this has been the decision by farmers *not* to migrate. Security is pursued through asset accumulation, including land, shelter and cash savings. Focus group discussions of changes in the community demonstrate the value attached to (and self-respect gained from) greater involvement in community and/or family decision-making. Agriculture is the dominant livelihood strategy and dairying is also important. These are activities of choice for many people.

This progression in livelihood objectives has been accompanied by greater monetisation and commercialisation of all transactions in the rural economy. There are fewer in-kind transactions; there is less on-farm storage of crops; there are more sources of credit; and credit repayment terms are now more likely to be reflected solely in the interest rate (with less use of other conditions such as attached labour or crop sale obligations, though the latter undoubtedly still occurs).

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<sup>5</sup> In terms of the number of districts affected, Andhra Pradesh is less DP than Rajasthan. This may go some way to explaining capacity to tackle poverty, although it is undoubtedly only a partial explanation of the ability and will to implement more progressive social and economic policies in Andhra Pradesh.

<sup>6</sup> Some recovery may be possible, but analysis of the market conditions necessary falls outside the scope of this study



Rural non-farm rural activities and migration remain important, however. In areas with particularly poor market access, part of the rural population appears to be pushed into poorly paid labouring or migratory activities (construction, quarrying, migration to Bangalore, and seasonal migration to take-up agricultural labouring in irrigated areas). Agriculture and dairying in these areas seems to suffer as a result of poor market access. Agriculture seems to offer better livelihoods in areas close to town – notwithstanding the greater population density and smaller agricultural holdings in these areas. The low status casual labouring activities contrast with non-farm livelihood activities of choice such as dairying and weaving – where those concerned are able and willing to invest in looms in order to reap the higher returns from this activity<sup>7</sup>.

Box 4 summarises selected aspects of the household livelihood strategies in Anantapur.

<b>Box 4: selected aspects of household livelihood strategies in Anantapur</b>	
Allocation of family labour	No clear patterns emerged, except men are more likely to migrate than women.
Technical choices between crops, livestock and other enterprise	Greater use of purchased inputs and mechanisation. Dominance of one crop (groundnuts). Sheep provide a good income source but most places report pressure on grazing lands. Market access an important factor affecting choice of farm activities
Enterprise choices: subsistence vs. commercial and off-farm work	Commercial agriculture is the dominant strategy (groundnuts and other cash crops) but supplemented by other income including off-farm labouring, dairying and other livestock. Populations with poor market access, and the poorest households, more likely to be pushed into poorly paid labouring and migratory work. Others exercise more choice
Savings, investment and borrowing decisions	Savings previously held as livestock and stored crops. Now held as land, shelter and cash (including banked savings). Wider variety of credit sources. Higher interest rates but some decline in other conditions e.g., attached labour obligations
Strategies to manage natural resources including soil fertility	Much less use of organic manure and substantially more dependence on chemical fertiliser. Long-term soil fertility decline. Scant reference to mulching, rotations, agro-forestry.
Strategies to manage rainfall and other variable factors	Greater dependence formal safety nets (state compensation and PDS). Ill-prepared to manage groundnut market collapse.
Management of household consumption	Overall, little impression that it is necessary to adjust consumption. However, compared with the past: less recourse to wild products during drought; less precautionary storage of own crops; and greater dependence on PDS.
Community activities and other social action	Marked improvements in women's empowerment and involvement in SHG. Community participation in local governance. Improved civil status and security for SC and ST.

In sharp contrast to the situation in Anantapur, *Rajasthan* has a very poor track record in tackling poverty. The annual decline in the incidence of rural poverty over a forty year period starting in 1951 was less than 0.2% - i.e., the third worst performer in India. (Nationally, the aggregate reduction in poverty was 1.3% per year). Between 1960 and 1993, the rural population living in poverty in Rajasthan increased from 9.7 million to 17.6 million. (A fairer

<sup>7</sup> That said, handloom is becoming less remunerative than in the past.

assessment might be against the 1990 figure of 13.5 million, before the economic reforms of the early 90s took their toll on the rural poor).

Udaipur contrasts with Anantapur in many other respects too. The field reports give a strong impression that in some parts of the district rural livelihoods are collapsing and that agriculture is not a livelihood of choice. This is especially true in areas with severe water problems and without electricity. In some villages surveyed, the young people aspire to migration, and to work in quarries and factories. Many people in the main earning group (aged 21 to 45 years) migrate regularly on a seasonal basis. The farms are run by women and the elderly, with some help from children. Livelihood objectives for those that remain are predominantly survival objectives. Higher level objectives are largely pursued through migration and non-farm employment.

