

**SILVI-PASTURE DEVELOPMENT AND  
MANAGEMENT ON COMMON LANDS IN  
SEMI-ARID RAJASTHAN**

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## *Foreword*

This report is based on work undertaken in connection with a goat research project that has been jointly managed by the Natural Resources Institute (NRI) and BAIF Development Research Foundation (BAIF). The BAIF/NRI Goat Research Project has been concerned with easing seasonal feed scarcity for goats in semi-arid India, through a participatory approach.

The poorer rural livestock-keepers in Rajasthan tend to be small or marginal farmers (or landless people) who do not have sufficient land to grow forage crops, preferring to give priority to food crops and cash crops. For them, common lands, such as village grazing lands and state-owned forest lands, are often the most important source of forage for their goats and other livestock. Use of common lands in Rajasthan has been primarily open access during the last few decades, and a large proportion of them has become degraded. During the last 15 years or so there have been many initiatives to rehabilitate them. This report summarises the findings of case studies of 15 such initiatives, and makes recommendations for changes in practices and policies and for further research on this important topic.

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## GLOSSARY

### Acronyms

BJP	Bharatiya Janata Party
CBNRM	Community-Based Natural Resource Management
DFO	Divisional Forest Officer
FD	Forest Department
FPC	Forest protection committee
HVVS	Hanuman Van Vikas Samiti
JFM	Joint Forest Management
LR	Large ruminant
NGO	Non-Governmental Organisation
NRI	Natural Resources Institute, Chatham, United Kingdom
NRM	Natural resource management
NTFP	Non-Timber Forest Products
PRI	<i>Panchayati Raj</i> Institution
PSPA	Protected Silvi-Pasture Area
RF	Reserved Forest
SDC	Swiss Agency for Development and Cooperation
SPRAD	Silvi-pasture Rehabilitation and Development
SR	Small ruminant
VSS	<i>Vana Samrakshana Samiti</i> (Forest Protection Committee)

### Local terms

<i>Bhils</i>	Tribal group widespread in south Rajasthan and adjacent areas
<i>chowkidar</i>	watchman
<i>crore</i>	ten million
<i>gayris</i>	caste specialising in sheep-rearing
<i>gram panchayat</i>	elected village council
<i>gram sabha</i>	village assembly
<i>gramdan</i>	Collective gifting/donation of all land in the village to the village assembly or <i>Gramsabha</i> for common management
<i>rebaris</i>	caste specialising in livestock-rearing
<i>sarpanch</i>	elected leader of the <i>panchayat</i>

## **A INTRODUCTION AND CONTEXT**

### **A1 Introduction**

Use of common lands in Rajasthan has been primarily unregulated and open access during the last few decades, and a large proportion of them has become degraded. During the last 15 years or so there have been many initiatives to rehabilitate them, including the World Bank-supported Integrated Watershed Development Programme, and the state government's watershed development programme and joint forest management programme.

When silvi-pasture rehabilitation and development (SPRAD) has been undertaken by development agencies in India (both state agencies and NGOs) the approach taken has normally involved enclosure of the area and exclusion of all ruminants (Bhise, Vardhan and Suess, 2000; Conroy, 2000). The standard technological package has been to construct a boundary wall, and to plant trees and sow grasses within the protected area.

A goat research project<sup>1</sup> managed by BAIF Development Research Foundation and the Natural Resources Institute (NRI) was interested in the potential of this kind of intervention for relieving seasonal feed scarcity for goats and other livestock. However, a review of the literature on silvi-pasture development in Rajasthan (Conroy, 2000) found that there was very little information in the existing literature on the effect of these initiatives on livestock, including their feeding systems and numbers. Thus, in late 1999 the project commissioned 15 case studies of silvi-pasture development interventions that had been initiated in the 1980s or the early 1990s, with a view to filling in these and other knowledge gaps. This report summarises key findings from the case studies and identifies key lessons for policies and practices, so that development agencies can learn from these experiences.

The case studies were undertaken by BAIF, and four NGOs based in Rajasthan's Udaipur district, namely: Hanuman Van Vikas Samiti, Prayatna Samiti, Seva Mandir, and Ubeshwar Vikas Mandal. The case studies have been published in five project reports, one by each of the NGOs involved (see references). The Society for the Promotion of Wastelands Development also provided inputs, through its western region programme office in Udaipur.

Forage is normally only obtained from the enclosed areas through cut-and-carry, and has to be stall-fed. In joint forest management (JFM) programmes - and sometimes in other rehabilitation programmes, such as Maharashtra's watershed development programme (Bhise, Vardhan and Suess, 2000) - lopping of trees tends to be prohibited. Thus, the principal (sometimes only) kind of forage harvested from the protected sites is grass.

Development agencies become involved in silvi-pasture development for a variety of reasons. One major reason is to improve the natural capital of the area, by rehabilitating the land, and thereby increasing biomass production and biodiversity. Another reason is to benefit the people who use the biomass resources of the area to be developed: (a) by increasing the flow of natural products that they are able to harvest; and (b) by off-site benefits, such as reduction of any problems caused by soil erosion, and by increased groundwater recharge.

A third type of reason is to strengthen the social capital of the communities involved. In the words of one of the NGOs involved, Seva Mandir:

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<sup>1</sup> The survey work on which this report is based was undertaken as part of a project (R6953) funded by the Livestock Production Programme of the UK's Department for International Development.

“ties of solidarity created through interventions on common lands strengthen the capacity of people for self-development and for demanding accountability from state for same. Thus, work on common lands involving social mobilisation and rehabilitation has emerged as one of the key strategies of Seva Mandir for village development” (Jain *et al.*, 2000).

## **A2 Agro-ecological and Socio-economic Context**

### *A2.1 Agroecology*

The districts of south and east Rajasthan where the case studies were undertaken can be loosely described as semi-arid, with mean annual rainfall ranging from about 500 mm (Ajmer) to 700 mm (Bhilwara and Bundi). Most of the cases studied are located in Udaipur District, which has a mean annual rainfall of about 630 mm. The Udaipur area used to be heavily forested, teak and bamboo being common species, but there has been widespread deforestation during the last few decades.

### *A2.2 Livelihoods and livestock*

Most households in the region are agro-pastoralist. Crop production tends to be their major activity, but animal husbandry (primarily cows, buffaloes, goats and native chickens) is also important for most: seasonal labour migration is another important activity for most poor households. Animals, particularly smallstock, are kept partly as a drought-proofing mechanism: in the event of crop failure they can be sold to provide income to purchase food.

The importance of livestock in the economy of Rajasthan cannot be underestimated. The state, which has 12% of the total livestock of the country, has the highest cattle, goat and camel populations. The livestock sector contributes 19% of the state's gross domestic product against an all India average of 7-8%<sup>2</sup>.

Many rural livestock-keepers tend to be small or marginal farmers (or landless people) who do not have sufficient land to grow fodder crops, preferring to give priority to food crops and cash crops. For them, common lands are usually a vital source of forage. The principal product that local people obtain from both forests and village grazing areas is fodder for livestock, and fuelwood is also an important product from forests. Fodder may be either grass (consumed primarily by large ruminants) or tree fodder (consumed mainly by goats).

### *A2.3 Common lands*

Two principal types of common pool silvi-pasture land are village pastures and forests. Under the Rajasthan Tenancy Act (1955), pasture land (*Charagah*) is defined as “land used for the grazing of the cattle of a village or villages or recorded in the settlement record as such...” (cited by Saint, 1993).

Numerous development agencies (NGOs and government) in Rajasthan have sought to reverse the degradation of common lands by fencing off areas of *Charagah* or other commons, planting fodder trees and improved fodder grasses and legumes, and applying soil and water conservation measures. The Forest Department has taken a similar approach on forest (and sometimes *Charagah*) lands, under the auspices of its joint forest management (JFM) programme. These protected areas can be termed protected silvi-pasture areas (PSPAs).

*Charagah* land is under the jurisdiction of the *panchayat*, the lowest tier of local government. Thus, enclosure and development of *charagah* by a particular village requires the granting of a

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<sup>2</sup> Dr. R. N. Bhatnagar, Director, Animal Husbandry

lease for this purpose by the *panchayat*. These leases are usually for three or five years, but in some cases they have had a 10-year duration. Leases can be renewed at the discretion of the Panchayat.

#### *A2.4 Encroachment*

Encroachment is widespread in Rajasthan, and has been going on for several decades, particularly since Independence in 1947 (Jodha, 1991). The term usually refers to the use of land to grow crops, but construction of houses is sometimes involved. Encroachment on common lands may be done either by people within the community to which the commons belong, or are said to belong, or people from other neighbouring villages. It is a major political issue.

A socio-political movement called Jungle Jameen Andolan has been active in southern Rajasthan for several years, which is lobbying for regularisation of long-standing (pre-1980) encroachments, primarily by the poor. There is a *de facto* government policy of periodic regularisation (Vardhan and Negi, 1999). Unfortunately, the expectation that long-standing encroachments will be legalised sometimes leads to new 'spurts' of encroachment (ibid.).

Encroachment is usually done by more powerful members of the village, and is a major threat to the majority of villagers (Dangi in SPWD 1998). Sometimes they facilitate encroachment by the weaker sections, as a method of buying their cooperation or silence.

NGOs involved in enclosure of the commons are sometimes motivated by the desire to prevent further encroachment, so that all members of the community, and particularly the poor, can continue to benefit from its use. In addition, preventing encroachment (or removing encroachers) is often a major reason why certain communities, or sub-groups of communities, support the creation of a PSPA. Removal of encroachers can be very difficult, however: powerful ones often refuse to vacate the encroached land (e.g. in Patukheda).

## **B METHODOLOGY AND DESCRIPTION OF CASES**

### **B1 Survey and Data Collection Methods**

A 12-page checklist of topics and information to be covered in the case studies was developed by the authors and the NGOs, and a copy of the final version was given to all of the researchers undertaking the case studies. Preparation of the case studies was based on a combination of secondary and primary data collection. Where the researchers had access to project records or other secondary data, they were encouraged to make full use of these sources, and only to collect primary data where necessary.

The general approach used to collect primary data was semi-structured, group discussions, using the checklist. Researchers were given a lot of flexibility as to the sequence in which topics were covered and the precise methods they used. However, particular methods were specified for two topics. To assemble information about how forage from PSPAs had been utilised and incorporated into livestock feeding systems, researchers were asked to use seasonal feed calendars (see Figures 1 and 2 for examples). A specific methodology was also developed for estimating the stock of woody biomass on each site.

