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Common pool resources in semi-arid India - dynamics, management and livelihood contributions

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GLOSSARY

Acronyms

AKRSP(I)	Aga Khan Rural Support Programme (India), Ahmedabad
AP	Andhra Pradesh
CBO	Community Based Organisation
CFM	Community Forest Management
CPR	Common Pool Resource
CRIDA	Central Research Institute for Dryland Agriculture, Hyderabad
CWS	Centre for World Solidarity, Hyderabad
DFID	Department for International Development, United Kingdom
JFM	Joint Forest Management
MSU	Michigan State University
NGO	Non-Governmental Organisation
NRI	Natural Resources Institute, Chatham, United Kingdom
NTFP	Non-Timber Forest Products
SAT	Semi-Arid Tropics
WRMLtd	Water Resources Management Limited
WUA	Water User Associations

1. EXECUTIVE SUMMARY

This project was aimed at influencing decision-makers by providing them with the knowledge required to understand the dependence of poor communities on common pool resources in semi-arid India, and the policy implications of this dependence in view of pressures on CPRs and constraints to their sustainable and equitable management. The underlying assumption was that policy makers lacked a thorough understanding of livelihood contributions of CPRs, which prevented them from taking pro-poor policy decisions related to CPR management.

In order to achieve this purpose, the project analysed common pool resources (e.g. forests, water, grazing lands) in semi-arid India in terms of (1) their current status and dynamics in relation to bio-physical aspects, (2) current management practices and their constraints, (3) their contributions to the livelihoods of the poor, (4) identification of demand for alternative management options, and (5) ways to promote the uptake of these findings among stakeholders. The project used an iterative, two tiered approach: An interdisciplinary research team reviewed secondary data and literature, while two NGOs in Andhra Pradesh and Gujarat carried out consultations with grassroots organisations working on CPR issues.

The project succeeded in producing a thorough review of CPRs in India, based both on a large proportion of the available literature and on interactions with experts from the grassroots level. Through a number of workshops and meetings, a range of stakeholders and target institutions were involved in the project and their comments and suggestions were fed back into the review continuously. In particular, the project was able to identify a number of generic issues related to CPR management in India, which will form the basis for the development of pro-poor CPR management strategies.

The achievement of OVIs at purpose level cannot be exhaustively assessed at this stage, because it will require some more time for new policies, initiatives and projects to emerge. Subsequent to the final project workshop in Hyderabad on 25 September 2001, the Andhra Pradesh Rural Livelihoods Programme (APRLP) manager requested support from part of the project team to undertake action research on CPR management for the benefit of small ruminant owners in Andhra Pradesh. Negotiations are currently taking place to follow up on this request.

The project has indirectly contributed to the NRSP purpose of "benefiting for poor people in target countries by application of new knowledge to natural resource management in semi-arid production systems". The application of knowledge generated by the project should lead, through participatory development of pro-poor CPR management strategies, to direct benefits for poor people, provided that there is sufficient political support for the implementation of such strategies.

2. BACKGROUND

This project aimed at contributing to the goal "Livelihood strategies based on the sustainable use of common pool resources (including wildlife habitat) developed and promoted". It did so by analysing the status, trends, livelihood contributions and management systems of CPRs in semi-arid India, thus providing the knowledge base for the development and promotion of pro-poor management strategies.

Being a "stage one" project (see NRSP call CNC00/01), it concentrated on *understanding* livelihood systems, while a second stage project will focus on *validating* and *adopting* new strategies. As a lot of studies on various aspects of CPRs have been carried out in India during the past twenty years, the project did not collect any primary survey data, but compiled, analysed and validated the available knowledge on CPRs, with the aim of identifying researchable constraints.

The project explicitly looked into innovative social arrangements such as those pioneered by grassroots organisations in the two focus states Andhra Pradesh and Gujarat. It synthesised the

existing knowledge about the challenges of CPR management and the essential characteristics of successful management initiatives. Management arrangements are context-specific and it is unrealistic to expect that they can be transferred easily from one location to another. Rather, the contribution this project made was to understand the principles and processes that underlie successful initiatives. If enabling conditions are in place, local people will be better able to develop their own successful, location-specific management institutions.

The project is based upon a specific NRSP research call for a study on these issues, itself based upon programme planning to identify needs and priorities in semi-arid India. In these parts of the country, the relatively limited areas of land now under common property regime are under severe pressure. The resource base is relatively fragile and poorly endowed, but is utilised by some of the largest and poorest populations in the country.

The pro-poor and livelihoods focus of the study is also in line with DFID priorities in India to work towards ending poverty and realising rights for all. Specific objectives include better management of the natural and physical environment, with a focus on the sustainable management of forest resources and watersheds (DFID, India: Country Strategy Paper 1999).

The demand for the research has been further endorsed through correspondence with our in-country government and NGO collaborators, who were both in on-going consultation with a wide range of in-country expertise and informed opinion, and closer to the situation at the grassroots.

3. PROJECT PURPOSE

The purpose of this project is to influence decision-makers by providing them with the knowledge required to understand the dependence of poor communities on common pool resources in semi-arid India, and the policy implications of this dependence in view of pressures on CPRs and constraints to their sustainable and equitable management. It is assumed that, by providing such information to policy makers, they will be in a better position to take policy decisions enabling pro-poor CPR management strategies.