Box 5 summarises selected aspects of the household livelihood strategies in Udaipur.

<b>Box 5: selected aspects of household livelihood strategies in Udaipur</b>	
Allocation of family labour	No consistent pattern of priorities in the four blocks studied. However, clear that women, children and elderly are more likely to be left running the farm – and men more likely to migrate. Women do, however, migrate for 1-2 months – though prefer nearby wage labouring opportunities if available
Technical choices between crops, livestock and other enterprise	In some areas, agriculture is no longer the occupation of choice. Mining, construction and factory work is common, even if it requires seasonal migration. In agriculture, there is a shift from traditional varieties and crop diversification to greater concentration on wheat, maize, and mustard. Shift to more goats (and fewer cattle). Widespread use of HYVs and purchased inputs. Forest products and off-farm labour (agricultural labouring and other labouring) widespread as a supplementary source of income to farmers.
Enterprise choices: subsistence vs. commercial and off-farm work	Shift towards more commercial and input-intensive agriculture, but in tandem with retention of some subsistence practices as a safeguard in times of drought. Off-farm work is both a regular strategy and one to which more people resort during drought. Semi-skilled workers tend to migrate for longer periods (e.g., 10 months/year). Seasonal migration and daily commuting to urban areas is now very common in households in Udaipur.
Savings, investment and borrowing decisions	Tribal population hold savings mainly as jewellery and small stock. Tribal women can play an important role in financial decisions. Some use of SHGs but more reliance on traditional moneylenders here than in Anantapur – with traditional practices of interest rates plus other obligations.
Strategies to manage rainfall and other variable factors	Dependence on government compensation and public works employment – though doubtful of adequacy of this in severe drought. Tend to resort to increased migration and non-farm wage labour.
Management of natural resources, including soil fertility	Much less use of organic manure and substantially more dependence on chemical fertiliser. Long-term soil fertility decline. Scant reference to mulching, rotations, agro-forestry.
Management of household consumption	Talk of eating fewer meals or less nutritious meals. Reducing consumption of purchased items (oil, tea, clothes).
Community activities and other social action	Relatively few SHGs and women unaccustomed to speaking out in meetings. Community could be characterised as victims rather than by ability to marshal political resources to address their needs. Lack of confidence in adequacy of compensation in the event of natural disaster

*Output 3: explanations of change developed and researchable options identified*

In sifting the micro-level data, it is clear that different households experience quite different pressures and opportunities. It is tempting to caution against generalisations, but certain generalisations are possible. However, it is particularly important that where further research to address related issues is undertaken, the underlying assumptions are questioned and investigated at the new research site. Their validity in any given location can certainly be affected by local-level factors.

Household livelihood strategies seem to comprise elements of: own farm and livestock production; local wage labouring in agriculture or other sectors (daily commuting or within the community); use of CPR; and migration (seasonal, shorter periods, longer periods). Within each of these categories there are a range of additional choices, e.g., use of purchased inputs and HYVs, more market-oriented or more subsistence oriented, relatively more or less dependence on livestock, etc. Broadly speaking though, it is possible to identify five categories of strategies (i.e., those four identified here, but dividing the first into modern agriculture (more concentrated, more intensive, more market-oriented) and traditional agriculture (more diversified, extensive and subsistence-oriented).

There are then a series of factors that influence those choices – some are “push” factors (negative influences that make a particular livelihood less attractive) and others are “pull” factors (positive factors that attract households into those livelihoods). Sometimes both are present, leading to indeterminate outcomes, reversals or simply dominance of one over the other.

Box 6 summarises the direction of change for those 5 components of rural livelihood portfolios and describes some of the positive and negative pressures to which they are subject.

<b>Box 6: Components of rural livelihoods, direction and source of change</b>			
	<i>Increasing/ Decreasing</i>	<i>Push factors (pressure for decline)</i>	<i>Pull factors (pressure for growth)</i>
<i>Modern agric</i>	I	Output market collapse Pesticide resistance Pesticide adulteration Severe drought	Improved market access Good income potential Credit more available
<i>Traditional agric</i>	D	Decline in farm size Decline in soil fertility Decline in traditional inputs (forest/livestock)	Reduce market risk
<i>Local labouring</i>	?	No work available	Want to work locally Good work available
<i>Migration</i>	I	Own farm profitable	Urban growth Transport/good links
<i>CPR</i>	D	Decline in CPR	Few other options

There are then factors at household-level (the assets in DFID’s sustainable livelihoods model) that influence the choices made by households or individuals. For example, the wealthier members of the community are more likely to be involved in “modern” agriculture and more remunerative non-farm enterprise. Poorer households are more likely to be involved in low entry barrier labouring and migration, “traditional” agriculture and CPR-related activities.

