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ISSUES PAPER

The Grass is Greener on the Other Side:
A Study of Raikas, Migrant Pastoralists of Rajasthan

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I. INTRODUCTION

Nomadic pastoralism is critically important to the economy of Rajasthan. Aridity and poor soils, especially in the western districts, where the homes of most migrant shepherds are located, make it well-suited to a combination of agriculture and livestock rearing. However, the large number of animals in these districts cannot be supported by existing fodder resources. While part of the fodder deficit in the state is met by importing fodder from the neighbouring states of Punjab and Haryana, a significant proportion is met through the migration of animals, especially sheep. The data collected during this survey reveals that while the proportion of sheep owners who migrate is low (35%) the proportion of sheep that migrate is far higher – closer to 90%

II. THE RAIKAS

The Raikas shepherds - also known as Rebari or Desawi - trace their ancestry to their creation by Lord Shiva and his consort Parvati. Today, they are divided into several clans. Each clan is also subdivided into several lineages.

The social life of Raikas is still influenced to a great degree by caste gatherings known as *nyaats*. *Nyaats* are assembled on festive occasions, as well as for births, marriages, and deaths. A *nyaat* can also be called to settle a dispute between two feuding parties. Usually the size of the *nyaat* will depend on the gravity of the occasion, the status of the persons involved in hosting it, and the impact that the host wants to make.

While many other groups practise nomadic livestock rearing, Raikas are the major pastoral nomad caste of Rajasthan. This is not to say that Raikas do not engage in agriculture. In fact most Raika households combine agriculture during the rainy season with nomadic pastoralism for part of the year. Raikas are distributed throughout Rajasthan though most are concentrated in the Western districts of the state. Typically, they migrate from these districts towards the east into Haryana, Uttar Pradesh, and Madhya Pradesh in herding camps each known as a *dang*. *Dangs* comprise anywhere between 8 and 20 herding units. The migration of the *dangs* can be categorised in several ways; according to the period over which migration lasts, the distance travelled during migrations from the village, the frequency with which migration is undertaken, or the direction of travel.

Of these, the duration and frequency of migration and the distance travelled are very closely inter-related. (see the following section). Each of these depends on the size of the flock belonging to a shepherd and the vegetation available in a village. The direction in which a *dang* migrates depends for the most part on the contacts that its leader (*nambardar*) has developed over time with settled groups along the migration route.

Raikas migrate in *dangs* - the corporate social unit during migration. A *dang* includes shepherds, cooks, sheep, camels, goats, dogs and sometimes donkeys, organized by "households". On the average a *dang* consists of 12 "households", each known as an *ewar*. The *ewar* consists of 5 to 7 persons (men, women and children). *Dangs* are formed by a number of *ewars* coming together. *Ewars* in a *dang* are usually from different villages, so to avoid confusion *dangs* are usually known by the name of the *nambardar* or the name of his village.

Nambardars are selected by shepherds each year. In general, a number of shepherds approach a person who they feel is influential, has good contacts among the settled population over a migration route and is capable of interacting with government bureaucracy - in short, a person who has leadership qualities. If a person has been a *nambardar* for some years, his choice may become routine. The choice of a good *nambardar* is crucial to the successful conclusion of a migration cycle.

Once a *nambardar* has been chosen, the choice of the route for the *dang* rests with him. While he will usually consult the elder shepherds in the *dang* before taking a major decision, his decision is accepted as final by the shepherds. The *nambardar's* decision in turn will depend on how familiar he is with a given route, and with the people and villagers on that route. Knowledge of the route, and familiarity with villagers on the chosen migration route are very important. For one thing, shepherds often get into fights or conflicts with settled populations along their route. What is more, according to shepherds, the incidence of conflicts among settled populations and passing shepherds has increased over the past years. If a fight occurs, local acquaintances can prove invaluable. Apart from this, they also useful for providing shelter and help when shearing sheep.

Duration, Frequency and Distance of Migration

The Raika migration cycle begins at the end of the monsoons. Depending on the fodder-animal balance in their village and in the surrounding areas, the period of migration can vary from as little as three months to as much as the entire year. For most of the shepherds interviewed, the duration of migration was

approximately 6 to 8 months. Starting their migration in October and November from the drier western districts of Rajasthan, the shepherds move east both in a northerly and southerly direction towards the states of Haryana, Uttar Pradesh, Madhya Pradesh, and Gujarat.

The shepherds spend 3 to 5 months reaching their destinations in these states. After spending approximately a month to two in these states, they begin their journey back home, with the approach of the monsoons. The return journey is often completed by a different route and is much faster than the outward journey. This is because the shepherds want to reach home before the monsoons actually arrive so that they can till their lands and sow crops. At the same time they do not want to begin the return journey without at least a few showers of rain, so that the land they are passing will provide better forage for their sheep. Throughout their migration they seek forage in dry or irrigated private fallow, government owned pastures and forest land, road sides and village owned commons.

From the accounts of shepherds, the average duration of migration has registered an increase over the last few years. For some the average length of the migration period has increased by a month, for others, even longer.

Almost all the *nambardars* own flocks of 250 to 400 sheep. Quite a few of the shepherds, however, own a hundred sheep or less and to make up a 'viable herding unit' or *ewar*, they often combine their flocks. This has two implications. In some years, these shepherds may not find partners with whom they are willing to migrate. Also, in some years, the rains in a shepherd's home area may be enough for him to find adequate grazing in or around his village. Thus the shepherd may be able to ensure the survival of his sheep without having to embark

on a long migration. The average length of the shepherd's migration falls into two timescales. They often migrate for three months or less, but can migrate for a longer period between 6 and 9 months. When flock sizes are less than 100 sheep, it becomes possible to find sufficient forage for them without migrating over a long distance.