### **B2 Selection of cases**

One selection guideline was that the cases should be ones where SPRAD work had been initiated at least five years previously, and preferably more. This would mean that sufficient time had elapsed to see:

- how well the user groups functioned once financial incentives had ended and the development agency had at least partially disengaged itself; and
- what the size of the benefits from grass harvesting was like.

The 15 cases were also selected to represent a wide range of types of SPRAD and of experiences, including:

- SPRAD on pasture lands, initiated by NGOs;
- SPRAD on pasture lands, initiated by the forest department (FD);
- SPRAD on forest lands, initiated by the FD; and
- community-initiated forest management.

All of the cases were ones with which the NGO undertaking the case study had some familiarity, and in most cases the NGO had had some involvement in SPRAD with the community concerned.

### B3 Description of Cases

Various details about the PSPAs are given in Table 1.

**Table B1 Basic Information about the Silvi-Pasture Cases**

Location Village (District)	Case Study NGO	Develop- ment agency	Start year	Status of site	Size of site(s) (Ha.)	Number of households now
Jogio-Ka-Guda (U)	UVM	UVM	1987	Village pasture	37.4	90
Keli(U)	UVM	UVM	1987	Village pasture	16.1	63
Seedh(U)	UVM	<i>None</i>	1980	Village pasture	80	116
Patukheda(U)	PS	Forest Dept.	1992	Village pasture	35	94
Phila(U)	PS	Forest Dept.	1993	Village pasture	2x25	150
Sagatdi(U)	PS	Forest Dept.	1994	Village pasture	35	69
Bada Bhilwada(U)	SM	SM	1992	Forest	50	172
Barawa(U)	SM	SM	1988	Village pasture	23.3 (later 29.1)	104
Selu(U)	SM	SM	1990	Village pasture	46	208
Salukhera(U)	SM	Forest Dept.	1993	Forest	50 (increasi ng to 250 by '97)	123
Suali(U)	SM	<i>None</i>	1985	Forest	500	*272
Tank(U)	HVVS	HVVS	1993	Village pasture	44.7	369
Jodha-ka-Kheda (Bh)	BAIF	BAIF	1991	Village pasture	10	151
Gudha-Gokulpura (Bu)	BAIF	BAIF	1997	Village pasture	45	276
Chota Saradhna (A)	BAIF	JPG/MVVS	1986	Village pasture	113.8	**82

U = Udaipur A = Ajmer Bh = Bhilwara Bu = Bundi

\* This figure is for 1990 \*\* This figure is for 1987



## C FINDINGS

### C1 The Nature and Costs of Silvipasture Development

#### C1.1 Types of physical treatment/intervention

Development agencies usually fund a package of interventions when rehabilitating sites, including:

- Creation of a boundary wall, usually made from stone
- Soil and water conservation structures (trenches, etc)
- Planting of trees
- Sowing of grasses.

The Forest Department has target tree planting densities (per ha.), and some NGOs have too.

#### C1.2 Types of cost

**Establishment costs** These include the cost of constructing the boundary wall and the soil and water conservation structures, and of planting trees and grasses. Establishment costs vary considerably. In the most recent case, Gudha Gokulpura, they were Rs. 13785 per ha.

**Repair and maintenance of boundary wall** This is an activity that is usually undertaken by the villagers without payment. Nevertheless, there is an opportunity cost involved and this needs to be taken into account.

**Patrolling/chowkidar** In the case of the chowkidar wages have to be paid. Where a rotational patrol is used there is an opportunity cost associated with the labour involved.

**Biomass foregone during the initial years of protection** During the first 2-3 years after enclosure removal of all biomass from the site is usually banned. As the sites are generally severely degraded this cost is usually very small.

**Transaction costs** The various management activities may take up a considerable amount of time, particularly of those people on the management committee.

### C2 Benefits from Protection and Development

#### C2.1 Types of benefits

**Direct biomass benefits** The most direct and visible effect of protection and development work is increased biomass production. During the first few years the main biomass product (which may be collected or grazed) is grass, with dry wood (for use as fuel) being a secondary one.

The standing stock of woody biomass also increases, although this is not harvested for many years. After 10-20 years various NTFPs may be harvested, such as fruits, gums and loppings of tree fodder. For example, the protected *charagah* site at Selu village, Udaipur District, contains: some *Neem* and *Karanj* trees which will eventually produce seeds that could be processed to make oil; tamarind, whose fruit can be consumed; *Khakra*, whose leaves are used in plate-making, and as fodder for buffalo; and *Mahua*, from whose seeds country liquor is made (Das, 1999; Jain, 2000).

**Indirect agroecological benefits - Wildlife** As silvipasture areas regenerate they tend to attract certain species of mammals and/or species that were previously absent or only present occasionally or in small numbers. Information about species of mammals, reptiles, and birds seen at some of the sites studied is given in Table C1. It should be borne in mind, however, that certain species of mammals and birds may be more of a cost than a benefit as far as local farmers are concerned, as they may damage crops (monkeys, peacocks) or compete with domestic livestock for fodder (bluebull), or prey on domestic animals.

**Table C1 Wildlife Observed at Selected PSPA Sites**

Village	Birds	Mammals, reptiles
4. Selu	Peacock (↑), sparrow (↑)	Monkey (↑), titar (?) (↑) fox, squirrel, varda, sambhar (N), rabbit (↑), ronze, panther (N)
9. Gudha Gokulpura	peacock, pigeon	Bluebulls, rabbits, rats, snakes, and frogs
10. Chota Saradhna	peacock, pigeon	Bluebulls, rabbits, rats, snakes, and frogs
11. Jogio ka Guda		Jackal, leopard, deer, rabbit
12. Keli	<b>Common</b> Black drongo, Bee-eater, crows, eagles, vultures, starlings	<b>Common:</b> Jackal, rabbit, wild pig, mongoose, snakes. <b>Scarce:</b> leopard, fox
13. Seedh	<b>Common</b> Crows, cuckoo, drongo, bee-eater, egrets, starlings, babblers, parakeets	Rabbit, leopard, mongoose, fox, jackal, snakes, monitor lizard
14. Tank		Rabbits (N), jackal (N)

(↑) = Numbers of the species have increased since protection was initiated.

N = This species was not present before protection was initiated.

**Off-site benefits** Soil and water conservation structures, and the regeneration of the silvi-pasture resource, may have two beneficial effects outside of the site (as well as on-site):

- they slow down the runoff of rainwater and increase filtration rates, recharging groundwater in the area; and
- they may minimise soil erosion from the PSPA, and deposition of soil and stones onto neighbouring fields.

Due to one or both of these effects crop production on agricultural lands near to the PSPA sometimes benefits from silvi-pasture development. The Taank case study found that the stream at the bottom of the PSPA now retains water even in summer; and there has been a sharp reduction in soil erosion (Yadav and Vyas, 2002). Earlier, run-off from the pasture used to erode agricultural fields and wash away good soil; and every year a household would spend Rs. 500-600 on removing pebbles and stones from the field. This expenditure has been halved.

Similarly, in Selu these factors resulted in a 20-25% increase in crop yields in fields situated below the PSPA during Kharif (Jain, 2000). Previously, heavy runoff used to cause the loss of top soil from the fields. The water level in the well situated below the PSPA has also increased. Similar effects have been documented elsewhere. For example, in Kheda there was an improvement in the surface and ground water levels below the PSPA: the stream flow lasted longer and the wells maintained a higher level than before in the summer months (Saint, 1995).

**Social benefits** Often there are major social benefits associated with establishing effective community management of silvi-pasture resources. People become aware of their rights and of procedures; and they become more confident in interacting with outside agencies. Where the *Samuh* is established specifically to manage pastureland it may gradually take on other responsibilities: in Selu, for example, the Samuh has taken control over other socio-political affairs of the village, is functioning very effectively and is self-sustaining (Jain, 2000).

The development of a village-level committee for pasture or watershed development and management, if done skilfully, can sometimes strengthen a village's capacity to confront negative challenges from nearby villages or the panchayat. This is the case in Sagatadi, where they were able to confront moves by Nandivela village to take a part of the land.

In Chota Saradhana two local people gained expertise in pasture development. They are now handling projects in other villages of the MMVS project area, and more than five pasture development initiatives are under their supervision (Naik, 2002).

**Exclusion of outsiders** In many cases the PSPA site was being used by people from other villages before it was enclosed and developed. By developing the site, a community usually is able to retain all of the benefits for itself.

### *C2.2 Size of benefits*

**Harvested grass** Harvested grass is the main tangible benefit during the first few years after a PSPA has been established, so the quantity of grass is a very important factor in the economics of PSPAs. Grass production can increase many times, the precise amount depending on various factors, such as the measures applied to the site. Data on grass yields are given in various references. However, comparison is sometimes problematic since important background information is often missing, concerning: the methods by which the yields were measured; the number of years between establishment of the PSPA and the collection of the data; and whether the data are dry weight or green weight.

In the case study sites yields increased substantially during the first few years, by anything from a factor of two (Selu) to a factor of eight (Tank, Salukhera). The data in Table C2 show a wide range of *grass yields (in tons) per hectare*. The sites with the highest yields per hectare are Seedh and Keli, which are two of the oldest ones. Sagatdi (2.0) and Patukheda (2.7) also have quite high figures; while those for Barawa (1.0) Selu (0.8) and Tank (0.7) are somewhat lower. The lowest yields per hectare are for the JFM sites of Bada Bhilwara (0.3) and Salukhera (0.6).

One tonne of grass can be sold for about Rs 1500<sup>3</sup>, or more (e.g. Rs 2500) in a drought year. Thus, if all grass were sold, per hectare revenue from grass in the case studies would range from about Rs 500 (Bada Bhilwada) to Rs 4000 (Patukheda) in a non-drought year.

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<sup>3</sup> This assumes that 1 pula (local unit) = 2 kg and the price per pula = Rs. 3 (or Rs. 5 in a drought year). This gives a price per kg of Rs.1.5, and hence a price per tonne of Rs 1500.