This analysis underlines the squeeze on poor people's livelihoods in semi-arid areas. Of the five livelihood components identified here, they are more likely to be involved in four (participation in "modern" agriculture, whilst undoubtedly occurring, is constrained in extent by inability to bear market risk, lack of working capital, landlessness or small farm size). Of these four, two are under inherent pressure to decline (extensive agriculture and CPR), whilst migration is increasing, and local labouring opportunities are determined by local-level factors (mining, public works, nearby and accessible areas of irrigated agriculture, transport links to nearby town etc.). Moreover, as women are less likely to migrate, it is apparent that their livelihoods are under particular pressure (though possibly supplemented by remittance income).

Researchable options are explored below. However, it is worth noting here that other types of recommendations are also apparent. For instance, road improvements boost agriculture by improving market access and facilitating daily commuting or migration. An improvement in literacy in drought-prone areas would go some way to improving employment opportunities for those who migrate. Community-development and institutional strengthening activities (for instance working through self-help groups) would improve access to working capital and participation in "modern" agriculture.

*(a) Agricultural labouring in more intensive irrigated or NDP agricultural systems*

Seasonal migration (and occasionally daily travel to nearby areas) to take-up agricultural labouring is an important livelihood activity for the poor in semi-arid areas. Agriculture and natural resources research that addresses poverty in semi-arid areas should not limit itself to the immediate area. Research that makes higher potential systems more productive and increases the demand for labour is also important – particularly where those systems are accessible (by dint of proximity or good communications or both) to large DP populations.

*(b) Semi-intensive agriculture in semi-arid areas*

The poor are too risk-averse and constrained in other ways to fully engage in specialised, intensive agricultural production. Yet their traditional systems are insufficiently productive with declining fertility and declining farm size, and there is ample evidence that even the poor are "modernizing" to an extent. Marginal and small farmers need production strategies that fall in the middle ground – where they can reap some of the benefits of more productive modern systems, without over-exposure to market and crop risks associated with intensification and specialisation. Moreover, widespread pesticide resistance and pesticide adulteration lend wider applicability to some elements of such a "middle ground" production strategy. Elements of such a strategy (albeit familiar mantras) might include:

- selective use of HYVs
- improvements to soil nutrition through mulching, rotations, nitrogen-fixing crops, agro-forestry, organic manure and selective use of chemical fertiliser
- IPM
- crop range that addresses food and cash needs, but for the latter focusing on crops for which the market is more steady (rather than high value but volatile), and
- integration of tree crops and livestock into the farming system where possible.

*(c) Filling the gap left by groundnuts*

If it is judged that the groundnut market is not likely to improve in India in the foreseeable future, then many farmers in India will face lower incomes. Marginal farmers and the landless working on those farms and in processing plants will also face a decline in livelihood possibilities. Anecdotal evidence (pers com., C. Conroy) suggests that farmers in Andhra Pradesh are at a loss to identify alternative production strategies – and the gap left by groundnuts is very significant because the cropping system in some areas had become very concentrated on the groundnut crop.

Farmers are likely to seek some of the following characteristics in any replacement for groundnuts:

- less concentration on a single crop
- a small number of cash crops which include some that double as cash and food crops, some that are steady earners and some higher value possibilities
- crops that can be grown under similar agro-ecological conditions (annuals, possibly offering some nitrogen fixation, suited to the rainfall and soils where groundnuts were grown, crops that fit in with other aspects of the crop calendar)
- crops that are equally or less capital-intensive (the groundnut crisis has probably increased risk-aversity)

*(d) Improved water management*

A predictable and very obvious outcome from this study is evidence of acute and growing pressure on water resources in the semi-arid areas. To the extent that this is amenable to research, there is a need to address this. There is clearly scope to improve the management of water resources by addressing both demand (particular crops and varieties require different quantities and timing of water, water management options) and supply (run-off and evaporation, water capture etc.) Someone more familiar with these issues than the present author may be able to identify more specific researchable components.