There are, thus, three conclusions to be drawn from this. First, the duration for which migration takes place is directly proportional to the size of a shepherd's flock. Second, flock size is also directly related to the distance travelled by shepherds during migration. If a shepherd has a small flock, he needs to leave the village for a shorter priod of time. Therefore in years when the shortfall in vegetation around the village of a small flock owner is not extreme, (owing to relatively good rainfall) he will attempt to manage without embarking on a long migration. Finally, if a shepherd has a large flock (numbering 200 sheep or more) then he will normally migrate almost every year, because in year of average or better than average rainfall, the village pastures will not have sufficient fodder for the flock. Thus duration, distance and frequency of migration are all interrelated, in addition to being a function of the size of a shepherd's flock, given a certain level of fodder availability in a village.

Direction of migration

The duration, distance and frequency of migration thus are strongly influenced by economic factors - in the sense that they are closely and obviously linked with resource availability and flock size. But the direction in which a *dang* will migrate will be determined by factors that are more socio-political than economic. First,

given that during a migration cycle a Raika *dang* can cover as much as 2,000 kilometres, it is feasible for them to travel across national and state boundaries. This means that as well as ecological and economic factors, an analysis of Raika migration patterns must also take into account questions of national security and differences in state policies regarding livestock migration.

Policies followed by different Indian provinces drastically affect the direction for migration chosen by shepherds. In 1979 (CSE, 1985) the state government of Madhya Pradesh increased the taxes levied on in-migrating livestock by as much as a factor of ten[1]. This drastically affected all sheep and camel herders. As a result, most of the migrants who regularly went to Madhya Pradesh either do not go there any longer, or were forced to make side payments to petty forest officials in Madhya Pradesh.

When several major directions are still feasible for migration, the actual choice depends on the familiarity that a *nambardar* has with the farmers and other villagers on route, and has little to do with their relative advantages, which do not differ significantly. An explanation for the choice of directions must therefore be sought in the manner by which *nambardars* are created and in the relationships they develop.

[1] For goats and sheep the grazing tax was increased from Rs. 1.00 per animal per year to Rs. 10.00; for camels from Rs. 10.00 to Rs. 50.00; and for cattle from Rs. 0.75 to Rs. 2.00 per animal. (Written communication, 1990, Bhopalaram Dewasi, President, Rajasthan Livestock Breeders Federation,).

III. THE MOVING VILLAGE

Dang Characteristics

The *dang* begins its migration cycle from the village of the *nambardar* each year after the monsoons are over and the Raikas have harvested their fields.

There is reasonable consistency in the membership of a given *dang* from one year to another. However, if members of any *ewar* are dissatisfied with their experience they can opt to join another *dang* for the next year. There is no formal criterion that a new member has to fulfil to join a *dang*, apart from not having a reputation as a trouble maker.

While on migration, Raikas camp keeping in mind two basic requirements - fuelwood for cooking, and sufficient water for the sheep and for their own needs. The particular fields in which they camp may be private, government or village land. The Raikas tend to prefer fields which have irrigation - especially from a tubewell as it can be used for sheep as well as their own drinking, cooking, and washing needs. Farmers also have a clear preference for having shepherds fold sheep in fields with irrigation because fertilization by sheep manure provides better crops.

In general irrigated fields belong to the wealthy and more influential persons in the village so by folding their sheep in their fields shepherds are also reducing the risk of being harassed by trouble-makers in the area.

From its superficial appearance when at camp, a *dang* resembles a mobile village. The belongings of different *ewars* are laid out in a circle. The sheep are then folded inside the circle of the camp-fires, and the camels outside.

Raikas sleep in the open which brings its own problems regarding safety. There are two ways in which the Raikas tackle this. To begin with, they settle for the night in fairly precise patterns, somewhat resembling concentric rings. When women and children are with the *dang*, they put their belongings in the centre of the circle, or the innermost ring, and women and children sleep in this circle. The sheep are in the second circle, the camels next and the guards in the outermost circle. In each *ewar*, members also keep watch on a fixed rota for the entire period of migration to guard their sheep and belongings. While keeping watch, the guards keep themselves awake through periodic shouts, warning others to be careful and keep awake. In areas known for criminal activity, or for hostility, each guard walks from his position around to the position of the next guard, who walks to the position of the next guard and so on, until the circle is complete.

While the *dang* may resemble a village, it differs in a number of ways. The degree of organization and corporateness in a *dang* is much higher than in any village, this being essential to deal with all the challenges and problems that a new and changing environment can bring to groups of 50 to 100 individuals and their animals.

Ewar Characteristics

Ewars, being comparable to a household in a village, are the elementary units along which production and consumption are organized. Most *ewar* members are

related to each other and together they carry out tasks such as grazing livestock, taking care of the young sheep, cooking, household tasks and other activities associated with the migration. The head of the *ewar* - the *mukhiya* - assigns different tasks among the *ewar* members.

Normally two males graze a flock of 300-400 sheep - the average size of a flock. Usually one is an adult, and the other a child around ten years old. An adult female and in some cases, a younger female child carry out cooking and other related household tasks such as milking the animals, setting camp, unpacking, and breaking camp. An adult male carries out other tasks related to the migration, such as gathering information about rainfall, fodder availability, selling sheep and wool, and the purchase of medicines and supplies. Shepherds who graze sheep cannot double in this task because most of their time is taken up in shepherding. This person may also graze the camels and sometimes helps the women in the *ewar* by packing belongings and breaking camp. A teenager normally takes care of the new-born sheep.