**Table C2 Yield of Grass from PSPAs**

Village	Area Protected (hectares)	Initial Yield	Current Yield	Yield per hectare (tons)
1. Sagatadi	25	12tons	50 tons	2.0
2. Fila	Protection broke down			
3. Patukheda	35	12 tons	96 tons	2.7
4. Selu	46	15 tons	36 tons	0.8
5. Salukhera	300	19.6 tons	168.5 tons	0.6
6. Suali	300		Grass reduced due to increase in canopy cover, but leaf litter increased	
7. Bada Bhilwara	350		100 tons	0.3
8. Jodha ka khera	30 plus 10		Controlled grazing 150 large ruminants for one month in 1993-94 300 in 95-96 and 450- 500 for 2 months in 1999-2000	
9. Gudha Gokulpura	45	Similar to current yield (newish site)	22 tons	0.5
10. Chota Saradhna	82		Not known	
11. Jogio ka Guda	37	18 tons	65 tons plus 40 tons leaf litter. Protection arrangements broke down in late 1998	1.8 grass 1.1 leaves
12. Keli	16	Protected from 1985-86 to 1989-90, re-protected from 1992-93 till date	60 tons 75 tons lops and tops	3.8 grass 4.7 lops and tops
13. Seedh	78		200- 400 tons	2.6-5.1
14. Tank	70	6.5 tons	52 tons ( 44 + 8 )	0.7
15. Barawa	29	22.5 tons	30 tons	1.0

How do we explain this wide range? JFM sites tend to be less vigilantly protected than many of the village pasture sites, and these low yields may be at least partly due to unauthorised grazing and grass-cutting. As already noted, the period since protection of the site was initiated is another factor. There will also, of course, be differences in the quality of the sites – relating, for example, to slope, rockiness and soil depth. The nature of any soil and water conservation measures undertaken will also affect the yield per hectare. Finally, the way in which the yields

are estimated is also important, particularly whether the data are for dry weight or green weight.

The data for the case study sites are not dissimilar from data obtained at a site developed under Rajasthan's state watershed development programme. In the third year after treatment, yields (sun-dried grass) at one watershed ranged from 0.9 to 1.8 tons per ha., depending on the treatment (Krishna, 1999). The highest figure was for construction of a V-ditch, combined with seeding of *Cenchrus*; whereas the lowest one was for fencing only.

### C3 Livestock and Silvi-Pasture Development

#### C3.1 Pattern of livestock ownership

In socially heterogeneous communities the pattern of livestock ownership can vary considerably between sub-groups (see Table C3 for an example): hence this kind of intervention can affect different sub-groups in different ways. Members of one particular caste, *Gayris*, tend to own large numbers of sheep. Another caste, *Rebaris*, often own camels.

Poorer groups tend to own less large ruminants, particularly buffaloes, and more goats. This is illustrated by the data in Table C4, which shows that the tribals (Bhils) owned 3.7 goats per household, on average, as compared with 1.6 for the Rajputs, who are the wealthiest group in the village. Conversely, the Rajput households own 1.6 buffaloes on average, whereas the 32 Bhil households have only two buffaloes between them.

**Table C3: Caste-wise livestock ownership profile (1999 – 2000), Barawa**

	<i>Bhils</i>		<i>Rebaris</i>		<i>Rajputs</i>		<b>Total</b>
	<b>Total</b>	<i>Avg.</i>	<b>Total</b>	<i>Avg.</i>	<b>Total</b>	<i>Avg.</i>	
Households	32	-	63	-	7	-	102
<i>Beeds</i> (in bigha)	40.5	1.3	445	7.1	35	5	520.5
Agricultural land (bigha)	45.5	1.4	153.5	2.4	22	3.2	221
Buffaloes	2	0.1	61	0.97	11	1.6	74
Cows	22	0.7	60	0.95	3	0.4	85
Camels	0	-	102	1.6	0	-	102
Bullocks	40	1.3	29	0.5	8	1.2	77
Goats	117	3.7	213	3.4	11	1.6	341

(Source: Jindal, 2000)

#### C3.2 Utilisation of forage from PSPAs

In all but two of the cases the grass from the PSPA was harvested, usually in November or December, and then stored for a period of time, which varied considerably (see Table C4). In several villages people stored the grass for a few months, feeding it in the dry season or even in the early rainy season. The harvested grass was fed almost entirely to large ruminants, as can be seen from the example given in Figures C1 and C2<sup>4</sup>. Figure 1 shows that large ruminants are given grass from the protected area during most of the year, whereas small

<sup>4</sup> These figures are based on anas. In pre-Independence currency Rs 1 was equal to 16 anas. Thus, for local people 16 anas is equivalent to 100 percent, 8 anas to 50 percent, etc. In each time period in the calendars a total of 16 anas has been divided between each of the relevant forage sources.

ruminants only receive it in May/June: and even then it only constitutes a small proportion of their diet.

**Figure C1 Feed Calendar for Large Ruminants in Jogyon Ka Guda**

Source	Siyala (Winter)		Hunala (Summer)		Chaumasa (Rains)	
	Nov.-Dec.	Jan-Feb.	Mar.-Apr.	May-Jun	Jul-Aug	Sept-Oct
Loppings				1	2	
Stored Crop Fodder	6	8	5	3		
Grass from protected area	6	5	9	10	8	
Concentrate/ Grains	1	1	1	1	1	
Cultivated green fodder – Barseem						
Open Grazing	3	2	1	1	1	4
Green Grass cut					4	12

(Source: Saint, 2000)

The additional fodder availability is to the tune of one to two months' supply, contributing between 5 – 20% of the fodder. Some previous studies of PSPAs have expressed disappointment at finding that the PSPA only provides a small proportion of the total forage needs of the livestock in the community concerned. However, the findings of these case studies show that the significance of forage from PSPAs should not only be judged on the basis of quantity, but also on the timing of the use of that forage. Where the forage is being stored for use in times of scarcity it may mean that the owner no longer needs to purchase forage at those times, or that the animals can be maintained in a better condition nutritionally. For example, in the village of Jogyon Ka Ghuda, grass from the PSPA forms a particularly important part of the large ruminants' diet in the summer and the early rainy season.

**Figure C2 Feed Calendar: Small Ruminants in Jogyon Ka Guda**

Source	Siyala (Winter)		Hunala (Summer)		Chaumasa (Rains)	
	Nov.-Dec.	Jan-Feb.	Mar.-Apr.	May-Jun	Jul-Aug	Sept-Oct
Loppings	6	5	3			
Stored Crop Fodder						
Grass from protected area				2		
Concentrate/ Grains	1	2	2	1	1	
Cultivated green fodder – Barseem	1	1	1	1		
Open Grazing	8	8	10	12	14	14
Green Grass cut					1	2

(Source: Saint, 2000)

For those maintaining milch animals, the fodder availability from the PSPA, has reduced the demand for purchased fodder and consequently enhances the viability of dairying. Some families have managed to change their livestock composition in favour of milk animals as a result.

The period of time over which the grass is stored before being fed to the animals depends partly on the availability of forage from other sources and partly on the storage space available

to the owner. This is illustrated by the case of Fila, where Dangis are able to store and use the grass over a much longer period of time than the Rawats are. This is because they have larger private sources of their own that they can use first.

**Table C4 Timing of Dry Grass Utilisation from PSPA**

<b>Village</b>	<b>Period of feed utilisation from PSPA</b>
1. Sagatadi	December to March
2. Fila	Rawats - Jan- Feb Dangis - Nov- August
3. Patukheda	Jan - March
4. Selu	Nov- Feb, March to June partial
5. Salukhera	Cut and carried , fed year round
6. Suali	<i>Nov- June (grazing)</i>
7. Bada Bhilwara	Nov- June
8. Jodha ka Khera	<i>Grazing August, also September in 1999-2000</i>
9. Gudha Gokulpura	40 days
10. Chota Saradhna	Harvested Nov – Dec used till April
11. Jogio ka Guda	Nov - August
12. Keli	March - August
13. Seedh	Jan - August
14. Tank	April to June
15. Barawa	-

The year 1999/2000 was a drought year in Rajasthan, and the case studies contain information about the use of PSPAs under drought conditions. In several cases, the local people said that the grass from the PSPA had enabled them to avoid purchasing grass from outside; and some people who had been obliged to sell animals during the previous major drought in 1987 said that the PSPA had saved them from doing that in the recent drought.

In the case of large PSPAs poorer people, especially tribal women, tend to sell some of their share of the grass. This can constitute a useful source of income for them.

### *C3.3 Impact of PSPAs on livestock numbers*

The researchers collected data on the current populations of each kind of livestock in the village, and attempted to obtain similar data for the year in which work on the PSPA was initiated. The historic data can only be obtained via people's recall or from census data, neither of which is particularly reliable, unless baseline data were collected at the time. Nevertheless, the best possible data were obtained, so that some sort of comparison could be made. The results for each case are expressed in qualitative terms in Table C5, and summarised in Table C6.

Interpretation of changes in livestock populations is the next challenge, as the PSPA may be only one of several factors that have contributed to changes. Other factors include: shifts from draught power to tractors; the introduction of irrigation facilities, which may increase the demand for draught power; reduction in farm sizes; and the establishment of a dairy milk cooperative in the village. Nevertheless, since the case studies also contain information about these other factors, it is possible to make some allowance for them when assessing the impact of the PSPA. The case study findings on changes in livestock populations are given in Tables C5 and C6. District-level trends over a similar period are given in Table C7.

The findings were mixed as far as the numbers of cows and bullocks is concerned, with numbers increasing in some cases and decreasing in others, and in two cases remaining fairly constant (see Table C6). The picture is also mixed for goats.

Much clearer trends emerge, however, for buffalo and sheep. In most villages there have been marked increases in the buffalo (and in some cases cross-bred cow) populations. This is also partly associated with the commercialisation of milk production and the improved milk marketing infrastructure, in which buffalo milk fetches a higher price than cow's milk by virtue of its higher fat content. PSPAs may help to ensure a more even year-round supply of forage, which is needed for buffalo dairying.

The increase in buffalo numbers was concentrated primarily among relatively better-off farmers. The sharp difference between resource-poor and resource-rich groups in buffalo ownership patterns that often occurs was illustrated by the case of Barawa in Table C3. Resource-rich farmers can use PSPA grass as a supplement to their private forage resources, whereas the resource-poor would face a larger forage deficit. Resource-rich farmers are also more likely to have access to green fodder in the drier months than the resource-poor.

