Three Narratives of Forest Dependence on the Periphery of Kuno wildlife sanctuary

Dr. Asmita Kabra, Samrakshan Trust

Objective

1. To map the forest resources in and around the Kuno Wildlife Sanctuary, Madhya Pradesh, in terms of biodiversity and natural resources
2. To understand the tapestry of use, and non-use dependence on resources of the Kuno forests among different segments of the local community (consisting of diverse users/user groups)
3. To understand forest dependence of the local community in the broad context of the social and economic development pattern in the region (specifically in the Vijeypur Block, District Sheopur)

Methodology

Coverage:

The study focused on 3 areas on the periphery of the Kuno Sanctuary:

1. Displaced villages: mainly Paira and Jakhoda (resettled on the north-eastern periphery of the sanctuary on denotified forest land)
2. Host villages: Mainly Agraa and its surrounding forests (located in the Agraa Reserve Forest on the north-eastern periphery of the Sanctuary), but also Chentikheda and Shahapura
3. Peripheral villages: Mainly Surde and its surrounding forests (on the south-eastern periphery of the Sanctuary)

Data Sources:

1. Published literature and unpublished works, including Samrakshan Trust reports, student dissertations and other studies
2. Ethnographic material collected during 2009, including focus-group discussions and individual interviews based on semi-structured questionnaires

Key Steps:

1. Key informant interviews were used to identify the limits of the forest area that is presently used by the residents of villages for various purposes
2. Secondary literature was used to understand the nature of resource use and dependence among the people of these villages
3. Trends in resource availability and quality in the study area were traced through PRA based exercises like interviews and resource mapping
4. Ethnographic methods were used to identify other individuals and groups from other villages, and even from other states who use the designated study area for livelihood
5. Data was collected using ethnographic methods from some of these users on the trends in their resource use

The Kuno Wildlife Sanctuary: A brief conservation history[1]

Once forest management was introduced under the British rule, the forests of the Sheopur *tehsil* were organized into the Sheopur Range, under the Shivpuri Forest Division. Later Sheopur was made an independent Forest Division in 1920, and was reorganized to include the forests of the Sheopur and Bijeypur *tehsils.* In the earliest surveys of the area, carried out by the Survey of India, these were described as dense forests (Sinha, 1996). In the early part of the 20th Century, exploitation of these forests was stepped up due to increased demand for timber for the construction of the Scindia State Railway Line. Fairly heavy exploitation of *kullu* and *salai* trees by locals for tapping gum and oleoresin for sale has also been reported in various District Gazetteers of Morena. In one of the few references to the Sahariya in the District Gazetteer, Sinha notes that they engaged in shifting cultivation, and were important players responsible for extension of cultivation into forested areas of the district during the *zamindari* period. Protection of forests under the erstwhile *jagirdars* was enforced by the government through the promulgation of the Madhya Bharat Jagir Forests (Prevention of Indiscriminate Cutting) Act in 1950.

The Sheopur Forest Division is reported to have nearly 3,266 sq.km of forest, mainly lying along the Sheopur-Gwalior railway line, the Gwalior-Pohri metalled road, and the Sheopur-Pohri road. These are mostly dry deciduous forests, merging into thorn forests. The Sheopur Forest Division was noted during the regime of the erstwhile Gwalior state for the variety of its wildlife. Apart from other wildlife, the tiger was found in abundance in the North Karahal, East and West Kuno, Imalia, Khadi and Piparwas Forest Blocks (Sinha, 1996, pp. 22-23).

The Kuno Wildlife Sanctuary (also referred to, erroneously, as the Kuno-Palpur or Palpur-Kuno Wildlife Sanctuary), located in district Sheopur, has been selected as the site for reintroduction of a pride of Asiatic Lions from Gir National Park in Gujarat, as part of the Asiatic Lion Reintroduction Project of the Government of India. Located between latitudes $25^0$30' N - $25^0$53' N and longitudes $77^0$07' E - $77^0$26' E, the Kuno Sanctuary covers a total area of 344.686 sq.km. The Sanctuary was notified vide Government of Madhya Pradesh Forest Department Notification No. 15/8/79/10/2 - Bhopal, dated 16.1.1981. It is located 80 km north of the city of Shivpuri, 30 km off the highway connecting Shivpuri to the district headquarter, Sheopur. The nearest airport and railheads are Gwalior (101 km from Shivpuri) and Jhansi (111 km from Shivpuri).

The Sanctuary, located in the Vindhya hills, falls in the semi-arid zone and has a typical terrain of Central Indian highlands, interspersed with woodlands and meadows. The vegetation is typical of dry deciduous forests dominated by *Acacia catechu, Anogeissus pendula* , *Acacia leucophloea* and *Boswellia serrata*. All the faunal representatives of the dry deciduous forests of the Central India can be found in the Sanctuary. The Deer family is represented by chital (*Axis axis*), sambar (*Cervus unicolor*) and barking deer (*Muntiacus muntjak*). Antelope found in the Sanctuary include chinkara (*Gazella gazella*), neelgai (*Tragocamelus bosalaphus*), chowsingha (*Tetracerus quardricornis*) and blackbuck (*Antelope cervicapra*). Hanuman langur (*Presbytis entellus*) and rhesus monkey (*Macaca mulatta*) represent primates. Wild pig (*Sus scrofa*), sloth bear (*Melursus ursinus*) can also be seen. Among carnivores, jungle cat (*Felis chaus*),

[1] This section is derived from (Kabra, 2008)

wild dog (*Cuon alpinus*), leopard (*Panthera pardus),* and a small number of tigers (*Panthera tigris*) are also present. River Kuno, a tributary of the river Chambal (a major river of Central India), vertically bisects the Sanctuary from north to south. The average rainfall in the area is 750 mm per year. The maximum temperature can rise up to 49^0C while the minimum temperature recorded has been 2^0C.

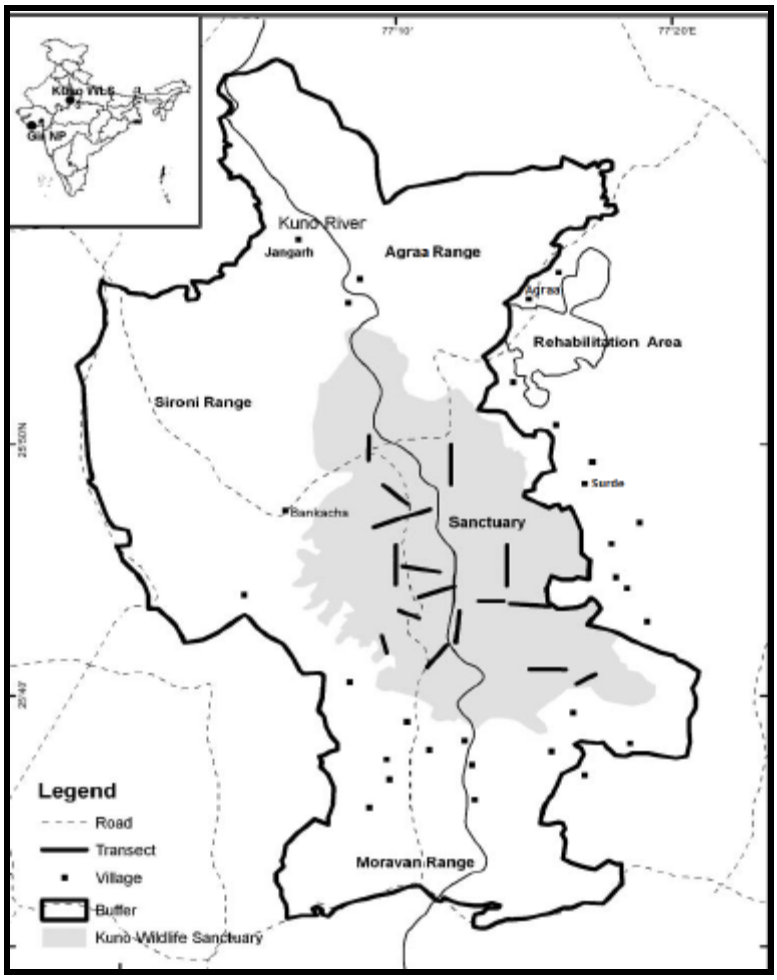

Figure 1: Map[2] of the Kuno sanctuary and surrounding areas

The area covered by the present-day Kuno Sanctuary has a long conservation history. Before the merger of the *Jagir* (principality) of Palpur (the principal village within the limits of the Kuno Wildlife Sanctuary) with the state of Madhya Pradesh, this forest was used by the then *Maharaja* of Gwalior as a hunting preserve. Besides this, the Sanctuary has also provided refuge from time to time to various gangs of the infamous bandits of the Chambal region. These factors, combined with the remoteness of the area have ensured that the habitat of the Sanctuary and its neighbouring forests has been well preserved. Similarly the contiguous forests surrounding the Sanctuary comprise of habitat that is capable of supporting wildlife. About 900 sq. km. of these forests, which legally are either Protected Forests (PF) or Reserved Forests (RFs), have been placed under the administrative control of the Kuno Sanctuary management,

[2] Source: "Preparations for the Reintroduction of Asiatic lion Panthera leo persica into Kuno Wildlife Sanctuary, Madhya Pradesh, India," by A. J. T. Johnsingh, S. P. Goyal & Q. Qureshi, 2007, *Oryx*, *41*(1), pp. 93–96.

thus increasing the effective area under the Kuno Wildlife Division to about 1250 sq. km. This was in line with recommendation by the WII to make a large area available for a growing and dispersing lion population.