By analysing how current policies affect both CPRs and those people depending on them, and which groups of society are excluded from CPR access, the project provided policy makers with evidence of the impact of current policies. This knowledge can be used by them to modify existing CPR policies and to improve the policy enforcement system through e.g. training and awareness creation among government officials. State level policy makers were present both at the review workshop and the final workshop. However, their decision-making options are restricted by existing state agricultural policies, which currently do not give much importance to CPRs. It is hoped that the evidence provided by the project, together with management options to be developed in the second phase, will change the way decision makers handle CPR issues.

4. OUTPUTS

The research results are presented in detail in Annex A. The following sections outline to what extent project outputs were achieved and what else needs to be done to take the research results forward.

4.1 Output 1

Firstly, the current status and dynamics (in terms of bio-physical aspects) and likely future trends of CPRs in semi-arid India were reviewed and findings compiled into a comprehensive report. This review relied on existing information currently available in India. It provided a basis for the estimation of CPRs role in the local economy. The impact of government policies on CPR status was taken into account as well.

The project was able to document the degradation and decline of CPRs in SAT India, based on existing reports. However, considering the size of SAT India, detailed information generally related to specific case studies of individual communities and could not easily be extrapolated. Current land use statistics in India do not differentiate between *de jure* or *de facto* ownership of land, and often do not differentiate between agro-ecological zones. Also, there are inconsistencies between census data and GIS data.

More interesting and valuable information was derived from the stakeholder interactions in the two states. The project made use of case studies of successful and unsuccessful CPR management, undertaken by grassroots organisations. These case studies provided important insights into the causes for and trends of CPR decline and degradation.

Table 1 summarises the main findings related to Output 1, which are explained in detail in chapter four of the NRI report (Annex A). A crosscutting issue for all resources is the decline both in quantity and quality of CPRs as a result of overexploitation, encroachment, and privatisation. This is the overall trend; there are some notable exceptions in areas where successful management systems have been established. These were explored under Output 2.

Table 1 Status and trend of main groups of CPRs in SA India

CPR	Status	Trend
Forests	Degradation (actual forest cover < official statistics / survey data, decline of biodiversity)	Encroachment (for grazing and farming), commercial extraction of timber and NTFPs, 1.5 million ha of forest cover lost per year throughout India (not just SAT)
Common pool grazing lands	Degradation (low fodder value, decline in biodiversity, decline in area from 67 million ha in 1950 to 38 million ha in 1997.	Encroachment and privatisation continue; some states have already lost most of their CPLRs
Other sources of fodder (post-harvest fields, roadsides, etc.)	Varies, depending on cropping pattern; seasonal availability only	Might increase in importance as a result of shrinkage of other CPRs; Impact of irrigation on fodder availability
Surface water bodies	Tanks often silted up and tank bunds breached; encroachment of tank bottom land	Government rehabilitation schemes (desiltation) aim at increasing storage volume, but overall declining importance due to GW exploitation
Groundwater	Increased number of bore wells lead to large amount of water pumped for irrigation and declining groundwater tables; salt water intrusions in coastal areas	GW tables continue to decline (in some areas at a rate of around 1 m per year); number of wells continuously increasing; more difficult now to drill successfully

4.2 Output 2

Secondly, the current management status of CPRs has been reviewed, with special reference to innovative management options (which could be either individual or community based). Again, the impact of policies on CPR management has been considered. As many CPR related policies are in the domain of the state governments, and as it is not feasible within the framework of this project to review the policies of all Indian states, the review concentrated on policies in Andhra Pradesh and Gujarat. Both published sources (including “grey” literature) and consultations with stakeholders in two states were used for this review. It provided the background information for the assessment of

demand for new approaches to CPR management. The review has been exposed to stakeholder validation to confirm or reject any conclusions drawn from the literature.

Table 2 Existing management systems of main groups of CPRs in SA India

CPR	Management system (general)	Management system (specific programmes / initiatives)
Forests	Forest department in control; limited usufruct rights for specific groups over specific non-timber forest products (NTFP).	<ol style="list-style-type: none"> 1. Joint Forest Management (government programme covering in AP 1,660,000 ha and in Gujarat 64,000 ha; management through village forest committees; problem of representation: poor / landless underrepresented) 2. Community Forest Management (community or NGO initiated management systems; focus on natural regeneration for multiple use of forests, including fodder / grazing)
Common pool grazing lands	No management systems in place / open access.	Some few examples of community based and NGO initiated grazing land management in Rajasthan and Gujarat. Apparently low returns and high transaction costs, e.g. rule enforcement costs.
Other sources of fodder (post-harvest fields, roadsides, etc.)	Private fields are under the control of the owner; post-harvest grazing generally allowed.	No changes. In some areas, increase of irrigated land has lead to higher costs of post-harvest grazing (need to hire herdsman), but also more fodder supply e.g. from sugarcane cultivation.
Surface water bodies	Community managed; if command area > 100 ha: water users association (WUA)	Conversion of irrigation tanks to percolation tanks to recharge wells; WUA is operational in some areas, but consist only of command area farmers (exclusion of landless and dryland farmers)
Groundwater	No management system in place	Pani Panchayat: water sharing arrangements and village control over water consumption (but isolated cases); AP state government currently working on GW legislation