In contrast to buffaloes, the sheep population declined in most villages where they were kept, not increasing in any. The reduction in common grazing areas was one reason for this, but there may be other reasons too, relating to the profitability of sheep production.

There are both similarities and differences when we compare the case study findings with the district level data in Table C7. The main similarity is the steady and substantial increase in buffalo numbers. Differences include the fact that, at the district level, sheep numbers have been fairly stable; and cattle numbers have decreased dramatically.



**Table C5 Changes in Livestock Ownership Patterns for Each Case\***

Village	Buffalo /milch cattle	Bullock	Cow	Goat	Sheep	Comments on changes
1. Sagatadi	↑	→	→	→	→	Increase in the number of people buying milch cattle – primarily due to SGSY loaning scheme. Not much change in cattle population otherwise.
2. Phila	↓	→	→	↑		Buffalo keeping has reduced in relation to the number of families. Goat keeping has increased slightly: while cow and bull population has remained more or less unchanged
3. Patukheda	↑					Livestock population has changed more in favour of milch animals like buffalo due to development of dairying
4. Chota Saradhna	↑					Increase in the number of buffaloes and cross bred cows.
5. Jodha ka Khera	↑	↓	↑	↑	↓	
6. Gudha Gokulpura	↑	↓	↓	↓	↓	Increase in the number of buffaloes and cross bred cows, reduction in non-descript cows, bulls, goat and sheep
7. Jogio ka Guda	↑	↑	↑	↑	→	Increase in the number of cows, bullocks, buffaloes and goat. Sheep population more or less stable
8. Keli	↑	↑	↑	↑		Increase in the numbers of cows, bullocks, buffaloes, and goats
9. Seedh	↓	↑	↓	↓	↓	Increase in the numbers of bullocks, reduction in the numbers of cows, buffaloes, goat and sheep
10. Barawa - Tribals (Bhils)		↑		↓		The Rebaris have reduced their bullock population due to male migration, but the Bhils have increased their population as they now hire out to the Rebaris. The number of buffaloes has increased - these belong to Rebaris and Rajputs.
- Non-tribals	↑	↓				The goat population of the Bhils has declined considerably due to lack of grazing area.
11. Selu	↑	↑	↑	↑	↓	Cow, bullock, buffalo and goat populations have increased, sheep population has decreased drastically to 1/8 <sup>th</sup> of the 1991 figure
12. Bada Bhilwara	↓		↓	↓		There has been a general decline in the number of cows and buffaloes kept by each household in general. The number of goats have also reduced.
13. Salukhera	↑	↓	↓	↓	↓	Buffalo population of all communities has increased. There has been a decline in the cow, bull, sheep and goat populations of all communities. The bull population of the Nal tribals and the Gayris has slightly increased. The decline in the sheep and goat populations of the Gayris is considerable, as also the goat population of the tribals.
14. Suali	→	↑	↓	↓		The numbers of cows and goats have declined while bullocks have increased dramatically. The number of buffaloes has remained more or less the same.

\*Arrows indicate the direction of change experienced.

**Table C6 Summary of Changes in Livestock Populations**

Trend	Buffalo/ milch cattle	Bullock	Cow	Goat	Sheep
Increased	10	6	4	5	-
Decreased	3	4	5	6	5
Stable	1	2	2	1	2

The research found that livestock-keepers who primarily own **small ruminants** are adversely affected by enclosure of common lands when the enclosed site constitutes a large proportion of the common grazing land in the vicinity of their village. This was more common under government programmes, such as JFM, but sometimes occurred under NGO programmes as well. The size of the goat herds owned by these households was found to decline by as much as two-thirds (Jindal, 2000; Kashwan, 2000), for example from 15 to five. The *Gayri* caste, who own large flocks of sheep and are more dependent on livestock than the other castes, were perhaps the worst affected. In one case, they were obliged either to sell-off their sheep or migrate for several months to grazing areas distant from their village (Vardhan, 2000).

**Table C7 District-level Trends in Livestock Populations**

Livestock category	1988	1992	1997
Cattle	748.2	904.1	410.0
Buffaloes	302.0	409.1	457.1
Sheep	246.2	259.9	244.0
Goats	691.4	870.9	850.8

### *C3.4 Silviculture management systems*

The objectives of NR management will strongly influence the way in which the common land and vegetation are managed. Different stakeholders may have different, and sometimes conflicting, management objectives, as is illustrated by the example in Box C1.

Unfortunately, when development agencies promote silvi-pasture development on common lands they have often failed to explore the needs and objectives of the community or its sub-groups in a thorough manner.

#### **BOX C1 SAGATDI - AN EXAMPLE OF CONFLICTING NRM NEEDS AND OBJECTIVES WITHIN COMMUNITIES**

In the village of Sagatdi the whole process of pastureland protection was initially opposed by a sub-group whose livestock were mainly or entirely goats. Goats prefer tree fodder to grass, browsing on leaves and pods on the tree or on the ground. The goat-keepers recognised that if, as proposed, almost 50% of the village's pasture land were fenced off, they would lose a major source of browse for their goats and would get little or no direct benefit that would compensate for this loss. Only one person opposed openly, but some other families with only very small private pasture had similar apprehensions. Only the people who owned large ruminants (cows and buffaloes) would benefit from the proposed intervention, at least for the first few years. After being convinced of the benefits in terms of more shrubs and grass, which would be able to compensate their loss, they eventually agreed to participate in the process.

(Source: Pandey and Thakur, 2001)

**Cut-and-carry** Forage is normally only obtained from the enclosed areas through cut-and-carry, and therefore has to be stall-fed. Lopping of trees is often not practised, so the principal (sometimes only) kind of forage harvested from the protected sites is grass. In all of the cut-and-carry cases the grass is harvested around November/December. The following reasons for harvesting the grass at this time were given by villagers in Selu (Jain, 2000):

- (i) by then the seeds of the grasses have matured and shed within the pasture, which helps in spreading of the grass;
- (ii) the land becomes dry by that time, which helps in easy harvesting, and in bunch formation, i.e. root stock in soil (which will facilitate regeneration during the next rainy season);
- (iii) most of the agricultural operations are completed by October, hence labour can more easily be made available for harvesting;
- (iv) by then the rainy season has ended, and as such it is easy to store the harvested grass in open places;
- (v) due to absence of green fodder by December end the demand for dry fodder increases from then onwards;
- (vi) late cutting of grass after December exposes it to damage from mist and fog during winter.

**Grazing** Exceptions to the general rule of no grazing are as follows:

- in two cases (Jodhaka Kheda and Suali) the PSPA grass is grazed, rather than cut;
- in one village (Keli) the PSPA is grazed by large ruminants after the grass has been harvested<sup>5</sup>; and
- in another two villages (Seedh and Selu) there is more than one PSPA, and they are used in different ways (including grazing).

Seedh divides its pasture resources into three areas: one where large ruminants are grazed, one where small ruminants are grazed, and a third where cut-and-carry is practised. Selu has a cut-and-carry site that was developed with the support of an NGO, Seva Mandir; and another small site that the villagers fenced off themselves, where grazing is permitted between January and June.

**Tree lopping** If trees remained unlopped this would constitute the foregoing of benefits, especially to poorer goat-keeping families. Lopping of trees is not practised on all of the sites where trees are mature enough for lopping. This seems to be partly because the villagers are afraid that lopping will be done incorrectly, causing damage to the trees; and partly because they are afraid that if they allow their own members to lop trees this may encourage people from other villages to enter the site. In Barawa, lopping was tried; but it was then stopped, because it had not been carried out satisfactorily. In Keli, very limited and careful lopping is allowed, in which only side growth is cut, the lead sprouting of the stems and main branches being left intact (Saint, 2000).

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<sup>5</sup> One reason given for this was to remove the fire hazard posed by clumps of uncut dry grass adjacent to bushes.

## C4 Effect of PSPAs on Different Groups

The conventional approach to SPRAD occasionally encounters problems from sub-groups within the villages that the development agencies work with, who are dissatisfied as they want to continue to graze their animals on at least part of the site that has been enclosed. This is particularly the case for people with sheep or goats, as small ruminants are less well-suited to stall-feeding. (In addition, goats prefer to browse the leaves and pods of trees and shrubs, rather than to graze ground vegetation, so grass normally forms a smaller proportion of their diet than that of other ruminants.) As we saw earlier, people whose livestock are primarily small ruminants, particularly goat-keepers, tend to belong to the poorer groups.

The social and economic consequences of reductions in small ruminant numbers can be serious. As goats are a liquid asset and a valuable source of income, such reductions may have serious ramifications for the welfare of the household members. They may be forced to try and find other sources of income, such as wage labour (Kashwan, 2000), but there is no guarantee that wage labour will be available when needed. Migration of the *Gayri* men with their flocks of sheep imposed extra burdens on women, who had to take over responsibility for supervising agricultural operations (Vardhan, 2000).

Such impacts on small ruminant owners have also been observed in other states. In Maharashtra it has been noted that sheep-owners “as a result of the ban on grazing, are compelled to shift their livelihood strategy ... by way of selling off their herds or by migrating to neighbouring villages to graze their herds” (Bhise, Vardhan and Suess, 2000). In Andhra Pradesh, it has also been observed that poor goat-keepers have been adversely affected by enclosure of common lands (Ramdas, 2000); and grazing bans under the JFM programme have resulted in people in many villages being “forced to sell their goats and look for some other means of livelihood” (Srinivas, 2001).

When the development agency withdraws there is often (particularly in government programmes) a breakdown of the protection system, resumption of uncontrolled grazing and a reversion to degradation of the resource (Bhise, Vardhan and Suess, 2000; Kerr and Pender, 1996). One of the reasons for this can be the dissatisfaction of small ruminant owners who have been disadvantaged by the protection system. Thus, there is a clear need, on both equity and sustainability grounds, for development agencies to take a more sophisticated and flexible approach when rehabilitating common lands. At present, only two situations are normally found: **regulated use of the resource without grazing, or unregulated use of the resource with grazing.**

## C5 Community Dynamics and Attitudes to PSPAs

### C5.1 Attitudes

Two of the most important and common reasons why local people participate in protected silvi-pasture area schemes are: (a) to prevent (further) encroachment of common/forest lands; and (b) to obtain wage labour near to their homes (Tiruth and Gour, 1998; Vardhan and Negi, 1999). Fodder is a third major benefit that people expect to get from participating in JFM, with other forest products only becoming important in later years (Vardhan and Negi, 1999).