The Asiatic Lion Reintroduction Project

In 1995, the Ministry of Environment and Forests (MoEF), Government of India took up an ambitious project to translocate a pride of Asiatic Lion from the Gir national park in Gujarat to the Kuno Wildlife Sanctuary in MP. Through this project, based upon a study and subsequent recommendations of the Wildlife Institute of India (WII, 1995), it is hoped to establish a second free ranging population of Asiatic lion, which would serve as insurance against various extinction threats that face the Gir lions.

The Lion Reintroduction Project is being executed by the Madhya Pradesh Forest Department, with financial assistance from the Government of India. According to the recommendations of the Wildlife Institute of India, the proper resettlement and rehabilitation of the people living inside the Kuno Sanctuary was an important precondition for successful re-introduction of lions into the Sanctuary. This was considered vital for minimizing the probability of conflicts (in the form of cattle depredation and attacks on human beings) between a large predatory carnivore like the lion and the local people. Predation on domestic cattle is a persistent feature of large carnivore-human interaction in many parts of India (Saberwal, V. and M. Rangarajan, 2003), and the recommendations of the WII were aimed at avoiding or minimizing a repeat of failures of lion relocation in the past.

The Asiatic lion (*Panthera leo persica*)

The Asiatic lion once had an extensive distribution ranging from Syria through Iraq, Iran, Pakistan, and most of northern and central India. India was the country where lions probably had the most extensive distribution. They have known to have ranged over the present day states of Rajasthan, Gujarat, Haryana, Punjab, Uttar Pradesh, and Madhya Pradesh, with stray reports from Jharkhand. The river Narmada seems to have been the southern limit of its distribution in India. However, as has been the case with a number of terrestrial mega fauna, uncontrolled shooting and destruction and fragmentation of habitats by human activities (largely, conversion into agricultural settlements) led to a rapid and pronounced decline in the population of Asiatic lions. The decline and extinction of the Asiatic lions was even more pronounced in areas outside India. The last lion in Central India was shot near Guna (then in the princely state of Gwalior, now in Madhya Pradesh) in 1873. Latest by 1888, the last lions in India but for those in Gir had been shot. A few lions managed to survive till 1942 in Iran and for the last five decades Gir has held the only free ranging population Asiatic lions. The small population size of lions, coupled with their extremely restricted distribution (they are confined to the 1412 sq. km. of the Gir protected area) has left them vulnerable to a variety of extinction threats like epidemics, natural calamities and forest fires. In fact, the African lion population (African lions are a distinct sub-species found in relatively greater abundance in the African savannah, forests and deserts) of Serengeti National Park in Tanzania was left severely depleted as a result of a outbreak of canine distemper virus in the 1990s. It is believed that 75% of the lions had been infected and at least 30% of the population had died due to the infection. If an epidemic of such proportions were to affect the lions of Gir, it would be very

difficult to save them from extinction, given the much smaller size of Gir and also the relatively smaller lion population (WII, 1995).

It was therefore proposed to establish an alternate free ranging population of lions to insure against the threat to the Gir population. This would involve translocating a few lions from Gir to an appropriate alternate site. Research projects carried out in Gir by the Wildlife Institute of India (WII) produced data for better management of the species in Gir, and also generated indicators for selecting an alternate site. Following the Population and Habitat Viability Analysis Workshop on the Asiatic lion in Baroda in 1993, the forest departments of Gujarat, UP, MP, Rajasthan and Haryana were invited to submit a list of protected areas in their respective states that could potentially serve as a second home for lions. A team of scientists from the WII short-listed three potential areas: Darrah-Jawaharsagar and Sitamata sanctuaries in Rajasthan, and the Kuno Sanctuary in MP. A rapid assessment of these sites was carried out during 1993-94, principally on the following counts: extent of forest area, quality of habitat, prey base availability and presence of human population. While Darrah was found unsuitable on account of its small size and the degraded state of habitat, Sitamata was ruled out on account of lack of prey and extensive human interference. Kuno emerged as the most viable option for this translocation attempt. Human pressure in Kuno was considered manageable and the habitat fairly healthy. Further, it was believed that the roughly 3000 sq. km of contiguous forest surrounding the Sanctuary could potentially sustain a growing lion population (WII, 1995).

Previous attempts at reintroducing lions

At least four distinct attempts to reintroduce lions to a part of their formerly occupied range within India can be traced over the 20th century. Interestingly the sites of two of these attempts were in geographic proximity to the current day Kuno Wildlife Sanctuary and were initiated by the rulers of the erstwhile princely state of Gwalior. In 1901, the Maharaja of Gwalior approached the Nawab of Junagarh to make available four lions and four lionesses so that these could be bred and reintroduced in the Maharaja of Gwalior's hunting preserves. The Nawab refused, citing the much reduced lion population in Gir as the reason for not wanting to part with any lions. Just after the first World War (1914-18), the same Maharaja of Gwalior made another attempt to bring lions back to his forests. On this occasion, he was able to acquire African lions - four pairs of which were released in the forests of Shivpuri (Divyabhanusinh, 2005). However, the lions were kept in *pucca* cages near Dob Kund in the Sironi Forest Block in district Sheopur (Sinha, 1996, p. 20). These lions subsequently had to be shot either on account of having turned man eaters or cattle lifters. Some of these individuals were also believed to have been shot by various members of royalty. The last lion was shot 1950 on the banks of the river Kunor, a good 30 years after they were first introduced in 1920. This would imply that either some of the animals lived that long or that there was some breeding in the wild.

In 1938-39, a zoo-bred pair of African lions was released in the Terai region of Chitwan in Nepal. However these had to be shot within a year of their release as they had started lifting cattle (Divyabhanusinh, 2005). Following a recommendation made by Indian Board for Wildlife during its meeting held in Gir in 1956, one male and two female Asiatic lion were translocated from the Junagarh Zoo to the Chandraprabha Wildlife Sanctuary, near Varanasi in the state of Uttar Pradesh in 1958-59 (Rangarajan, 2001). This experiment was successful during the initial years; the number of lions rose

from three to eleven within a period of nine years. Stemming from the lack of effective follow-up and other man-made factors, these animals were poisoned and thus ended another attempt of establishing a free ranging lion population apart from the one in Gir (Divyabhanusinh, 2005). Predation on cattle by lions was possibly the major impetus for poisoning of lions in the Chandraprabha Wildlife Sanctuary. Thus, though a number of attempts have been made in the past to reintroduce lions in the wild, none of these have succeeded so far.

Natural Resource Dependence among the Sahariya in the Past[3]

The Sahariya Adivasi traditionally depended on the Kuno Wildlife Sanctuary and its surrounding Reserve Forests for fuel wood, hunting, collection of various food items and raw materials, grazing of livestock, and as a reservoir of surplus agricultural land for their growing population.

The Sahariya of Kuno earned their livelihood through a complex and dynamic combination of subsistence agricultural production, livestock rearing, forest produce collection and sale, and occasional wage labour. Dependence on the forest for livelihood was fairly high, with the poorest families deriving almost 30 to 65 per cent of their cash income from sale of various non-timber forest produce (NTFP). A variety of NTFP were harvested from the forests of Kuno, including honey, leaves and fruit of *tendu* (*Diospyros melanoxylon*), *chir* (gum from *Boswellia serrata*), *Bel* (fruit of the *Aegle marmelos*) roots of *safed musli* (*Chlorophytum borivillianum*), *ber* fruit (*Zizyphus mauritiana*), *bilaiya* (roots of *Aspaaragus racemosus*), *Shankaholi* (*Evolvulus alsinoides*) and *Hadjuri* (*Cissus quadrangularis*). Our ethnographic surveys reveal that collection of different types of forest produce used to take place throughout the year for domestic consumption as food and medicines, as well as for sale (Table 1).

