

**Natural Resources Systems
Programme:
*Final Technical Report***

for

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NATURAL RESOURCES SYSTEMS PROGRAMME
FINAL TECHNICAL REPORT¹

DFID Project Number

R8084

Project Title

Enhancing livelihoods and natural resources management in peri-urban villages near Hubli-Dharwad

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NRSP Production System

Peri-Urban Interface

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	Contents Page	
	Title	Volume
FTR	Main report	1
Annex A	Research report	1
Annex B	Background and plates	1
Annex C	Process documentation	2
Annex D	Participatory monitoring and evaluation	3
Annex E	Livelihoods	3
Annex F	Self help group financial analysis	3
Annex G	Self help groups: livelihood strategy study	3
Annex H	MOVE	4
Annex I	Institutions and administration	4
Annex J	Political capacity	4
Annex K	Agroforestry	4
Annex L	Crop demonstrations	4
Annex M	Soil and water conservation	4
Annex N	Vermicomposting	5
Annex O	Motivation study: agroforestry	5
Annex P	Motivation study: markets	5
Annex R	Nutrition study	5
Annex S	Sewage irrigation	5
Annex T	Stone quarry study	5
Annex U	Household fuel study	5
Annex V	In-migration study	5

Abbreviations and acronyms

APMC	Agricultural Product Marketing Corporation
BAIF	BAIF Development and Research Foundation
BPF	Best Practices Foundation
BQ	Black Quarter
CDP	Comprehensive Development Plan
CEO	Chief Executive Officer
CO	Community Officer (NGO field worker)
DAP	Di-ammonium Phosphate
DC	District Commissioner (over ZP and HDMC)
DFID	Department for International Development
DPC	District Planning Committee
DSC	District Steering Committee
FLD	Front Line Demonstration
FMD	Foot & Mouth Disease
GP	Gram Panchayat (village council)
GS	Gram Sabha (annual village meeting)
HDMC	Hubli-Dharwad Municipal Corporation (urban council)
HDUDA	Hubli-Dharwad Urban Development Authority (planning agency)

HS	Haemorrhagic Septicaemia
IDS	India Development Service
IGA	Income Generating Activity
IPM	Integrated Pest Management
JCB	Mechanical digger
JFM	Joint Forest Management
JFPM	Joint Forest Participatory Management
KFDC	Karnataka Forest Development Corporation
KMF	Karnataka Milk Federation
MLA	Member of Local Assembly
MSK	Mahila Samakhya Karnataka (Gov't established SHG federation)
NGO	Non-government organisation
NRSP	Natural Resource Systems Programme
OVI	Objectively Verifiable Indicator
PI	Participatory Indicator
PM&E	Participatory Monitoring & Evaluation
PMA	Participatory Market Appraisal
PRA	Participatory Rural Appraisal
PUI	Peri-Urban Interface
RA	Research Assistant
RF	Revolving Fund
RTB	Ring Trench and Biomass
SC	Scheduled Caste
SHG	Self Help Group
ST	Scheduled Tribe
TI	Target Institute
TP	Taluk Panchayat (Block Council)
UAS	University of Agricultural Sciences
VFC	Village Forest Committee
VLI	Veterinary Livestock Inspector
ZP	Zilla Panchayat (district council)

English, scientific and vernacular names

English vernacular	Scientific name	Var.	Other names
Amaranthus (green)	<i>Amaranthus caudatus</i>		Rajgiri
Amaranthus (red)	<i>Amaranthus gangaticus</i>		Rajgiri
Amaranthus	<i>Amaranthus blitum</i>		Kirukasali
Amaranthus	<i>Amaranthus tricolor</i>		Arive soppu or dantu
Areca nut	<i>Areca catechu</i>		
Aubergine	<i>Solanum melongena</i>		Brinjal, eggplant,
Banana	<i>Musa</i>	Spp.	
Beetroot	<i>Beta vulgaris</i>		Palak
Black gram	<i>Vigna mungo</i>		
Brinjal	<i>Solanum melongena</i>		
Buffalo	<i>Bos bubalis</i>		
Cabbage	<i>Brassica oleracea</i>	<i>capitata</i>	
Capsicum	<i>Capsicum annum</i>	<i>grossum</i>	Bell pepper, sweet pepper
Cashew	<i>Anacardium occidentale</i>		
Casuarina	<i>Casuarina equisetifolia</i>		Galimara

Cauliflower	<i>Brassica</i>	<i>oleracea</i>	<i>botrytis</i>	
Chickpea	<i>Cicer</i>	<i>arietinum</i>		Bengal gram
Chilli	<i>Capsicum</i>	<i>annuum</i>	<i>acuminatum</i>	
Clusterbean	<i>Cymopsis</i>	<i>tetragonaloba</i>		
Coconut	<i>Cocos</i>	<i>nucifera</i>		
Coriander	<i>Coriandrum</i>	<i>sativum</i>		
Cotton	<i>Gossypium</i>	<i>hirsutum</i>		
Cow	<i>Bos</i>	<i>indicus</i>		
Cowpea	<i>Vigna</i>	<i>unquiculata</i>		
Cucumber	<i>Cucumis</i>	<i>sativus</i>		
Curry leaf	<i>Murraya</i>	<i>koenigii</i>		
Dill	<i>Anethum</i>	<i>graveolens</i>		Subbassigi
Eucalyptus	<i>Eucalyptus</i>	<i>citriodora</i>		Nilgiri
Eucalyptus	<i>Eucalyptus</i>	<i>tereticornis</i>		Nilgiri
Fenugreek	<i>Trigonella</i>	<i>foenum</i>	<i>graecum</i>	Common or desi methi
Fenugreek	<i>Trigonella</i>	<i>corniculata</i>		Champa or kusri methi
Field bean	<i>Dolichos</i>	<i>lablab</i>		
Goat	<i>Capra</i>	<i>hircus</i>		
Groundnut	<i>Arachis</i>	<i>hypogaea</i>		
Guava	<i>Psidium</i>	<i>guajava</i>		
Guinea grass	<i>Panicum</i>	<i>maximum</i>		
Horsegram	<i>Mycrotiloma</i>	<i>unifloris</i>		
Hybrid Cotton	<i>Gossypium</i>	<i>herbaceum</i>		
Kale	<i>Brassica</i>	<i>oleracea</i>	<i>acephala</i>	
Khol rabi	<i>Brassica</i>	<i>oleracea</i>	<i>gongyloides</i>	Knol khol
Lemon	<i>Citrus</i>	<i>limon</i>		Nimbu
Lime	<i>Citrus</i>	<i>aurantifolia</i>		
Little millet	<i>Panicum</i>	<i>miliare</i>		Savi
Maize	<i>Zea</i>	<i>mays</i>		
Mango	<i>Mangifera</i>	<i>indica</i>		
	<i>Hibiscus</i>	<i>cannabinus</i>		Mestha
Mulberry	<i>Morus</i>	<i>alba</i>		
Mung bean	<i>Vigna</i>	<i>radiata</i>		Greengram
Napier grass	<i>Pennisetum</i>	<i>purpureum</i>		
Neem	<i>Azadirachta</i>	<i>indica</i>		
Niger	<i>Guizotia</i>	<i>abyssinica</i>		
Okra	<i>Abelmoschus</i>	<i>esculentis</i>		Bhendi, ladies finger
Onion	<i>Allium</i>	<i>cepa</i>		
Pea	<i>Pisum</i>	<i>sativum</i>		
Pearl millet	<i>Pennisetum</i>	<i>typhoides</i>		Ragi
Pigeon pea	<i>Cajanus</i>	<i>cajan</i>		Red gram, tur
Pomegranate	<i>Punica</i>	<i>granatum</i>		
Radish	<i>Raphanus</i>	<i>sativus</i>		
	<i>Annona</i>	<i>reticulata</i>		Ramphal
Rice	<i>Oryza</i>	<i>sativa</i>		Paddy
Ridgegourd	<i>Luffa</i>	<i>acutangula</i>		
Safflower	<i>Carthamus</i>	<i>tinctorius</i>		
Sapodilla	<i>Achras</i>	<i>zapota</i>		Sapota, Chikoo
	<i>Peucedanum</i>	<i>graveolens</i>		Shepu
Sorghum	<i>Sorghum</i>	<i>bicolor</i>		Jowar
Spinach	<i>Spinacia</i>	<i>oleracea</i>		Palak
Sugarcane	<i>Saccharum</i>	<i>officinarum</i>		
Sunn hemp	<i>Crotalaria</i>	<i>juncea</i>		
Tamarind	<i>Tamarindus</i>	<i>indica</i>		
Teak	<i>Tectona</i>	<i>grandis</i>		
Tomato	<i>Lycopersicon</i>	<i>esculentum</i>		
Wheat	<i>Triticum</i>	<i>aestivum</i>		

Local terms and expressions and their explanation

Term	Explanation
Acre	0.4 hectare
Agarbatti	Incense sticks
Chula	Kitchen stove
Crore	10 million
Dhobi	Laundry work
Exchange rate	£1 = Rs 75 (approx)
Gouli, Gowli	Caste specializing in dairying, milk vending
Goundi	Mason work
Gunta	0.01 hectare (10x 10 m)
Janatha	Government social housing
Kharif	Monsoon cropping season (June – September)
Lakh	100 thousand
Mahasangha	Village sangha federal group
Quintal	100 kg
Rabi	Post-monsoon cropping season (October – January)
Roti	Indian flat bread
Sangha	Self Help Group
Shramadan	Community work group
Stree Shakti sangha	Government established sangha
Tempo	Informal minibus service
Village development society	Village sangha federal group
Wadi	Agroforestry orchard with timber/fodder tree boundary planting (a Gujarati term borrowed by BAIF)

1 Executive Summary

Generally, management of NR is rendered more difficult due to the peri-urban context. Due to wage competition, many farmers find it difficult to hire labour at rates they can afford to pay. Neglect and degradation of catchments and water bodies is widespread. Extensive use of sewage contaminated irrigation water results in faecal contamination of food crops and heavy insecticide use. Nevertheless, many peri-urban dwellers are able to take advantage of living in the PUI, marketing vegetables, milk and fuel wood for example, but the long history of neglect of the NR base is rendering many of these activities unsustainable.

The project sought to implement plans of action to better manage NR developed by poor stakeholders in six peri-urban villages around Hubli-Dharwad. Poor stakeholders were the primary beneficiaries, and were mobilized into self help groups (SHG), which gave them group identity and a means of procuring low cost loans via informal saving and loans schemes. The original action plans conceived during the previous project (R7959) were developed and modified by primary beneficiaries following exposure visits to other projects, and as they adapted technologies and techniques offered by project partners, UAS and BAIF.

When implementing the plans of action developed during R7959, the peri-urban context proved to be advantageous both in economic terms and where management of NR was concerned, due to incentives provided by proximity to urban markets. Many of the more mobile poor could obtain low skilled work in the nearby city, and those who remained in the villages could produce milk, curds, vegetables, fruits, and industrial and staple crops for sale in urban markets or to processors. However, some of the poor were not able to access NR because of their low natural capital endowments and neither could they work in the city for cultural reasons or family circumstances

(high dependency ratio). For this sector, new non-NR income generating activities were developed. Rather than following the usual route of produce first and then hope to market successfully later, a training programme (MOVE) was developed to enable women who were poor, illiterate and landless to analyse markets and then decide what niches could be filled.

NR-based action plans included increasing tree cover via agroforestry, catchment rehabilitation and tank desilting, adoption of small livestock for income generation, improving livestock health and training of village paravets, promotion of vermicomposting, integrated pest management and improved crop varieties. By the end of the project, 87% of respondents (sample size n = 209, 10% of households) surveyed had experienced at least some benefits from the project. Within the project, community action to rehabilitate catchments proved to be more difficult to organize than in more rural areas, but with considerable effort and project inputs was achieved.

Many primary beneficiaries felt sufficiently empowered to approach local government TIs about their concerns, and practically all SHG members became adept at using banks. However, participation in the project by district and municipal level Government line departments was sporadic, highly dependent upon the attitude of the departmental head and in the end, of little effect. There was a more successful interaction at State level, which is likely to continue beyond the duration of the project. Local project partners are also important TIs, particularly the NGOs IDS and BAIF, and the academic partners Best Practices Foundation and UAS, all of whom exert an influence well beyond the geographic domain of this project. They all learned a considerable amount during the execution of the project, which will manifest itself in many ways in years to come.

After a slow start, it proved possible to identify and use participatory indicators of change with villagers, and some groups went further and developed participatory monitoring and evaluation systems. Further encouragement is needed to embed these techniques into the groups' activities.