*(e) Tree crops*

Selective use of tree crops can contribute to improved soil and water management whilst also offering an alternative source of cash income, fodder, fuelwood, and CPR-substitute. Tree crops are often not attractive to the poor – because many lack land or sure property rights, and because tree crops rarely yield income in early years and seedlings are relatively expensive. However, given the problems faced in the semi-arid areas (declining soil fertility, pressure on water resources and on CPR), research to investigate poor farmers interest in tree crops, and the desired attributes of tree crops would be useful.

*(f) CPR management revisited*

This area also seems to demand further research though there is no doubt also scope for more widespread promotion and application of existing “best practice” models is sufficient. Clearly though, in the study areas, there was evidence of growing pressure on CPR (be they grazing lands, paths, or forests) but differing community-level or government responses – a finding that is important to the poor, the landless and women, who depend disproportionately on these resources.

*(g) Livestock systems*

Two main areas of livestock-related research can be identified. The first concerns the need for a clearer picture of influences and trends. For instance, small ruminants are very important in semi-arid areas and can be an important income source for small and landless farmers. Some communities reported no shortage of fodder whilst others complained of fewer grazing areas and remarked the need to migrate with their herds for several months per year. At the same time, marketing of small ruminants appears to be relatively easy (traders come to the village) and profitable. (This is consistent with increasing demand for meat products associated with growing urbanisation and rising incomes). Another area concerns poultry which received scant attention in the surveys – though is clearly subject to very rapid growth (presumably mostly in intensive systems). It would be useful to revisit these topics – to gain a clearer picture of production trends, production technology, and the structure of livestock ownership (poorer, wealthier, larger numbers, smaller numbers).

The second area is analogous to the recommendation on semi-intensive cropping systems – but dependent on a prior clarification of issues and trends (above). To what extent is it

possible to intensify traditional systems of poultry and small ruminant production? What would it require in terms of fodder or supplements, and to whom would such livestock systems be accessible? Is there scope for greater exploitation of crop/livestock synergies in the farming system?

*(h) Women-run farms*

The evidence on migration, and from the community surveys, underlines the growing incidence of women-run farms, and farms worked by the elderly and by children. These groups usually feature disproportionately amongst the poor. Moreover, this pattern emerges in situations where those with fewer constraints on their mobility have taken up other livelihoods. Two research recommendations follow from this: (a) research with those farmers who remain (women and the elderly) to identify particular issues of concern to them and (b) to make sure that more general NR systems research in semi-arid areas takes adequate account of this group's needs in research identification, field-tests and dissemination.

*4.4 Achievement of anticipated outputs.*

The outputs have been achieved, except that the final version of the report corresponding to output 1 by GIDR is still pending.

5. RESEARCH ACTIVITIES

*5.1 Description*

The project activities are listed in Table FTR1, together with a description of the organisations involved in each and an indication of their current status.

**National-level desk-based work** This was undertaken by Professor Sudarshan Iyengar (Activity 1.1) and Dr Uma Rani (Activity 2.1) of GIDR.

**Activities in the focus districts** SPWD coordinated the work in the two districts, through its regional offices in Anantapur and Udaipur. It was originally envisaged that only two local NGOs, Prayas and Prayatna Samiti, would undertake survey work (field studies) in Udaipur. However, in June 2000 it was decided to commission work from two more NGOs, Astha and Seva Mandir, so that two additional administrative blocks could be included. This was because household livelihood activities in these two blocks were known to include two activities that are important in Udaipur district as a whole, or elsewhere in semi-arid India, but which were not widely found in the first two blocks. These were: wage labour in mining, and production of cash crops. The blocks and NGOs involved, and the villages where the survey work was done, are shown in Table FTR 5.

**Table FTR 1 Project Activities and their Status**

<b>Activities</b>	<b>Organisations involved</b>	<b>Completed?</b>
<i>Output 1</i>		
1.1. Review of government statistics and reports & other literature on trends and issues in semi-arid India undertaken and published.	GIDR	No, revisions awaited
<i>Output 2</i>		
2.1 General review of literature on coping strategies in semi-arid India.	GIDR	Yes
2.2 Review of key references on sustainable livelihoods and coping strategies outside of semi-arid India.	NRI	Yes
2.3 Review of literature on coping strategies in 2 locations.	GIDR/SPWD	(Part of 1.1)