Table 1: Important NTFP sold for income in district Sheopur

S. No.	Category	Name (local / English)
1	Fruit	Tendu, Bil, Ber, Amla, Kachaiya, Baheda
2	Flowers and seeds	Dauli, Mahua, Malkangani, Semal ki Bodi
3	Leaves and bark	Tendupatta, Shankhawali, Giloi, Kuaan, Bunha (Banna) ka chhilka, Bakula, Hadsen, Karel
4	Tannin and gums	Chir, Dhau (Kardhai), Khair, Katira
5	Wild vegetables and tubers	Kakora, Karela, Murela, Achar
6	Roots	Satawari, Safed musli, Ganger, Gondhra, Bilauro,
7	Grass and fibers	Murjena

The forest provided the people with a range of food items, including meat, as well as fuel wood, fodder and raw material for various items of household use. According to key informants, items collected from commons or forests had nearly as much weight in a typical tribal household's daily food intake as items purchased from the market or cultivated on the family's own land. Food items collected from the forest included numerous types of seasonal fruit, berries, tubers and roots, and of course, wild meat, fish and eggs. Ungulates are reported to have been the prime targets of hunting, though hare and birds are known to have been hunted regularly too. In periods of drought, the dependence of Adivasi households on commons and forests for meeting diet needs was even higher.

[3] This section draws heavily on (Kabra, 2008)

Fodder for Livestock

The livestock belonging to Sahariya households living in villages inside and around Kuno Sanctuary grazed freely in the forests near the habitations. Easy availability of water throughout the year from numerous perennial streams allowed people to keep substantial livestock holdings. These households met nearly all their energy and fuel needs from the forest; ethnographic studies reveal that fuel wood collection from trees located on private land (in agricultural fields and on field bunds) was negligible. Use of other conventional and non-conventional types of fuel like cow dung, LPG, biogas or solar energy was also negligible. Access to forests and commons had multiple benefits for agricultural productivity. Easy availability of fodder in forests and commons allowed farmers to keep livestock, which reduced their dependence on tractor-owners and also provided valuable farmyard manure. Forests and commons also yielded timber, grasses and other resources to farmers for constructing bullock carts, various farm tools and a range of items for use in the homestead. On the other hand, agriculture provided crop residue that was used as fodder, to supplement open grazing of livestock.

Table 2: Various species of NTFP collected in and around the Kuno Sanctuary

Name	**Scientific name/description**
Firewood	Various species of timber
Fodder	Various species of grass
Dauli / Pamar / Chirota seed	*Cassia tora*
Satawari/ Bilaiyya	*Asparagus racemosus*
Chir	*Boswellia serrata*
Mahua	*Madhuca latifolia*
Tendu Patta	*Diospyros melanoxylon*
Bil	*Aegle marmelos*
Ber	*Zizyphus mauritiana*
Shankhawali	*Evolvulus alsinoides*
Dhou ka Gondh	*Anogeissus latofoia*
Amla	*Emblica officinalis*
Kardhai ka gondh	*Anogeissus pendula*
Gondh	*Acacia Catechu*
Safed Musli	*Chlorophytum tuberosum*
Badi\Bodi (Semal ki bodi)	*Salmellia malabaricum*
Giloi	*Gulancha tinospora*
Baheda	*Belliric myrobalan*
Kuaan (Arjun) ki chhaal	*Terminalia arjuna*
Achar	*Buchnania lanzan*
Khair Gondh	*Acacia Catechu*
Bunha (Banna) ka Chhilka	*Vitex nigandu*
Godhra ki Jad (Nagarmotha)	*Cypersus rotundus*
Sait	Honey
Malkangani	*Celastrus paniculata*
Katira	Gum-yielding tree
Karela	Seasonal wild vegetable
Karel	Seasonal wild vegetable
Bilauro	Seasonal wild vegetable
Murela	Seasonal wild vegetable

Kakora	Seasonal wild vegetable
Kachaiyya	Seasonal wild vegetable
Murjena	Used for making ropes
Hadsen	Medicinal plant
Ganger ki Jad	Medicinal plant
Bakula ki Chhaal	Medicinal plant
Wood for making cots, bullock carts	Various species

Medicinal Plants

The Sahariya are also known to possess intimate knowledge about the medicinal qualities of many wild plants, which is used by traditional healers to cure various common and advanced ailments. According to a study by a local NGO, local healers identified at least 150 species of flora found in the Kuno forests, which are used to treat over 75 diseases, both common and rare[i]. However, most of this knowledge is oral and not documented, and is being lost rapidly due to decline in forest access. Dependence on allopathic medicines provided by the state and by non-registered health practitioners across the region correspondingly has been on the rise.

Other Uses

PRA exercises were useful in revealing the role of forest resources in the Sahariya lifestyle and culture, some of which are described in this section to present a snapshot of the importance of these resources to their day-to-day life (Table 2). A typical Sahariya household is likely to possess a range of items in the homestead that are derived from commons and forests. Roosting hens and newly born goat kids are kept in baskets, made from *siyari* grass. The *kondra* or ring that is used to balance water pots is made from the rope of the bark of the *saita* tree. The roof of the house is thatched using the leaves of the *chholiya* or *Butea monosperma* tree, and *parwai, bhanjura* and *sain* grasses. The construction of a single bullock cart requires wood from at least 5 different trees (*dhau, pharedu, remjha, babool* and *khair*), each of which is used to make a specific part of the cart.

The handle of the axe used for cutting wood is made from the *ber* and *dhaman* tree, while the wood of the *dhau* tree is used for making the handle of the *phawda* (an implement used for digging the earth). The plough used commonly for farming is constructed using *remjha* and *khair* trees. The instrument used for dispersing seeds in the agricultural fields is constructed using wood from the bamboo, *mahua* and *salai* trees. The rolling board and pins for making chapattis are made from the wood of the *mahua* and *salai* trees. The wood of the *dhau* tree is considered good for making beams of the house, and the wood of the *khair* tree is used for the doorframes. It is believed that *dhau* wood is best collected on a moonless night, which supposedly makes it safe from termites. Cots are made from the wood of the *dhau* or *saita* tree, while the string used on the cots is derived from the *daab* grass.

The bark of the *chholiya* and *hingota* tree is used to stun fish in a stagnant pool of water, which makes them easy to catch. On weddings, the leaves of the *jamun,* bamboo and *saita* trees are used to decorate the house of the bride and the groom, and the wedding dome is constructed from the wood of the *salai* tree. Green dye derived from the *sem* plant is used for painting the walls of the hut. Local liquor is brewed from the flowers of the *mahua* tree, and consumption of the *mahua* liquor is an integral part of important festivals and social occasions.

The forest was also an important source of recreation, and visits to important spots of religious significance deep inside the forest were an integral part of the social calendar of Kuno's forest-dwellers. Hunting, honey collection, fishing and collection of fruit and berries were important recreational activities undertaking by adults in lean periods of the agricultural calendar, and by young people throughout the year. A range of songs and folk tales are associated with many such activities, indicating how deeply these are embedded in the Sahariya culture.

Recent Trends in Forest Dependence: Three Narratives

The Displaced Villages

Displacement and the resultant loss of forest access has changed the nature of forest dependence of the relocated families. They have been resettled at a distance of between 7 to 18 km from Kuno, making access to the sanctuary a difficult and time-consuming process. Most of the resettled villages have access to some patches of reserve or protected forests close to their new home, and it is on these patches of sparse forest that they have transferred their fuel, fodder and other biomass needs. It is important to note that most such patches of forests and commons were already being used by other host villages prior to the resettlement of the Kuno villages. Further, the promised development of fuel and fodder plantations, which was a part of the promised rehabilitation package, has not happened successfully for even one of the 24 displaced villages. Thus, possibilities of overuse and resource conflict were built into the Kuno displacement experience.