Of course, task assignments according to age and sex are necessarily flexible. When women leave the *dang* towards the end of the migration, male members of the *ewar* double as graziers and cooks.

Daily life in the *ewar* is fairly harsh. Shepherds rise before daybreak and take their sheep for grazing - usually a few kilometers from the camp. They return after 3 to 4 hours for their breakfast, by which time those in charge of grazing camels will have left. The shepherds then leave again, and the camels return from their grazing to be loaded with the household goods so that they can move off to the new location. Raikas move camp almost every day, and seldom stay in any

location for more than two days. Often the young lambs are also transported on camel back.

The *dang* reaches its new campsite in two to seven hours of walking, depending on the distance from the old camp. During the migration, men and women move on foot, guiding the camels. Younger children and infants often travel on the backs of camels. Once the *dang* has reached the new camp site, the camels are unloaded, camp is struck and the camels are again taken away for grazing. The shepherds return to the camp with the sheep a little after sunset. Women then prepare dinner for the shepherds. It is also their job to see that the sheep are milked every morning and evening. The milk is used for drinking, and making yogurt, tea, butter, buttermilk and ghee (clarified butter). As well as making all of these products from milk, women also fetch firewood and water, wash and mend clothes. In addition, they are responsible for spinning sheep's wool. (Men only spin goat and camel wool).

Nomad-Farmer Relationships

The distinction between sedentary and nomadic populations is often portrayed as two polar extremes, separate and hostile to each other. Such distinction is questionable in the case of the Raikas.

Raikas are both settled farmers and mobile pastoralists. Raika shepherds are also farmers for part of the year during the monsoons, and they have to interact with settled farmers during the period of their migration to buy food, for campsites, for

water, and fuelwood. Equally importantly, most of their available grazing falls inside village boundaries, very often on privately owned land.

Historically, the shepherds have collected firewood, obtained water, camped on village lands, and grazed their animals on the fallow without a problem. Their activities incurred little cost to villagers unless their animals browsed on standing crops, which shepherds are usually careful to prevent. On the other hand, manure for the fields is an important help to farmers. Even today, many farmers along the migration routes compete with each other to invite shepherds to fold sheep in their fields. Before chemical fertilizers became available, such addition to the fertility of the land was invaluable. Today, however, several strands in the web of mutual dependence between shepherds and farmers have started to fray, if not to break altogether. In addition to the availability of inorganic fertilizers, wider use of irrigation means that more fields are being enclosed and/or cropped a second time[2]. The government has also enclosed large areas for development and for protection of vegetation. At the same time, the pressure on village common lands is increasing, partly due to encroachments on such land by the rich, and in other cases its distribution (supposedly) among the landless[3]. Village panchayats (councils) are also taking advantage of government programmes encouraging tree planting and enclosing village commons in the name of tree conservation, while the number of village animals grazing on the common lands has also increased.

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[2] Increase in irrigation has also resulted in the creation of new grazing possibilities for the shepherds. Canal irrigation in Haryana state has created a "new adaptive niche" for the pastoralist in the form of crop stubble in a previously barren region (Kavoori, 1990).

[3] See Brara's Shifting Sands: A study of rights in common pastures.

All of these factors mean less fodder available for sheep belonging to migrants. Yet, Raika dependence on migration has not declined. The number of animals migrating out of Rajasthan each year, as well as the period for which migration takes place, have both increased. Water and fuelwood, always scarce in a semi-arid environment, are no longer as easily available even over the wetter parts of the Raika migration routes - even village residents have to walk long distances to collect sufficient amounts of fuelwood for cooking (CSE, 1982, 1985).

In such changing circumstances some conflicts between the settled populations and the Raikas have become inevitable. What is remarkable, as Kavoori (1990) points out, is not that there are fights between shepherds and farmers, but that "out of the thousands of independent interactions that take place between shepherd and cultivator in the course of a cycle of migration, only a handful at the most lead to minor altercations". According to shepherds, 'altercations' are not randomly distributed along their migration route; they say most take place in just a small number of villages where there has been a history of hostility related to water, grazing, theft of animals, etc.

Theft of sheep seems to be the most serious reason for conflict, both because such theft directly attacks the basis of Raika livelihood, and because in these cases the Raikas stay on in an area to pursue the matter. Theft is nearly always discovered (and most often results in someone getting hurt)[4],

[4] Raikas and their sheep display a very high degree of familiarity with each other. Raikas can recognize all their sheep without any markings. They have a name for each sheep in the flock. The sheep too can distinguish the calls from their masters from calls by other persons. It is often said that if the shepherd orders his sheep to sit down, the sheep will die but not move from the spot in which it was asked to sit down. Usually shepherds discover theft in the morning when they are separating their sheep from sheep of other *ewars* in the *dang*. At this time, if any sheep is missing, the shepherd will know without needing to count them.

However, for the most part, Raika-farmer relations are characterised by, if not harmony, at least a mutual acceptance of each other's presence and exchanges that improve the welfare of both.

Raikas invoke the help of the state only as a last resort. Government administration, however, has proved ill-equipped to deal with the needs of a mobile population - and the shepherds say that even those government departments which ostensibly exist to help them, such as organizations providing veterinary medicine, prove unresponsive to their needs.

IV. ECONOMICS OF SHEEP-HERDING

A number of factors influence the returns from sheep rearing. Those that the individual shepherd can control - at least to some extent - are the direction of migration; the size, and age and sex composition of the flock; the timing of sheep-shearing and wool sale, and the sale of animals. On the other hand, there are factors over which the shepherd has little or no control; for example, the duration and severity of a drought; the availability of water and fodder; availability of medicines; government policies; and the prices of wool and animals.