Table 2 summarises the main findings related to Output 2, which are explained in detail in chapter six of the NRI report (Annex A). Crosscutting issues for all resources are:

1. Exclusion of certain groups as a result of government interventions. A number of programmes and institutional arrangements aimed at increasing the productivity of CPRs (e.g. watershed management projects, water user associations and joint forest management programmes), de facto lead to exclusion of certain poor groups, who do not have the resources (e.g. membership fees), time (e.g. because of labour migration) or socio-economic status (e.g. caste, land ownership) to participate effectively in the newly created CBOs. Small ruminant owners are not able to enforce their need for grazing and browsing in JFM sites. Women are generally underrepresented in NRM committees, even though they are in charge of fetching fuel wood and water, and are thus highly dependent on and very knowledgeable about CPRs.
2. No evidence for Panchayat involvement in NRM. The Gram Panchayat is the elected village council, which has been given substantial amounts of resources and responsibilities under the 73rd constitutional amendment. Even though some argue that the Panchayat should be the main body responsible for decentralised NRM, including CPRs, the team did not find any evidence for Panchayat involvement in CPR management. This was confirmed by a recent Ford Foundation commissioned study on Panchayat's role in NRM in Andhra Pradesh. The second phase of the

project should explore why Panchayat's are not involved so far, and how they could be involved in the future.

4.3 Output 3

Thirdly, contributions of different CPRs to the livelihoods of poor people have been understood, including the importance of CPRs as natural capital, and their role in helping the poor cope with shocks and seasonality.

Table 3 summarises the main findings related to Output 3, which are explained in detail in chapter five of the NRI report (Annex A). CPRs are utilised (a) for income generating activities, e.g. sale of honey or fish, (b) as direct inputs into agriculture, e.g. fodder for livestock, wood for implements, (c) as direct inputs to the home, e.g. drinking water, fire wood, (d) for environmental services e.g. water retention and runoff control from forest cover, and (e) as a safety net for people in drought years.

Table 3 Livelihood contributions of main groups of CPRs in SA India

CPR	Livelihood contributions	Groups of people benefiting
Forests	Non-timber forest products (NTFPs)	Tribals, poor landless people, but increasingly also commercial companies and contractors
	Timber	Forest department, illegal wood cutters
	Employment from JFM programmes (for initial planting and protection works)	Members of JFM groups
	Firewood	Nearby villagers (all groups, except those who can afford to use kerosene)
Common pool grazing lands	Fodder for livestock	All villagers, but in particular those not having grazing land of their own and those specialising on livestock keeping (shepherds)
Other sources of fodder (post-harvest fields, roadsides, etc.)	Grazing and browsing; cut and carry of fodder; leaf litter for soil fertility management (findings from R7974)	All, but in particular those without own fodder resources. Benefit to land owner through manure and leaf litter on fields.
Surface water bodies	Drinking water	All, but in particular those without access to hand pumps
	Water for irrigation (leading to employment)	Owners of land in the command areas of tanks, and people employed by them
	Water for livestock	Livestock owners
	Water for household purposes	All
	Water for fishing, duck rearing, etc.	Fishermen and -women
Groundwater	Drinking water	All
	Water for irrigation	Well owners and those who can afford to pay for well water

A crosscutting issue for all resources is the general decrease in dependency on land based CPRs and heavier reliance on alternative income sources (for tribals and landless people in particular construction work in cities and on highways). While water cannot be substituted and continues to be a crucial resource for people both in urban and rural areas, the rural population is increasingly relying on remittances from and employment in urban areas. However, the quality of life that some of these new livelihood opportunities offer is not necessary superior and often leads to social disruptions (e.g. when men migrate, leaving women and children behind). Many people do not have access to these

new opportunities because of age, health, social status, or lack of marketable skills. Therefore the poorest members of a community often continue to rely on CPRs because of a lack of alternatives, and these people are particularly affected by the decreasing extent and quality of CPRs.

4.4 Output 4

Fourthly, based on both the literature review and on recent CPR management experiences in two states (Andhra Pradesh and Gujarat), the demand for new CPR management solutions has been assessed. This will provide a solid base for the development and testing of CPR management strategies in the future. The project focused on two states for the validation of this output, because a wider coverage would have greatly reduced the depth of the analysis.

Table 4 summarises the researchable issues identified in the course of the study. Output 4 is dealt with in chapter seven of the NRI report (Annex A), which focuses on the key constraints and recommendations to address them.