New knowledge was generated by the project, which can be summarized as six points:

1. Use of self help groups as a natural entry points for implementing agencies is effective in the PUI;
2. Implementing NR management via community mobilization in the PUI, although it may take longer to establish than externally imposed actions, is in the end both more cost effective and likely to engender a sense of ownership amongst primary beneficiaries, and thus changes are more likely to be enduring;
3. SHGs in the PUI are effective agents for encouraging adoption of new techniques and approaches to NR management and income generating activities;
4. There are many opportunities for the poor presented by the PUI to engage in income earning activities which can lift them out of poverty, although there is a segment of PU society which appears to be chronically poor;
5. Development of novel approaches, such as MOVE (Market Oriented Value Enhancement) training for identifying niches in markets for new services and products, is effective even amongst the poor and illiterate;
6. There are significant implications of the PU zone of interaction for administration by rural and urban authorities, as so many peri-urban issues cross artificial administrative boundaries.

In terms of dissemination products, two newsletters, one in English and the other in the vernacular Kannada, three videos on CD, one book, two policy briefs and one MOVE training manual were produced during the project and its UP phase. Numerous meetings and workshops being were held at every level from village, city and state to national level, also to disseminate project findings. Several academic papers and two further books are in progress.

2 Background

This project builds on a series of previous projects for the target city region of Hubli-Dharwad, India – R7549, R7867 and R7959. These projects, in sequence, consolidated existing knowledge about the PUI and identified critical knowledge gaps (R7549); filled these knowledge gaps (R7867); and developed plans of action for NR management in a participatory manner with poor village stakeholders (R7959). More than simply looking for improvements to poor livelihoods arising from implementation of the strategies of these plans, this pilot project has two other main research assignments: to test (1) the effectiveness of the participatory process that produced the action plans and (2) the validity of the new knowledge about natural resources based production and livelihoods, from earlier research, that was used in making these plans. The plans are listed (Table 1, main FTR, and summarised in Annex E, Table 1), together with additional interventions which arose from exposure visits to other development projects by primary beneficiaries and technical inputs and suggestions from the research team (Annex E, Table 4).

3 Project Purpose

Strategies for NR management to benefit the poor tested, modified and demonstrated through implementation of plans of action in pilot projects in the Mugad cluster. Kotur, Gabbur and Channapur villages.

The Purpose section of the RD2 project proposal opened with the following preliminary caveat: *“The opening phrase of this purpose, adapted from the NRSP peri-urban programme logframe, is ‘Strategies for natural resource (NR) management to benefit the poor’, implies an assumption that NR management strategies which benefit the poor might actually exist in the peri-urban context. In rural areas, apart from migration, there is little choice but to base livelihoods strategies upon the NR base. This is despite the fact that rural poverty remains persistently high, some reasons being the declining terms of trade being experienced by farmers as commodity prices continue to decrease in real terms, declining government support for farming, poor infrastructure, etc. In peri-urban areas, a choice exists, for some at least. Those peri-urban dwellers who have access to and farm land may choose to meet their own household food security needs by growing non-traded staples, but might be better advised to diversify their livelihood strategies into non-NR based occupations. Around Hubli-Dharwad, at this stage we do not know which strategies are best; the answer is likely to depend upon individual circumstances. But an important finding from the project will be to what extent strategies for NR management do exist and for which groups of people, and whether non-NR strategies might be more appropriate for some peri-urban stakeholders.”*

This was an uncertainty with which the project was begun. At its conclusion, it is very evident that such concerns were unfounded, and that despite the persistent drought and the influence of urbanization, two-thirds of the population of the six peri-urban villages in which the project claimed that their principal means of livelihood was in agriculture in some form or another. Nevertheless, some landless people considered themselves to be excluded by the scope of the project, and consequently a particular effort was made to engage them. For some of them, non-NR livelihood strategies were appropriate, and the project sought to identify these on the basis that, although primarily a NR based project, this should not be a reason to exclude those with low natural capital endowments, given the peri-urban context.

As will become evident throughout the Outputs section of this FTR, NR management strategies that benefited the poor were successfully tested, modified and demonstrated through the implementation of plans of action in six peri-urban villages around Hubli-Dharwad. To address the other research assignments referred to in the Background above, it is necessary to recall what action plans the participants in the previous project, R7959, developed (Table 1).

Table 1. Action plans as developed during R7959.

Action plan 1 Mugad cluster	Action plan 2 Channapur-Gabbur	Action plan 3 Kotur
<p>a) Improve livelihoods of the poor, particularly artisans and landless labourers, by improving their access to raw materials (notably a forest area) and to explore potential alternative livelihood options, where demand for existing products is declining.</p> <p>b) Rehabilitation of the watershed to contribute to better water management in the fields of marginal farmers and provide fodder and trees by planting on farms.</p>	<p>a) Improve livelihoods of the poor, particularly the landless and women, by enhancing the productivity and marketing efficiency of their current dairying activities and to explore alternative livelihoods for those without access to natural resources.</p> <p>b) Rehabilitation of the sub-watershed in Channapur to contribute to better water management in the fields of marginal farmers and provide fodder and trees by planting on farms.</p>	<p>a) Combat neglect of natural resources, particularly water for growing crops and drinking.</p> <p>b) Increase access to resources, employment, food, assets or credit for the poor, landless and women.</p> <p>c) Combat alcoholism and other influences that lead to social disharmony.</p>

In terms of testing the effectiveness of the participatory process that produced the action plans, despite this being primarily a NR project, nevertheless non-NR activities were also identified; this was the consequence of developing the plans in as participatory and as enabling a way as possible. There are two tests of whether the participatory process that produced the plans of action was effective. The first is whether the participatory process itself was an appropriate approach. As will become evident in this FTR, there is little doubt that this was the correct approach to take; indeed, although this was not tested by this project, it is very doubtful that anything more than a small fraction of the achievements of the project would have occurred with a top-down approach. The second is whether the plans that were produced during R7959 were still valid at the end of R8084. The answer there is more mixed. All these action plans were implemented, but not always in the locations and with the target groups specified in Table 1. For example, plan 2a) was achieved in Gabbur, but was actually most successful in another form (not dairying) in Mugad. Plan 3c), although the issue of alcohol abuse was first articulated in Kotur, was not tackled successfully there whereas it was in Channapur. Plan 1a) did not succeed in directly enabling participants to access the forest area which had been taken over by the Karnataka Forest Development Corporation (KFDC), but did enable those with land to plant trees in their fields. However, this did not solve the problems outlined under Output 1 below, as project staff under-estimated the difficulty in getting forest land transferred back to community control.

The new knowledge whose validity was being tested was that discovered during R7867. In the event, project R7867 and R7959 overlapped considerably in their period of implementation, so development of plans of action with target groups did not have time to take into account new knowledge that was being generated by R7867. However, subsequent projects did corroborate and add to new knowledge derived from R7867. Examples are the importance of dairying as a livelihood strategy for the landless and marginal farmers in near-urban villages, the faster rate at which the poor and very poor modify their livelihood strategies in near-urban villages (compared to the better off and to people living in more distant villages), the importance of the urban area for marketing purposes, and the scope for introducing small livestock (poultry, goats) to poor households.

As R8084 progressed, the process of modification of the action plans took place, as required by the Purpose statement. Accounts of modifications are provided in the Annexes to this report, and

arose from two directions: 1) target groups were taken on exposure visits to other development projects and acquired ideas that they wished to try out, and 2) project staff introduced new techniques and ideas for villagers to try out. These included new ways of earning incomes (Annex H), new crop varieties and integrated pest management (Annex L), combating malnutrition in Kotur (Annex R) and introduction of improved smokeless stoves to reduce fuel wood use (Annex U). New knowledge was also generated in studies that were not part of the original project plan, including studies on political capacity (Annex J), motivation of primary beneficiaries towards agroforestry and market training initiatives (Annexes O and P), sewage irrigated farming systems (Annex S), stone quarry workers in Mandihal (Annex T) and in-migration of Muslim groups in Kotur (Annex V).

The OVIs for the Purpose level are presented below and each considered in turn.

Purpose OVI

1. By project end, at least 50% of relevant target institutions working with self help groups and primary beneficiaries in at least six target villages, manage NR using the successful strategies in such a way that this facilitates continued development of sustainable livelihood strategies which can positively withstand changes imposed by the dynamics of urbanization.

An intention of the project was to increase the willingness of TIs to engage in participatory processes, to work more closely with the poor and incorporate project approaches into their management methods. It was considered that this would be vital to ensure sustainability of project benefits beyond its lifetime and for scaling up to locations outside the project area. It has to be said that this did not happen to any significant extent, as explained under Outputs. However, one product from the project was a video in CD format ('Living at the Edge' on CD) describing the concept of the peri-urban interface, the aims of the project and the means whereby these aims were achieved. This format can be played on a PC, easily copied and distributed to TIs throughout the state and country, using lists of contacts created during distribution of the book 'Changing Frontiers'. This will continue dissemination of the project's findings well beyond its duration.

Anticipating the possible outcome of indifference by local TIs, the project sought to build resilience and sustainability into self help groups (SHG) by establishing SHG federations, and training participants in the MOVE market training programme (see MOVE video on CD) in marketing analysis to give their members resilience in the face of changing markets, as occurs in the rapidly changing economic landscape around cities.

2. By end of project, significant interest generated in NGOs and TIs in non-project areas in replicating and adapting processes for implementation in their own localities.

This OVI goes a stage further than Output OVI 3.2., in that it anticipates receipts of requests for replication to be turned into replication and adaptation. This occurred in one instance, where 30 women's federations (of 500 – 800 women each) across seven districts in southern Karnataka State, from *Mahila Samakhya Karnataka* (MSK), a government programme, were trained in the development of participatory indicators by the research team. The federations have since decided to continue using those indicators to monitor the federations' progress in future. This means that somewhere between 15,000 and 24,000 women in these federations have been trained in PM & E methods, and positive outcomes are being reported (Annex C, section 14.3). The UN International Labour Organisation has contracted for Dr Subhas, the conceiver of MOVE, for it to be replicated in Mangalore, although this has yet to commence.

4 Outputs

Output 1. Increased capacity of the communities to achieve sustainable changes in the management of peri-urban interface natural resources that are likely to enhance livelihood strategies of the poor.

The rationale behind this output was that for change to be sustained beyond the life of the project, it would be necessary to increase the capacity of the primary beneficiaries in the three villages to diversify their own livelihood strategies in such a way that they would better be able to control their own destinies rather than responding to externalities. Historically gains achieved by previous IDS managed projects in Mugad working with non-landholder groups had been significantly eroded over the following two decades due to degradation in the NR base (fishermen could no longer fish in the tank due to weed infestation, siltation and eventually drying up of the tank (Annex B, plates B3 and B4)), and changes in management of NR and in markets. Specifically, when the forest came under the jurisdiction of KFDC, which planted eucalypts for cellulose fibre production, livestock graziers no longer had access for fodder, leaf plate makers had to travel further for supplies of leaves, potters had to buy in firewood for firing pots or use dried weed stems, and basket weavers no longer had an accessible source of bamboo stems). Due to better physical communications and technological changes, local markets for earthenware pots were undercut by cheap imports from elsewhere in India and in particular mass produced plastic water pots. With the benefit of hindsight, it is possible now to see that these livelihood options, which were good ideas at the time of conception, were not sustainable in the medium term. These artisans had been trained in the methods of natural resource exploitation, manufacturing and marketing their specific products, but these skills were not resilient in the face of change, and in particular they did not have the skills necessary to take advantage of their proximity to an urban area. Although they had acquired specific employment-related skills, they were still vulnerable to externalities.

Although the project concentrated upon natural resource management and NR based livelihoods, it was evident from the participatory planning project (R7959) which preceded R8084 that there were sectors of society for whom NR based livelihoods were not appropriate because of their very low or non-existent natural asset base. Consequently, new options that could take advantage of proximity of the city needed to be explored, both NR based and independent of NR. Although the identification of potential new livelihood strategies in itself was considered worthwhile, unless the capacity of poor people to explore new options for themselves was enhanced, then two or so decades hence any gains made could easily be eroded once again. Therefore, the underlying principles behind development of new livelihood strategies for the asset poor, uneducated and vulnerable needed to be understood.

There were four OVIs of achievement of this output.