For the Raikas, goats and sheep are the most important and regular sources of income. Camels are used primarily for transport, though camel milk is also consumed. Income mainly comes from sales of animals, wool, and from folding sheep in farmers' fields. Raikas as a rule do not sell animal skins, nor the milk of sheep or goats. The major items of expense are the purchase of medicines and feed

for sheep, payments to professional herders *(gwalas)*, sheep shearing, transport, and expenditure related to the migration cycle.

Wool and animal sales are the more important sources of income. Heads of the *ewars*, the *mukhiyas*, receive the returns from these directly. The income from folding sheep in farmers' fields goes to a general fund in the *dang*. At the end of the migration, the accounts are examined and income and expenditures scrupulously shared out according to formulae that are agreed upon before the beginning of the migration cycle.

Income from Sheep Rearing

Wool Sales:

Sale of wool takes place each time sheep are sheared - usually twice a year, but in recent years not infrequently three times as the shepherds have faced financial pressures and the need for quick cash. Raikas get their sheep sheared once at home. This shearing takes place in the month of October after the monsoons are over and before winter arrives. This gives the sheep some time to grow back their wool before winter arrives. A second shearing takes place while the shepherds are *on their migration* - in most cases after they have begun the return journey.

A declining number of Raikas shear their own sheep and for the most part this job is done by professional shearers, called *lavas*, who are invited by the shepherds.

During the migration, the task of inviting *lavas* and organising shearing is the responsibility of the *nambardar*.

At home, wool is stored raw in sacks and kept in a hut until it is sold to wool merchants or their agents. There are major wool markets in several towns of Rajasthan and the neighbouring states.

The shepherds may attempt to delay the sale of wool to benefit from favourable prices. However this strategy works only to a limited extent because most of the shepherds need ready cash. Their flexibility is even less in the case of wool sheared during the migration because they cannot carry it with them. During migration, wool is often sold (by weight or by animal) even before shearing takes place.

Three different sets of tasks - arrangements for a site for shearing, the shearing itself, and the sale of wool - have to be coordinated so that they can take place in sequence without too much delay between each task. Although these tasks take place sequentially, the arrangements for all three have to be completed before the other can begin.

Raikas usually sell their wool raw, without either cleaning or grading it. On average, a flock of a hundred sheep yields between 125 to 160 kilograms of wool every year. The actual figure depends greatly on the breed of the sheep and the availability of fodder during the year.

The trader with whom a tentative price was negotiated for the wool arrives at the site while shearing is in progress. A price is negotiated for the entire *dang* at the same time. It is the responsibility of the *nambardar* to negotiate the price. Whatever price he agrees upon, other shepherds in the *dang* abide by it. Usually shepherds find it difficult to negotiate prices with different traders. The trading pattern that has emerged in response to the need for ready cash greatly disadvantages the shepherds (See FAIR, 1980). At the village level, most wool traders have an agent who buys the wool from in advance by paying Re. 1.00 per sheep. After making the down payment he marks the sheep whose wool is to be sold to him. Another middleman who controls the trade in 20 to 30 villages, pays another Rs. 5.00 after six months. This entitles him to half the price of the wool from the sheep every six months. The other half is shared between the shepherd and the village agent in the ration of 3:1. The shepherd is thus deprived of 62.5% of the income from the sale of wool.

While the shepherds cannot influence the price of wool, they can vary the time for shearing during the migration depending on prevailing prices. However, they have only limited flexibility in this regard owing to the level of coordination that is required to undertake the shearing at all.

Animal Sales:

For most shepherds animal sales comprise the most important source of income. There are two major types of sales of animals. The sale of mature stock takes place in regular annual sales. These sales usually take place between January and April, while sales of other animals - usually those that are the least healthy - take place to meet short-term cash needs. If the shepherd does not need money

urgently, he will attempt to get an unfit sheep back in condition through medication and resting it in the course of the migration by carrying it on the back of a camel.

Sheep are sold to traders and their agents who specialize in buying from migratory herds. The market works quite effectively in this regard, with the traders themselves approaching the different *dangs* at regular intervals.

Shepherds consider several factors when selling their animals. The ideal number of animals that Raikas consider practical for an *ewar* is between 350 and 500. With the given level of labour that any *ewar* has, the *mukhiya* of the *ewar* will attempt to maintain the size of the flock within this range. If in a given year, the number of lambings in the flock is low, and the size of the flock is small to begin with, the shepherd will attempt to reduce the sale of animals. The opposite is the case when the year has been good and there has been a large number of successful lambings. This also implies that there should be a predictable relationship between the size of the flock and the proportion of lambs and adult sheep.

Shepherds attempt to maintain an optimal proportion of adult males and females by selling different classes of animals. In larger flocks, with more than 350 sheep, the proportion of males is quite low - between 10% and 20% - and tends to vary only slightly over time. In medium-sized flocks the proportion of males to females is similar to that of the larger flocks, but it fluctuates more widely between cullings. For the smallest flocks, the proportion of males to females is the greatest.

Shepherds need to maintain a minimum number of rams in their flocks for reproduction. Beyond this minimum number they attempt to increase the number

of females to the maximum so as to increase the size of their flock at the fastest possible rate. In larger flocks this imperative can be taken to its logical conclusion by the flock-owner as he can make ends meet just from the sale of wool. However, the smaller shepherds must sell sheep regularly in order to survive. Therefore, they need a larger proportion of adult males in the flock in order to be able to sell them when they need cash. To some extent the same logic also operates with regard to the proportion of lambs to adults in a flock. On the whole, smaller flocks have a higher proportion of lambs to adults than larger flocks.