Table 4 Researchable issues

CPR	Researchable issues
Forests	Data and knowledge about NTFP production, collection and marketing trends (so far only available for Gujarat)
	Development of suitable NTFP production and management plans and silvicultural practices
	Economic and financial aspects of JFM and CFM (including research on ways to increase returns, and on social arrangements to enable maximum sustainable yields of NTFP.
	Scope for assigning usufruct rights for forests to the poor (as opposed to whole community, or outsiders)
Common pool grazing lands and other sources of fodder	Explore the potential to use CPRs for producing high-value crops (e.g. horticultural or medicinal plants) to make CPR management more attractive
	Management practices of post-harvest fields: impact of changes in cropping pattern, trend, etc.
	Sustainable grazing systems (e.g. rotational grazing, daytime penning)
	Conditions and characteristics of effective community management
Water	Analyse and learn lessons from community based demand management (what are the institutional requirements for controlling GW extraction?)
Crosscutting issues	Costs and benefits of rehabilitating different types of CPRs, in particular costs of community and co-management of resources
	Encroachment (who encroaches under what circumstances, and how useful is the encroached land to the encroacher)

4.5 Output 5

Fifthly, the project attempted to sensitise and motivate stakeholders to take forward project findings in their own development projects and policy initiatives. This output directly addressed the project purpose, which focuses on changing (both GoI and donor) policies in such a way that they enable the sustainable and equitable use of CPRs for the benefit of poor people.

It proved to be extremely difficult to achieve this output, because stakeholders, in particular decision makers, are (a) very busy with their own agenda, making it extremely difficult to interact with them, and are (b) hard to influence, because they often operate within a political setting that restricts their choices to those in line with the current political (and economic) priorities. Nevertheless, the project interacted with a range of stakeholders, and it remains to be seen whether there has been a direct impact on their way of thinking.

Annex E shows the list of participants in the final project workshop in Hyderabad on 25 September 2001. Just like the previous four workshops (AP regional workshop, Gujarat Regional workshop, and Review workshop), it was attended by a wide range of stakeholders. A separate meeting was held after the final project workshop with Mr Tucker, the Andhra Pradesh Rural Livelihoods Programme (APRLP) manager. APRLP is the main immediate uptake pathway for project findings in Andhra Pradesh. Mr Tucker expressed his interest in carrying the project findings forward by undertaking action research in Mahboobnagar District of Andhra Pradesh on CPR management for the benefit of small ruminant owners, combined with research on improved animal husbandry. This would involve the development of CPR management strategies benefiting poor livestock owners (e.g. women owning one or two sheep or goats) by working in partnership with a local NGO.

The team is expecting more feedback on the project report (Annex A) that was circulated and discussed during the workshop. A project web page is currently being set up to allow people to download project documents.

5. RESEARCH ACTIVITIES

The project activities reflect the two-tiered approach that the project used. On the one hand, a formal literature and data review was carried out by CRIDA (supported by NRI and MSU). This review relied on documented (but not necessary published) sources, such as project reports, journal articles, and land use statistics. Parallel to this, two NGOs (AKRSP in Gujarat and CWS in Andhra Pradesh) consulted with grassroots organisations in the two states to capture their experiences with innovative management options.

5.1 Output 1 activities

1.1. Inception meeting / workshop held with all members of the research team. The main purpose of this meeting was to develop a methodology for the project, including a common concept / strategy and format for information collection and analysis. Specifically, the meeting had the following objectives:

- To assign roles and responsibilities to each team member.
- To develop a methodological framework for the project.
- To develop a classification / typology of CPRs in SA India.
- To develop a checklist on CPR status, dynamics, management practices, and livelihood contributions that was sent to stakeholders (including research centres, donor funded programmes, and NGOs).

In addition, the team used the meeting to agree on communication and information sharing and data management arrangements between all team members. While some of these issues had been addressed during the formulation of the RD1, a genuinely participatory research process demands that the research strategy is jointly developed by the team as part of the project. This is the only way that team members coming from different "institutional cultures" can develop a common understanding and a sense of ownership of the project, which will ultimately enable them to jointly take the findings of the project forward. The research team for this project consisted of almost 20 people from different institutional backgrounds - therefore the team building process was a difficult and important aspect of the project.

1.2. Review of literature and data on CPR status, dynamics, and trends in SA India undertaken and preliminary report produced by CRIDA, in conjunction with NRI and MSU. This activity was delayed because CRIDA was unable to hire research assistants to help with the literature review. As a result, less material could be reviewed than originally intended.

1.3. Checklist on CPR status and dynamics sent to AICPDAs (All India Coordinated Project on Dryland Agriculture Centres), DFID projects, and other target organisations in SA India, and information compiled, analysed, and incorporated into preliminary report (see 1.2.). This activity was

carried out by CRIDA, with support from NRI. However, feedback from AICPDAs was not forthcoming as expected, and CRIDA staff was unable to visit all the AICPDAs because of non-access to travel funds on the ICAR account. Also, the AICPDAs are generally not working on CPR issues, especially not on livelihood and management aspects.

1.4. Preliminary report circulated to key resource persons and stakeholder representatives for peer review. The report was circulated to a smaller number of resource persons than originally intended, because of the delays producing it. Most of the comments and feedback came from within the team, notably NRI staff and external consultants.

1.5. Preliminary reports (literature review and state reports, see 2.3 and 3.3.) presented to and discussed with stakeholder representatives (policy makers, researchers, activists) at review workshop and gaps identified. The review workshop was held on 24 and 25 April at CRIDA in Hyderabad and was attended by 30 stakeholder representatives, including ICAR scientists, NGOs representatives, and government officials. Comments and suggestions from participants were documented. The minutes of the workshop were produced and circulated to participants and NRSP.

1.6. Gap filling strategy developed and implemented. Knowledge gaps identified during the review workshop were addressed by the team and project reports were updated accordingly.