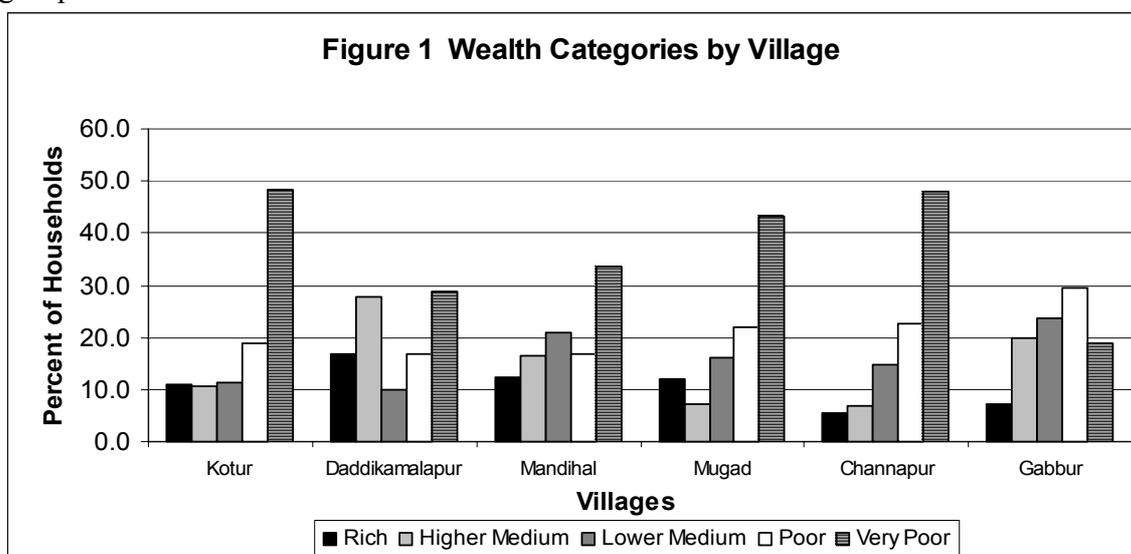
OVI 1.1: *By end of first year of project in each village, alternative livelihood options identified in the 5 initial project villages.*

The NGO approach to development in villages is social mobilization through the formation of self help groups (SHGs or *sanghas*), usually confined to poor or very poor strata (Annex B, plate B5; Annex C, Chapter 5; Annex F, section 1.5). In the present suite of projects, this commenced in Channapur, Gabbur and Mandihal during R7959, and in Mugad there were SHGs of long standing through previous activities of IDS. To generate purpose and cohesiveness, informal credit and loans schemes based in each SHG (Annex F) were established. Alternative livelihood options were discussed solely in the context of these SHGs, which were either male or female, never mixed gender (Annex C, Appendix 4.1). In year 1, options identified were fruit trees (Annex B, plates B9, B21), vermicomposting (Annex B, plates B15 and B16), and goats (Annex B, plate B29;

Annex K, Annex N), with examples of these being represented in all six project villages.

OVI 1.2: *In at least 6 villages, by end of project 30% of households in primary beneficiary groups adopt sustainable alternative livelihoods options with measurable increases in livelihood outcomes.*

The initial Family Information Survey conducted in November and December 2001 (see Annex C, Appendix 3.1; Annex E and the FIS1 database on CD) showed that there were 2,114 households in the six project villages. A subsequent participatory wealth ranking exercise conducted in January 2003 indicated that 1,379 households (55%) are poor or very poor (Annex E, Figure 1). The proportion varied between villages (Figure 1), the two villages with significant dairying-based livelihoods activity and also closest to the cities (Daddikamalapur and Gabbur) having the least in the very poor category. The poor and very poor were considered to be the primary beneficiary groups.



By the end of the project, 45 SHGs were meeting regularly (at least monthly, but more usually weekly), having 600 members. The great majority were poor or very poor, but a small proportion of the members of SHGs had been categorized as medium or even rich. There were also non-SHG Village Forest Committees and other user groups (Annex C, section 4.8 and 4.8.4; Annex K, pages K21 and K22). The final survey (FIS2, on CD) revealed that across all wealth classes, 87% of the population have experienced some form of intervention through the project (Annex C, section 14.4, figure 14.7) and that 41% of poor and very poor households have at least one member with significant interactions with the project (Annex C, Figure 4.8).

Annex F describes the analysis of a sample of 18 SHG in 6 villages, with 244 households being represented (a 40% sample of all the project SHGs, also see Annex D, Table 3.3). The SHG database is included on the CD with this report. Table 1 presents a summary of the findings. Despite proximity to the urban area, 63% of SHG members stated that their main occupation is agriculture or agricultural labour, a proportion corroborated in Annex E, Figure 6, based on a sample of all households in all six villages. Initially, the source of funding for loans was the SHG's own account comprising the weekly savings of members. Once SHGs became properly constituted with bank accounts, and as members became more adept at using the banks' services, some took out additional loans from the banks. In the last two years of the project, a capital investment was made by the project to SHG federal bodies at village level (*mahasangha* or Village Development Societies), which provided funds for income generating activities for SHG members. These were paid back to the SHG federal body and thus were known as revolving funds. Between December 2001 and November 2004, the total number of loans taken was 1,168, amounting to Rs

1.2 million (approximately £16,000) (Table 2).

Initially, SHG members typically (but not invariably) took out loans for ‘non-productive’ purposes (to pay off loans from money lenders, school and hospital fees, weddings, etc.), before borrowing for income generation. Approximately half of loans from the SHG and banks were for development of income generating activities (IGA), as were 85% of loans taken from the revolving funds. Of these IGA supporting loans, with the exception of bank loans, the majority were taken for NR based livelihoods activities. Of these, 59% fell under the general heading of agriculture, another 26% specifically for livestock based enterprises (mostly dairying, some oxen for draft), and the other 15% for a diverse range including poultry, goats, fodder selling, and flowers. For further detail see Annex C, Figures 14.2 to 14.4. Some SHG members have taken out loans more than ten times, having to repay each time before a new loan can be taken. This ‘repeat custom’ indicates great confidence in the system. A study conducted 18 months into the project showed that even by that stage, membership of a SHG had already resulted in an increase in diversity of livelihoods strategies of women (Annex G, Figure 16), and savings (Figure 20) and self-confidence (section 5.2.2) had increased. These effects clearly increased as the project continued.

Table 2 Loans utilization pattern in SHGs

Source of loan	SHG	Revolving fund	Bank
No. loans taken	888	99	181
Mean size (Rs)	1394	1718	1298
% loans taken for income generating activity (IGA)	42%	85%	56%
Of IGA, % loans for NR activities	76%	85%	42%

The findings show that NR based enterprises are still the favoured livelihood strategy amongst the peri-urban poor, presumably because this is what most people are still most familiar with. At the stage of conception of the project, this was by no means certain (see Section 3 above), and although there is a section of the peri-urban poor society that has opted for non-NR based livelihoods (Annex C, Chapter 11; Annex H), numbers are far fewer than those continuing with NR-based livelihoods strategies.

Measuring changes in livelihood outcomes due to implementation of action plans had to be conducted against a background of economic change in India, where mean GDP is growing at 8.5% p.a. (Asian Development Bank, 2005). Figure 17 in Annex E shows that agriculturally derived household (from the final survey FIS2, which included project participants and non-participants) incomes in all six project villages increased slightly over the project period, but this is in the context of a prolonged drought (Table 3 below, and Annex B, Figure B1) when NR derived incomes might be expected to fall. Figures 21 and 22 in Annex E indicate the benefits reported by respondents in the final survey (FIS2).

Table 3 Annual rainfall 1997 – Sept 2005 at UAS Dharwad, and long term mean

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005*	1950-99
Rainfall (mm)	749.5	741.8	422.8	539.2	269.5	428.4	178	602.2	883.7	789.3

* Data for 2005 until September only

It is clear that participation in the project gave the majority of participants a range of alternative or enhanced livelihood options, but it is the nature of many NR based interventions that it may take a number of years for increased financial incomes to be realised. Nevertheless, more than 70% of

SHG members reported improvements in income due to use of loans to support IGAs (Annex E, Figure 25). An exception to slow returns from NR based livelihoods are poultry, and several accounts of householders who have adopted improved breeds of poultry and the rapid effect upon household finances are given in Annex C, Section 8.9. The same applies to production of vermicompost: see Annex D, Figure 4.5. Also see Annex C, Figures 8.1 to 8.3 for a breakdown of adoption of additional livestock by wealth class and whether landed or landless. For an example of an early adopter of taking loans from the SHG in Gabbur for large livestock, see Hussain's story (Annex C, box on page C71). This is evidence that over a period of two or three years, monetary returns can be realised from larger livestock, and it is clear that proximity to the city is a significant factor in this success.

When reported in term of the five capitals used in the sustainable livelihoods framework, the greatest benefits were categorized as natural and financial capitals (Annex E, Figure 27). It is clear that proximity to an urban area aided these increases in financial assets, as can be seen when respondents were asked what positive livelihood effects accrued from proximity to Hubli-Dharwad (Annex E, Figures 18 and 20).

OVI 1.3: *By end of project the poor in at least 6 villages are sufficiently confident to interact with Target Institutions to meet the needs they have identified for themselves.*

Several target institutions (TIs) have been engaged at various points with the project, and include the Depts of Forestry, Horticulture, Watershed Management, Livestock Husbandry, banks, District Council (rural), and the University of Agricultural Sciences (non-project staff). The Depts of Forestry, Horticulture and Livestock Husbandry have actively assisted with supply of planting material, vaccinations, earth moving, and tank desilting. SHG members regularly bank savings, a new experience for nearly all village women. Further details can be seen in Annex C, Table 14.6 for the four villages near Dharwad. The Dept. of Animal Husbandry also visits Gabbur, near Hubli, weekly to check on livestock health and to administer any vaccinations. From the TI perspective, working with the project is still mainly at the patron - client level, where there is no meaningful dialogue without mediation of the project. However, from the perspective of the primary beneficiaries, they feel now considerably more empowered to approach officials about matters which concern them or who have a service to offer. Examples of data provided by the villagers themselves during the development of participatory indicators are given in Annex D, Figures 4.15, 4.16 and 4.17, and in Table 4.14. A survey conducted 18 months into the project (Annex J, Figure 5.1), revealed that levels of fatalism were high in Mugad (29% of respondents did not believe that any change was possible, and only 14% believed that change could be brought about by political means). It would have been interesting to repeat this survey at the end of the project, after so many of the primary beneficiaries had experienced change they had brought about themselves. Interestingly, in Kelageri, a village within the municipal jurisdiction, no one thought change was impossible and 59% believed that it could be brought about by political means.

OVI 1.4. *By end of project, using indicators identified in Output 3, primary beneficiary groups in at least 6 villages report positive changes in management of NRs with consequent enhancement of their livelihoods.*

Indicators were identified with SHG members in each village. It took a long period for both the research team and then the primary beneficiaries to understand the concept of participatory indicators. Once the advantages were grasped, however, villagers readily perceived the empowering that development of their own indicators provided. Table 4 below is adapted from Annex D (Table 5.1), and shows both the indicators used and the effects on NR use and management. Use of these indicators, rather than independent scientific measurements, shows that the participants themselves observed changes, and were prepared to express their own opinions about them. It may be argued that the presence of members of the research team may influence

results. Once the team members had gained the total confidence of the villagers, participants were ready to point to negative effects as well as positive. An example is when a more detailed participatory monitoring and evaluation system was used in agroforestry plots in Channapur, some farmers were scored as having poor management ability. For further details, see Annex D, Section 4.2.

Table 4 Summary of changes in natural resource management reported using participatory indicators.

Indicators for vermi-culture	Results
Reduction in fertilizer use	An average reduction of 57% varying across villages from 25% (Mandihal) to 88% (Kotur)
Reduction in pesticide use	44% without integrated pest management on cotton (IPM), rising to 71% when in conjunction with IPM. Measurements taken only in Channapur.
Improved crop development	87% of participants say crops develop better
Financial benefit	Average income per household from sales was Rs 450, added to savings in fertilizer inputs Rs 610, yielded a total benefit of Rs 1060, equivalent to £16. The maximum average annual financial benefit of Rs 3280 accrued to those who had been involved for 3 years.
Indicator for agro-forestry	Results
Increase in tree cover	29% achieved and 31% exceeded the planned surviving trees per acre of 350-500, despite the drought conditions
Change in attitude towards trees	20 farmers further extending area under trees 23/25 farmers from the agro-forestry group would recommend it to others.
Increased capacity to manage wadis	Use of PIs suggested that 25/25 had increased capacity to manage, but in the more elaborate PM&E field walks, the proportion of farmers in the bad category went up by 8 % in a year.
Positive changes to crop development, soil moisture retention	25/25
Increased fodder	24/25
Indicators for livestock	Results
Increased importance of livestock	19% of the SHG members had extended their livestock holdings and 24% had started keeping livestock for the first time.
Change in attitudes towards vaccinations	34% increase in number using vaccinations
Decrease incidence of disease	97% said it had decreased
Increased capacity to obtain fodder	Inconclusive
Increased productivity	Inconclusive
Indicators for tank restoration	Results
Standing water in tank even in summer	3 ft depth observed. Enough for animals to drink, women to wash clothes, to water horticultural plants and enough soil moisture for another crop where previously one has not been possible (on higher ground).
Enough water in the tank for irrigation	Not enough for irrigation. Water would need to stand above the outlet level, not achieved because of drought.
Crop yields increased and number of fruit plants and fruit yields increased.	Not yet harvested (at time of collection of data).