Another important factor that sometimes comes into play with village pastureland (although this is not necessarily made explicit by them), is that villagers want to establish exclusive rights to a particular area of land that is contested or currently shared with people from other communities. This was identified as a factor in at least two of the case studies – Gudha Gokulpura and Jodhaka Kheda (Ghorpade and Naik, 2002). Both these villages selected an

area of land adjacent to the village boundary, with a view to strengthening their capacity to prevent people from other villages from bringing their animals into the village's land to graze.

### *C5.2 Community dynamics*

Within any 'community' there is likely to be a mixture of stakeholders when it comes to silvipasture development, each with their own interests. Some influential stakeholders may be groups, such as goat-keepers or people belonging to a particular caste or livelihood group; while others may be powerful individuals.

Intra-community dynamics may be influenced by several factors, including differences between sub-groups in:

- (a) the ownership of private land (and hence private sources of forage);
- (b) the pattern of livestock ownership; and
- (c) livelihood activities and systems.

Point A is illustrated by the situation in Tank village given below (Box C2). Point B is illustrated by the Sagatdi case (Box C1). An example of Point C, from the experience in Sagatdi, is that "people migrating for labour work are mostly passive during decisions related to resource development" (Pandey and Thakur, 2001).

Community dynamics can be understood through the distribution of benefits among various groups and the different resource endowments of the groups. For example, in Tank village there are three different sub-groups, namely:

- 25 percent who do not need any fodder from the village's common pastures, because they obtain sufficient from their private land (crop residues and wastelands);
- another 25% who only need fodder from the commons during drought years; and
- 50% who depend on the common pasture land for fodder/forage on a regular basis.

As a result of these differences in private fodder/forage resources, the better-off group favours the auctioning of the grass from the PSPA, as it provides income; whereas the members of the fodder-deficient group prefer to harvest the grass themselves.

#### **Box C2 Changing Power Equations in Tank Village**

Initiation of pasture development and processes related to it has had some impact on power dynamics in the village. It has provided opportunities to the hitherto silent sections to raise their voice in favour of their interests. This was best illustrated by the decision of the villagers, in 1999-2000, to cut the grass collectively and not let it be auctioned. The better off persons who do not need the pasture grass as they have sufficient reserves are interested in auctioning of the grass which brings in cash. However the poor and fodder-deficient households prefer that the grass be cut. In 1998 half the grass was cut and half was auctioned. However in 1999 villagers insisted that no grass should be auctioned. This was a drought year. Accordingly, all the grass was cut collectively. (Source: Yadav and Vyas, 2002)

### *C5.3 Encroachments*

In most of the PSPA cases removal of encroachers was a major pre-requisite for silvipasture development to take place. An example of the numbers and sizes of encroachments involved

is given in Table C9. This represents a reversal of the general trend of increasing levels of encroachment.

**Table C9 Encroachment details in Patukheda**

Category	No. of Encroachments	Area Encroached	Present Status
A	6	10 Bighas	All removed
B	20	6-7 Bighas	*1 encroachment
C	8	2-3 Bighas	*1 encroachment

\* the two encroachments (~ 5 bigha) are on the other pastureland which is open. All encroachments from the enclosed pasture have been removed.

## **C6 Conflicts – A Threat to Protection**

### *C6.1 Conflicts - Types, Causes and Consequences*

A wide range of conflicts occur in India in CBNRM. Nobody knows exactly how prevalent they are, but they are certainly not unusual. When CBNRM breaks down or stops it is usually because of conflict. Three out of the 15 PSPA cases studied had experienced serious breakdowns in protection, i.e. ones leading to significant degradation of the PSPA: these were Keli (see Box C5), Phila (Box C3) and Jodhaka Kheda (Box C7). It should be noted, however, that the majority of micro-micro level (see Table C11) conflicts are effectively resolved sooner or later.

The relationships between various stakeholders may involve occasional (acute) conflicts, or ongoing (chronic) ones. Some may be readily apparent to outsiders, while others may be almost invisible. Simplifying things somewhat, one can say that conflicts occur at micro or macro levels, and between these levels, and can be classified as follows: micro-micro, micro-macro, or macro-macro.

Where the protection work has succeeded, the primary factor has been the regular meetings to resolve the conflicting interests of the different groups. Protection has broken down when the rights of a particular community could not be addressed. In the words of one NGO, “ a continuous process of open dialogue is needed so that the problems arising at various stages of pastureland development and management can be addressed by the people” (Pandey and Thakur, 2001).

**Micro-Micro Community Conflicts** Micro-micro type conflicts can be classified further into four categories (Conroy *et al.*, 1999 - see Table C10), in terms of:

- \* whether they are within the community protecting the commons, or between that community and other stakeholders; and
- \* whether the conflict is directly or indirectly related to management of the commons.

The latter may not always be a clear-cut distinction: where there is a history of conflict or mistrust between different stakeholders regarding non-NRM matters, there is more likely to be conflict between them in relation to NRM.

**Table C10 Types of Micro-Micro Conflicts, with Examples**

	<b>Directly related to Protection</b>	<b>Indirect effect on Protection</b>
<b>Within protection communities<sup>a</sup></b>	<b>A</b> One sub-group refuses to abide by protection or harvesting rules	<b>B</b> Conflict breaks out between 2 sub-groups, who refuse to cooperate any longer in various matters. Forest protection is affected, sometimes leading to a tree-felling free-for-all.
<b>Between protection community and other local stakeholder</b>	<b>C</b> 1+ local stakeholders (e.g. communities, local FD staff, loggers) challenge or do not accept a protection initiative (and may cut down trees in the protected patch).	<b>D</b> Conflict breaks out between 2 communities, related to non-protection issues (such as party politics or personal disputes), leading non-protecting community to 'loot' the protected patch.

<sup>a</sup> In combined community protection (i.e. involving more than one village or hamlet) each community is classified as a sub-group.

Out of 15 PSPA cases in Rajasthan, three had experienced Type A conflicts and nine had experienced Type C conflicts (see Table C11). All of the conflicts were primarily related to protection issues, but one of the Type C cases (Phila Magra) also had a Type D influence (see Box 3).

### *C6.2 Intra-community conflicts*

Intra-community conflicts often arise from differences between sub-groups in: (a) the ownership of private land (and hence private sources of forage); (b) the pattern of livestock ownership; and (c) livelihood enterprises. Point A is illustrated by the situation in Tank village given earlier.

Leaders invariably have been among the more powerful members of the community. Conflicts among leaders have in some cases helped the weaker sections to benefit, as in Tank and Barawa. NGOs have often played the balancing act to articulate the concerns of the weaker sections. The level of presence of the NGO and influence on the village community is an important factor).

### *Inter-community conflicts*

Conflicts with other villages have been a major area of concern. Inter-community conflicts are common over usufructuary rights: restrictions imposed by one community may be strongly contested by other villages in the area that have been using the resource for many years. It is often the case that an "economically stronger village disturbs the protection work or encroaches over the resources of weaker village" (Pandey and Thakur, 2001).

In some villages and in some instances, the conflicts have been resolved with the proactive involvement of the administration, while in others resolution has not been possible. The Revenue Act can be used to help address boundary disputes, but dominant villages are also able to get favour from the ruling authorities in such matters (*ibid*). Occasionally communities resort to legal action, which tends to be expensive. Boxes C3, C4 and C5 contain examples of Type C conflicts between communities.

**Boundary disputes** Boxes C3 and C4 describe cases of conflict that are related to boundary disputes.

**BOX C3 PHILA MAGRA A TYPE ‘C’ CONFLICT, WITH ELEMENTS OF TYPE ‘D’**

Phila Magra is the name of a PSPA that was created on revenue land under the auspices of Rajasthan’s JFM programme. It is situated close to the boundary of the villages of Philan and Sabal, and the precise location of the boundary has been a matter of dispute for almost 25 years. Unfortunately, when it initiated the PSPA with the villagers of Philan, the Forest Department did not make any attempt to tally the boundary of the PSPA with the Revenue Department’s records of the village boundary. The people of Sabal were apprehensive about the establishment of the PSPA, as the disputed part would come under the control of Philan, perhaps forever, so they opposed the physical work at the outset. However, when they had the opportunity of wage labour on the site they took it, and their opposition temporarily subsided.

Once the PSPA was created people from Sabal frequently defied the enclosure rules, grazing cattle there and stealing grass or wood; and recently some cut and removed trees and bushes, claiming a share in the patch. The dispute remains unresolved. The conflict over Phila Magra is not purely a boundary dispute, nor is it entirely an inter-village conflict. Within Philan there are different sub-groups with conflicting interests. The Rajputs of Philan, who do not depend much on the village pastureland, have not made any significant contribution to efforts to resolve the dispute, and the Rajput leader has been covertly supporting the people of Sabal with a view to winning their votes in the Panchayat elections.