2.4 Identification of key gaps in data and understanding, and initiation of short, focused field studies to fill the gaps.	GIDR/NRI/SPWD	Yes
2.5 Description of livelihood and coping strategies published through SPWD.	NRI/SPWD	In pipeline
<i>Output 3</i>		
3.1 Description of livelihood trends and coping strategies developed (based on 1.1, 2.1, 2.2 & 2.3)	GIDR/NRI/SPWD	Yes
3.2 Descriptions and possible explanations discussed with SPWD & other NGO collaborators in two field locations to see how well they relate to the situation there, leading to 2.4.	NRI/SPWD	Yes
3.3 Results of fieldwork written up and discussed.	SPWD, other NGOs, NRI	Yes
3.4 Report produced explaining changes in livelihood and coping strategies, taking account of feedback from NGO collaborators (3.2) and results of fieldwork (3.3)	NRI/SPWD	Yes
3.5 Explanations of strategy changes published through SPWD.	NRI/SPWD	In pipeline
3.6 Constraints on household strategies summarised (based primarily on 1.1 and 3.3), and means for easing constraints and creating new and improved options identified.	NRI/SPWD	Yes

**Table FTR 2 Survey Blocks, NGOs and Villages**

<b>Anantapur District</b>	
<i>Blocks (NGOs)</i>	<i>Villages</i>
Anantapur (MEOS*)	Manila
	Somaladoddi
Rayadurga(MEOS)	Mechiri
	Vadrahonnuru
<b>Udaipur District</b>	
<i>Blocks (NGOs)</i>	<i>Villages</i>
Girwa (Prayatna Samiti)	Patukheda
	Sagatdi
Jhadol (Seva Mandir)	Goran
	Malpur
Kotra (Astha)	Hasreta
	Tulikakhet
Pratapgarh (Prayas)	Haripura
	Mhendi Kheda

\* Mass Education Organization Society

As well as undertaking a survey, the NGOs were asked to produce a profile of the block in which the survey work was undertaken, based on secondary data. They were also asked to produce a profile of each of the survey villages, again based primarily on secondary data. SPWD produced profiles of each of the focus districts. These profiles have been incorporated into two annexes (Annexes 2 and 3) containing all of the work done in each of the two focus districts. The survey work comprised semi-structured group interviews with each of the major groups in the survey villages, followed by individual interviews with men and women from each group.

**Activity 1.1** A draft of the report was received from GIDR on 30/8/00, entitled *Development Trends in Drought-Prone Areas of India: State and District-Level Analysis* (otherwise referred to as GIDR Report No. 1). This is contained in Annex 4. There were some gaps in this draft, and apparent inconsistencies in some of the tables. GIDR was asked to address these in a revised version of its report. This is still awaited, but GIDR says it will be completed in the near future.

**Activity 2.1** This has been completed, and is also contained in Annex 4.

**Activity 2.2** This has been incorporated into the ‘synthesis report’, reproduced in Annex 1.

**Activity 2.3** The SPWD members of the research team were asked to send GIDR any material they had on coping strategies in their districts. It was envisaged that these would be included in Dr Rani’s general review of the literature, but GIDR reviewed them in GIDR Report No.1.

**Activity 2.4** This was done in early September 2000, drawing on the work done under activities 1.1, 2.1, 2.2 and 2.3. A checklist of topics was prepared for use in the survey (field studies): see Annex 5.

**Activity 2.5** The descriptions of livelihood and coping strategies have been incorporated into the synthesis report. This will be published by SPWD in May 2001.

**Activity 3.1** The findings from the relevant preceding activities (1.1, 2.1, 2.2, 2.3) were shared among the GIDR/NRI/SPWD members of the research team, primarily in the form of draft reports.

**Activity 3.2** Preliminary reports were discussed with SPWD in June, and revised versions in early September.

**Activity 3.3** The NGOs wrote up the results of the survey work and presented their reports to SPWD, who in turn passed them on to NRI. The reports are included in Annexes 3 and 4. SPWD discussed the results of the fieldwork with the NGOs that had undertaken it; and SPWD also discussed the preliminary results with the project leader when he visited Hyderabad and Udaipur in the second half of November 2000. There was also considerable email correspondence between NRI and SPWD.

In Udaipur, this process was delayed considerably by the fact that the monsoon rains failed for the second year in succession, creating a situation of severe drought. The resultant shortfall in hydro-electric capacity meant that there were prolonged power cuts every day, limiting the amount of time that people could spend working on computers. This led to delays in the preparation of the synthesis report and the FTR.