A factor which had a strong negative effect on implementation of action plans, and therefore management of NR, was the persistent drought (see Logframe, assumptions at Output level). This particularly affected the success of interventions based on annual crops (Annex C, Chapter 9, and Annex L), with the exception of the final full season, 2004-5, when 80% of normal rainfall (Table 3) was received and the effects of soil and water conservation work became evident (Annex B, plates B9, B10, B38 and B41).

Output 2 Village stakeholders, researchers, and target institutions gain new insights from the process of implementing action plans in peri-urban areas into: (see the three sub-outputs)

One hypothesis of this project is that implementation of participatory action plans in the peri-urban context differs in some way from action plans implemented in more rural setting. Such differences may possibly arise from:

- Decreased availability of poorer members of the community near to cities to take part in community action planning or implementation due to cities drawing labour away from traditional agricultural production practices (there is some evidence for this from R7867);
- Fragmentation of the institutional landscape leading to lack of clarity about which TIs are responsible for which geographical zone or issue (there is evidence for this from R7959) (i.e. the political economy is more complex than in a purely urban or rural setting).
- Increased access to markets, but also increased levels of competition.

It was considered that different actors would gain different insights, and reflecting this, Output 2 was divided into three sub-outputs, each with its own OVIs.

Output 2.1. Factors which facilitate cooperation between different stakeholders

***OVI 2.1:** By end of year 1 of the project, using indicators identified in output 3, village stakeholders in 6 villages, researchers and target institutions acknowledge and articulate increased cooperation in pursuing project objectives.*

Diagrams of the institutional landscape are presented in Annex B, Appendix 2, and Annex I, Figures 1 and 2. Initially cooperation in pursuing project objectives progressed well, with nine Steering Group meetings being held in the first ten months of the project (Annex B, plate B6). These were facilitated by Mr P. Vastrad, CEO of the ZP (the District Council), and who had previously been the Commissioner of the Hubli-Dharwad Municipal Corporation (HDMC), and was a long standing collaborator with several of the NRSP projects. However, he was posted away, and the Steering Group meetings ceased as the new incumbent lacked the necessary interest. This process is described in Annex C, section 13.2.

A year later the project developed a good working relationship with the District Commissioner (a government official over both the ZP and the HDMC), as a consequence of which a rural-urban Task Force was established. However, he too was posted away before any effective outcomes could be realised. It is now recognized that entering at district level is inappropriate, and that it is better to start with TIs at village (gram) or block (taluk) level, or at the highest stratum, at State level. At the project final workshop in Bangalore in February 2005, the State Minister for Urban Development called for a forum to bring together all urban and rural officials in the State to better understand the peri-urban concept, and the tertiary level college (St. Joseph's) which co-hosted the workshop with the project has established chairs in Urban and Rural Administration to teach about and study such interactions. Annex C, Table 14.7 lists examples of collaboration with TIs at local level. Additionally, 30 interviews of attitudes of a range of TI officials to various peri-urban issues were conducted. Findings are described in Annexes C and I.

In conclusion, although there was a considerable degree of contact with TIs, and sometimes fruitful collaboration on occasions, this could not be described as cooperation in pursuing project objectives. The process of cooperation was found to be far too dependent upon personalities, a factor that was anticipated from the outset in the logframe at both Output and Activities levels. The continuing policy dialogue that was sought started then faltered, and the project failed to find a way of ensuring that its influence and new knowledge was preserved in institutional memories.

Output 2.2. Which solutions to identified issues are both effective and sustainable;

***OVI 2.2.** By end of project, features common to successful interventions identified by peri-urban stakeholders, reported by research team and at least two of the target institutions involved with the project.*

A considerable degree of understanding about features common to successful interventions was gained by the research team, but not by the TIs. An example is use of participatory approaches. Amongst TIs, there is a degree of acceptance that such approaches may have a place in delivery of services, particularly by NGOs, but the team did not observe any examples of Government agencies employing participatory approaches. Following project R7959, the World Bank funded watershed rehabilitation project asked for input by project team members into establishing participatory approaches in the villages in which they were intending to work, and subsequently both BAIF and IDS were asked to manage the programme in a number of villages around Hubli-Dharwad.

Participatory approaches are fine as far as they go, but even when utilized the implementing agency may still be paternalistic, condescending or over-bearing in attitude. It was found that ownership by primary beneficiaries is crucial, not only of benefits arising out of the plans of action but also planning and day to day management. An example from R8084 is the development of participatory indicators; once the concept was understood and villagers themselves realised that these indicators were for their own use, ideas of appropriate indicators and how to measure them flowed far more freely (Annex D).

Another finding is that primary beneficiaries must feel free to accept or reject advice of the research team. Example of progress in this area is when the UAS team distributed seeds of improved crop varieties with *advice* on how best to use them, but no *insistence* on how and where to plant them. There was consequent significant demand for new seeds (Annex L). Such an open attitude is certainly not the norm for UAS.

For non-SHG mediated community interventions, the research team also learned that much patient negotiation is required. Two examples were the repair of the Somanath tank bund in Mandihal (Annex B, plates B39 and B40), and the restoration of the feeder channels to the main tank in Kotur (Annex B, plates 37, 59, 60) as described in Annex M. It was found that the concept of '*shramadan*' or community action, had fallen into neglect. With increasing connection to the urban area, principally commuting for work, it proved to be difficult to get user groups to work together (in contrast to SHGs, who tended to meet because of a common shared interest or goal), as sharing a resource or facility (irrigation from a tank, or a feeder channel) tended to create more conflict at first rather than collaboration. IDS, an NGO with considerable experience in rural development, reported that they certainly found generating such broad community action in peri-urban areas rather harder than in rural villages. But with persistence, this could be achieved in peri-urban areas also.

When first establishing relationships within the village, avoidance of the better connected within the village was important, or they quickly took over the process. The best mode of entry was to first work with the poor, develop SHGs to give them an identity and a purpose, and then they can approach the more powerful on their own terms. Both development NGOs involved, IDS and BAIF, had their community officers live in the villages, greatly increasing confidence in the primary beneficiaries of the sincerity of the project.

Proximity to the city was an important criterion for the success of many of the interventions, particularly income generating activities. IDS reported that SHGs in peri-urban villages were much quicker to develop ideas for earning incomes and using the revolving fund than SHGs in more rural areas. It is presumed that this is because of greater day to day exposure to the commercial world and thus ideas for earning incomes.

The only cases where fragmentation of the institutional landscape caused problems were in the disinterest in the process by HDMC (believing that the NR emphasis of the project rendered it irrelevant to the urban authority), and for IDS when managing the Unkal catchment (but this was

not part of this project), as described in Annex C, Box 14.1.

Output 2.3. What are the most appropriate ways of measuring change by all stakeholders?

OVI 2.3.1. *By end of project year 1, primary beneficiaries in 6 villages, researchers and target institutions agree on a set of indicators to measure initial state of and changes in livelihood strategies, NR base and degree of effective collaboration between stakeholders, that are simple and believable.*

Three approaches were utilized to measuring change:

1. Largely quantitative: questionnaire surveys at start and end (FIS1 and FIS2, on CD)
2. Qualitative and quantitative: formulation of participatory indicators (Annex D)
3. Qualitative: process documentation (Annex C).

The process of arriving at participatory indicators (point 2 above) commenced with sending of two project team members on a three-week participatory monitoring and evaluation course at the International Institute for Rural Reconstruction, Philippines, R. B. Hiremath from IDS and A. Nitturkar from BAIF. In the event, it proved to be difficult to apply lessons learned there to the Indian context. One issue was that IIRR worked largely with literate farmers, whereas the majority of the primary beneficiaries in R8084 are illiterate, particularly women. The UK team developed six questions which the PM & E components of the project would address (Annex D). It was clear that the concept of PM & E was new to the Indian team members, so this is as far as identification of indicators reached by the end of year 1.

OVI 2.3.2. *By end of year 2 of project, after critically reviewing indicators, primary beneficiaries, researchers and target institutions and produce amendments where necessary.*

During the second year, confidence grew in the research team in the utility and application of participatory indicators. The breakthrough came at a trial session to test such indicators in July 2003 (Annex B, plate B22), where although the indicators tried turned out to be inappropriate, the team thereafter felt confident to repeat the process in other villages. An important finding from this experience is that development of participatory indicators with a naïve (*sensu stricto*) team takes time, particularly when that team is then charged with explaining the concept and developing participatory indicators with primary beneficiary groups who are only just getting used to the idea of bottom up development and ownership of processes as well as benefits.

OVI 2.3.3. *By end of project, primary beneficiaries, researchers and target institutions reach agreement on a set of those indicators which are suitable for continued use beyond the life of the project and for wider dissemination*

The end of the project, primary beneficiaries and researchers had agreed on sets of indicators (Annex D) to monitor the various action plans being implemented (Annex D). Indicators turned out to be remarkably similar between villages. Once the concept was understood, villagers proved to be adept at feeding in their own ideas and modifying indicators and monitoring procedures to give them the information they felt was useful. Figure 2 depicts the diagram that emerged from the first attempt at developing PIs for monitoring dairy enterprises in Gabbur, and the imprint of formal research methodology can be clearly seen.

Within a few months, villagers had modified it to make it more convenient to use (fewer measurement categories) and to record data that they felt was useful to them. Changes were: counted the number of families who had 1-2, 3-4, 5-6, or >6 milch animals and 1-2, 2-4, 5-6 litres of milk production per day, also those who had started growing fodder. The picture of an injection indicated that the vet (VLI) was coming regularly to their village. They also felt that they were managing their dairy activity better as they now had increased awareness. In general, as SHGs started revisiting the indicators, they became more comfortable with them and more confident of

being able to measure changes by themselves in future.

Figure 2. Diagram of participatory indicators in Gabbur in July 2004

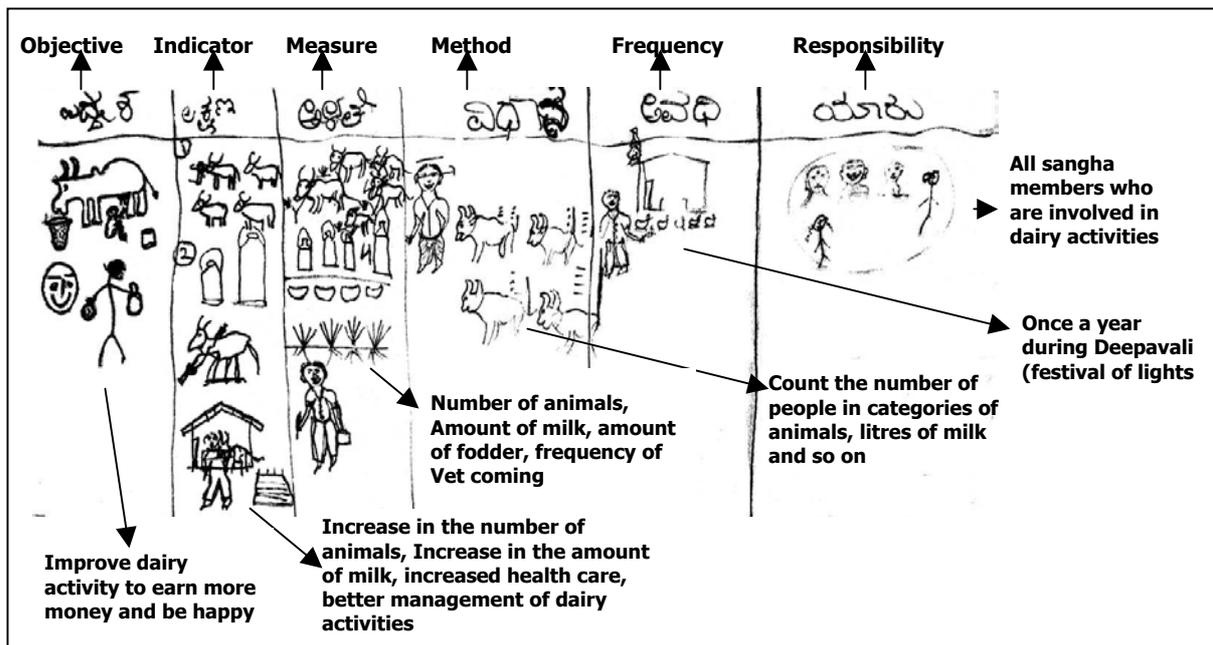
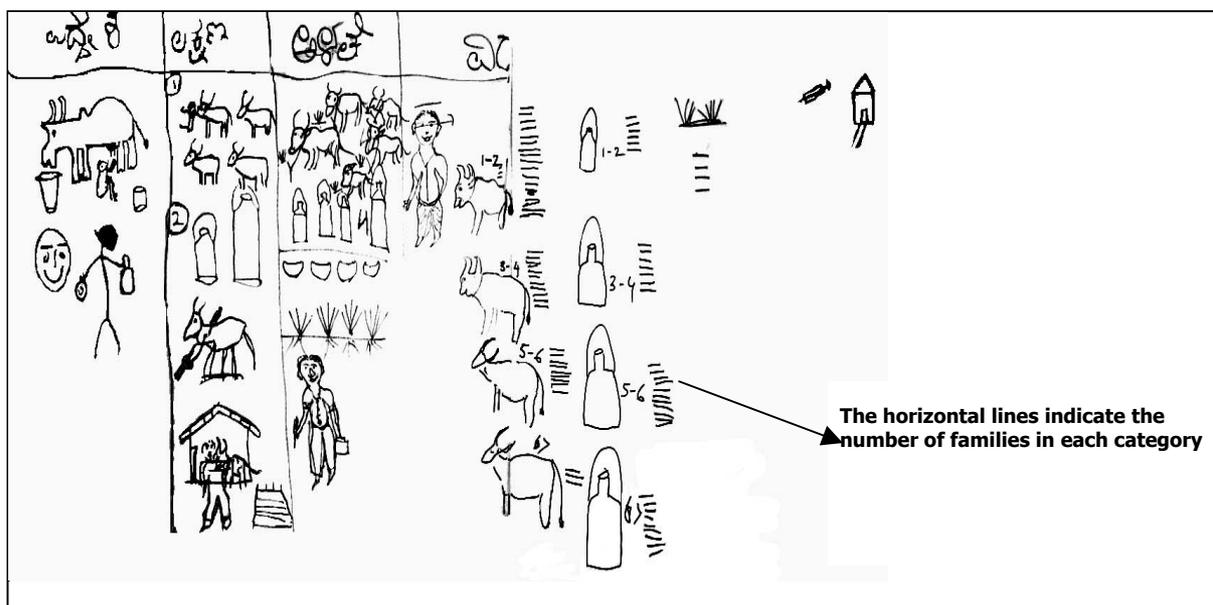