The pattern of forest dependence, especially collection of NTFP for sale, has changed dramatically after displacement. Income from sale of forest products decreased to between half and one-tenth of the pre-displacement levels (Kabra, 2008). The average number of days spent by a household on NTFP collection has gone down from around 98 days 46 days per year. This, in turn, appears to be a function of the average distance traveled to gather various NTFP, which has gone up from 6.5 km to around 9.5 km (Kabra, 2008). The experience of village Durreri illustrates this. The people of old Durreri revealed during interviews that in their old village, they collected only a few high value forest products like *safed moosli*, honey (in the rainy season), antlers of deer (which sold for up to Rs.50-60 per kg), gum (*Kardhai* and *Khair*) and *ber* (which they collected in the month of November for self-consumption, during the time available between sowing and harvesting of the mustard crop). Some families from Durreri occasionally collected honey from the wild and sold it at the market in Sheopur. After displacement, only low-value NTFP are available in the scrubland surrounding new Durreri, and families that have received poor quality land often collect products like *ber* and *dauli* to earn some money on days when wage labour is not available (Kabra, 2008).

Similarly, interviews in displaced village Ladar revealed that a number of forest products were collected from Kuno sanctuary in the past. *Ber* fruit was collected for own consumption as well as sale. Honey was collected from the dense forest near Khairkhoh and from caves on the banks of the Kuno, and used to sell for up to Rs.22 per kg. The gum of the Khair tree was sold for Rs.35 per kg. The root of *safed moosli* was sold annually to traders, while animal parts like pig bristles and antlers were sold occasionally. The people of Ladar also hunted small game for their own consumption. Hunting was most popular in the rains, after crops had been sown and initial weeding was over. In new Ladar, many families with poor

quality landholdings continue to collect low-value NTFP like *dauli, shankhawali, ber* and *bilaiya* from surrounding scrubland. Some adult males also collect *safed moosli* and *mahua* through 3-4 day long visits to distant forests. Some made visits to the Kuno Sanctuary occasionally in the years just after displacement, but more frequently they collect from the surrounding reserve forests like Jangarh.

Typically, the products collected from the degraded commons and open scrub adjacent to the resettled villages fetch low market price (less than Rs.5 per kg). Therefore NTFP collection is mainly carried out as a supplementary or distress activity by the displaced households. The collection of these products now devolves mostly to women and children, while the men spend their effort on wage labour opportunities as agricultural labourers or on government-sponsored wage works.

According to (Mahapatra, Ajay, H. Albers and E. Robinson, 2005), the two most important factors that influence income from NTFP in dry deciduous zones are volume of NTFP available from the adjoining forests, and market demand for NTFP in village markets or *haats*. For the villages displaced from Kuno Sanctuary, both factors were affected adversely, since the people lost access to NTFP-bearing areas, or had to enter into stiff competition with the host community for these areas around the relocation zone. Moreover, existing buyer networks inside the Sanctuary were disrupted suddenly due to physical relocation of the villages.

During an interview, women from a self help group in village Khallai revealed that in their old village inside Kuno sanctuary, they collected a range of diet items for self-consumption almost daily from the forest. In the new village, however, only *phang* and *saretha* leaves are available in the surrounding scrubland. In old Khallai, wild meat was consumed at least once, and sometimes even twice a week. One of them said, "We can only remember in our dreams the taste of all the items we used to collect from the forest". Fishing in the river Kuno was a favourite pastime in the monsoon months. In the new village, they claim that meat is a rarity, and even fishing in the river Kwari is not common. They said, "Our men do not fish in the river Kwari, since the road next to the river is frequented by people all the time. We are embarrassed and scared of fishing in front of so many people. In the Kuno, there was nobody to watch us and we could fish to our heart's content".

A number of items that were used earlier for various purposes in typical Sahariya households have dropped out of the collection basket after displacement. Some of these have not been replaced at all in the consumption basket, and the displaced households may have reduced or given up altogether the use of these items (for instance bullock carts constructed out of locally available wood and many items that were common in their diet prior to displacement). Many items of domestic use like baskets and cots are not made any more within the households, but are purchased instead from residents of other villages (like Larda, Surde and Umri) that are located closer to the forest. A recurring point in interviews with displaced villages was that of loss of meat and other food items that distinguished the Sahariya from other communities, and was central to their identity. Many women interviewed by us bemoaned this loss of an important cultural marker. Women in village Palpur said during an interview "We have now become like the *brahmin* and the *bania* in terms of our diet, since no meat is available to us in new Palpur". Women in village Ahirwani pointed to this researcher and said "*Ab to hum tumhare jaisa hi khate hain*" *("now we eat food like yours"*).

Another recurring theme in interviews with displaced women is declining fuel wood availability and rapid degradation of the surrounding forests and scrublands. The effect of this fuel crisis has been felt more by women than by men, since the burden of fuel wood collection has devolved largely upon women after displacement. Women interviewed in displaced village Palpur said that in their old village, men used to bring firewood from the forest on bullock carts twice a month, and women did not have to go foraging for firewood. They said that the drudgery involved in collecting firewood in new Palpur is worse because they are not used to this activity and it represents an addition to their workload.

The collection of high value NTFP like gums and resins, medicinal roots and fruit has disappeared almost entirely from the livelihood of the displaced Sahariya. The forests and commons adjacent to the rehabilitation sites are typically too degraded to contain these products. To the extent that these resources are available in nearby forests, there are other claimants from host villages that were using these forests for meeting their own biomass needs. By and large, our study shows that the displaced villages were unable to stake a claim to the surrounding forests for anything more than the basic subsistence needs of fuel and fodder. Consequently, they have had to adjust their livelihood pattern abruptly to the changed resource availability by reducing the number of livestock kept per household, and increasing the dependence on local and migrant wage labour.

The Host Villages

Resettlement of villages displaced from the Kuno sanctuary has had a huge, mostly negative and entirely uncompensated impact on the villages that were already situated in the area earmarked for resettlement. This is by no means unique to Kuno; it is well-documented in past studies of displacement that the 'host' community often suffers severe impoverishment risks due to loss of resources to resettlers (Cernea and Schmidt-Soltau 2003, 11). Since these risks are rarely acknowledged, they tend to escape policy redress in the form of compensation for losses incurred. The situation is worsened by the fact that all policy attention tends to focus on displaced households. Ameliorative measures, which are rare by themselves, almost always overlook the 'host' community, which is often culturally similar to the displaced people and also equally poor.

Nearly 3721 hectares of land in 4 protected forest blocks (Agraa, Chentikheda, Umrikalan and Dodrikalan) was de-notified by the Government of India's Ministry of Environment and Forests vide its letter No. 8-56/96-F.C. dated 20.01.97 under Section (2) of the Forest Conservation Act, 1980 (Chaudhary, 1999). The purpose of de-notification was to accommodate nearly 1600 families displaced from 24 villages inside Kuno and resettled in this area. A cursory look at the topographical sheets for these 4 forest blocks shows that they were already inhabited by a number of villages, and a majority of the population was from the Sahariya tribe. The people in these villages were compelled to host the displaced population, and no estimate was made of the effect of this on their livelihood. The Relocation Plan of the Forest Department does not acknowledge any rights of the host population on the de-notified land, and accordingly, makes no provisions for payment of compensation for the loss of common property that resettlement of the displaced villages necessarily entailed.

In this regard, the experience of villages like Agraa mirrors resettlement experiences worldwide, where neither the displaced community nor the host are effectively given any option to refuse to part with

their traditional land, commons, forests and livelihoods (Cernea and Schmidt-Soltau 2003). This study is a preliminary attempt at understanding the effect of Kuno's Lion Reintroduction Project and the resultant village displacement on host community livelihood. It focused on one host village (Agraa) and its surrounding area to trace the effect of resettlement of the villages displaced from Kuno sanctuary on the livelihood strategies of the host community.

Ethnographic research among the host community was carried out during 2009-10 through a series of interviews and focus group discussions with individual key informants and small groups. This has generated a broad picture of the livelihood of the host villages prior to the Kuno resettlement, and also provides broad pointers to the changes in livelihoods triggered by the resettlement of nearly 5000 people in the 4 protected forest blocks of Agraa, Umrikalan, Chentikheda and Dodrikalan. Like their counterparts inside the Kuno sanctuary, these villages too followed the classic pattern of composite dryland livelihoods consisting of subsistence agriculture, livestock rearing, forest produce collection and occasional wage labour. The ability to shift between these alternative livelihoods, and the organic linkages between these activities formed the core of the host villagers' survival strategy against the chronic uncertainties relating to rainfall and the socio-economic environment. In this respect, their livelihood, from all accounts, appears to be typical of residents of semi-arid ecosystems (Ellis, 2000).