**Table C11 Summary of Micro-Micro Conflicts by Type**

Name of Case	NGO	Type A (Intra-community, direct)	Type B Intra-community, indirect)	Type C (Between community & external stakeholder)	Cases where legal action has been taken	Result
Jogio-Ka-Guda	UVM			✓ Benefit distribution	✓ over encroachment	Break-down
Keli	UVM					
Seedh	UVM					
Patukheda	Prayatna Samiti			✓ With FD over <i>P. juliflora</i>		<i>P. juliflora</i> uprooted by villagers
Philan	Prayatna Samiti	✓	✓ Political - Rajputs	✓ Philan-Sabal boundary dispute		Break-down
Sagatdi	Prayatna Samiti	✓ Goat-owners v. others		✓ Latent boundary conflict	✓	Resolved
Bada Bhilwada	Seva Mandir			✓ Potential future conflict with Bicchiwada		
Barawa	Seva Mandir					
Salukheda	Seva Mandir					
Selu	Seva Mandir					
Suali	Seva Mandir			✓ Minor conflict over benefit distribution		
Tank	HVVS	✓ Benefit distribution: auction v. self-cutting				Resolved
JodhakaKheda	BAIF			✓ conflict with Panchayat	✓	Break-down for 2 years
Gudha Gokulpura	BAIF			✓ conflict with Panchayat		Resolved
Chota Saradna	JPG/MVVS			✓ low-level conflict with nearby village	✓	Ongoing

#### **BOX C4 BOUNDARY DISPUTE BETWEEN SAGATDI AND NANDIWELA**

The pastureland of Sagatdi touches the boundaries of Sulawas and Nandivela villages. Earlier the three villages were parts of 3 different feudal estates. There were conflicts related to the common boundary among the three estates. Even after the abolition of feudal estates the land near the boundary has been an issue of conflict among the villages. The common boundary between Sagatdi and Nandiwela is also disputed. Pastureland had been scarce and after abolition of the estates, land settlement was not done in proportion with population. Nandiwela has larger human and animal populations, but it has less pastureland: so cattle from Nandiwela used to graze in the pastureland of Sagatdi. After protection work had been completed this was stopped. This set the people of Nandiwela and Sagatdi against each other. Prayatna Samiti had made many efforts in recent years to reach some understanding by discussing the matter commonly, but till date the 3 villages have not agreed on any common solution. However there has not been any case of harm to the protected pasture. **Villagers of Nandiwela have filed a case in the court against Sagatdi.** The issue is still unresolved. (Source: Pandey and Thakur, 2001)

#### **BOX C5 JOGION KA GUDA: A TYPE 'C' CASE, Resulting in Breakdown of Protection**

Working with UVM, people in the main hamlet of the village of JKG in Rajasthan initiated protection of common grazing land in 1987, and forbade grazing and the lopping and cutting of trees in the protected area. Fallen leaves and dry wood could be collected and removed. Violation of these rules was punishable with a fine of Rs. 51/-. People from other villages, and from a smaller hamlet in JKG, had been using the area until then, grazing their animals there and collecting fuelwood and leaves, and were reluctant to accept the new rules and frequently infringed them. The rotational protection arrangements and other protection measures were only partially effective, and to curb damage by neighbouring villagers help was taken from the police authorities in Gogunda on some occasions. This reflected the weakness of the JKG community's self-defence arrangements and coherence. It also aggravated the relations with the neighbours.

The tenuous situation about protection came to a head in 1998 when the families in the smaller hamlet of JKG village, who had been excluded from the village meetings and decision-making, and had taken an adversary position towards the main hamlet, started cutting the trees in the pasture. By this time several of the elders had passed away. It was feared that those deaths were caused by the evil powers of the elder, Gamana, in the smaller hamlet. This fear, and the fatigue of **long drawn out court case relating to encroachment**, broke the community's will for protection. The families in the main hamlet and others from villages nearby joined in the cutting and removal of trees. The bulk of decade-old natural and planted trees were cut down in a matter of 2 to 3 weeks during November 1998, the stonewall was damaged and the area became open for grazing. (Source: Saint, 2000.)

#### *C6.4 Micro-Micro Conflicts between Community and Panchayat*

Relationships between village communities and representatives of the panchayat to which they belong are sometimes problematic and can be a source of conflict. Two examples of this are given in Boxes C6 and C7.

### **BOX C6 Relations between Barawa Village and the Panchayat**

When the villagers of Barawa initiated work of developing the pastureland, the sarpanch, who belonged to Needach village, was approached. The Sarpanch put obstacles in their way, refusing to grant the necessary lease. Instead, he planned to take up similar work through the panchayat with the help of the State Government. He also sought to create a rift between the two rival Rebari factions in the village. Seeing this as a move to wrest control of the village pastureland by the Panchayat, three senior Rebaris went on hunger strike. Under growing pressure, a lease was granted in 1987-88. The lease expired in 1992, but the village has continued protection and management arrangements without further permission, due to the rift between the village and the Panchayat leadership. (Source: Jindal, 2000).

**Party politics** does not always manifest itself as one village versus another. As was noted earlier, in Phila the Rajput leader has been covertly supporting the people of Sabal in the conflict with his own village, with a view to winning their votes in the Panchayat elections.

### **BOX C7 Relations between Jodha Ka Kheda Village and the Panchayat**

In 1996, the protected silvipasture became a party political issue. The Congress party representatives on the panchayat, including the Sarpanch, decided that they wanted to open up the area to all 13 villages in the Panchayat (the Sarpanch was not from Jodha ka Khera ). The villagers and the BJP on the other hand wanted to continue with the existing arrangement. The Sarpanch wanted to keep Rs 450/ year from the pasture for the panchayat. This proposition was not acceptable to the village. The sarpanch was successful in opening up the land to the other 13 villages for 2 years.

Free grazing took place not only on the PSPA land, but also on the rest of the panchayat land and even near the private land and homesteads of the people. The boundary wall was broken and fodder trees damaged or destroyed. The villages of Jodha Ka Kheda were not able to get enough fodder. They submitted an application to the collector to assert their rights over the pastureland. A statement was received from the collector that they had greater right to maintain the pasture property. The BJP forced the holding of a gram sabha meeting, at which it was decided that Rs 450/- should be given to the pasture committee for protection and not to the panchayat. At the time of open grazing, some land was allotted to the Bhils by the Panchayat, but the people of Jodha ka Kheda argued with the panchayat and were successful in maintaining the land as common land.

(Source: Ghorpade and Naik, 2002.)

### *C6.5 Micro-Micro Conflicts between Community and External Agency*

Not all local conflicts are confined to communities themselves. Where an external agency is nominally promoting CBNRM, but in reality is only paying lip-service to the approach and is actually working in a non-participatory fashion, conflicts may arise between the agency and the community with which it is working. This is illustrated by the example in Box C8.

### *C6.6 Micro-micro conflicts and the administrative authorities*

In principle, the administrative authorities could play an important role in conflict management, but in practice they seldom have. For many communities the main executive agency they have interacted with has been the forest department. It seems from the case studies that the attitude of the FD has generally been one of indifference or even contempt, as is illustrated by the case of Phila (see Boxes C3 and C9).

### **BOX C8 A MICRO-LEVEL CONFLICT WITH FOREST OFFICERS**

In the JFM village of Patukheda, the FD planted 10,000 *Prosopis juliflora* saplings in the PSPA. The senior officials accepted in principle that the local species recommended by people should be planted. However, the local officials, under the pressure of achieving high targets for survival rate, insisted on planting *P. juliflora*, because it is an exceptionally hardy species. However, its hardiness enables it to spread rapidly, and it can become a serious weed. In 1993 several petitions were given to the FD by the people to remove it, with a request that it be planted on the boundaries rather than inside, because it was spreading fast and was having a negative effect on grass production. On receiving a cold response from the FD the villagers removed the saplings themselves in 1994. Later various local species were planted.

### **BOXC9 The FD and the Phila/Sabal Boundary Dispute**

The boundary dispute between Phila and Sabal was described earlier in Box C3. Many complaints were lodged with the FD after the people of Sabal broke the protection rules, but not a single meeting was held to discuss the matter with the concerned groups. In the latest conflict when people of Sabal cut many trees and shrubs, all the villagers signed the complaint and submitted it to the Divisional Forest Officer (DFO). The expense involved was collected from all the households including those who do not have a share in the Phila Magra patch.

On three separate occasions arrangements were made with the DFO to meet him to discuss these matters, but he did not turn up. All the people were supposed to be present for the meeting, and had been threatened with a fine of Rs.100 (which in any case is much higher than a day's wage) if they failed to attend. Many people had to forego a day's wage in order to be present in the meetings. The DFO came on fourth appointment, but instead of discussing the matter with the people he talked to some key persons and gave superficial instructions to leaders from Sabal not to repeat the act.

People who were interested in following up of the matter were discouraged by this attitude of the Department. After this no initiatives were taken either by the Administration or by the people.

Source: Pandey and Thakur, 2001

## **D IMPLICATIONS FOR RESEARCH, PRACTICE AND POLICY**

The case study findings highlight the need for a more participatory and flexible approach to SPD on common lands. Local communities should be encouraged to take part in planning and designing interventions to meet specific livestock development objectives that are set by the communities themselves. The objectives chosen would influence the selection of tree and/or shrub species, the tree planting density, whether or not grazing was permitted at certain times of the year and other aspects of the technology.

### **D1 Important Research Issues**

Several key issues identified as requiring attention in future research work are listed below.

#### *D1.1 Why are small ruminants overlooked in the process of planning PSPA development?*

Since SRs are owned primarily by poorer groups this is an important question, but at present nobody seems to know why this is the case in Rajasthan. However, the fact that community members do not appear to voice concerns about the impact of site closure on SRs *could* be due to one or more of the following factors:

- SR owners perceive positive benefits associated with the SPRAD process (e.g. prevention of further encroachment), and believe that these outweigh any negative effects from SR exclusion;
- if SPRAD is implemented in a non-participatory, top-down style, SR owners may perceive proposals for closure and a ban on grazing as presented by development agencies as non-negotiable, so they see no point in expressing concerns or alternative proposals<sup>6</sup>;
- SR owners may perceive the village elite and development agency (esp. FD) as being united in favour of closure and no grazing, feel alienated from the planning process and hence do not bother to express their concerns.

One specific research activity that might help to answer this question would be for researchers to visit old PSPA sites and interview villagers as to why they think SRs were neglected.

#### *D1.2 Community attitudes*

There is a need to probe deeply into the attitudes of community members towards:

- (a) closure of sites, with ban on grazing; and
- (b) opening up of *PSPAs* a few years after tree planting etc. has taken place.

One particular question that needs answering is: why is that tribals themselves sometimes do not appear to be particularly concerned about the declining number of SRs<sup>7</sup>?

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<sup>6</sup> Points 2.2 and 2.3 have been observed in the context of the JFM programme in Andhra Pradesh (Sagari Ramdas, pers. comm.).

<sup>7</sup> A Few points that might explain this observation are:

- \* Changing pattern of livelihood amongst tribals (migration and other microeconomic changes etc.)
- \* Availability of wage labour (e.g. for tree planting) as a result of enclosures.
- \* Prevention of encroachments because of enclosures may be seen as major compensating benefit.
- \* Desire to send children to school for education.

### *D1.3 Review management systems for well-established sites*

There are several sites in Seva Mandir's programme area that have been protected for eight years or more, with no grazing and sometimes no lopping. Their pasture programme coordinator identified the need to review management systems for such sites. In particular, there is a need to study the options for management of tree-lopping. Guidelines are needed on how to optimise lopping technically and how to address social issues associated with it.