Figure 3 Diagram of participatory indicators in November 2004



Annex D, section 5.3 addresses the issue of those indicators which might be suitable for continued use beyond the life of the project and for wider dissemination. At this stage, it is becoming evident that some indicators are still in the process of evolution, and that people are still getting used to the process. Given the time it took to develop PIs (approximately 18 months longer than anticipated), the process needs more time to be firmly embedded before we can be confident about which indicators and monitoring systems will endure beyond the life of the project, let alone for wider dissemination.

Output 3. Acceptance of processes that have led to effective NR management strategies

which benefit the PU poor, what interventions work, how changes can be measured and what constitutes an enabling environment, amongst interest groups in non-project localities.

This output was concerned with dissemination of the findings of the project in areas away from the project.

OVI 3.1. *During course of project, evidence of increased capacity in at least two local TIs in conducting participatory processes, data management and analysis & evaluation of processes.*

UAS, SDM College of Engineering and Karnatak University are prominent local higher education TIs, and within the research team (including six academics in permanent positions), capacity to conduct participatory processes, manage data and analyse and evaluate of processes has unquestionably increased. Annexes F, H and K to V are evidence of this. However, in the non-education sector, there may be increased awareness of issues but no evidence of increased capacity.

OVI 3.2. *By end of project, requests received by NGOs and TIs for replication of the project's Output 1 from interested parties in at least two non-project villages around Hubli-Dharwad*

Requests from nearby villages for replication of some components of the project have been numerous. These are detailed in Annex C, section 14.3, and include replication of the agroforestry approaches developed by BAIF and used in Channapur (Annex B, plates B7 to B14), vermicomposting (Annex B, plates B15 and B16), and ten nearby villages have asked IDS to establish SHGs (Annex B, plate B5). R8084 commenced by organizing outwards exposure visits for target groups to nearby villages and projects. This flow of knowledge has now been reversed, with visit from banks, other NGOs, academics and officials from local TIs to observe project work and to talk to villagers.

The watershed rehabilitation programme managed by the Karnataka State Watershed Dept, and funded by the World Bank includes Unkal sub-catchment, a locally significant drainage basin covering 36 km², which straddles the boundary between the 'urban' HDMC and the 'rural' ZP land. The District Watershed Development Officer (DWDO) insisted that IDS be given the contract to implement the rehabilitation programme because of their experience of managing development in a peri-urban area. This was a direct result of his experience of IDS during the Steering Group meetings at the start of R8084.

Further afield, the UN International Labour Organisation requested a replication of MOVE and have signed a contract to that effect, but this has not yet taken place.

OVI 3.3. *By end of project, statements drawn up by at least two District and State level TIs of what action is required and what policies and procedures need to change to create an enabling environment for bringing about processes that lead to effective NR management strategies.*

Although the project did not result in TIs issuing formal policy statements, nevertheless some of their actions displayed an increasing interest with the project's aims. As mentioned under Output 2.1., at the State level, both within the Government and the higher education sector, there is recognition of the need to examine and develop policies appropriate for the peri-urban interface. To further this, the project organized a final workshop in Bangalore on 8-9 February 2005 (Annex B, plate B49). A wide range of TIs and NGOs from the State and Bangalore City level participated, and funding has been obtained for the production of proceedings from this workshop. There is a record of the State Minister for Urban Development's call for a forum to examine peri-urban issues (as already mentioned), and the St. Joseph's College of Business Administration, which jointly organized the workshop with the project, has already established two senior academic positions in rural and urban development.

The World Bank funded watershed rehabilitation programme asked UAS to assess income generation. The final report of that assessment incorporated the findings from the project that urbanization is substantially changing livelihood patterns of the poor and that the landless and the poor need exposure and training on understanding markets before they commence income generating activities.

5 Research Activities

1. Research team

See Annex A, section 1. The UAS team provided technical input, suggested or modified interventions and collected data. The role of Best Practices Foundation was to manage the project within India, document the processes and undertake specific aspects of the research, such as development of participatory monitoring and evaluation, helping to establish MOVE and institutional analysis. The two development NGOs, BAIF and IDS, were responsible for community level development. The UK team was responsible for overall project management (Robert Brook), and specific research inputs (Adriana Allen, institutional analysis; Bianca Ambrose-Oji, livelihoods analysis; Karen Hillyer, participatory monitoring and evaluation).

Personnel changes caused some difficulties. Dr Hunshal, the Indian team leader, was transferred by UAS to a distant campus, creating a significant hiatus in management. Fiona Nunan was involved with policy analysis, but had to leave the project after a year. Three other members of the UK team also had official leaves of absence for periods during the project.

The following are arranged as they were originally presented in the Research Activities section of the logical framework. This is more than an expanded reiteration of the methods used; rather it considers insights gained by using the different approaches employed.

2. Community mobilization and development

IDS was responsible for the villages near Dharwad: Mugad, Mandihal, Daddikamalapur and Kotur; whilst BAIF was responsible for villages near Hubli, Gabbur and Channapur, as they were already working on an EU funded programme in that vicinity (Annex B, map 1). The NGOs rent a house in the villages where they work and their community officers live in the community to build up trust and the convey commitment.

The NGOs established SHGs, male and female. Often these commenced after taking interested villagers on exposure visits to meet members of established SHGs in other villages where the NGOs are working. A number of NGOs were started during R7959 and continued during R8084. The first activities were to start up savings and credit schemes within each SHG, along with training on how to run and manage the SHG and simple book-keeping. Each NGO was properly constituted so that they could open a group bank account and deposit their savings there. Once established, SHG members were taken on further exposure visits, to government offices to learn what their roles are and what services the SHG members could call upon, and to small scale enterprise groups to give them ideas about alternative livelihood strategies.

The lengthiest and most demanding training programme was MOVE (Annex H). This arose out of a realization that some landless and illiterate women were virtually housebound, and had no idea what alternative income generating activities they could engage in. Not having the expertise within the project, Best Practices Foundation approached NGOs in Bangalore with expertise in income generating training for assistance, but they turned out to be too expensive and too inflexible for the project's needs. Dr Subhas, head of the management school at Karnatak University in Dharwad, was asked as an experiment if he could devise a training programme. He was known to members of the project team, having participated in the Baseline Study in 1997 (R6825), but not since. He had previously worked on training of women in developing new enterprises, but these had been urban and literate women. He accepted this challenge, expecting it to take six months. In the event, it took 18 months, as everything had to be developed from scratch. An important lesson was that working with illiterate women with few assets was an entirely different proposition from groups he had worked with before. As can be seen from the video (on CD), the exercise was a considerable success in Mugad where the SHG opted to make soap powder (Annex B, plates B43

to B47), but less so in Gabbur (for analysis, see Annex C, chapter 11 and Annex H). During the Uptake Promotion phase (April to September 2005), the degree of transferability of the MOVE was tested. After condensing the training programme into ten weekly sessions, Dr Subhas held one training session per week in one village with a self help group, and the community officers responsible for the other villagers attended to learn. They would then disperse to their villages to replicate the training. Unlike the initial training in Mugad, the enterprises selected generally revolved around bulk buying of commodities that had been identified by SHGs in participatory market surveys. One enterprise that has been notably successful is clothes selling in Mugad, also the site of the first success. It could be that Mugad is a sufficiently large village for it to represent a significant market in its own right. By the time of the close of project in September 2005, it was evident that MOVE could be successfully replicated, and that the initial enterprise in Mugad was sustainable, some 250 kg of soap powder being made and sold every month.

IDS also helped an existing enterprise in Kotur to develop further. A group of Muslim women, who were traditionally expected to remain at home, had started to make incense sticks (*agarbatti*) and market them (Annex B, plates B22 to B24). They were members of an existing government initiated SHG (*Stree Shakti* scheme), and IDS agreed to help them with sourcing raw materials and marketing. Their business has now expanded considerably. By September 2005, they had moved their stock to a workshop (Annex B, Plate B58, 15 SHG members were engaged in making agabartti, and the group was employing seven additional women (thus the enterprise had become an employment generator).

Formulation of management plans for natural resources was also usually based in SHGs, particularly for those enterprises that were not reliant on community action, including dairying (Annex B, plates B26 and B48), agroforestry (Annex B, plates B7, B8 and B12) vermicomposting (Annex B, plates B15 and B16), poultry (Annex B, plate B30), goats (Annex B, plate B29), backyard horticulture (Annex B, plate B21), and crop demonstrations (Annex B, plates B17 and B18).

Some NR restoration works were on a scale such that many or most of the community were involved, many participants who were not members of SHGs. Examples included tank desilting (Annex B, plates B31 to B36), tank bunds repair (Annex B, plates B39 and B40), channel digging and restoration (Annex B, plates B19, B20 and B37), and the green festival '*Hasiru Habba*' held in Channapur (Annex C, section 7.4). These were always far more difficult to organise due to a range of reasons. Users of communal facilities which had fallen into neglect did not have a natural meeting occasion, unlike SHGs, and any users' groups which might once have existed had fallen into abeyance. Once the 'real' users (as opposed to those who claimed an interest) had been identified, then negotiations through the various conflicts began. Example of such conflicts can be seen in Table 4.1 in Annex J, which tabulates users and their views on who should manage Mugad tank (Annex B, plates B3 and B4). Despite the difficulties, these interventions were considered important, because the lack of access to resources, usually water, affected the lives of many poor people, and these activities raised the profile of the project in the villages and helped establish the project's credibility. 'Real' action was seen as a necessity to avoid acquiring a reputation for just talking and collecting data. Tanks were desilted, either partially or wholly, in Mugad, Mandihal, Daddikamalapur and Kotur. The input of villagers with better resource endowments was important, particularly those with tractors and trailers to cart away tank silt (Annex B, plates 31 to B35), which was distributed to the land of small and larger land holders. A particular triumph was achieved in Kotur, where a feeder channel to two tanks was restored. The feeder channel ran past or through 22 farmers' fields, and it took two years of negotiations and 16 meetings by the UAS team before all parties agreed on their contributions, in work, financially or in kind. Finally, the work commenced in July 2004 (Annex C, chapter 6, and Annex M).

It was intended that a bidding process for small, village level projects be established to encourage TIs as well as villagers to gain experience at bidding for pump-priming funds for activities that would improve NR management and the livelihoods of the poor. These could be in existing project villages or in new ones, as a means of expanding the benefits of the project. This was due to start in April 2003, but it was clear that by that stage, no TIs were interested nor had the capacity to bid for such funding. Also, NGO partners considered that late entry to the project would not allow adequate community mobilization to take place and to be consolidated before the end of the project. The NGOs usually require a minimum of five years for this process. Instead, the capital injection (£2,000) was used to establish revolving funds which would be managed by SHG federation bodies, and loaned to SHG members who wanted to start an income generating activity. The availability of larger sums than were available from within the SHG's own savings had a significant effect in enabling members to purchase larger capital assets such as buffalo or dairy cows (Annex B, plates B26 and B48). The loans were repaid back to the SHG federal body, so that funds could be used for further loans (Table 2 above).