1.7. Final report produced. The report is attached as Annex A.

1.8. Final workshop held and findings presented to stakeholder representatives. The workshop took place on 25 September 2001 in Hyderabad; the list of participants is attached as Annex E.

5.2 Output 2 activities

2.1. Review of literature and data on CPR management systems in SA India undertaken by CRIDA and NRI (including costs and benefits of different management options) and findings incorporated into preliminary report (see 1.2.). Similar to 1.2, this activity was delayed and less material was reviewed than planned. In fact most of the literature on CPR management were identified by the UK and USA partners, in particular articles on CPR theory and generic issues related to CPR management.

2.2. Checklist on CPR management sent to AICPDAs in SA India, and to grassroots organisations in A.P. and Gujarat, and responses compiled and analysed. This activity was carried out by the two NGO collaborators for the two states, and by CRIDA for the AICPDAs. The NGO collaborators followed up by field trips to the project areas, together with the grassroots organisations and their networks, and compiled the findings into preliminary regional reports. AICPDAs that were contacted to get an overview of CPR management in other parts of SAT India did not provide the amount of detail required by the project. This was due to (a) the inability of CRIDA staff to make more than one follow-up visit to the AICPDAs, (b) the fact that AICPDAs deal mostly with cultivated land and not with CPRs, in particular not with forest management, and (c) the fact that no incentives were offered to AICPDA staff.

2.3. Output of 2.2. presented to and discussed with stakeholders during **two regional workshops (A.P. and Gujarat)** and two preliminary state reports produced by NGO collaborators. The AP workshop was held on 2 and 3 March 2001, and the Gujarat workshop (postponed because of the earthquake that struck Gujarat in late January 2001) on 22 and 23 March 2001. The comments and suggestions made during the workshops were incorporated into the draft regional reports.

5.3 Output 3 activities

3.1. Review of literature and data on the contributions of CPR to livelihoods of poor households in the past and at present undertaken by CRIDA and NRI, and findings incorporated into preliminary

report (see 1.2.). This activity took place parallel to 2.1. and was affected by the same logistical problems on CRIDA's side.

3.2. Checklist on CPR contributions to livelihoods sent to AICPDAs in SA India, and to grassroots organisations in A.P. and Gujarat, and responses compiled and analysed. For the grassroots organisations, this was done by the two NGO collaborators, and for the AICPDAs and other projects by CRIDA. This activity took place parallel to 2.2. and was affected by the same logistical problems on the CRIDA side.

3.3. Output of 3.2. presented to and discussed with stakeholders during two regional workshops (A.P. and Gujarat) and incorporated into two preliminary state reports. This was done by the NGO collaborators, parallel to 2.3.

3.4. CPR contributions to livelihoods of poor households explicitly addressed during regional workshops (see 2.3.) and review workshop (1.5.). This activity aimed at ensuring that CPR contributions to livelihoods are receiving the necessary attention. It became clear during all three workshops that, while a general understanding of CPR contributions exists, it is difficult to quantify the contribution because of large inter- and intra-regional, as well as seasonal variations.

5.4 Output 4 activities

4.1. Based on review of literature and data on CPR management, draft list of researchable issues produced and incorporated into preliminary report. This was done by CRIDA and NRI prior to the review workshop, and these issues were presented to workshop participants for review.

4.2. Stakeholder demand for new CPR management strategies assessed during **two regional workshops** (see 2.3.) and documented by NGO partners.

4.3. Demand for new CPR management strategies addressed during review workshop.

4.4. List of researchable issues, based on the outcome of the review workshop, produced and incorporated into final report (see chapter 7 of Annex A).

5.5 Output 5 activities

5.1. Stakeholder analysis carried out during inception workshop. This was essential in order to involve relevant stakeholders as early as possible in the project.

5.2. Stakeholder contacted and informed about project progress. While it was difficult for a relatively short project to actively involve stakeholders at all stages, the project informed them about project progress and make project outputs (especially reports) available to them throughout the project. Towards the end of the project, a flyer was produced that summarised project findings in a popular way and gave the contact details of the researchers involved.

5.3. Stakeholder encouraged to attend and contribute to review workshop.

5.4. During final workshop, stakeholder assisted by research team in incorporating research findings into their programmes and policies. This activity was not carried out in the envisaged form, because the final workshop had to be reduced to a half-day meeting in order to be able to attract high level officials. Incorporating research findings into programmes and policies requires the engagement of the Indian partner organisations beyond the duration of this project. While both NGO partners are actively involved in policy advocacy, it is difficult for them to directly influence policies merely through the provision of information. It will be more convincing once pro-poor management strategies have been developed and demonstrated in practice.

6. CONTRIBUTION OF OUTPUTS

NRSP SAPS aims at improving the livelihoods of poor people through sustainably enhanced production and productivity of RNR systems. In order to achieve this goal, NRSP SAPS is using a two-phased approach, whereby the first phase generates an *understanding* of livelihood systems and concentrates on analysis of existing information. The second stage focuses on *developing, validating* and *adopting* new strategies. Being a "stage one" project, the aim of R7877 was to generate and disseminate an understanding of CPRs' contributions to the livelihoods of the poor, and in relation to this, analyse the existing CPR management systems in place.