While the male/female ratio of lambs is more or less equal at birth, the shepherds then make sales and gifts to increase the proportion of ewes in the flock as a whole. In addition to manipulating the age and sex composition of the flock against the size of the flock, Raikas also attempt to use animal sales to respond to adverse climatic conditions. The most important strategic response to climatic variations and resultant variations in fodder availability is mobility, but severe adverse conditions also prompt the shepherd to respond through higher levels of animal sales. Given the conditions under which these sales take place, if the shepherd did not sell a significant part of his flock, a lot of his animals would probably die, representing a total loss. It is interesting in this context to note that even in highly adverse years, most flock owners are able to prevent their flock size from falling below a certain minimum[5]. At these times, the reduced size flock comprises prize rams and adult females.

[5] According to Kavoori (1990:22) this minimum is a flock size ranging between 50 and 100 sheep. This range is to some extent also dependent on the breed of sheep - For the hardier Marwari sheep the range may be somewhat higher. (As reported by my respondents between March and June, 1990).

Sheep Folding:

Income received from folding sheep in farmers' fields forms an important, but generally little recognized, part of the total income of Raikas. Part of the reason is that the income from this activity goes into a general fund for the entire *dang*. At the end of the migration cycle, whatever balance remains in the fund is shared equally by the different *ewars*. Since the income is not received by each *ewar* individually, it is easier to ignore this income.

Not all farmers pay something to the *dangs* for folding the sheep in their fields. On average, the *nambardar* in a *dang* is able to secure payment from farmers for between one-fifth and one-third of the days that they are on migration. The actual amount received by the *dang* ranges from Rs. 30.00 to Rs. 200.00 a night. In many cases, they receive grains (wheat or millets) instead of cash. These payments scarcely rival the returns from either wool or animal sales. It can be thought of more as supplementary income. But for families whose average earnings a year (net of expenses) are less than Rs. 5000, Rs. 600.00 is significant.

Expenses incurred on Sheep Rearing

Against the income from wool, animal sales, and folding must be balanced the expenses incurred in order to arrive at an estimate of the viability of migrant sheep herding. These expenses can be divided into two categories - those incurred by each *ewar* individually, and those incurred collectively with the rest of the *ewars* in the *dang*. Of these, the major amount is incurred individually by the *ewars*. Individual expenses are incurred on sheep (feed and supplements, grazing, medicines, transportation, shearing) and on labour. Expenses necessary for

gathering information, entertaining guests, payment of fines, and bribing officials are met by the *dang* collectively.

Feed and Grazing:

For the most part sheep graze and browse on grasses growing in fallow fields, on government land and on village common land. For these, Raikas do not have to pay any fees. However, fodder is not available uniformly every month and shepherds may supplement it with different kinds of feed, such as flours of different grains (pearl millet or barley), which is also often fed to the pregnant ewes. The flour may be made into a dough or fed to the sheep raw. Oil is fed to female sheep for two weeks after lambing. The ewes are fed the oil slowly so that they can digest it well. Turmeric is also fed to sheep with buttermilk to improve milk production. Goats are fed on leaves of khejri (*prosopis cineraria*) which is cut from trees growing in fields.

There are two situations in which shepherds pay cash for grazing. *Dangs* engaged in permanent migration, graze their sheep in forest areas during the monsoon months (and sometimes also during winter) as all private fields are under crops at this time and the fodder available on common lands is hardly sufficient for village animals. Fees for grazing animals in forest areas vary from one forest to another. Most shepherds try to avoid payment by paying bribes to forest officials.

Shepherds also pay for grazing their flocks when they reserve harvested fields of green grams from farmers. They can reserve these fields for periods of about a month and pay approximately Rs. 50.00 for a hundred sheep.

Medicines:

Both indigenous substances considered to have medicinal value, as well as western medicines, are given to sheep. In addition to the oil and turmeric which are used to improve milk yields and ease the ewe's labour, two other substances often used are salt and alum. Both are said to improve sheep's resistance to diseases. Salt is fed to the sheep for about a week every year and alum twice a year - in fall and spring. Western medicines for the sheep are purchased when traditional remedies fail to have any effect. Vaccines, injections, tonics, anti-biotics, anti-diarrhoeal and de-worming medicines are the most important. They are purchased from private traders in the open market and also from the government.

Gwala:

Not all *ewars* employ gwalas (professional herders) and not all of the gwalas employed are paid a salary. But in cases where gwalas are paid salaries, this forms a major part of the expenditure incurred by the herd. Whether a gwala is paid and how much he is paid depends on his kin relationship with the members of the *ewar* and on whether he brings any sheep with him into the *ewar*. Although gwalas are theoretically hired only to help graze sheep, in practice they often do all kinds of odd jobs around the camp - including cooking, packing or taking care of the new-born lambs.

Consumption Expenditure:

Much of the expenditure incurred on is on food. When women are present in the *dang*, three meals a day are eaten, but when they have left (as is the case in most *dangs* once the journey home begins) shepherds attempt to make do with just two meals to save time. The meals consist of unleavened bread made out of coarse grains (millet), onions, red or green chillies, and in the case of evening meals, either a lentil soup or some vegetable dish. Tea is made several times a day using sheep milk, and camel milk is drunk fresh.