3. Gaining insights from implementing plans of action

The first activity planned was for the UK team members to write working papers on key issues to bring the research team and peri-urban stakeholders up to date with current knowledge. This was done for participatory monitoring and evaluation, and the research process (see Appendices to Annex D, on CD). In retrospect, these were probably written at too high a level, and little use seems to have been made of these working papers by the research team. Possibly the difficulty of traditionally trained research assistants (trained in soil science, agronomy, etc.) in adapting to inter-disciplinary research with a strong social focus was underestimated.

The main activity undertaken to identify those factors which facilitated cooperation between different stakeholders was observation of the interactions, analysing them and writing it up as process documentation. This was a strong feature of R7959 and was repeated in R8084. Annex C is the written up process documentation.

The team was encouraged to be reflective and to learn from successes and failures. Annual internal reviews were held, and monthly team meetings instituted. Internal project reviews became self-sustaining, being a regular feature of meetings. Besides the UK project manager, for whom this was a requirement, the Indian team also found the logframe to be a useful management tool.

An important planned activity was interacting with TIs in various fora. Initially these took the form of Steering Group meetings, where officers from various Government agencies would meet and discuss issues with the research team and village target groups (Annex B, plate B6). These meetings were good for airing issues, and many village primary beneficiaries learned lobbying skills. However, these meetings proved to not be sustainable, and folded as soon as the ZP CEO was transferred away. Despite attempts to meet in some sort of forum since, nothing proved to be long-lasting.

Measuring change due to the effect of implementing plans of action was an important activity. As explained above under Output 2.3., monitoring of change took three forms. Formal monitoring commenced with the comprehensive Family Information Survey 1 (FIS1), in November and December 2001 (Annex C, section 3.3). These used a survey format traditionally employed by the NGOs (Annex C, Appendix 3.1) when they first start to work in a new village. NGOs use these surveys as a form of record keeping, the data are never formally analysed and surveys are not formulated with any research questions in mind nor to test any hypotheses. This survey, of all the households in the six villages, commenced before the whole team had time to consider what form of survey would be most useful (quantitative, qualitative or a combination). Numerous problems ensued, including lack of rigour in collecting data and significant operator error (different data

collectors in different villages with varying understanding about how to record responses, particularly the more quantitative measures, omitting houses where there was nobody at home, and even more significantly, during entering of data). In previous projects, MS Access had been adopted as the standard package for storing, retrieving and analysing data, supplemented by SPSS for statistical analysis. However, only one or two team members had some limited experience with Access, and the volume of data was such that they were entered into MS Excel instead, with which they were more familiar.

Additionally, during the participatory wealth ranking exercise (Annex C, section 3.4), it was found that village participants were ranking households that had not appeared in the first survey. These turned out to be approximately 25% of households in the four project villages near to Dharwad, mostly the poor and marginal, as these household members are rarely present during the day due to the necessity of sending out all members to earn an income. These omissions were corrected by a supplementary survey, conducted at times of day most convenient to the households (usually evenings), albeit one year later than the original.

Examination of the entered data revealed numerous discrepancies and entry errors. Considerable effort was expended in trying to render the database useable. A local consultant was hired to go through the database with the data collectors to correct the errors and convert it to Access and to code quantitative responses, and advised by UK research staff. This was largely achieved, albeit after considerable effort, although some sections of the database were beyond retrieval due to changes in staff, which is why the Kotur section of the database contains only household information and omits data on resource endowments. This database (FIS1) is on the CD with this report, and has been corrected as far as possible (Annex E, page E2). The research team learned a valuable lesson from this very costly episode, which is that survey methods must be relevant to the research questions being asked and that staff must first have the requisite skills and understanding of the research process before embarking upon surveys.

The question of a final quantitative survey was held open while the team considered whether the PM & E was going to be suitable for monitoring changes due to implementing plans of action. Due to the slow uptake of PM & E, it was decided that a final survey would be conducted, but with a 10% sample (Annex E, page E2). This survey is known as FIS2, also on the CD.

SHG groups proved to be the natural medium through which PIs could be identified and a PM & E system could be developed. This component of the research involved all sectors of the research team. As reported under Output 2.3 above, a participatory monitoring process took considerably longer than anticipated to establish, but by the end of the project an operating system was in place and results are showing that this is a useful means of measuring change for the research team and helps increase the awareness of the primary beneficiaries about their enterprises and environment. Annex D, section 5.3. considers which aspects of the PM & E system might be sustainable beyond the project and for wider dissemination, and is discussed under Output 2.3 above.

During the course of the project many lessons were learned about getting this type of peri-urban research done. If a project is to have any development component (i.e. if it is to be anything other than a knowledge gathering exercise), then involvement of NGOs is vital. In the Indian context, Government organizations and academics do not (with rare exceptions) understand community mobilization and development, which is a pre-requisite if plans of action are to be owned by the primary beneficiaries. NGOs and academics can work well together provided the NGOs understand the research priorities of academia, and academics understand the development imperative of NGOs. Give and take and a good deal of listening is required from all sides. Training in research methodology is vital, and must be costed into the project budget. It has been pointed out just how many resources were poured into correcting the defects in the FIS1 in the current project. Training in data gathering (social and agricultural), data entry, database

management, statistical analysis and inculcation of the importance of rigour are of primary importance, and although training may delay the start of ‘proper’ activities, in the end the time and finance will be amply repaid. Short cuts will not be anything other than false economies. If it is politically acceptable, it may be necessary for international personnel to have some say in which research assistants are hired in situations where local research staff are under pressure to appoint personnel other than the best.

4. Dissemination of findings

Dissemination of insights and findings relevant to local stakeholders continued throughout the duration of the project. In the Indian context, three main messages were considered to be important: 1) the effectiveness of community mobilization and participatory approaches in development, and how to achieve these in practice in a peri-urban setting (points 1 to 3 below); 2) how the excluded and isolated who cannot benefit from the opportunities presented by living in a peri-urban location may be helped (points 4 and 5); and 3) concept of the peri-urban interface, the nature of this interaction and how it might best be managed (point 6). The new findings that were considered to be worth disseminating had to be of practical importance to Indian Government agencies and NGOs who might in due course be adopters, and were:

- 1) *Natural entry points*: despite being widely used by the NGO sector, community mobilization (SHGs) is used only sporadically by Government agencies (Dept. of Women and Child Development aside), but this creates a natural ‘client base’ with which implementing agencies could work. However, the trade off that implementing agencies would have to accept is that empowering local people might mean some loss of their own control. Additionally, livelihood strategies, particularly of the poor, are typically composed from a wide portfolio and are not arranged neatly according to whichever type of jurisdiction the village is administered by, rural or urban, and flexibility of approach in dealing with this ‘untidiness’ will be necessary.
- 2) *Cost effectiveness*: implementing improved NR management via community mobilization and using participatory approaches initially takes much longer than the traditional methods still used (e.g. the Dept. of Agriculture still uses the traditional and outmoded ‘Training and Visit’ method of extension), but once established has the advantages of being much more cost effective (e.g. IDS estimated that it could de-silt tanks using community cooperation at 20% of the cost of employing a contractor), and stands much more chance of reaching the poor rather than the wealthier and the better connected. The experience of the NGOs working on the project needs to be borne in mind, in that such community activities are initially much harder to organize in the PUI than in a rural setting.
- 3) *Adopters*: once target groups achieve self-organization and mutual support, and once sensitized to new ways in which they could operate as a group, they are much more receptive to new ideas, and are therefore much more likely to be ‘adopters’ of new technologies. For example, in Channapur over 10% of the cultivable land is now converted to the ‘wadi’ agroforestry system, a higher proportion than even in the nearby EU-funded project with which BAIF had been working for many more years. Many of these wadis are on the land of small and marginal farmers, and this system may represent their last chance of making their land productive before they abandon agriculture altogether (as some have done, selling land to people from Hubli). Instead of being passive or even fatalistic, members of such groups start to believe that change is possible. Maybe pandering to the enlightened self-interest of Government agencies which have to meet achievement targets might elicit their cooperation when presented with the prospect of a new pool of potential adopters. NGOs, too, have to demonstrate ‘success’ and uptake to their funding agencies, and while many do operate via SHGs, their degree of effectiveness varies.
- 4) *Opportunities for the poor presented by the PUI*: unlike in rural areas, in peri-urban areas the

poor and the landless have opportunities to develop livelihood strategies which can lift them out of poverty. Examples observed during R8084 are dairying and making of incense sticks. However, the very poor and excluded find it very hard to take advantage of such opportunities. It has proved possible, however, to give training to the poor and landless on how to use the opportunities presented by the nearby urban area, but still retain their communities and their village way of life, if they prefer.

5) *Novel approaches*: the project did develop genuinely new approaches such as MOVE (see video on MOVE on CD, and Annex H). Marketing components within projects are not novel, but as far as the research team is aware, MOVE represents the first time that a group suffering from multiple social disadvantages (being women who were either landless and illiterate or both, and in some cases low caste) has been trained from scratch to understand the value addition chain, analyse markets, identify opportunities, develop products, sell them at a profit and then re-invest profits back into the business.

6) *Implications of the PUI for administration*: the current division of administration into urban and rural is a blunt instrument and not sensitive to the changes that take place as urbanization advances. Urbanization needs to be seen as a process to be managed pro-actively rather than a spatially defined zone that has its boundaries shifted reactively outwards in response to demand. It is a considerable shock for poor householders with largely NR based livelihood strategies to be under a rural jurisdiction one day and an urban one the next. They face loss of rural favourable terms for subsidies and development loans, and find much heavier urban taxes are levied, they lose their Gram Panchayat (village council) and the Gram Sabha (village meeting), and instead return one councillor to the municipal council (Annex I). Additionally, there are several issues that cross currently drawn boundaries: labour, water, food and goods and migrants flow towards and into urban areas, whilst finance, pollution and processed goods flow outwards. Some natural resource features which straddle boundaries, such as watersheds, require integrated management. The urban-rural administrative dichotomy effectively nullifies any opportunity for management of these flows and processes. There is provision in the 74th Amendment to the Constitution for a Nagar Panchayat, which could be construed to act as an intermediary body to facilitate the transition from rural to urban. However, this has not been implemented yet in Karnataka State, nor elsewhere in India as far as the research team is aware.

These new findings were disseminated via:

- 1) Two newsletters, one in English and the second in Kannada, targeted at TI officials and distributed either in person or by mail using the project's mailing list.
- 2) A book, 'Changing Frontiers', based largely on the findings of project R7867, but updated with findings from R7959 and R8084, was distributed widely within India at both State and Union level, and internationally, using the project's mailing list.
- 3) Papers and seminars given in international and national meetings and conferences (see Publications in Section 8 of FTR).
- 4) Project final workshops held in Bangalore and Hubli-Dharwad. The Bangalore workshop attracted speakers from all over India, as well as UK, USA and Sri Lanka, and was attended by a wide range of Government personnel and academics (Annex B, plate B49). Total attendance was approximately 100. In Hubli-Dharwad, the project organized final workshops held mostly in the vernacular language, Kannada (Annex B, plates B50 to B52), which were attended by local representatives of NGOs such as World Vision (an international NGO), and by the UAS Director of Research, which is a TI with considerable influence within the government extension agencies. However, district level TI attendance at the Hubli-Dharwad workshops was disappointingly low. It was found that having a directive from the head of the organisation (DC, ZP CEO or HDMC

commissioner) has a very significant effect upon attendance, and absence of a directive the reverse effect.

5) Three videos on CD, 'Living on the Edge' a presentation of the peri-urban concept, how the project developed plans of action and implemented them with the poor in project villages, and 'MOVE', specifically about the MOVE training programme, and 'Participation for Sustainable Development', relating the importance of adopting a bottom-up approach to development if it is to be sustained. These are being distributed during the uptake promotion phase. See Annex B, Plate B54.

6) At events, the local press were asked to attend, which they frequently did, or press releases were sent to the local press (e.g. Annex B, Plate B53).

7) Meetings, conducted at national level (launch of 'Changing Frontiers' book, 20 December 2003, at National Institute of Public Policy and Finance, Delhi), state level (meetings at various times with the Secretaries and other senior officials of the Departments of Rural Development, Urban Development and Forestry, and the World Bank Watershed Rehabilitation Dept., and the project final workshop on 8-9 February 2005) and district level (already described under Output 2.1. above).

8) Two policy briefs on Natural Resource Management in the PUI, and on Governance in the PUI, to be distributed to District and State Governments.