**Activity 3.4** The synthesis report in Annex 1 is a completely revised and substantially shortened version of a report produced in February 2001. The latter drew on the discussions with SPWD held in November 2000, and subsequent email correspondence between NRI and SPWD on shared drafts of the report.

**Activity 3.5** The synthesis report contains both the descriptions of strategies (see 2.5 above) and explanations as to why they have changed over time.

**Activity 3.6** The synthesis report summarises material from activities 1.1 and 3.3. These two sources of information provide the basis for summarising the constraints on household strategies. This is followed by a discussion of options for easing constraints so that households can improve their livelihoods. Some of these options are researchable and some do not require research.

## *5.2 Modifications to proposed activities*

As a result of discussions between NRI and the NRSP management team in April 2000, some modifications were made during the course of the project; and the Logical Framework’s



purpose, outputs and activities were adjusted accordingly. These modifications reflected agreement that:

- the emphasis given to livelihood strategies in the project, relative to coping strategies, should be increased;
- informal, qualitative explanations of livelihood strategies and their evolution over time would be more appropriate than a formal, mathematical model.

Another modification was that the number of locations for fieldwork was reduced from three to two. This was because the head of SPWD's office in Orissa left the organisation in March 2000, and as a result they no longer had sufficient human resources to undertake the work there.

### *5.3 Extent to which planned inputs were achieved*

The status of the various activities is given in Table FTR1. The activities that have not yet been completed are 1.1, 2.5 and 3.5. However, the bulk of the work has been done on all of them. An almost complete draft has been produced under Activity 1.1, and revisions and additions by GIDR are awaited. In the case of 2.5 and 3.5, a text similar to Annex 1 will be published.

## 6. CONTRIBUTION OF OUTPUTS

### *6.1 Contribution towards NRSP's goals*

The NRSP purpose when this project began and to which it has been working is: *Diverse coping strategies for poor rural households in semi-arid systems developed and promoted.*

To provide effective support to poor rural households it is necessary to understand: (a) the nature of poverty; and (b) the nature of poor people's livelihood and coping strategies. The project has improved knowledge and understanding in both of these areas and this is summarised in Annex 1.

The synthesis of information on macro-level trends and issues affecting semi-arid rural areas in different parts of India has provided a valuable backcloth against which household livelihood and coping strategies can be viewed, and gives indications of how trends are likely to impact on strategies in the future. The project has also identified constraints on coping strategies, and made recommendations on how to address them.. The recommendations provide the basis for interventions to be developed, validated and promoted.

Overall, the research findings will enable government policies and programmes to be better informed as to their implications for the rural poor, and hence more effective in supporting poverty elimination.

### *6.2 Assessment of the extent to which the OVI's at the Purpose level were attained.*

The OVI at the Purpose level is: *By 2001, in at least two targeted countries, of which one is India, livelihood strategies and assets understood, including inter alia employment opportunities, access to markets, structure of market systems.*

This project has been concerned with:

- the nature of livelihood strategies, and of coping strategies as one component of them;
- how and why these strategies have evolved over time; and
- the relationship between livelihood strategies in the two focus areas and trends in semi-arid India as a whole.

The project has been effective in collecting information, from a combination of primary and secondary sources, that provides a good description of the main livelihood strategies and groups found in semi-arid rural India, with particular reference to the two focus districts. It also provides explanations of why the livelihoods of these groups have changed in the ways that they have, from both micro- and macro-level perspectives. Thus, the project has to a large extent achieved the OVI. The one aspect of the OVI that has not received much attention in this project is the structure of market systems.

### *6. 3 Assessment of the impact of the project on thinking*

As the project findings have not yet been widely publicised it is too early to discuss what their impact might be on the thinking of stakeholders who have not been involved in the research. The synthesis report will be sent to various researchers and advisers, prior to its formal publication, and any feedback will help to answer this question.

### *6. 4 Further promotion activities*

The target institutions include government agencies and NGOs whose programmes are aimed at poverty reduction or eradication in rural semi-arid India. The Society for the Promotion of Wastelands Development, one of the collaborators, is also a target institution, and is working with smaller NGOs in various parts of semi-arid India on programmes designed to improve rural livelihoods.

**Meetings** SPWD arranged meetings in Hyderabad and Udaipur, for February 28<sup>th</sup> and March 6<sup>th</sup> respectively, at which the project findings were presented to a wide range of target organisations. The findings were well-received and evoked considerable interest. One important point that was made at the Udaipur meeting was that the proposed research on the impact of seasonal migration should look at its effects on men (e.g. regarding their living conditions in urban areas) as well as on women.