The project achieved its objective by generating a comprehensive review of the key aspects of CPRs in SAT India. This review will be of use to decision makers at state government level, NGOs, donors and research institutes who are in charge of developing pro-poor NRM research and development programs. The project, by its very nature, has not directly impacted on the lives of rural people in India. This requires the application of the knowledge that the project generated by decision-makers. The underlying logic of this project is that decision-makers will use the findings to assess the effectiveness of NRM policies and programmes, and will ultimately take decision in favour of pro-poor CPR management strategies. Whether or not this actually happens is beyond the control of the project.

The achievement of OVIs at purpose level cannot be exhaustively assessed at this stage, because it will require some more time for new policies, initiatives and projects to emerge. However, there is evidence that this project has influenced the Andhra Pradesh Rural Livelihoods Programme (APRLP) manager, who is keen to take the project findings forward by undertaking action research on CPR management for the benefit of small ruminant owners in Andhra Pradesh. It also influenced research institutes, notably the partner (CRIDA), but also other research and development organisations in the two states (in particular NGOs) by bringing the CPR agenda into the forefront again, and by outlining linkages between CPRs and poverty reduction.

The project has had a major impact on the main research partner in India (CRIDA). CRIDA has traditionally worked on dryland agricultural technologies, with linkages mainly to other ICAR institutes. The project was the first interdisciplinary teamwork of its kind carried out by the CRIDA scientists involved. The sustainable livelihood approach was a new concept for CRIDA staff, most of whom are natural scientists with little or no previous exposure to social sciences. Discussions within the project team and feedback to the project leader confirmed that a learning process has taken place for all team members, which will hopefully lead to more interdisciplinary and inter-institutional collaboration in the future. CRIDA scientists have expressed their keen interest in continuing to work on CPR issues, possibly within the framework of the NRSP stage two project.

This was also the first project that linked these scientists closely to NGOs working on NRM issues. Many linkages between CRIDA and other stakeholders in Andhra Pradesh (in particular NGOs) were developed in the course of the project, and will hopefully be further developed in the future. The NGO partners produced very good quality outputs and gained the respect of all the other team members.

As pointed out earlier, this project will be followed by a second phase, which will make use of the existing knowledge and partnership to develop and test pro-poor CPR management strategies. The momentum that has been created by this project should be utilised and new initiatives should build on the partnerships established.

7. PUBLICATIONS AND OTHER COMMUNICATION MATERIALS

Internal project technical reports

Osman, M., Mishra, P.K., Misra, A.K., Dixit S., Ramachandran, K., Singh, H.P., Rama Rao, C.A. and Korwar, G.R. 2001, Common pool resources in semi-arid India. A review of dynamics, management and livelihood contributions. *CRIDA/ CWS/ AKRSP(I)/ WRMLtd./ MSU/ NRI Common Pool Resources Research Project Report No. 1, NRI report number 2647*, Chatham, UK: Natural Resources Institute.

Anwar, S. 2001, Common *pool* resources in semi-arid India. Andhra Pradesh Regional Report. *CRIDA/ CWS/ AKRSP(I)/ WRMLtd./ MSU/ NRI Common Pool Resources Research Project Report No. 2, NRI report number 2648*, Chatham, UK: Natural Resources Institute.

Gupta, A.K., Oza, A., Pastalia, A., Saxena, R., Desai, U, and Underwood, B. 2001, Common pool resources in semi-arid India. Gujarat Regional Report. *CRIDA/ CWS/ AKRSP(I)/ WRMLtd./ MSU/ NRI Common Pool Resources Research Project Report No. 3, NRI report number 2649*, Chatham, UK: Natural Resources Institute.

Adolph, B., Butterworth, J., Conroy, C., Morris, M. 2001, Common pool resources in semi-arid India: Synthesis Report. *CRIDA/CWS/AKRSP(I)/WRMLtd./MSU/NRI Common Pool Resources Research Project Report No. 4, NRI report number 2650*, Chatham, UK: Natural Resources Institute.

Symposium, conference, workshop papers and posters

"Common Pool Resource Management in Semi-arid India": Poster prepared by John Butterworth for the NRSP workshop on CPRs in York on 2 and 3 October 2001.

Newsletter articles

Adolph, Barbara: Common pool resources in India. *In* NRSP Research Highlights 2000 - 2001 (forthcoming)

Extension-oriented leaflets, brochures and posters

Flyer "Common pool resource management in semi-arid India. Summary findings of a research project." 200 copies produced in India and