9) A manual on how to implement the MOVE programme, to be distributed to NGOs and community development organizations.

There has been no systematic collation of responses to dissemination of these findings, but informal feedback is regularly received.

6 Environmental assessment

6.1 What significant environmental impacts resulted from the research activities (both positive and negative)?

Wholly positive. At the outset, significant natural resource degradation was evident (see Annex B, plates B2, B4, B35, B42). Many of the plans of action developed with primary beneficiaries focused on reversing degradation of the NR base, and this was achieved by villagers, with guidance and inputs from the project, in each of the six project villages. Trees were planted (Annex B, plates B9, B12, B21), so increasing organic matter inputs, decreasing the need to cut fuel wood from forests and increasing carbon sequestration. Tanks were desilted, tank bunds were repaired and input and outlet channels restored (Annex B plates B19, B20, B31 to B34, B36, B37, B39, B40), increasing retention of water in tanks and supplying water to crops (Annex B plates B38, B41), and recharging aquifers. Biodiversity was enhanced (Annex B, plate B11). Use of sprayed insecticides was decreased through introduction of integrated pest management (Annex B, plates B17, B18). Fodder was grown for livestock (Annex B, plates B14, B27, B28), so reducing over-grazing pressure on fragile lands. Organic matter in soil was increased and applications of soluble fertilizers was decreased by use of vermicompost (Annex B, plates B15, B16).

6.2 What will be the potentially significant environmental impacts (both positive and negative) of widespread dissemination and application of research findings?

The research findings are concerned with learning from implementing plans of action in a peri-urban context. Being participatory in ethos, there is no guarantee that development of plans of action in another peri-urban setting would yield similar plans. It would depend on what the NR issues are in that location. What the research has told us is ways in which plans of action may be

implemented effectively and with community support. If in another location plans of a similar nature were devised, then knowledge from this project will help put them into effect with less trial and error, and so expedite the implementation process, leading to better NR management.

6.3 Has there been evidence during the project's life of what is described in Section 6.2 and how were these impacts detected and monitored?

No

6.4 What follow up action, if any, is recommended?

Ideally, return in a year or two to determine what actions have been sustained without project support.

7 Contribution of Outputs

NRSP Purpose for the PUI System is: **Benefits for poor people in targeted countries generated by application of new knowledge to natural resources management in peri-urban production systems.** The relevant OVIs are: *By 2005 evidence of application of research products to benefit target communities by achieving one or more of:*

- *productivity increases*
- *improved employment (numbers, income, quality)*
- *increased access to sustainable NR-based production opportunities*
- *increased access to sustainable non-NR-based production opportunities*

The project contributed to the achievement of the programme purpose by:

1) Increasing productivity of dairy buffalo (in terms of numbers owned and producing milk), improved poultry and goats (Annex D, section 4.3). Increasing productivity of crops was rather more difficult to demonstrate due to successive years of drought. However, in 2004-5, rabi crops were grown along the restored feeder channel in Kotur for the first time in living memory (Annex B, plate B38), and farmers reported that using vermicompost on cotton crops improved yield (Annex D, section 4.1.3 and Annex N, page N7).

2) Improved employment was demonstrated in numerous activities; e.g. new income generating activities (Annex C, boxes 10.3 to 10.5, figure 14.5; Annex D, figures 4.18 and 4.19, table 4.15; Annex E, figure 22); sales of vermicompost (Annex C, box 10.2; Annex D, figure 4.4; Annex N, page N5); small livestock (Annex D, table 4.8).

3) An example of whether increased access to sustainable NR-based production opportunities was achieved was that across 18 sampled SHGs, 55 households reported starting new livestock enterprises (Annex D, section 4.3.1). As the SHG sample was 40% of the whole, extrapolating to the whole project one would expect 138 households to have done similarly. Further information is given in Annex C, tables 14.3 and 14.4. It is clear that given the opportunity, the majority of peri-urban target group members opted for enhanced or new NR-based production opportunities.

4) Having said the foregoing, one key characteristic of the PUI is that there are also numerous non-NR-based production opportunities available. Annex C, figure 14.2 and 14.5 make this clear. In Annex C, tables 14.3 and 14.4, occupations listed as 'livelihood' are non-NR-based. It is noted that these were in a distinct minority compared to NR-based livelihoods, indicating that either primary beneficiaries are inherently conservative in nature or a confidence in the NR-sector to continue to provide sustainable livelihood opportunities, or a combination of these.

In summary, there is clear evidence that the project has begun to benefit the initially identified target group of beneficiaries. However, it has to be admitted that substantial advances have been

observed mostly in the last 18 month of the project.

NRSP Output is (project goal) : **Natural resource management strategies for peri urban areas which benefit the poor developed and promoted**

The relevant OVI is: *By 2004 in HD strategies and new approaches incorporated by at least 2 TIs.*

As argued above, the project has successfully developed and promoted NR management strategies which have benefited the poor. The OVI selected to indicate this assumes that incorporation of such strategies and new approaches by target institutions is necessary for continued benefits both beyond the duration of the project and outside its geographical sphere of operation. Ideally, this would be so, but the TIs which have shown an interest in adopting the project's findings and approaches (UN International Labour Organisation, Mahila Samakhya Karnataka, World Bank, St. Joseph's College of Business Administration), although all worthy in themselves, are not the Government line departments that the project had in mind when the project was being developed. There is no question that this is a disappointment, but also an opportunity to learn. As mentioned above, advocacy at the State level might have borne more fruit, as these would then influence the next tier down, which has so far proved to be the most recalcitrant. However, until perhaps the final year, the project had little to disseminate, and therefore State level Government Depts displayed only polite interest when approached in the first years of the project. However, now that the project has some clear messages to disseminate, this could change.

It should be borne in mind that the project partners themselves are important TIs. UAS, Karnatak University and SDM College of Engineering are locally important higher education institutions which take students from across northern Karnataka (but also a limited number from overseas). Findings from the project are starting to emerge in teaching delivered by academics working on the project. UAS is in a special position regarding management of NR, in that it formulates extension advice ('packages') with those Government Depts (Agriculture, Horticulture, Animal Husbandry) responsible. It is recognized that changing the whole culture of patron-clientism will not happen overnight, but a start has been made and authorities within these institutions are beginning to take notice of the project's achievements.

The two development NGO partners, IDS and BAIF, also operate in other areas. IDS works across northern Karnataka, and BAIF works in several other states in India. Approaches developed or improved by the project (use of indicators and monitoring and evaluation in participatory approaches, truly participatory planning, working in the peri-urban fringes, interacting with Government agencies) are already or can be expected to be implemented elsewhere.

Best Practices Foundation is a research NGO based in Bangalore, and specialises in process documentation and advocacy, particularly on governance and gender issues. The findings of the project will continue to be disseminated through their activities and influence beyond the life of the project, within higher education establishments (particularly St. Joseph's College of Business Administration, with its new emphasis upon rural and urban administration), government departments (particularly Urban Development and Rural Development) and numerous other agencies. Funding has been procured for publication of the proceedings from the final workshop in Bangalore, to be published by Sage, an international academic publisher with a high reputation, and a separate volume covering the participatory planning process.

Research Activities section 4 above presents the new knowledge that the project seeks to promote in an uptake promotion phase. The approach will be to:

1. Continue to sensitize the Government sector on the peri urban concept and the need for rural urban collaboration, particularly at State level, and also pressing for the promised forum on rural-urban interaction to take place, which will incorporate the district and municipality tier of administration.

2. Building up a critical mass of civil society institutions already working in and around the peri urban to understand the PUI concept and helping them realize the importance of addressing the issue in their programmes
3. Honing methodologies for replications of innovations (such as MOVE)
4. Raising awareness among peri urban communities on peri urban problems and possible solutions.
5. Continuing to promote the development and use of PM&E within the target groups to ensure continuance beyond the life of the project.

Specific products will be:

1. Videos on the Peri-Urban Interface ('Living on the Edge'), MOVE and Sustaining Development in the PUI.
2. The MOVE training manual
3. Policy briefs for District and State level Government Depts.
4. Articles in national and international journals and publications, and papers and posters at conferences.

The uptake pathways identified are:

1. Primary stakeholders – village level (Domain V)
 - a) Embed MOVE by further training in each village,
 - b) Show videos in villages, for non-participants and to raise profile of SHGs and activities within each village.
2. State and National level stakeholders (commercial as well as government) (Domain X)
 - a) Project findings briefs on
 - PU issues and governance
 - sustaining NR management in the PUI
3. International (Domain Y)
 - a) Publications, conference papers and posters. Proposed topics are:
 - IGAs, MOVE
 - SHGs, RFs, microcredit
 - Improved NR management and its effects
 - New learning about PUI
 - Institutions and governance
 - Livelihoods

8 Publications and other communication materials

(See Appendix 4a, pages 6-8, for details on style guidelines)

8.1 Books and book chapters

Brook, R.M., Purushothaman, S. and Hunshal, C.S. 2003. *Changing frontiers – The peri-urban interface.* Hubli-Dharwad, India: Books for Change. 146 + xii pp.

Purushothaman, S, S Purohit, and B Ambrose-Oji. 2004. "The Informal Collective As A Space for Participatory Planning: The Peri-Urban Interface in Hubli-Dharwad Twin City Area." in Purkayastha, B and Subramaniam, M, eds, *The Power of Women's Informal Networks: Lessons in Social Change from South Asia and West Africa.* USA: Lexington Books.

Brook, R. M., Bhat, P., and Nitturkar, A. 2005. Livelihoods from dairying enterprises for the landless in the peri-urban interface around Hubli-Dharwad, India. In: McGregor, D. F. M., Simon, D. and Thompson, D. A. (eds) *The Peri-Urban Interface in Developing Areas: Approaches to sustainable natural and human resource use.* Earthscan, London (forthcoming).

Shindhe, K. 2005. Effect of by-pass on peri-urban livelihoods In: McGregor, D. F. M., Simon, D. and Thompson, D. A. (eds) *The Peri-Urban Interface in Developing Areas: Approaches to sustainable natural and human resource use.* Earthscan, London (forthcoming).

8.2 Journal articles

8.2.1 Peer reviewed and published

Bradford, A., Brook, R. and Hunshal, C.S. 2003. *Wastewater irrigation in Hubli-Dharwad, India: Implications for health and livelihoods.* Environment and Urbanization, 15 (2): 157 - 170.

8.2.2 Pending publication (in press)

Author or Authors, Initial. Year. Title. Publisher/Journal submitted to. XXpp. (Page numbers)

8.2.3 Drafted

Thoday, K., Ambrose-Oji, B. In Draft. *Starting with political analysis: Understanding and managing change in natural resource management.* World Development?

Gregory, P., Hillyer, K. and Ambrose-Oji, B. In Draft. *The effects of urbanisation on livelihood diversification strategies of the poor and very poor in peri-urban villages around Hubli-Dharwad.* Journal of Rural Studies?

8.3 Institutional Report Series

8.4 Symposium, conference and workshop papers and posters

Brook, R M 2005 *Degradation of water supplies around Hubli-Dharwad and a model for their rehabilitation. Service provision governance in the peri-urban interface of metropolitan areas, International Workshop, Chennai, India, 10 - 11 February 2005.* Bangor, UK. University of Wales Bangor. 19 slides.

Hunshal, C.S. and Yogesh, G.H. 2005. *Opportunities and Constraints of Sewage Irrigation. International Workshop, Chennai, India, 10 - 11 February 2005.* Dharwad, India. University

of Agricultural Sciences. 25 slides.

C S Hunshal, G H Yogesh and R M Brook 2004. *Sewage Irrigated Farming in Peri-Urban Villages of Hubli-Dharwad, Karnataka, South India.* Paper presented at the 2004 CIGR International Conference at Beijing, China 11-14, October 2004

Brook, R.M., Bhat, P. and Nitturkar, A. 2003. *Livelihoods from dairying enterprises for the landless in the peri-urban interface around Hubli-Dharwad, India.* Paper presented in Developing Areas Research Group meeting, Royal Geographical Society – Institute of British Geographers Annual Conference, London. 2-3 September 2003. University of Wales Bangor, UK. 11 slides

Shindhe, K. 2003. *Effect of by-pass on peri-urban livelihoods.* Paper presented in Developing Areas Research Group meeting, Royal Geographical Society – Institute of British Geographers Annual Conference, London. 2-3 September 2003. SDM College of Engineering, Dharwad, India. 20 slides

Hunshal, C.S. 2003. *Changing frontiers: The peri-urban interface, Hubli-Dharwad, India.* Presentation at launch of the book 'Changing Frontiers', National Institute for Public Finance and Policy, Delhi. 20 December 2003 University of Agricultural Sciences, Dharwad, India 15 slides

Brook, R.M. 2003. *Changing frontiers – the peri-urban interface around Hubli-Dharwad, India.* Presentation at launch of the book 'Changing Frontiers', National Institute for Public Finance and Policy, Delhi. 20 December 2003 University of Wales Bangor, UK. 9 slides

Brook, R. M. 2003 *Partnerships in research and development in the peri-urban interface around Hubli-Dharwad, India.* Poster at GFAR conference 'Linking research and rural innovation to sustainable development', Dakar, Senegal, May 22-23. University of Wales Bangor, UK.