Access to natural resources was reported to be abundant in the surrounding forests, which is contrary to the claims of the Forest Department that the rehabilitation area consisted of "degraded and sparsely clad" protected forest land (Chaudhary, 1999). From all available accounts, the quality of biomass available to the residents of the host villages was of a quality commensurate with the people living inside the sanctuary. All our respondents were unanimous in the view that the forests surrounding Agraa were quite dense and contained a great variety of flora and fauna, which people tapped frequently to meet their livelihood needs. This view is further corroborated by the fact that in the early years after displacement, the resettled population did not face any shortage of fuel wood since they had abundant wood available from clearing the plots of farm land they received as compensation.

In the following section, we will outline some of the livelihood impacts of village displacement and resettlement on the host population, based on interviews carried out during this study[4].

Impact on Livestock rearing

The most important impact on the host community has been in terms of their access to common land as pasture for their livestock. Such land was abundantly available before village resettlement, when the sudden and sharp decline in pasture land caused livestock rearing patterns in the host villages to change virtually overnight. The shrinking size of forest and commons adjacent to the host villages has caused a decline in average number of livestock per family, and the yield per animal has also gone down due to reduced quantity and quality of forage (Sharma D. , 2010). Since grazing areas are located at quite some distance from the host villages, it is not possible to keep free-ranging cows and goats that forage unsupervised near the village (Kushwah 2010). In the years just after village resettlement, there were a

[4] The author wishes to acknowledge Ms. Gunjan Tripathi, SOAS, London, who transcribed some of the interviews on which this section is based as a part of her MA Dissertation in 2010.

number of conflicts between the displaced and host villages because of crop damage on resettled village farms by host village livestock. Gradually, however, the host villages have begun to respect the needs of the displaced villages. Intervention from a local NGO, which has funded creation of stone fencing around the fields of the resettled villages to minimize crop damage, has helped to mitigate these conflicts considerably (Kabra, 2010).

The households in the host community have typically responded to loss of common land in one of two ways. One set of people; usually those with limited household labour and low political clout, have simply phased out their livestock holdings to the barest minimum number, and have switched from cows to goats. This strategy is more common among Adivasi households, most of which have reduced their livestock holdings drastically. Agriculture of such households has suffered due to reduced manure availability, and also due to use of cow dung as fuel. A much smaller set of relatively better off households have responded by shifting to a different pattern of livestock rearing. These households have designated one or more members of their family entirely to livestock rearing. These members typically set up semi-permanent cattle camps in the forests lying in Kuno sanctuary's buffer zone. These camps (known locally as *khirkai*) mostly keep buffaloes belonging to one household or its extended clan. (D. Sharma 2010). Cattle camps operate from the onset of the monsoon till the end of the winter harvest (around March), and their main activity is tending to livestock, extracting milk, and processing it into cream and ghee (clarified butter). Just before the festival of Holi (around March), the camps are dismantled, and the herders return to their village for a period of around 3 to 4 months in the summer.

In the following sections, we outline the economic and political dynamics of cattle camps based on extended interviews with 2 main cattle herders in the Agraa reserve forest.

Interview with Devendra Sharma, Agraa

This herder has a flock of around 200 cows, which he claims is much higher than the average flock size prior to village resettlement. His flock consists of animals of differing ages, and includes breeding and non-breeding animals. Milk production is central to the profitability of the livestock economy and at any given point of time a fraction of the buffaloes in the flock give milk. Sharma explained that before village resettlement, buffaloes were kept by people of all castes, but in much smaller numbers, and nearly all families in the host villages also kept cows and goats. All these were free ranging animals, and given the easy availability of forest and common land adjacent to Agraa, the effort required for looking after livestock was much lower. After village resettlement, only a few families find themselves capable of expending the labour and the effort required for successful livestock rearing. Fodder is now available at a considerable distance from Agraa, and this is a major deterrent for most families. In his opinion, livestock rearing in *khirakais* is more profitable than agriculture, but is also much more stressful. Thus, not many Adivasi families find themselves capable of livestock rearing in the changed circumstances.

Sharma explained that he and his team of cattle herders take their buffaloes through the reserve forests as far as the command area of the Chambal canals, to allow them to graze on green fodder (crop residue) from agricultural fields. He is able to draw on this extended social network to do so. He explains that he has a brother-in-law who lives beyond Birpur in the Chambal command area. In return for crop residue and food for the herders, their cattle provides the relative's field with higher fertility from

manure. This herder believes that access to green manure makes their animals healthier and increases their longevity and milk production. He listed about 5 non-Brahmin herders who still keep livestock in large numbers in village Agraa, but was firm in his belief that their animals were less productive and have higher mortality. In his opinion, this was because unlike the Brahmins, they do not take the animals to distant agricultural areas for grazing on green fodder. Thus, the ability to draw on social and kinship ties in distant areas is critical to the higher economic returns from livestock that the Brahmin herders are able to extract.

Another factor that makes this form of livestock rearing viable for upper caste herders like Sharma is their ability to negotiate the dangers of nomadic herding better than Adivasi herders. During his interview, Sharma described in detail his interactions with the forest department. Initially, they tried to prevent his team from setting up cattle camps in the reserve forests (which are a part of the buffer zone of the Kuno sanctuary). However, he was able to resist this pressure and set up camp successfully, mostly because of his "good relations" with the lower functionaries of the forest department. Mr. Sharma was emphatic in claiming that cattle herders like him do not damage the forest, and instead act like a social fence and keep an eye on people who cause deforestation through lopping of trees. This, in his opinion, is the reason why the forest department staff do not interfere with herders like himself.

Later during the same interview, however, he also revealed that herders like him have learned to retaliate strongly when they are harassed by the forest department and by other people in the course of their migration with cattle. He cites the example of Munda, a powerful herder of the Rawat caste who has a large cattle camp at Kundan, on the banks of the Kuno river just north of the sanctuary. According to Sharma, the forest department functionaries are unable to extract bribes from Munda due to his political strength, and he has unfettered access to the forest resources. Sharma seems to indicate, however, that cases like this are an exception, and by and large in recent years the forest department has become stricter about issues like lopping of trees and use of the sanctuary for livestock. This, he feels, has caused hardship to people by reducing availability of wood and grass for domestic purposes.

Recently, however, the herders' position has again improved due to mobile phone connectivity, which enables them to access help more quickly in case of trouble with the authorities and others.

Layering of Use Rights

According to Sharma, the Agraa reserve forest is also used by other herders from villages on the periphery of this forest, like Doolawala, Pipalbaodi, Kemara and Neenda (also pronounced Leelda). All the herders from these villages belong to relatively powerful castes, mainly Brahmin and Rajput (Rawat). Some herders from Rampur occasionally use the forests for their non-milking cattle, basically to reduce maintenance costs on such animals. They, however, tend to keep their milking buffaloes at home and stall feed them.

Sharma reports that prior to the notification of the Kuno sanctuary, the forests were also used by Marwari herders who crossed over river Chambal from Rajasthan, but their access has been curtailed severely due to the sanctuary and now they do not use this area at all. Cumulatively, in Mr. Sharma's estimation, the lower reaches of the Agraa reserve forests (*daang* in local parlance) currently support as

many as 5000 to 6000 cattle. He speaks of the *badi line* (forest boundary) as the demarcating line within this reserve forest, and believes that the grazing rights in the area beyond this line belongs to the cattle herders from Birpur.

Displacement and village resettlement, in his opinion, has worsened the situation in all host villages by increasing competition for forest resources. He feels that only a few people from the trading and money lending professions have gained from village resettlement, while for the rest of the people in host villages, it has resulted in loss of livelihood resources.

Interview with Bhoopsingh Rawat of village Doolawala

Bhoopsingh Rawat is a herder with a flock of around 30-35 buffaloes. He belongs to village Doolawala (in the Vijaypur block of Sheopur district, and located around 12 km away from Agraa). He has four brothers, and at any point, either he or one of the brothers takes care of the flock, while the rest look after their other livelihood sources. A typical day for Rawat starts at around 5 am, and they leave the camp with their cattle by 6 am after eating food. They usually return by 6 pm, cook and eat dinner and then return to the cattle pen and sleep among the animals.

His regular camps in the Agraa reserve forest are at the *talaiyya* (pond) at Imaliya, following which he shifts to the *bada taal* (the big lake) around November. Like Sharma, he too goes back to his village after the Holi festival, and stays there for around 2-3 months before returning to Imaliya in the monsoon. According to Rawat, the exact location of the cattle camp inside the Agraa reserve forest varies based on availability of fodder and water. If rains are deficient, herders like him migrate even to areas as far as Jaura and Kailaras (towns located at a distance of about 80 km in the neighbouring Morena district) with their buffaloes in search of fodder and water. He was categorical that herders do not use the area designated as the Kuno sanctuary, due to better policing and higher penalties associated with such use. According to him, sometime herders have to pay bribes to forest guards even to move their animals within the buffer area (Rawat, 2009).