While diet is similar for most Raika households during migration, irrespective of their wealth or status, tobacco and opium are consumed for the most part by the better-off. Consumption of these is seen as morally bad, but at another level they are seen as an important element in the customary welcome provided to any visitor to the camp. Raikas excuse themselves for smoking and drinking opium, yet appreciate abstinence in others as morally superior behaviour. Apart from these products, medicines are the only other item of regular expenditure. Raikas treat most common ailments today using western medicines available over the counter. However, not much money is spent on this.

Transportation:

Ewars maintain regular contact with their home villages and make trips back and forth between the *dang* and the village as often as once every two months. Most shepherds, however, travel to their village homes once or twice during the migration cycle. Anyone wishing to go back to the village must obtain permission from the *nambardar*, who will arrange where and when he must rejoin the *dang*.

Joint Expenses:

The *nambardar* in the *dang* often undertakes reconnaissance missions to gather information regarding rainfall and grazing availability. Such journeys are of two types. Journeys over short distances lasting approximately two to three hours, and longer journeys which take up to three or four days and may involve travelling over hundreds of miles. *Nambardars* undertake shorter journeys on horse or camel back almost every day. They travel 5 to 20 miles ahead of the *dang* and gather information on the state of vegetation over the proposed route. They look at the state of water-points and find out if the farmers with whom they are acquainted are present in their villages. Since *dangs* move almost every day, such reconnaissance missions are invaluable for getting advance information which will help the movement of the *dang*. Expenses incurred on the longer journeys - or journeys to buy medicines for the sheep – are collectively shared by the *dang* members.

Food is cooked collectively on all festive occasions, for which stores are purchased using cash from the joint fund of the *dang*. On these occasions, if there are other *dangs* nearby, members of the *dangs* visit each other. The expenses of these joint celebrations, which can run quite high, are also shared equally among all the *ewars*, as are the costs of entertaining guests and payment of fines or bribes.

Fines may be for trespassing, for paying off irate villagers or to government officials. Often fights with farmers may be settled through the payment of a fine. While fines are only an irregular expense, the payment of bribes to government officials is a recurrent cash drain on the *dang* economy. Bribes are necessary to procure medicines, to secure permission to graze in forest areas or to cross state

borders. Taken together, fines and bribes are the largest item of expenditure incurred jointly by the *dang* members.

V. DECISION-MAKING

According to most researchers on pastoral communities, the everyday decisions of herders are governed by both informal and formal rules. However, detailed studies on the principles governing them, and the decisions taken by herders based on these rules, are few and far between. This lacuna in pastoral studies has contributed in no small measure to popular myths of irrationality among pastoralists (Niamir, 1990). Such misconceptions are especially prevalent among many (thankfully not all) policy-makers and government officials. Contrary to such popular notions, however, there are clearly identifiable and easily explicable principles of which decision-making responsibilities are distributed among Raika herders.

I have identified three loci of decision-making in *dangs* and a large number of different types of decisions that shepherds must and do make in order to migrate with their animals. I postulate that a small group of easily understandable factors can help us predict which of the large number of possible decisions will be taken by a particular decision-making unit. The basic reason why one decision-maker will prevail over another in a particular case is that such a distribution of decision-making will provide greater economic benefits to the shepherds in a *dang*. Relying on simple statistical analysis, I have compared empirical data on who actually makes the decisions, with the theoretical predictions as to who should be making the decisions. Clearly a more refined analysis incorporating the influence of political and cultural factors is possible and desirable, but even a rough analysis

such as this can yield useful insights and make valuable points. In addition, the data obtained on the location of specific decision-making responsibilities among Raikas can help aid herder survival strategies through external interventions. For example, if the decisions to purchase medicines are made by the leaders of different flocks, policies which aim at increasing the use of sheep vaccines among Raikas will accomplish more by targetting flock leaders rather than the *nambardar* who is the head of the entire *dang*.

The making of reasonable decisions is the litmus test of rationality. To promote the making of reasonable decisions, responsibilities for making different kinds of decisions are vested in different units in the *dang*. This distribution of responsibilities requires some shepherds to give up or delegate power either to another shepherd or another group of shepherds. In general, ordinary shepherd members in a *dang* give up or delegate powers to the *nambardar* or to a council of elder shepherds. They retain for themselves the right to make other groups of decisions.

We have already seen why migration is important. Given that they must migrate, the obvious question is whether they should migrate individually or in groups. Collective migration of the shepherds over long distances in groups scores over individual mobility in several respects. It allows for division of labour, greater security against thieves or in altercations with outsiders, and economics of scale. Against these advantages must be weighed possible disadvantages due to higher costs of decision-making for a larger group in which the interests of members may diverge; possibilities of altercations within the group, and the need for greater coordination. To deal with disadvantages, Raikas have developed a sophisticated division of responsibilities within the *dang*. Through this, they achieve lower costs

of decision-making, enhance coordination, and also deal with possible intra-group conflicts[6].

A second important factor is the constant change in environment. Climatic conditions in semi-arid regions in Rajasthan are characterized primarily by uncertainty and unpredictability. The timing, duration, amount, intensity and distribution of rainfall vary and are difficult to gauge across small as well as large space and time intervals. Additionally, migrant shepherds' environment is even more uncertain owing to mobility, and this introduces a crucial second parameter in addition to climate which contributes to the overall flux in the environment of the shepherds - uncertainty of social interactions. Because they have no formal property rights over the resources they need to survive in the areas they are passing through, problems can always crop up. So their system of keeping watch through the night is based on the idea of always being prepared. Raikas must at least decide in advance who (with the support of the rest of the group) will deal with such problems.