### *D1.4 Research no grazing versus controlled grazing*

There is a need to investigate other options (apart from the conventional no grazing, cut-and-carry one) for silvi-pasture rehabilitation and management, particularly options involving **regulated grazing**. Such options include:

- grazing of large ruminants at the end of the rainy season, without cut-and-carry;
- closure of site from July to December, followed by grazing from January to June;
- closure of site during the rainy season (July-September);
- limited grazing after the grass has been harvested;
- hybrid management systems, in which part of the common lands is closed, but regulated grazing is allowed on another part;
- regulated lopping of trees.

### *D1.5 Scope for stall-feeding small ruminants*

Although stall-feeding SRs is generally less feasible than stall-feeding LR, there are some villages and households where at least partial stall-feeding is being practised. It would be interesting and useful to know under what conditions stall-feeding is a viable option. Some NGOs have been promoting stall-feeding of livestock in general without necessarily having a good understanding of the socio-economic factors affecting its feasibility.

### *D1.6 What distinguishes successful PSPA cases from unsuccessful ones?*

Seva Mandir has been working in 500 villages for many years, and yet silvipasture development on common lands has only been implemented in 50 of these villages. The other 450 villages know that support for this kind of intervention is available from Seva Mandir, but they have not requested it. It is important to look into the field level constraints surrounding this issue of lack of demand for work on common lands. Comparing and contrasting these two sets of villages, and finding out the reasons for this, could provide valuable information for development agencies working on, or thinking of working on, silvipasture development on common lands.

Of the 50 villages where SPRAD has been undertaken, one third are no longer managing the site effectively. Seva Mandir does not have a deep understanding of why it is that some have been successful and others not. Thus, a comparison of these two sub-sets of villages could also generate new insights of value to development agencies.

### *D1.7 Need for integrated land use planning at village level*

It is important that development agencies and communities think about integrated land use planning at village level, with reference to both PSPAs and other sources of forage. PSPAs may form only a very small proportion of the total land available in a village: agricultural fields and private wastelands often form a sizeable source of forage in a village vis-à-vis the PSPA. More field level research is required into the potential of various land types in a village

to contribute to fodder security amongst different communities. Such research should also include policy level issues such as the regeneration of forests as forests and not necessarily as pastures.

#### *D1.8 Legal issues relating to PSPAs, especially on Panchayat land*

Another important topic that needs to be investigated is the legal issues surrounding PSPAs (including JFM). A lot of confusion prevails regarding rights of various government agencies, Panchayati Raj Institutions and people's institutions (like village group, FPC etc.) over the commonland and various benefits accruing out of its development. This becomes even more significant in the light of 73<sup>rd</sup> amendment. Thus, it is imperative to initiate field research into the provisions of these policies and their limitations. Existing arrangements for benefit-sharing between panchayats and villages need to be documented, including how panchayats may be impinging on villagers' rights. The findings of such research could be used in policy advocacy on this front, so that the results of pasture development (in terms of usufructs and access) remain secure with the village-based people's organisations. (See also section D3.4.)

## **D2 Improving Practices of Development Agencies**

### *D2.1 Taking account of livestock in government programmes*

The general philosophy behind India's watershed and forest management programmes is still primarily conservation-oriented, rather than people and livelihoods-oriented – although this is gradually changing. Many government staff still need to go through a 'paradigm shift', so that they start to see people as part of the solution, as potentially effective managers of natural resources, rather than as part of the problem.

**Watershed development** Government watershed programmes have generally taken little, if any, account of livestock. An SDC-sponsored study concluded:

“Watershed policies of the Government of India and the State Governments focussing on soil and water ... do not include livestock in the proposals [and] ... subsequently do not analyze its impact on the environment. The watershed departments – with the exception of Karnataka (recently) – generally do not include livestock experts in their multidisciplinary teams and the guidelines on Watershed Development<sup>8</sup> do not explicitly consider livestock” (Mangurkar and Ravi Kumar, 2001).

There is a clear need to include livestock specialists in the teams. There is also a need for the programmes and guidelines to recognise that: various aspects of watershed development have (or could have) implications for livestock forage and drinking water availability, which may be either positive or negative; and that these need to be understood before interventions are implemented.

**Joint forest management** Historically, “forestry never accepted livestock concerns as part of the management” (Srinivas, in ANTHRA, 2001); and, since livestock were (and still are) seen as the main cause of forest degradation, it is not surprising that JFM still has not fully accepted the need to integrate livestock considerations into forest management. When the paramouncy of people's livelihoods is recognised, the legitimacy of animal husbandry, and hence grazing, is more likely to be accepted by foresters. NAEB recently concluded that there appears to be “a need to evolve a grazing policy under the JFM programme” in Andhra Pradesh (NAEB, 2000);

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<sup>8</sup> The latest version of the guidelines lists pasture development as one of the possible watershed development activities and also 'nursery raising for fodder', but there is no reference to livestock as such.

and one of the recommendations from a recent stakeholder consultation exercise on forest management was that a “grazing policy has to be evolved” (Suryakumari, 2001).

When developing the management plan for the forest, communities should be free to choose grazing as an objective if they want to. This would then have implications for management: for example, prevention of canopy closure in one part of the forest, so that grass is still able to grow; or planting of fodder trees. There is evidence that forest departments generally prefer non-fodder species, such as eucalypts and casuarina, partly because they are more ‘cattle-resistant’, and are less likely to offer fodder species as an option to villagers (ANTHRA, 2001).

Under JFM programmes grazing is normally banned for at least five years while the forest regenerates and newly planted trees get established. Many people are questioning whether a ban of this duration is necessary, and expressing concern over the impact of such bans when the forest area constitutes a large proportion of the previous grazing area for the villagers concerned (Anthra, 2001; Vardhan, 2000).

#### *D2.2 Determining NR management objectives*

It is important that the management priorities and objectives of all sub-groups are clarified at the outset, particularly how the different groups would like the PSPA to contribute to the forage needs of their livestock and how those needs would be affected by different SPRAD options. On the basis of this information it may be possible (though not necessarily always) to develop a management plan that benefits the poorer groups, and ensures that no one group loses out.

It is important to be aware of the fact that it tends to be the case in CBNRM that an elite group plays the lead role, and formulates management plans without much consideration for weaker ethnic groups or for the interests of women.

#### *D2.2 Density of tree planting*

The community’s objectives for the PSPA could have a major effect on the optimum tree planting density.

#### *D2.3 Alternative systems for goats and sheep*

**Recommendation for existing PSPAs** Where SR owners are unhappy about the ban on grazing there is a need to open up the negotiation process for an alternative management system. This needs to be done in areas where such issues have surfaced (e.g. case of village *Salukhera*, where the *Gayris* (who are heavily dependent on sheep) are interested in opening up the area). In such cases there is a need to plan, monitor and document a controlled grazing system, preferably with the forest department as active partners so that follow up can be smooth.

**Recommendation for new PSPAs** With new PSPAs there is much greater flexibility regarding the management system options. The important thing is to have an open discussion with the small ruminant owners about a range of options, and facilitate their inputs to their discussion, so that whatever one is chosen is based on their knowledge and preferences. If grazing is permitted there will need to be some form of regulation. Three possible grazing options will now be described.

One option is to take a gradual approach to enclosure of forests or pasture land, in which one small patch is enclosed each year, so that a sufficiently large grazing area is available at any one time. The people of one village in Andhra Pradesh developed and agreed this kind of arrangement after there had been conflicts between the goat-keepers and the VSS (See Box



D1). A second option is to restrict the numbers of animals of different species that can be grazed on the site. A third is to limit the period during which the animals are allowed to enter the site for grazing (see section C3.4).

**BOX D1 Thimmapur: An Example of Accommodating Small Ruminants in a JFM Programme Village**

Thimmapur is a village in Medak district, Andhra Pradesh, which has 200 ha. of forest land. In 1998 an NGO (called ROAD) helped the villagers to get involved in forest protection, under the auspices of the JFM programme, through setting up a VSS. FD officials stressed the importance of protecting the whole forest, and suggested a ban on grazing of all animals. During the following two months conflicts arose in the village between the goat-rearers and the VSS committee, whose chairperson objected to the goats being grazed in the forest.

Discussions were held between ROAD, the small ruminant owners, and another NGO, called ANTHRA, which specializes in livestock development. ANTHRA suggested that the goat-rearers could explore the possibilities of protecting the forest on a rotational basis. After a series of discussions among themselves, the small ruminant owners arrived at a consensus about their plan. They then met the VSS committee and presented their plan, which was that the forest should be demarcated into four plots of 50 ha. each, and each plot should be planted in turn, in different years. After three years of protection the saplings in the first plot would have grown sufficiently that the plot could be opened up for free grazing. After intensive discussions, the VSS committee finally accepted the plan. The goat and sheep-rearers also agreed to the following points:

1. The goats will not be grazed in the protected plot that is under VSS plantation
2. They will not carry an axe into the forest;
3. They will only graze by bending the branches of the trees, but not cutting the branch
4. They should be allowed to take tree leaves for the goat kids left at home.

The plan was implemented effectively between 1999 and 2001.

(Source: ANTHRA, 2001)

*D2.4 Agreement and clear demarcation of boundaries*

As we saw in section C6, boundary disputes between communities are quite common. **Recommendation for new PSPAs** The use of stakeholder analysis and negotiations could enable development agencies to avoid, or reduce the likelihood of, a conflict, instead of aggravating it (as they sometimes do). For example, in the Phila Magra case, if the FD had consulted stakeholders in both villages, it would have been aware of the boundary dispute between them; and, by consulting Revenue Department records as to the location of the official boundary, it might have been able to align the boundary of the JFM site with the villages' Revenue boundary. Such actions would have greatly reduced the likelihood of villagers from Sabal cutting and removing numerous trees and bushes from the site.

*D2.5 Appropriate institutional structures and support systems*

Development agencies need to be aware of the community dynamics (a) within villages where they are working on silvi-pasture development; and (b) between those villages and neighbouring villages. They may need to support certain sections of the community, while opposing others. For example, in Tank appropriate organisation of poorer groups over a period

of time enhanced their ability to resist moves for auctioning of grass by a powerful figure in the community.