Layering of Use Rights

Rawat elaborated upon the various other users of the Agraa reserve forest, and said they come from villages like Dehra, Rampur, Bamsoli and Neenda. According to him, this year a new cattle camp for cows has been set up by people from Dehra, but these people have set up camps in the past too. Similarly, some Thakurs from village Eklod have set up a camp in the Jhankapura valley. Rawat, like Sharma, was also of the opinion that the most powerful cattle camp owner is Munda of village Neena. This man, he said, has nearly 1000 cows in his *khirkai,* which is located at Kundan on the banks of the river Kuno. In one season, Rawat estimates that Munda typically manages to get about 2 quintals of milk from his buffaloes, which allows him to make around one tin of ghee.

Speaking about the division of areas between cattle camp owners, Rawat seems to indicate that conflicts among the herders about use of land and water are rare. For instance, the herder from Dehra stays in the upper reaches of the hills and only brings his animals down to the *kola* (a perennial spring) to drink water. Munda stays at Kundan on the banks of the Kuno and uses the fodder and water in its vicinity. The Thakurs of Eklod stay near Jhankapura, and hardly ever bring their animals near Rawat's

area. Echoing Sharma, he too spoke of the people from Birpur staying in the upper reaches of the forest, and not encroaching on the lower reaches used by him and other herders listed above. It appears that the points of interaction are usually the watering holes or ponds, and as long as water supply is abundant, there are no conflicts. Since the Kuno river as well as the *kola* are perennial water sources, a sort of equilibrium among the herders seems to have been established, with each staying within their designated areas by tacit agreement. Rawat says that at the end of the monsoons, the *bada taal* fills up and has abundant supply of water. At this time, many other seasonal users of the forest from villages like Agraa send their animals down to this water body.

Speaking about the impact of village resettlement on livelihoods, Rawat said that common lands and grazing areas have shrunk and therefore herd sizes have gone down due to lack of adequate fodder and water. Village resettlement and the resultant pressures have also changed the ecology of the area around the *bada taal*. Earlier, this area had an abundance of grass, so much so that the forest department had a depot located there for sale of grass to villagers. In recent years, he observes that grass has been replaced by trees, and the forest department's depot has been removed too.

General Conclusions about Cattle camps

Khirkais or cattle camps are a relatively new institutional arrangement which seems to have evolved in response to the increased protection of forest areas designated as the Kuno wildlife sanctuary. The traditional users of these forests did not recognize any such boundaries. Their definition of the forest is more fluid, and is tied up with the rhythms of the livestock and its needs. The only clear boundary they spoke about was the *badi line*, which separates their territory from that of herders from Birpur.

The herders move across the forest in a pattern defined by availability of fodder and water for their cattle. Thus, the early part of the monsoon months finds them near Agraa and in the upper reaches, but with the onset of the winter and depletion of fodder and water, they move further afield (the *lamba daando* and *Dhoreth baba)*. These are areas which are quite far from Agraa, and require the herders to break contact with their families for a few weeks to access distant water holes and grazing grounds for their animals.

Along with a well established annual rhythm, the herders also seem to have a daily rhythm, with the animals being taken to the higher reaches of the forest during the day and being brought down to the lowlands and the Kuno river, its perennial streams, ponds or watering holes in the evening for a drink. The areas that each herder can use during these cycles appear to be well-defined, and informal boundary demarcations among various herders appear to be respected by and large to avoid resource conflicts. The informal arrangements of sharing available grazing area seems to be based on season, water and fodder availability, and social and political power of the herders. The size and composition of the herds is also determined by the same factors.

The official conservation discourse for the Kuno landscape does not seem to have recognized these dynamics at all. While serious attempts are made to keep the area of the sanctuary out of bounds for the herders, their presence in the reserve forests is tolerated. If and when the herders try to use the resources of the sanctuary, the department responds in a knee-jerk fashion, with the lower level forest

staff mostly aiming for balance by ignoring their transgressions in return for small favours like a tin of *ghee*. When senior officers become aware of serious transgressions by the *khirkai* owners, pressure is put on lower level staff and some token action is taken till the pressure abates and the situation reverts to 'business as usual'[5]. This situation is in consonance with that outlined by Robbins in his study of the institutional arrangements governing conservation in India (Robbins, 2000). The *de jure* regime of conservation is applied more stringently to groups which have low political clout, while *de facto* access to forest resources is much more flexible for groups with caste-based and other types of affinity with the lower level forest bureaucracy.

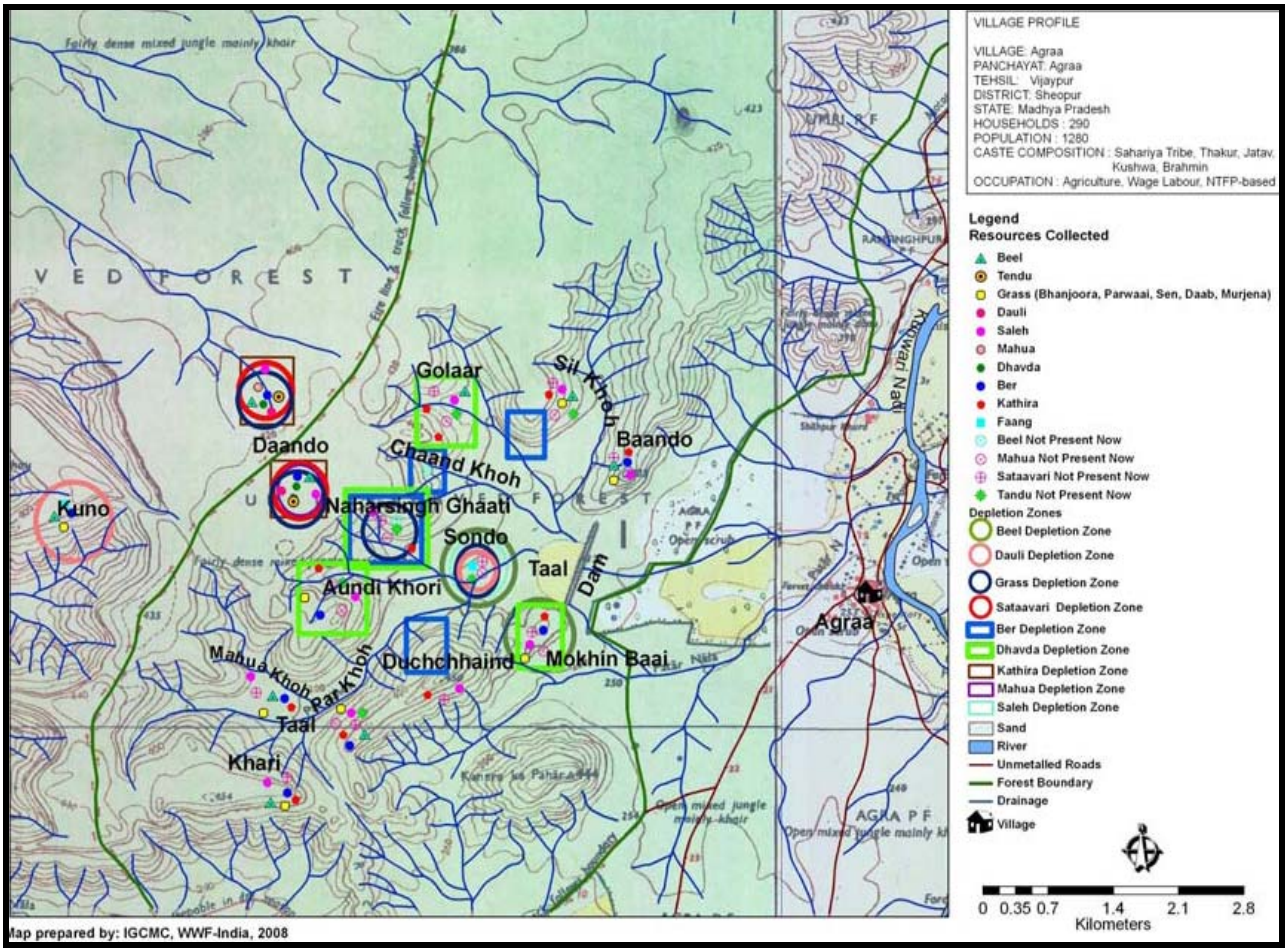

Figure 2: Resource map[6] of Agraa and its surrounding forests

[5] This author was present in a situation of this sort, during a meeting in December 2008 in Sheopur with the Divisional Forest Officer in charge of Kuno sanctuary. A case of encroachment of cattle by a *khirkai* owner into the sanctuary was reported, and the officer summoned the Range Officer in charge of the relevant beat to his office. He was assured by the Ranger that the camp had already been broken up. In our discussions with villagers, we were categorically told that the camp is still in place, and has not been removed as claimed by the Ranger.