Decision-making and its distribution emerge as the key issues that must effectively be attended to if the *dang* is to migrate as a viable social and economic unit. Fluctuations in the environment and coordination of the *dang* mean that not just any randomly selected member will make the best decision for a situation that the *dang* may face during the migration. Therefore, responsibility for making a

[6] That collective migration is indeed more advantageous than individual level mobility is also empirically supported. In a study of more than 15 migrant shepherd groups by Johnson (1969), not a single shepherd group follows the practice of individual flock based migration when the migration is over long distances. This is true whether we look at groups such as the Kurds, the Ruwala, the Basseri, the Bakhtiari and the Pashtuns in Asia, or at the Kababish, the Said Atba, the Arbaa or the Chaamba in N. Africa.

particular type of decision must be distributed with an eye to the strengths and weaknesses of the decision-making unit.

In this study I looked at 60 issues that members of different *dangs* identified as important for continued efficient functioning of the *dang*. I have divided these into 6 major issue areas. They are *dang* formation and dissolution, migration, *ewar* management, *dang* management, market interactions, and external relations.

Loci of decision-making

Three major centers of decision-making exist in shepherd *dangs*. Of these, the *nambardar* makes decisions on a large variety of issues relating to migration patterns, dealings with outsiders, purchase of supplies, and sale of pastoral products. The second-in-command of the *nambardar* is called *kamdar*. The *kamdar* assumes the duties of the *nambardar* when he is sick or away from the *dang*. Since the duties of the *kamdar* are the same as those of the *nambardar*, he is not treated as a different locus of decision-making, especially because his office is only infrequently called into play. Usually he plays a role as a member of the council of elders in the *dang*. The council usually comprises 5 or 6 of the older and more experienced men in the *dang*. It makes decisions in crises or situations for which there are few precedents. Finally, of course, there is the *mukhiya* of the *ewar* who decides on most matters related to the functioning of the *ewar*. The distribution of tasks within the household is his responsibility. The *mukhiya* is usually the person who has higher status than the others in the *ewar*. Status itself may depend partly on age, but also on the number of sheep owned, previous leadership, experience and other factors. There are no women *nambardar* or *mukhiya*.

While the *mukhiya* makes all the decisions under household management, there are two issues of the *ewar's* management over which the *nambardar* has control. One concerns the night watch rota and the other the grazing of camels. The average number of camels in an *ewar* is four, but two herders can graze between 30 and 50 camels and substantial economies of scale can therefore be obtained by collectively grazing all the camels from the different *ewars* in a *dang*. There are on average 12 *ewars* and 46 camels in a *dang*. If each *ewar* were to assign its own camel herder, 12 people would be needed each day. But organised by the *nambardar* for the whole *dang*, at most 3 people will be required.

Major types of decisions

1. *Dang* formation and dissolution

This contains two major decisions - selection of the *nambardar* before the beginning of the migration and the breakup of the *dang* at the end of the migration cycle. Decisions for both are the domain of the *mukhiyas* of the *ewar*. In general, a few *mukhiyas* ask somebody in whom they have faith to be the *nambardar* for a particular migration. Often, of course, a given *dang* continues with the same *nambardar* and has the same composition of *ewars* that it had in a previous year.

In the normal course of events, the breakup of the *dang* occurs after the migration cycle is complete. However, if there has been adequate rainfall in the village of a particular *ewar* member, he may leave the *dang* sooner than other members and return home. Another possibility is for dissatisfied members in the *dang* to leave

before the cycle is over. Although this rarely happens, the fact that members have the freedom to leave acts as a healthy restraint on hasty or arbitrary decisions by the *nambardar* which will affect all *ewars* in the *dang*.

The decision to choose a *nambardar* is one issue area in which decision-making has political rather than economic imperatives. If the *mukhiyas* did not have the freedom to choose a *nambardar* or leave one *dang* and join another, and were thereby saddled with a leader for all future migrations, then there would be no reason for the *nambardar* to act in a fashion that would promote the interests of different *dang* members.

2. Migration

For most issues relating to migration, the *nambardar* makes the decisions. He will spend a large amount of time and effort (nearly 2 to 3 hours every day) gathering information for making efficient migration decisions. He undertakes scouting trips almost every day on camel or horse back, and for longer-term migration decisions he will make reconnaissance trips further afield. Leaving these general decisions up to the *nambardar* also frees the other shepherds to concentrate on matters that directly relate to the everyday management of the flock.

3. *Ewar* Management

Two sub-classes of decision-making can be distinguished in this group - household decisions about cooking, setting and breaking camp, etc., and decisions about managing the flock - grazing, watering, accounting and so forth. Most of the housekeeping work of cooking and related tasks are done by the women in the *ewar* when they are there. Tasks related to managing the sheep are carried out by shepherds. However, the decisions on all these actions in the *ewar* are ultimately the province of the *mukhiya*.

4. *Dang* Management

Given that the *nambardar* is selected by shepherds to lead the *dang*, it is natural that he should make most of the decisions about managing the *dang*. The various issues in the area of *dang* management can be divided into three categories: the management of people, collective tasks, and security of the camp. The management of people can be taken to include issues such as dispute arbitration, appointing different shepherds for work related to the collective and keeping track of shepherds leaving and joining the *dang*. The actual carrying out of tasks related to the collective such as cooking on festive occasions, taking care of visitors, supervision of expenses from the common fund, may be assigned to ordinary shepherd members of the *dang*.

5. Market Interactions

Decisions in the arena of market interactions are taken by the *nambardar* for the most part, especially when these interactions concern arrangements for selling pastoralists' products. The major decisions in this area are about sale of wool and sheep, and on sheep shearing.