The fieldwork locations identified for this study are in, or close to, areas where DFID-assisted projects are operating. These projects are the Western India Rainfed Farming Project (WIRFP) and the Andhra Pradesh Rural Livelihoods Project (APRLP). The project's synthesis report was sent to DFID's New Delhi office and to the two projects. The WIRFP's Project Manager, Mr Sodhi, attended the Udaipur meeting and was very positive about the report. A meeting was held with Mr Tucker, who is coordinating APRLP on behalf of DFID, to brief him on the findings: he had already sent the Anantapur report to APRLP associates in the district for use as a training material in livelihoods analysis. In addition, meetings were arranged with DFID staff in Delhi (Simon Croxton) and Hyderabad (Mr Sharat). Mr Sharat expressed particular interest in the project's recommendations for research into globalisation and its impact (actual and potential, positive and negative) on farmers. The former meeting did not materialise, as Simon Croxton had to go to Nepal at short notice.

**Publications** SPWD will publish a revised version of the synthesis report. The regional offices in Hyderabad and Udaipur are also planning to publish the district-level project materials. In addition, one or more summary articles will be written for SPWD's widely read magazine, *Wastelands News*. An article will also be written for India's *Economic and Political Weekly*, which is a widely read and respected periodical that often carries articles on

this kind of subject. Another more academic article will be submitted to a peer-reviewed journal, such as the *Journal of Rural Development*.

## **7. Communications materials**

### *7.1 Completed reports*

All of the communication materials produced by the project so far come in the category 'Reports and data records'. The survey findings have been incorporated into the SPWD reports for the respective districts.

#### *7.1.1 Internal project technical reports*

**Conroy, C. 2001.** *Annex 5: Scientific Annex*. Chatham, UK: Natural Resources Institute [unpublished report].

**Conroy, C. Iyengar, S. Lobo, V. Uma Rani and G.B. Rao 2001.** *Household Livelihood and Coping Strategies in Semi-Arid India: Synthesis of Macro- And Micro-Level Findings*. Chatham, UK: Natural Resources Institute [unpublished report].

**Iyengar, S. 2000.** *Development Trends in Drought-Prone Areas of India: State and District-Level Analysis*. Ahmedabad, India: Gujarat Institute of Development Research [unpublished report].

**G. Bhaskara Rao, 2000.** *Household Livelihood and Coping Strategies in Drought-prone Region: A Case Study of Anantapur District, Andhra Pradesh, India*. New Delhi, India: Society for Promotion of Wastelands Development [unpublished report].

**Society for Promotion of Wastelands Development: Western Region Office, 2000.** *Household Livelihood and Coping Strategies in Semi-Arid India: A Case Study of Udaipur District, Rajasthan*. New Delhi, India: Society for Promotion of Wastelands Development [unpublished report].

#### *7.1.2 Literature reviews*

**Uma Rani and Minu Dodia, 2000.** *Understanding Household Coping Strategies in Semi-Arid Areas: A Review of Empirical Literature*. Ahmedabad, India: Gujarat Institute of Development Research [unpublished report].

### *7.2 Planned publications*

The second report listed above will be published in India by SPWD, on behalf of NRI and SPWD. The fourth and fifth reports listed above may also be published by SPWD and promoted in the respective districts and states. (See also the paragraph on publications in section 6.4 above.)