[6] Adapted from (Gupta, 2008); map prepared by IGCMC, WWF India, New Delhi

Table 3: Use of forest resources around village Agraa

Collection Point	Location	Approximate Distance from Agraa (kms)	Some of the forest resources collected	Villages Using the Area
Sondo	West of Agraa: In the plains on the footsteps of the plateau	4 kms	Phaang, Beel, Dauli, Palash	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri
Taal	In the plains, lies within the Sondo	3 kms	Grass	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri
Mokhin Bai	Directly south of the Taal, on the slope of the plateau	3.5 kms	Saleh, Grass, Dhavda, Ber	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira
Chairn	South-west of Agraa: Further south of the Taal. In the valley next to Mokhin Bai	4 kms	Fuelwood, Grass	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri, Umri
Sil Khoh	North-west of Agraa: In the valley north of the Taal	4.5 kms	Saleh, Mahua, Tendu, Ber, beel, Dhavda, Grass, Dauli	Agraa, Meghpura, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri
Khoh	Towards south-east of the Taal, in the valley.	5 kms	Saleh, Mahua, Tendu, Ber, beel, Dhavda, Grass, Dauli	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira,
Phelaawan	In the valley, stretching from north to south- west of the Taal	4 – 5 kms	Saleh, Mahua, Tendu, Ber, beel, Dhavda, Grass, Dauli	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri
Chaand Khora	On the slope of the plateau, north of Phelaawan	5.5 kms	Kathira, Ber, Grass	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira, Umri
Aundhi Khori	On the slope of the plateau, south-west of Phelaawan	5.5 kms	Ber, Dhavda, Grass, Kathira	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira
Naharsingh Baba ki Ghati	On the slope of the plateau, west of Phelaawan and north of Aundhi Khori	6 kms	Saleh, Grass, Kathira, Dhavda	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri,
Golhar	On the slope of the plateau, north-west of Phelaawan	6 kms	Saleh, Mahua, Tendu, Ber, beel, Dhavda, Grass, Dauli	Agraa, Palpur, Jakhoda, Paira A, Paira, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri
Daando	Flat area on top of plateau, the entire stretch reaching to Nayagaon about 10 kms away bordering the core zone of the sanctuary on one side and reaching Beerpur 35	7 kms	Saleh, Mahua, Tendu, Ber, Beel, Dhavda, Grass, Dauli	Agraa, Larda, Meghpura, Palpur, Kheerwara, Jakhoda, Paira A, Paira, Saipura, Singarda, Khajuri, Khalai, Barrer, Chetikhera, Seespura, Chak, Dangpura, Paira Kushwah, Parri, Leeldah, Nithai, Kemaara, Bherah, Baamsouli, Maar, Dimacha, Dulhawala,

	kms away			Dordah, Sunwai, Bangrod, Eklod, Khitarpal, Hariyapura

Impact on Forest Produce collection by Host Villages

There is increased pressure on the accessible resources because many of the traditionally accessed resources from the forest are no more available. The range of forest produce collected has reduced and many activities have disappeared from the activity chart of the host villages. Total as well as average quantity of collections by each household has also dwindled (Kabra 2006, 209). For instance, even in the months just after the monsoons, the grass collected for fodder is barely one bundle per day. Collection of edible fruit, roots, wild vegetables and berries for household consumption purposes has dwindled too (Jagga, 2010). Hunting for the pot is rare now, affecting protein intake among the host community. The classic pattern of shift from a moral economy to a market economy is visible in the host villages too, and this is in large part because of the sudden changes in resource availability and infrastructure due to village resettlement. Trade in Agraa has flourished, and shopkeepers are the visible gainers, as people rely on purchase of necessities that were previously available from the field or the forest (D. Sharma 2010). An interview revealed that in the pre-displacement period, a villager could collect up to 10 litres of milk from neighbours to meet special requirements, but now surplus milk is sold at market prices within the village (Jagga, 2010). The presence of an increasing number of salaried people in government and NGO jobs contributes to this process of commercialization. Firewood and timber that previously used to be accessed from the forest is not available easily now, due to reduced quantum of common lands and greater protection by the forest guards (D. Sharma 2010). Often, it has to be procured illegally (Jagga, 2010), and Scott's "everyday forms of resistance" are much in evidence in NTFP collection. Trees are felled at night or during visits made ostensibly for cattle-grazing, and are transported by bullock carts at night surreptitiously or by bribing forest guards. Dependence on wage labour has increased and the incidence of migration has gone up sharply. This is a function, it appears, of the decline in availability on forest resources as well as improvement in connectivity of the host villages with the wider economy beyond Agraa.

Households that used to collect gums and resin from the forest reported a sharp decline in their total collection after village resettlement (Jagga, 2010). This is a cumulative result of degradation of available resources due to increased number of people dependent on them. However, a significant finding of our study is that the Adivasi households of village Agraa have collectively managed to defend their rights over the *chir* (Boswellia serrata) trees in the neighbouring reserve forests. In all interviews with the host as well as displaced households, the consensus view was that the displaced households from villages like Jakhoda and Paira did not gather *chir* from the forest (even though this was an important activity on their NTFP calendar in the pre-displacement period), simply because they recognized the rights of the host village Agraa on the trees in the reserve forest. This assertion of traditional rights did not require any legal sanction from laws like the Forest Rights Act. It was asserted through the moral economy that the host villages imposed on the culturally homogenous Adivasi households in displaced villages, many of whom are related to the Sahariya of Agraa through kinship and marriage ties. It appears that this was achieved easily and without overt conflict partly because *chir* collection is limited to Adivasi households, and did not (unlike cattle grazing) involve interaction between Adivasi and non-Adivasi households of displaced and host villages.

The Peripheral Villages

Surde is situated on the eastern side of the Kuno Wildlife Sanctuary by the Kwari River. The sanctuary is about 4 kilometres from the village. It falls under Bijeypur *tehsil* of Sheopur district. It has around 100 households with a population of about 500 to 600 people and around 90 percent of the households belong to the Sahariya tribes, the exceptions being the few families of Rawats, Dhakars and Prajapatis in the village. The Sahariyas are the primary users of the forests and they depend upon forest resources for income generation and household purposes while other castes rely on forest only for fuelwood and grass (fodder). The main occupation of the Sahariyas is agriculture followed by NTFP-based occupation and lastly, seasonal wage-labour.

Earlier research (Kabra, 2008) has shown that households in Surde are extremely dependent on the forest for their energy and fuel needs, which is similar to Agraa. There is great reliance on wood for fuel and the use of other alternatives like cow dung, LPG, biogas or solar energy is less. NTFP income is earned through sale of various products like *dhavda ka gondh, giloi, baheda (Belliric myrobalan), arjun ki chhal, shankhawali (Evolvulus alsinoides), kakora* (seasonal wild vegetable) and *ber*. The village is heavily dependent on the forest and everyone in the village goes to the forest for one thing or the other. They travel about 5 kilometres to reach the place where they begin resource collection. They visit the same place once every seven days or so and in case they come to a recently visited forest area, they travel further away from it. It is reported that sometimes a single tree is visited by over a hundred people in a day. Even though it's banned, people in this village still use carts to ferry wood from the forest and at times they get caught doing so. In terms of gendered allocation of resource collection work, the women go in groups to get wood and other NTFPs and unlike Agraa, they also go with men to collect NTFPs. The average daily collection of various gums is about 200 to 500 grams each. However, earlier it used to be a kilogram a day for each type of gum foraged. They used to collect *chir* from the sanctuary which has now stopped. They mainly collect a particular high value NTFP, *dhavda*, which sells for around Rs. 200 per kilogram.

In Surde there are middlemen who ask the villagers to go and collect particular products from the forest and the middlemen take it to towns and cities like Shivpuri. It is a complex network as the middlemen themselves are hired by manufacturers or shopkeepers who require a certain product and ask the middlemen to organize it who in turn ask the villagers to collect it from the forest. It is interesting to note that the villagers do not know the use of the products (gums) which they collect and sell. They purely do it as a business proposition.