6. External Relations

This last issue area poses the greatest level of uncertainty for the shepherds. Decisions here involve relations with government officials, the legal system, and with the settled population. Shepherds generally have limited information on such issues, while the stakes are very high: wrong decisions can land the entire *dang* in trouble. They can also incur serious financial losses or bring conflict. Correct decisions on the other hand promise no major benefits beyond continued survival. Given the high stakes and the asymmetry between returns and losses, information sharing and collective decision-making in this area is the norm. Out of 12 issues identified in this area, 6 are decided collectively; and for 3 of the other 6, although the *nambardar* makes the final decision, others in the *dang* are closely involved in giving advice to him on what should be done.

Factors influencing the suitability of a decision-making unit

There are three factors that influence the suitability of a decision-making unit in any given situation. The first is the amount of information that the decision-maker has regarding the particular situation. The second is the number of people who will

be positively or adversely affected as a consequence of the decision. Finally, there is the possibility of higher benefits through economies of scale when a decision is made for the entire *dang* rather than for just a single *ewar*. Based on these three factors, we can determine which authority will make decisions for a given issue.

For the three decision-making authorities in the *dang*, it is possible to formulate some general rules about when they will exercise the prerogative of making a decision. When the information needed to make a decision is of a routine nature and easily available, and the number of people affected by the decision are only those within an *ewar*, the *mukhiya* will generally make the decision. There is very little interference in the authority of the *mukhiya* to make decisions for the *ewar* and when there is any interference, there is sound economic reasoning behind it.

When the information needed to make a decision is easily available and when a large number of people in different *ewars* will be affected by the decision the *nambardar* will generally make the decision. He is better informed than any other herder when it comes to matters relating to the entire *dang* or on issues relating to the areas through which the *dang* moves. Such matters can include purchase of goods, sale of pastoral products, choice of the migration route, dealing with bureaucratic rules, and interactions with traders and with outsiders.

When information on decisions to be made is not easily available, but the decisions are of a routine nature (that is, they need to be made often and there is relatively little that is at stake), the *nambardar* will again usually make the decision. In these situations, guesses can be made without too much risk of the guess being wrong. Sometimes it is just necessary that somebody make the decision. It is not important who decides; just that the decision is made.

In cases where neither the *mukhiyas* of the different *ewars*, nor the *nambardar* have sufficient information, where a large number of people or all the people in the *dang* may be affected, and where the possibility of an adverse impact is high, the council of elders in the *dang* is likely to be involved. This serves two purposes. First, it will prevent the responsibility for a wrong decision from being put on any one individual. Second, the council of elders can act as a check on any individual who may try to manipulate uncertain situations to his own advantage.

VI. CONCLUSION

The grazing strategies of Raikas convincingly show the ability of pastoralists to innovate and to adapt their lifestyles and production strategies to changing environmental conditions - conditions that are changing adversely for them; and which are changing for the worse as a result of state policies (increasing areas under irrigation, enclosures of land for providing sanctuaries to wildlife and so forth). Their decision-strategies show that there is little doubt that distribution of decision-making responsibilities in the *dang* is along easily understandable lines, dictated by factors which may well be used by an organization operating under market conditions. In light of this evidence there is little ground to argue that migrant shepherds are irrational, whimsical, or behave in a random manner.

Bibliography

Bates, Daniel G. (1972). "Differential Access to Pasture in a Nomadic Society: The Yörük of Southeastern Turkey". in Perspectives on Nomadism, edited by William Irons and Neville Dyson-Hudson. Leiden: E J Brill.

Center for Science and Environment (CSE) (1985). The State of India's Environment, 1984-85. Center for Science and Environment, New Delhi.

Dyson-Hudson, Neville, (1972). "The Study of Nomads," in Perspectives on Nomadism edited by William Irons and Neville Dyson-Hudson, Leiden: E. J. Brill.

Foundation to Aid Industrial Recovery, (1980). A Study of Migrant Shepherds. Report Submitted to All India Handicrafts Board, Ministry of Commerce, New Delhi.

Halstead, Paul and John O'Shea, eds. (1989). Bad Year Economics: cultural responses to risk and uncertainty. Cambridge: Cambridge University Press.

Hirschman, A. O., (1970). Exit, Voice and Loyalty: Responses to Declines in Firms, Organizations and States. Cambridge: Harvard University Press.

Horowitz, Michael M., (1972). "Ethnic Boundary Maintenance among Pastoralists and Farmers in the Western Sudan (Niger)" in Perspectives on Nomadism edited by William Irons and Neville Dyson-Hudson. Leiden: E J Brill.

Irons, William, (1972). "Variation in Economic Organization: A Comparison of the Pastoral Yomut and the Basseri" in Perspectives on Nomadism edited by William Irons and Neville Dyson-Hudson. Leiden: E J Brill.

Johnson, Douglas L., (1969). The Nature of Nomadism: A Comparative Study of Pastoral Migrations in Southwestern Asia and Northern Africa. Department of Geography, Research Paper No. 118, University of Chicago.

Kavoori, Purnendu S., (1990). Pastoral Transhumance in Western Rajasthan. Institute of Development Studies, B-124, Mangal Marg, Bapu Nagar, Jaipur, India.

Lattimore, O., (1940). Inner Asian Frontiers of China. New York: American Geog. Society.

Monod, Theodore, (1975). "Introduction." in Pastoralism in Tropical Africa, ed. by Theodore Monod, London: Oxford University Press, pp. 99-183.

Niamir, Miryam, (1990). Herders' Decision-making in Natural Resource Management in Arid and Semi-Arid Africa. FAO Forestry Papers.

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