Project web site <http://www.nri.org/IndianCPRs/>

8. PROJECT LOGFRAME

Narrative summary	Objectively verifiable indicators	Means of verification	Important assumptions
<p>Goal Livelihood strategies based on the sustainable use of common pool resources (including wildlife habitat) developed and promoted</p>	<p>By 2002, relative dependence of local communities on wildlife, livestock and crops and their interaction in two target areas understood. By 2003, strategies that provide access by poor people to benefits from integrated use of common pool resources validated and adopted by target institutions in two target countries.</p>	<p>DFID-commissioned reviews. Monitoring against baseline data, etc.</p>	
<p>Purpose Relative dependence of poor communities on wildlife, livestock and crops and their interaction understood.</p>	<p>From mid-2001 onwards, this understanding is reflected in improved poverty focused NRM policies, plans, new research initiatives, development processes and projects by stakeholders/target institutions. From mid-2001 onwards, the formulation of future research projects in NRSP SAPS demonstrates the internalisation of this understanding.</p>	<p>Reports of stakeholders (Government of India, key research institutions and NGOs in India, UK bilateral projects (esp. rural livelihood programmes in India), and other donor programs). NRSP SAPS plans, calls, and project reports. Citations in CPR literature.</p>	<p>Social, political, economic and institutional context continues to support an enabling framework.</p>
<p>Outputs</p>			
<p>1. Current status and dynamics, as well as likely future trends of principal forms of common pool resources in semi-arid India, understood and documented.</p>	<p>1.a) Preliminary review of CPR status and dynamics, and future trends in SA India produced by interdisciplinary research team (CRIDA, NRI, MSU) by month 4. 1.b) Comprehensive and stakeholder validated review of CPR status, dynamics, and trends produced by month 7.</p>	<p>1. to 3. Preliminary report (literature and data review) of research team.</p>	<p>Structure, resources and motivation of target institutions, and/or their agents, do not inhibit uptake of project outputs.</p>
<p>2. Current management systems of CPRs and their institutional arrangements understood and documented.</p>	<p>2.a) Preliminary review of CPR management systems in SA India, including an assessment of their economic viability, produced by interdisciplinary research team (CRIDA, NRI, MSU) by month 4. 2.b) Preliminary review of CPR management systems, including innovative approaches, produced by A.P. and Gujarat NGO co-ordinators by month 4. 2.c) Comprehensive and stakeholder validated review of CPR management systems produced by month 7.</p>	<p>2. to 3. Preliminary reports of grassroots validation teams (A.P. and Gujarat)</p>	<p>There are no major changes in Gol policies relating to CPRs during the project period</p>

Outputs	Objectively verifiable indicators	Means of verification	Assumptions
<p>3. Contributions of common pool resources to the livelihoods of poor people understood and conclusions drawn from this for further work on CPRs.</p> <p>4. Demand for solutions to overcome constraints to effective CPR management assessed by stakeholders, and researchable issues identified.</p> <p>5. Stakeholders motivated to take forward project findings in their own development projects and policy initiatives.</p>	<p>3.a) Preliminary review on CPR contributions to poor people's livelihoods produced by interdisciplinary research team by month 4.</p> <p>3.b) Preliminary review of CPR contributions to poor people's livelihoods produced by A.P. and Gujarat NGO co-ordinators by month 4.</p> <p>3.c) Comprehensive and stakeholder validated review of CPR contributions to poor people's livelihoods produced by month 7.</p> <p>4.a) Validated demand assessment through stakeholder representatives produced by month 8.</p> <p>5.a) Stakeholder identified and contacted by month 3.</p> <p>5.b) Stakeholders actively involved in validation of findings and demand assessment.</p> <p>5.c) Evidence for incorporation of research findings into the programmes and policies of stakeholders available by the end of 2001.</p>	<p>1. to 4. Final project report of research team, NGOs and stakeholders, including recommendations.</p> <p>1. to 4. Executive summary of the project report.</p> <p>5. Stakeholder policy and programme documents.</p>	