As Surde is located quite a distance away from any police or forest department, there is very limited monitoring. They have more freedom to forage the forest and acquire whatever they want according to their needs. Forest Department officials visit rarely, usually just once a year, to take a round. In the last ten years, Surde villagers have reported that forest products have become scarce because of increasing human pressure and water scarcity which has deteriorated the quality of the forest. Unlike Agraa, where there has been massive deforestation as a result of displacement, the case of Surde is different as deforestation here has happened because of increase in population and agricultural expansion, as well as due to the scarcity of water.

Different forest areas had been identified earlier and on asking if there is any product which is collected from any particular spot, the response from the villagers was unclear and a vague answer was provided saying that the products which they collect like gums, fruits, grass, and fuel wood are collected from all the mentioned forest areas7. But, for example, *arjun ki chhal* grows only near the river bed but even so it is procured only if there is a demand for it, which is infrequent.

Moreover, as their location is remote and their village is smaller, they do not have many options of doing different jobs to sustain their livelihood other than agriculture and forest product collection. They cannot rely on wage labour as there is very limited work of such kind in that area. Compared to Agraa

village where villagers engage in wage labour work within the village, in Surde, this is not the case as it is relatively a poorer village with one major community following largely similar livelihood patterns. If they have to engage in such occupations they must travel out of their village to faraway places.
Wage-labour is seasonal and some villagers head out during March and April looking for work in other villages and cities leaving behind the young and the old to look after each other. In certain cases, whole families move out looking for work. They usually return before *Baisakh* so that they can return in time to sow the *Kharif* crop and at times stay longer depending on a number of factors including monsoon failure. Hence, they heavily rely on NTFP collection for income and villagers regularly set out for NTFP collection. It is reported that they forage almost every day. Hence, forest dependence may not be higher than in Agraa villagers but nonetheless it is *crucial* for their sustenance.
Basic household materials are procured from the market. However, forest products are integral to their livelihood. The villagers sell their collected resources to village shopkeepers and middlemen. They often do not know the use of some of the products that they collect and sell (like *dhavda ka gondh* and *khair ka gondh*) and therefore do not have an exact idea of its actual worth.
Cattle herders come in particular seasons (Oct – Nov till about March) and camp around other villages next to the forest. They come from the villages of Umri, Bawanwaas, Khajuri, Basantpura, Lakhanpura, Dodri 1, Dodri 2, Erwaani, Beelpura, Paarond, Magarda, Kadwai, Sukarwara, Dobera, Bawri, Dhamani, Silpura and Dhorera. The patches of forest which are used by the villagers of Surde are also used by neighbouring villagers. Some of these villages are Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani and Silpura. Villagers from elsewhere come to forage around the same area and they collect resources together with the local villagers. At times they even collaborate and do business. There is no conflict in sharing resources with other villages as the villagers here believe that the jungle is for everyone's use.

Table 4: Users of forest areas near Surde

Collection Point	Location	Approximate Distance from Surde (Kms)	Some Forest Resources Collected	Villages Using the Area
Mohar	North of Surde: Across the Kwari River, on the northern side of the bank	3 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuel wood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Mosraani	Across the Kwari River, on the northern side of the bank (south-east of Mohar)	3 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuelwood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Beendah	Across the Kwari River, on the northern side of the bank (east of Mosraani)	3 kms	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuel wood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Rai Katal	Northeast of Surde: north-east of the Kwari River, north of	4 kms	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu,	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura

	Dhamani village		Grass, Fuelwood	
Banda Nala	East of Surde: On the eastern side of the Kwari River, south-east of Dhamani village	4.5 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuel wood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Sumiro	Southeast of Surde: Across the Kwari River, on the eastern bank (south of Dhamani)	4 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuel wood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Baarodeh	Across the Kwari River, on the eastern bank (south of Sumiro)	4.5 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuelwood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Charaiko/ Chariko	Across the Kwari River, on the eastern side of the bank (south of Baroodeh)	5 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuel wood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Raani Raiya	Across the Kwari River, on the eastern bank (south of Charailo)	6 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuel wood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura
Daando/ Daang	Stretches from north-west to south-east side of Surde across the Kwari river	3 – 4 km	Dhavda, Ber, Beel, Mahua, Arjun ki chaal, Chir, Khair, Kathira, Tendu, Grass, Fuelwood	Magarda, Dhorera, Kharera, Umri, Bawanwaas, Dhamani, Silpura, Khajuri, Basantpura, Lakhanpura, Dodri 1, Dodri 2, Ahirwani, Beelpura, Paarond, Magarda, Kadwai, Sukarwara, Dobera, Bawri

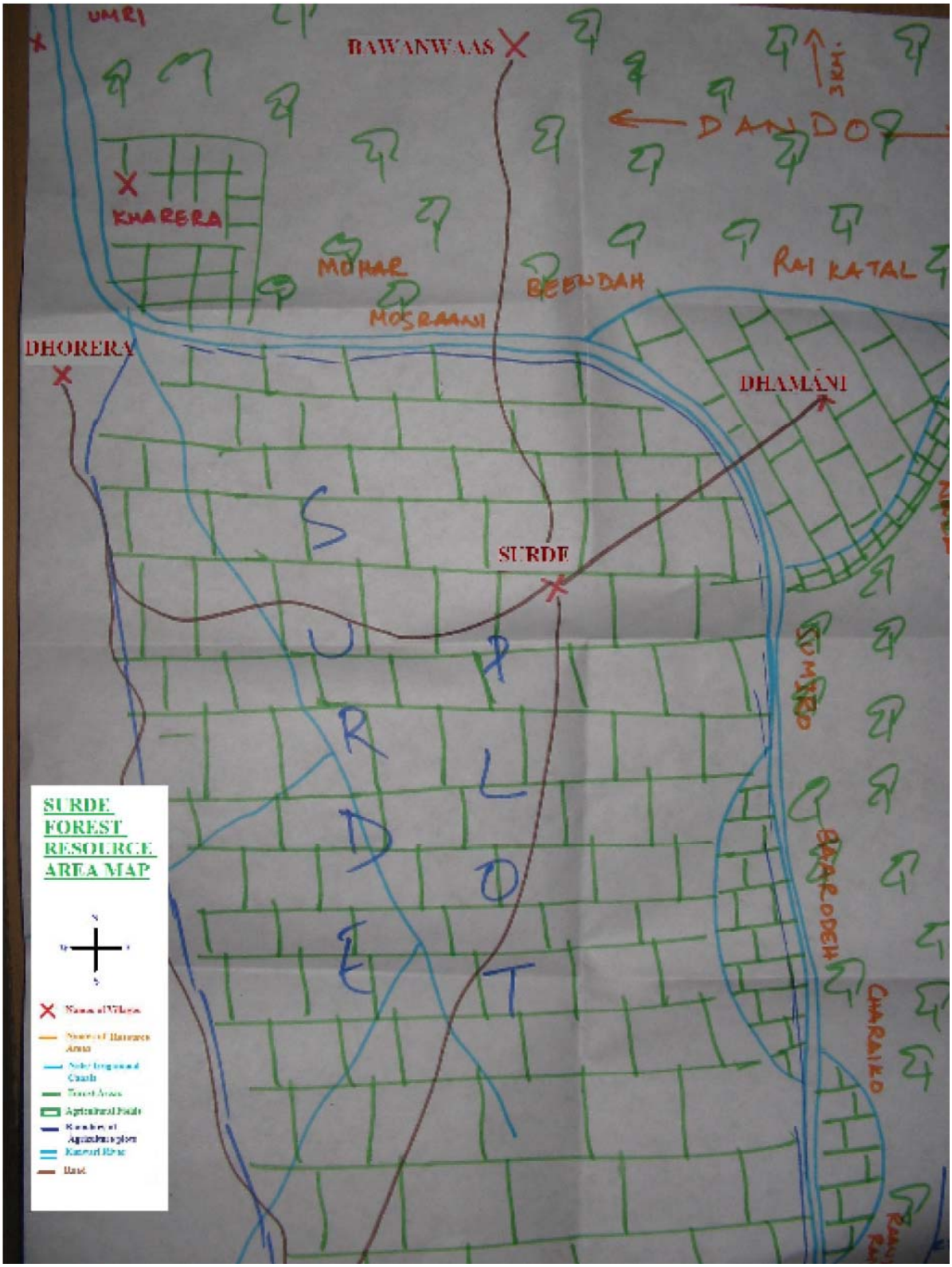

Figure 3: Resource map of village Surde

[i] Samrakshan Trust. 2005. Unpublished report of the *Arogya* Health Initiative.