The role of the HVVS, was to constantly raise the issue with this community in discussion groups at the village level and facilitate discussion with the community as to the appropriate action to be taken. On the other hand reports of these meetings, put pressure on the concerned person, who was ultimately forced to relent. Constant discussion also facilitated community preparation to resist moves to auction the grass at the time of drought.

The development of a village-level committee for pasture or watershed development and management, if done skilfully, can sometimes strengthen a village's capacity to confront negative challenges from nearby villages or the panchayat.

However, support from state agencies is often lacking. In Fila, for example, the Forest Department did not facilitate a proper dialogue, causing some discouragement in the protection process, leading to its final breakdown (see Box C9). In Kargate, another village in HVVS's operational area, no action was taken against a camel owner who had cut trees from the protected forest, leading to a breakdown of interest in protection (HVVS – unpublished).

#### *D2.6 Approaches to conflict management*

The role of external agencies in conflict management is an important issue. There are a few different options and positions on this.

**Opt-out** One view is that communities should be left to sort out their conflicts themselves, and that an external agency should not waste its limited resources on assisting them in this process by playing the role of a mediator.

**Development agency mediates** Some believe that communities are often unable to resolve conflicts themselves, and therefore tend to see the involvement of an external development agency as essential in many cases. For example, Singh observes: "For balancing the forces within the village an outside agency like NGO/[Forest] Department is necessary in order to make protection mechanism effective ... In the light of divergent interest groups the role of NGO in strengthening the hand of those who are interested in protection process is a crucial factor" (Singh, n.d.).

**Government/legal authorities mediate** A third kind of approach taken by some NGOs and some communities is to involve statutory bodies in the resolution of the conflict. For example, the village of Jodhakakhera was in conflict with the local panchayat, which had decided to open up the PSPA for use by all 11 villages represented by the panchayat. The villagers took the panchayat to court and won the case. Some villages in Ajmer have also taken the legal route, but this has become an expensive business, with claims and counter-claims (A.Ghorpade, pers. comm.).

**Community-based conflict management** A fourth approach is to strengthen the capacity of local organisations and communities to manage conflicts themselves. This has the merit of avoiding the financial costs that villagers could otherwise incur, and reducing demands on the time and resources of development agencies. One way of minimising conflicts is having transparency in the affairs of the PSPA by keeping a record of everything (Tirath and Gour, 1998).

A further, related issue is whether development agencies should avoid working with villages where there is no strong consensus in favour of protection. It has been suggested that it is better to avoid a village that is already conflict-ridden (ibid.).

**Discussion** There are situations where mediation by development agencies is being provided on an ongoing basis. In some communities in Rajasthan NGOs are dealing with the aftermath of implementation of the JFM programme by the FD in a way that paid little, if any, attention to social differences and existing tensions or conflicts, such as the case described in Box 3. Where there was no consensus in favour of CBNRM at the outset (at least, not in the form favoured by the FD), conflict between those in the community supporting protection and those opposing it can be chronic.

In these circumstances ongoing mediation by an NGO may be essential if protection is to be sustained. In the words of one NGO observer in Rajasthan, “In the light of divergent interest groups, the role of NGO in strengthening the hands of those who are interested in protection process is a crucial factor” (Ajay Bhan Singh, 99). However, where there is such ongoing dependence on an outside agency, the sustainability of the initiative, and the wisdom of playing this role, are questionable. It may be preferable for the external agency to abandon this role, and/or to facilitate the re-design of the intervention and management system, based on a review of the interests and needs of the various local stakeholders.

### **D3 Silvipasture Policy Issues**

#### *D3.1 Equity and gender considerations*

The working of the management committees needs to be monitored carefully, to see who is influential in decision-making and whose interests the committee is representing (Dangi, in SPWD, 1998). As was illustrated in the section on intra-community conflicts, there can be many different interest groups within a community. Thus, a situation can easily develop in which the committee, or a particular group on the committee, are making decisions that are not in the best interests of other groups, or even the majority of the community. It is important, therefore, that all castes are adequately represented, and that committee members are fairly elected, and that elections are repeated after a fixed period of time.

It is usually only the committee members who participate in decision-making, as other members of the community or Samuh tend not to attend committee meetings. Women’s participation in decision-making is negligible.

#### *D3.2 Encroachment*

As was noted earlier, the *de facto* government policy of periodically regularising encroachments perpetuates the problem of encroachment of forest and *charagah* lands (Maitra and Solapurker, 1999). There is also a lack of support among government officials for removing encroachers when common lands are developed (SPWD, 1998). Overall, the government’s attitude and behaviour tend to undermine protected silvi-pasture initiatives, and to favour the rich and powerful at the expense of the less well off. What is needed is an “active response from the administration to resolve ... encroachment related conflicts”: this “can encourage people for protecting common pasture” (Pandey and Thakur, 2001).

#### *D3.3 Changes in JFM and FD practices*

Where NGOs are involved in JFM there is a need for close collaboration between the FD and NGOs, and where the two have worked together they have proved effective. However, most of the time these linkages have been absent (Vardhan and Negi, 1999). It appears to NGOs that the FD expects them “to do all the things that it could not manage” itself, while not trusting them to do the work well (ibid). Where NGOs have been actively involved in JFM they complain of the FD applying double standards in relation to: (a) the amount of bureaucratic hassle and delay (in one case three years) involved in getting FPCs registered (compared with

cases where only the FD has been involved); and (b) the definition of degraded land where afforestation can be taken up (ibid.) (Suess, 1995).

Where the FD has promoted JFM on *charagah* land there have been some problems in the way it has related to local communities, particularly over the handling of finances. In some villages, the FD opened the committee's account in post offices without involving the community as a whole (Ajay Bhan Singh, n.d.). Instead, they only involved the head of the management committee, and this created problems within the community. In at least one village there have been problems between the community and the forest guard over the depositing of revenue from grass-cutting in the post office account, with the forest guard taking the money to put in the account, but not telling the committee the account number, so that they are unable to verify whether the money has actually been deposited (Singh, n.d.).

However, relationships between communities and the FD are not always problematic. In one of the case study villages (Keli), which had joined the JFM programme, "relations with FD are close and cooperative with significant contribution by the FD to village fund and welfare and development activities" (Saint, 2000).

#### *D3.4 Relationship between community and Panchayat*

In Rajasthan, *Gram Panchayats* often represent 4-5 villages (but sometimes as many as 10 or 12), whereas in some parts of the country (e.g. in parts of Gujarat) there may be only one or two villages in a panchayat. In the former situation, the residents of any one of these villages tend not to feel any affinity with the *panchayat*, and may even have a negative relationship with it. This was illustrated earlier by the case studies of Barawa and Jodha ka Khera. Nevertheless, SPRAD often takes place on panchayat land, obliging villagers to interact with the panchayat.

Until recently, the main issue between villages and gram panchayats has been arrangements for the leasing of the panchayat land to the community – whether the panchayat would lease the land, and for how long. This is the issue raised in some of the case studies. However, with the national and state governments encouraging panchayats to play a more active role in natural resource management, new issues are emerging.

#### **BOX D2 Rajasthan's Panchayati Raj Legislation**

Rajasthan Panchayati Rules no.169, 170, and 171 (in 1996) spell out specifically the rights and duties of Panchayat regarding the pasture land, particularly regarding protection and development. Maximum grazing charges for one year are Rs. 5 per small animal is and Rs. 10 per big animal. The Panchayat can earn income from tree plantation, sale of dry and weak trees, sale of dung from the pasture, and sale of dry grass. For controlling encroachment (the first time restricted by the people) pasture committee will appoint a sub-committee for each ward (hamlet). Transparency of accounts is expected for financial transactions. The Panchayat is responsible for forming the pasture committee. They have to select pasture committee of four members in the Gram Sabha, and one of the Panchayat members should be selected as the President of pasture committee.  
(Rule no. 170).

There is a real danger that policy and legal changes in this sphere could reduce the motivation of communities to manage common pasture lands. Two key factors influencing their motivation are: (a) the size of the expected benefits; and (b) the ability of communities to manage the resource in the ways that they consider to be the most appropriate. Actual and

potential changes may have a negative effect on both of these factors, as will now be explained.

**Size of expected benefits** The government is currently considering the idea of dividing up revenue from PSPAs three ways – between the village protection committee, the Panchayat and the Forest Department. If this were to become policy, the size of the benefits received by the villagers would be greatly reduced, which could lead many communities to question whether it is worth their while to invest time and resources in this activity.

**Community autonomy** Rajasthan's PRI legislation, aspects of which are described in Box D2, gives panchayats various powers to shape institutional arrangements for management of pasture lands. Some of the powers are highly prescriptive - for example, regarding the number of committee members. Yet, experience with community management of natural resources elsewhere has highlighted the fact that communities evolve a wide variety of arrangements, depending on the nature of their circumstances (Conroy *et al.*, 1999). Furthermore, the legislation gives the panchayat greater power than was the case before, increasing the likelihood of panchayat domination and interference in silvipasture management.

**Subsistence benefits versus revenue** Panchayats tend to be primarily interested in the revenue benefits from pastures, while communities tend to be more interested in subsistence benefits. This could influence the way in which pastures are rehabilitated and managed and benefits are distributed. For example, panchayats might want to have a higher tree planting density than communities, with a view to maximising income from timber and NTFPs; or they might prefer cutting grass (so that it can be sold), rather than allowing animals to graze on it. Furthermore, if they were to insist on sale of grass, one wonders how much of the revenue would go to the villagers, particularly the weaker groups.

The bottom line is that neither panchayats nor the FD are capable of managing pastures and forests effectively on their own. The communities are the key players here, so **policies and laws should ensure: that they receive most of the benefits; and that they have secure rights to those benefits for many years (at least 10).**

Central government legislation for *scheduled areas* also has major implications for pasture and forest land management. The Central Government Act no. 40 of 1996 recognises the competence of tribal *Gram Sabhas* (village assemblies) to manage natural resources, and the act gives them major powers to do so. One of the case study villages, Keli, had made a declaration to function in accordance with this act. The implications of this for relations with the Panchayat and FD remained to be worked out (Saint, 2000), but it seems likely that these bodies will resist ceding any of their power and rights to gram sabhas. Thus, the extent to which gram sabhas take on these responsibilities may depend very much on the attitude and approach of politicians and the state government in general towards such a devolution of power.

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