Activities	Budget and milestones	Assumptions																														
<p>1.1 Inception meeting / workshop held with all members of the research team and: - roles and responsibilities assigned; - methodological framework developed; - classification / typology of CPRs in SA India developed; - checklist on CPR status, dynamics, management, and livelihoods contributions developed.</p> <p>1.2 Review of literature and data on CPR status, dynamics, and trends in SA India, including key pressures on CPRs, undertaken and preliminary report produced.</p> <p>1.3 Checklist on CPR status and dynamics sent to AICPDAs (All India Co-ordinated Project on Dryland Agriculture Centres) and DFID projects in SA India and information compiled, analysed, and incorporated into preliminary report.</p> <p>1.4. Preliminary report circulated to key resource persons and stakeholder representatives for peer review.</p> <p>1.5. Preliminary reports (literature review and state reports) presented to and discussed with stakeholder representatives (policy makers, researchers, activists) at review workshop and gaps identified</p>	<p>Budget summary</p> <table> <thead> <tr> <th>ITEM</th> <th>Year 1</th> <th>Year 2</th> </tr> </thead> <tbody> <tr> <td>Staff costs (UK)</td> <td>15,812</td> <td>6,247</td> </tr> <tr> <td>Staff costs (overseas)</td> <td>16,080</td> <td>7,380</td> </tr> <tr> <td>Overheads (all staff)</td> <td>24,405</td> <td>9,609</td> </tr> <tr> <td>Overseas T&S (all staff)</td> <td>11,100</td> <td>5,750</td> </tr> <tr> <td>Capital equipment</td> <td>1,600</td> <td>0</td> </tr> <tr> <td>Publications</td> <td>300</td> <td>1,500</td> </tr> <tr> <td>Misc. (workshops)</td> <td>4,450</td> <td>3,100</td> </tr> <tr> <td>Year totals</td> <td>73,747</td> <td>3,586</td> </tr> <tr> <td>TOTAL</td> <td colspan="2">£ 107,333</td> </tr> </tbody> </table>	ITEM	Year 1	Year 2	Staff costs (UK)	15,812	6,247	Staff costs (overseas)	16,080	7,380	Overheads (all staff)	24,405	9,609	Overseas T&S (all staff)	11,100	5,750	Capital equipment	1,600	0	Publications	300	1,500	Misc. (workshops)	4,450	3,100	Year totals	73,747	3,586	TOTAL	£ 107,333		<p>Grassroots organisations in two states (Andhra Pradesh and Gujarat) are willing to share their CPR management experience with the research team.</p> <p>Key specialists and institutions are willing to participate in research through consultation, sharing of literature and workshops.</p>
ITEM	Year 1	Year 2																														
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Activities	Milestones
<p>1.6. Gap filling strategy developed and implemented.</p> <p>1.7. Final report produced.</p> <p>1.8. Final workshop held and findings presented to stakeholder representatives</p>	<p>Common framework for collection and analysis of information developed and agreed upon by all team members by month 1.</p>
<p>2.1. Review of literature and data on CPR management systems in SA India undertaken (including costs and benefits of different management options) and findings incorporated into preliminary report (see 1.2.)</p> <p>2.2. Checklist on CPR management sent to AICPDAs and DFID projects in SA India, and to grassroots organisations in A.P. and Gujarat, and responses compiled and analysed.</p> <p>2.3. Output of 2.2. presented to and discussed with stakeholders during two regional workshops (A.P. and Gujarat) and two preliminary state reports produced.</p>	<p>Preliminary review of CPR dynamics, trends, management systems, policies, and livelihood contribution produced and circulated for peer review by month 5.</p>
<p>3.1. Review of literature and data on the contributions of CPR to livelihoods of poor households undertaken and findings incorporated into preliminary report (see 1.2)</p> <p>3.2. Checklist on CPR contributions to livelihoods sent to AICPDAs and DFID projects in SA India, and to grassroots organisations in A.P. and Gujarat, and responses compiled and analysed.</p> <p>3.3. Output of 3.2. presented to and discussed with stakeholders during two regional workshops (A.P. and Gujarat) and incorporated into two preliminary state reports (see 2.3.).</p> <p>3.4. CPR contributions to livelihoods of poor households explicitly addressed during regional workshops (see 2.3.) and review workshop (1.5.)</p>	<p>Regional workshops with stakeholder representatives held by month 4.</p> <p>Review workshop held by month 6.</p>
<p>4.1. Based on review of literature and data on CPR management, draft list of researchable issues produced and incorporated into preliminary report.</p> <p>4.2. Stakeholder demand for new CPR management strategies assessed during two regional workshops (see 2.3.)</p> <p>4.3. Demand for new CPR management strategies addressed during review workshop.</p> <p>4.4. List of researchable issues, based on the outcome of the review workshop, produced and incorporated into final report.</p>	<p>Final project report (including stakeholder validated review of CPR dynamics, trends, constraints, and demand for solutions) produced by month 8.</p>
<p>5.1. Stakeholder analysis carried out during inception workshop.</p> <p>5.2. Stakeholder contacted and informed about project progress.</p> <p>5.3. Stakeholder encouraged to attend and contribute to review workshop.</p> <p>5.4. During final workshop, stakeholder assisted by research team in incorporating research findings into their programmes and policies.</p>	<p>Final workshop held by month 8.</p>

9. KEYWORDS

Common pool resources, common property regimes, open access resources, rural livelihoods, semi-arid tropics, India, community-based organisations, natural resource management policies, natural resource management institutions.

10. ANNEXES

- Annex A: **Adolph, B., Butterworth, J., Conroy, C., Morris, M. 2001.** Common Pool Resources in Semi-arid India: Problems and Potentials. CRIDA/CWS/AKRSP(I)/WRMLtd./ MSU/NRI Common Pool Resources Research Project Report No. 4, NRI report number 2650, Chatham, UK: Natural Resources Institute.
- Annex B: **Osman, M., Mishra, P.K., Mishra, A.K., Dixit, S., Ramachandran, K., Singh, H.P., Rama Rao, C.A. and Korwar, G.R. 2001.** Common Pool Resources in Semi-arid India. A review of dynamics, management and livelihood contributions. CRIDA/ CWS/ AKRSP(I)/ WRMLtd./ MSU/ NRI Common Pool Resources Research Project Report No. 1, NRI report number 2647, Chatham, UK: Natural Resources Institute.
- Annex C: **Anwar, S. 2001.** Common Pool Resources in Semi-arid India. Andhra Pradesh Regional Report. CRIDA/ CWS/ AKRSP(I)/ WRMLtd./ MSU/ NRI Common Pool Resources Research Project Report No. 2, NRI report number 2648, Chatham, UK: Natural Resources Institute.
- Annex D: **Gupta, A.K., Oza, A., Pastalia, A., Saxena, R., Desai, U, and Underwood, B. 2001.** Common Pool Resources in Semi-arid India. Gujarat Regional Report. CRIDA/ CWS/ AKRSP(I)/ WRMLtd./ MSU/ NRI Common Pool Resources Research Project Report No. 3, NRI report number 2649, Chatham, UK: Natural Resources Institute.
- Annex E: List of Participants at Final Project workshop in Hyderabad, 25 September 2001
- Annex F: Final project inventory