## **8. Project logframe**

This is included on the next page.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important assumptions																		
<p><b>Goal:</b> Diverse coping strategies for poor rural households in semi-arid systems developed and promoted.</p>	<p>By 2003, strategies which improve the livelihoods of the poor validated and adopted by target institutions in two countries.</p>	<p>*Reviews by Programme Manager *Reports of research team &amp; collaborating/target institutions</p>	<p>* Target beneficiaries adopt and use strategies and/or approaches. * Enabling environment exists.</p>																		
<p><b>Purpose:</b> Livelihood strategies and assets of the poor comprehensively understood, together with the factors that have shaped those strategies including social and economic change and the transforming structures and processes</p>	<p>By 2001, in at least two targeted countries, of which one is India, livelihood strategies and assets understood, including inter alia employment opportunities, access to markets, structure of market systems.</p>	<p>*Reviews by Programme Manager *Reports of research team &amp; collaborating/target institutions</p>	<p>Target institutions invest in development and promotion of options derived from the improved understanding of coping strategies.</p>																		
<p><b>Outputs:</b> 1. Information on macro-level trends and issues affecting semi-arid rural systems in different parts of India synthesized. 2. Household livelihood and coping strategies described and analysed and key components identified. 3. Explanations of changes in household livelihood and coping strategies developed, and researchable options identified.</p>	<p>1. Concise &amp; comprehensive macro-level summary produced by end of month 4. 2. General description of strategies and key components, and more detailed descriptions for 2 field locations, produced by end of project. 3.1 Explanations of household strategies produced by end of project. 3.2 Description of livelihood constraints and options produced by end of project.</p>	<p>1. Report of research team. 2. Reports of research team. 3.1 Report of research team. 3.2 Report of research team.</p>																			
<p><b>Activities:</b> 1.1. Review of government statistics and reports &amp; other literature on trends and issues in semi-arid India undertaken and published. 2.1 General review of literature on coping strategies in semi-arid India. 2.2 Review of key references on sustainable livelihoods and coping strategies outside of semi-arid India. 2.3 Review of literature on coping strategies in 2 locations. 2.4 Identification of key gaps in data and understanding, and initiation of short, focused field studies to fill the gaps. 2.5 Description of livelihood and coping strategies published through SPWD. 3.1 Description of livelihood trends and coping strategies developed (based on 1.1, 2.1, 2.2 &amp; 2.3) 3.2 Descriptions and possible explanations discussed with SPWD &amp; other NGO collaborators in two field locations to see how well they relate to the situation there, leading to 2.4. 3.3 Results of fieldwork written up and discussed. 3.4 Report produced explaining changes in livelihood and coping strategies, taking account of feedback from NGO collaborators (3.2) and results of fieldwork (3.3) 3.5 Explanations of strategy changes published through SPWD. 3.6 Constraints on household strategies summarised (based primarily on 1.1 and 3.3), and means of easing constraints and creating new or improved options identified.</p>	<p><b>Budget summary</b></p> <table border="1" data-bbox="994 804 1512 1023"> <thead> <tr> <th>ITEM</th> <th>Year 1</th> <th>Year 2</th> </tr> </thead> <tbody> <tr> <td>Staff costs</td> <td>4416</td> <td>6877</td> </tr> <tr> <td>T&amp;S</td> <td>2250</td> <td>2750</td> </tr> <tr> <td>Overseas costs (collaborators)</td> <td>9424</td> <td>10424</td> </tr> <tr> <td>Overheads</td> <td>5299</td> <td>8252</td> </tr> <tr> <td><b>Year totals</b></td> <td><b>21389</b></td> <td><b>28303</b></td> </tr> </tbody> </table> <p><b>TOTAL £ 49,692</b></p>	ITEM	Year 1	Year 2	Staff costs	4416	6877	T&S	2250	2750	Overseas costs (collaborators)	9424	10424	Overheads	5299	8252	<b>Year totals</b>	<b>21389</b>	<b>28303</b>		
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## 9. Keywords

Coping strategies, semi-arid, India, vulnerability, livelihoods, rural, adaptation, diversification

## 10. Annexes

**ANNEX 1 Conroy, C. Iyengar, S. Lobo, V. Uma Rani and G.B. Rao 2001.** *Household Livelihood and Coping Strategies in Semi-Arid India: Synthesis of Macro- And Micro-Level Findings*. Chatham, UK: Natural Resources Institute [unpublished report].

**ANNEX 2 G. Bhaskara Rao, 2000.** *Household Livelihood and Coping Strategies in Drought-prone Region: A Case Study of Anantapur District, Andhra Pradesh, India*. New Delhi, India: Society for Promotion of Wastelands Development [unpublished report].

**ANNEX 3 Society for Promotion of Wastelands Development: Western Region Office, 2000.** *Household Livelihood and Coping Strategies in Semi-Arid India: A Case Study of Udaipur District, Rajasthan*. New Delhi, India: Society for Promotion of Wastelands Development [unpublished report].

**ANNEX 4 Iyengar, S. 2000.** *Development Trends in Drought-Prone Areas of India: State and District-Level Analysis*. Ahmedabad, India: Gujarat Institute of Development Research [unpublished report]. **Uma Rani and Minu Dodia, 2000.** *Understanding Household Coping Strategies in Semi-Arid Areas: A Review of Empirical Literature*. Ahmedabad, India: Gujarat Institute of Development Research [unpublished report].

**ANNEX 5 Conroy, C. 2001.** *Scientific Annex and Final Project Inventory*. Chatham, UK: Natural Resources Institute [unpublished report].