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8.5 Manuals and guidelines

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Dealing with the Peri-urban Interface: Guidelines for policy makers. Policy brief, 8 pp.

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8.6 Media presentations (videos, web sites, TV, radio, interviews etc)

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Menon, S. 2005 *Participation for sustainable development.* Bangalore, Best Practices Foundation, CD

8.7 Reports and data records

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8.7.2 Literature reviews

8.7.3 Scoping studies

8.7.4 Datasets

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Ambrose-Oji, B 2005 *Family Information Survey 2.* Bangor, UK. University of Wales, Bangor **MS Access database**

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8.7.5 Project web site, and/or other project related web addresses

<http://www.bangor.ac.uk/~afs082/index.htm>

<http://www.bestpracticesfoundation.com/>

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10. Project logframe

R8084			
PU/1.5.2(a)			
Narrative Summary	OVI	MOV	Assumptions
<p>Goal: Natural resource management strategies for peri urban areas which benefit the poor developed and promoted</p>	<p>By 2004 in HD strategies and new approaches incorporated by at least 2 TIs</p>	<p>Reviews by programme Manager. Reports of research team and collaborating/target institutes. Appropriate dissemination products Local, national and international statistical data. Data collected and collated by programme manager</p>	<p>Target beneficiaries adopt and use strategies and practices. Enabling environment exists. Budgets and programmes of target institutions are sufficient and well managed</p>
<p>Purpose: Strategies for NR management to benefit the poor tested, modified and demonstrated through implementation of plans of action in pilot projects in the Mugad cluster, Kotur, Gabbur and Channapur villages.</p>	<p>By project end, at least 50% of relevant target institutions working with self help groups and primary beneficiaries in at least six target villages, manage NR using the successful strategies in such a way that this facilitates continued development of sustainable livelihood strategies which can positively withstand changes imposed by the dynamics of urbanization. By end of project, significant interest generated in NGOs and TIs in non-project areas in replicating and adapting processes for implementation in their own localities.</p>	<p>NRSP Annual Report Mid-term review External reviews of papers and reports. Reports of target institutions. Reports from intermediary local organisations representing the poor, including NGOs and CBOs, on the achievements of the project. Newspaper, radio and TV reports.</p>	<p>Political and economic stability continues Financial flows between partner institutions are continuous No unexpected major industrial developments or similar perturbations are introduced into pilot project area</p>
<p>Outputs 1 Increased capacity of the communities to achieve sustainable changes in the management of peri-urban interface natural resources that are likely to enhance livelihood strategies of the poor.</p>	<p>1.1 By end of first year of project in each village, alternative livelihood options identified in the 5 initial project villages. 1.2 In at least 6 villages, by end of project 30% of households in primary beneficiary groups adopt sustainable alternative livelihoods options with measurable increases in livelihood outcomes. 1.3 By end of project the poor in at least 6 villages are sufficiently confident to interact with TIs to meet the needs they have identified for themselves. 1.4 By end of project, using indicators identified in Output 3, primary beneficiary groups in at least</p>	<p>1. Data from pre and post surveys of primary beneficiaries families, and NR base upon which they rely for livelihoods. Final technical report, academic publications.</p>	<p>There are no extreme or unpredictable climatic events (e.g. drought or flood) Key decision making personnel within Target Institutions remain in post Target Institutions' attitudes to project remains favourable Primary beneficiaries adopt alternative livelihood options</p>

	6 villages report positive changes in management of NRs with consequent enhancement of their livelihoods.		
Narrative Summary	OVI	MOV	Assumptions
<p>2 Village stakeholders, researchers, and target institutions gain new insights from the process of implementing action plans in peri-urban areas into:</p> <p>2.1 Factors which facilitate cooperation between different stakeholders;</p> <p>2.2 Which solutions to identified issues are both effective and sustainable;</p> <p>2.3 What are the most appropriate ways of measuring change by all stakeholders.</p>	<p>2.1 By end of year 1 of the project, using indicators identified in output 3, village stakeholders in 6 villages, researchers and target institutions acknowledge and articulate increased cooperation in pursuing project objectives.</p> <p>2.2 By end of project, features common to successful interventions identified by peri-urban stakeholders, reported by research team and at least two of the target institutions involved with the project.</p> <p>2.3.1 By end of project year 1, primary beneficiaries in 6 villages, researchers and target institutions agree on a set of indicators to measure initial state of and changes in livelihood strategies, NR base and degree of effective collaboration between stakeholders, that are simple and believable.</p> <p>2.3.2 By end of year 2 of project, after critically reviewing indicators, primary beneficiaries, researchers and target institutions and produce amendments where necessary.</p> <p>2.3.3 By end of project, primary beneficiaries, researchers and target institutions reach agreement on a set of those indicators which are suitable for continued use beyond the life of the project and for wider dissemination.</p>	<p>2. Process documentation produced by project; minutes of meetings with target groups within villages and with TIs, reports of interviews with TI officers, working papers. Films on CD, photographs of village dramas and meetings with TIs. Posters & leaflets.</p> <p>Reports by research team on what indicators have been selected, how well they work during life of project, and which ones have potential for wider use.</p> <p>Generic across all outputs: Project newsletters, at least once a year.</p> <p>Project annual and final reports.</p> <p>Academic papers and articles.</p> <p>Project final workshop proceedings.</p>	

<p>3. Acceptance of processes that have led to effective NR management strategies which benefit the PU poor, what interventions work, how changes can be measured and what constitutes an enabling environment, amongst interest groups in non-project localities.</p>	<p>3.1 During course of project, evidence of increased capacity in at least two local TIs in conducting participatory processes, data management and analysis & evaluation of processes.</p> <p>3.2 By end of project, requests received by NGOs and TIs for replication of the project's Output 1 from interested parties in at least two non-project villages around Hubli-Dharwad.</p> <p>3.3 By end of project, statements drawn up by at least two District and State level TIs of what action is required and what policies and procedures need to change to create an enabling environment for bringing about processes that lead to effective NR management strategies.</p>	<p>3. Monthly reports from NGOs</p> <p>Minutes of monthly District Steering Group meetings</p> <p>Reports from group sessions in proceedings of District and State level dissemination workshops</p> <p>Reports of interviews with TI officers,</p>
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Narrative Summary	OVI	MOV	Assumptions
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<u>Activities</u>	<u>Budget:</u>		
1.1 Set up self help groups (SHG) in villages where needed, and Hubli-Dharwad level project Steering Group.	2001-02 (1 Nov 2001 start)	£'000	Acceptable and feasible alternative livelihood options exist
	UK staff (incl. O/h)	16.0	
	Overseas personnel (incl. O/h)	9.5	
1.2 Research team, primary beneficiaries and TIs undertake exposure visits to other relevant projects.	Capital equipment	2.8	
	Overseas T & S	4.4	
	Training and publication	6.8	
1.3 Conduct evaluation of the human capital of primary beneficiaries (skills, capacity and the potential for redirecting or adaptation to changing urban markets) alongside an evaluation of current market trends and future potential opportunities for NR based products supplied to urban and peri-urban consumers	Miscellaneous	5.5	
	10 SUB-TOTAL	45	
	2002-03	18.8	
	UK staff (incl. O/h)		
	Overseas personnel (incl. O/h)	42.9	
	Capital equipment	2.8	
	Overseas T & S	7.8	
	Training and publication	0.2	
	Miscellaneous	12.5	
1.4 Training: SHGs in community development and skills relating to enhanced livelihood strategies, how to negotiate with TIs, and improved management of NRs..	11 SUB-TOTAL	85	Higher level officers within TIs facilitate cooperation between project team and TIs.
	2003-04	49.2	
	UK staff (incl. O/h)		
	Overseas personnel (incl. O/h)	46.2	
	Capital equipment	0	
	Overseas T & S	12.4	
	Training and publication	2.5	
	Miscellaneous	24.8	
	12 SUB-TOTAL	135	
1.5 Arising from 1.3, develop immediate and long term strategic plans for with primary beneficiaries for alternative NR dependent livelihoods.			
1.6 Further analyses of NR based issues raised in project R7959 to identify			

<p>appropriate activities that will enhance livelihoods of the poor and to determine whether interventions first identified are still appropriate after further consideration.</p> <p>1.7 With village stakeholders and TIs, formulate strategies to improve management of village natural resources (micro-watershed, fodder, livestock productivity, irrigation with sewage water, fuelwood, NTFPs) with as few external resources as possible.</p> <p>1.8 Facilitate implementation of necessary NR management measures by village stakeholders. Establish a bidding process whereby primary beneficiaries and/or project collaborators and/or TIs can obtain funding for small projects that will improve NR management and livelihoods of the poor.</p>	2004-05	56.0		
	UK staff (incl. O/h)			
	Overseas personnel (incl. O/h)	43.2	0	
	Capital equipment		13.9	
	Overseas T & S		2.7	
	Training and publication		24.2	
	Miscellaneous			
	13	SUB-TOTAL	<u>140</u>	
	14	PROJECT TOTAL	<u>405</u>	
	14.1.1 Milestones			
	2.1 Write working papers on key issues to bring research team and peri-urban stakeholders up to date with current knowledge, to improve communications and understanding.	November 2001	AP1 project commences	
		January 2002	AP2 project commences	
		April 2002	AP3 project commences	
	May 2002	NR & human capital and market assessments completed for AP1 and AP2.		
2.2 Interactions between all categories of stakeholder (including higher levels within the State government) observed and analysed by village stakeholders, researchers, and TIs.	June 2002	Strategic livelihood plans completed for AP1 and AP2.		
	July 2002	Village level livelihoods training programmes devised for AP1 and AP2		
2.3 Factors which facilitate or hinder dialogue and practical cooperation between different stakeholders identified, and positive factors incorporated into project activities.	August 2002	First edition of working papers produced		
	August 2002	Guiding principles for NR rehabilitation and PME indicators produced.		
2.4 Annual internal reviews conducted to consolidate lessons learned during the execution of the project.	September 2002	NR & human capital and market assessments completed for AP3.		
	October 2002	Strategic livelihood plans completed for AP3.		
2.5 Interact with key target institutions in project Steering Group meetings to discuss insights from the project, and consequent operational and policy implications.	November 2002	Village level livelihoods training programmes devised for AP3		
	February 2003	First annual internal evaluation against OVIs.		
	February 2003	At least two other locations identified for additional small scale projects and process for bidding finalised		
2.6 Conduct meetings and	March 2003	First project newsletter		

<p>discussions with primary beneficiaries and TIs to decide which NR and livelihoods factors and degree of effective collaboration between stakeholders need to be monitored and to identify indicators acceptable to all parties for monitoring changes listed in Output 2.3.</p> <p>2.7 Monitor changes using indicators identified through activity 2.6, alongside more formal methods where this will improve understanding of changes.</p> <p>2.8 At end of first and second years of project, research team, TIs and village stakeholders review utility of indicators and revise indicators and/or project activities where necessary.</p> <p>2.9 At end of project, research team, village stakeholders and TIs evaluate indicators for their wider suitability over time and for other locations.</p>	<p>produced</p> <p>April 2003 Small scale projects commence in nearby locations</p> <p>May 2003 Book sent to publishers in India</p> <p>February 2004 Second annual internal evaluation against OVIs</p> <p>February 2004 Second project newsletter produced in</p> <p>June 2004 Film production starts</p> <p>September 2004 State level dissemination seminar held</p> <p>October 2004 Village disseminations dramas commence</p> <p>February 2005 Final project newsletter produced</p> <p>January 2005 Dissemination workshop for neighbouring districts held</p> <p>April 2005 Final report completed</p>	
<p>3.1 Insights gained disseminated via project newsletter, film on CD, village dramas and interactive events with village stakeholders and TIs.</p> <p>3.2 In years 2 and 3, exposure visits from non-project village poor stakeholders and relevant TIs to project villages conducted.</p> <p>3.3 In final months of project, workshops with TIs from neighbouring taluka and districts held to disseminate findings from project, aimed at replicating the process elsewhere and analyzing what is needed for replication to take place.</p> <p>3.4 Meetings conducted at State level to disseminate findings of project and to encourage consideration of implications for development of interventions in PU areas around other cities in Karnataka.</p>		
		<p>Pre-conditions Key personnel within research team remain in post.</p>

15 Keywords

Peri-urban, natural resources management, livelihoods, income generation, action plans, self help groups, community mobilization