

The Knife Cuts on Both Blades: Redefining property rights in Eastern Oshikoto Region, Namibia

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Preface

This paper forms part of a larger research project on "Privatisation of Rangeland Resources in Northern Namibia", funded by the Overseas Development Administration (UK). The research was carried out by members of the Overseas Development Institute (ODI), London, in association with the Namibian Economic Policy Research Unit (NEPRU). The research project as a whole examines the changing interpretation of land tenure rules in the rangeland area of Oshikoto Region where enclosure is occurring on a large scale. This paper considers some of the observed and potential impacts of these changes on livestock output, natural resource management, and social equity. Subjects not covered here are the legal status of land enclosure, the past role of traditional authorities in land allocation, the numbers and densities of human and livestock populations in the research area, and policy options for the government of Namibia. These and other matters are discussed in other papers of the research project. The views here are the author's own and the author is solely responsible for the interpretation of material presented here.

The issue of private fencing of Namibia's open rangeland areas is controversial and is once again being publicly discussed, following the publication of a draft Communal Land Bill in October 1996. A number of front-page stories have appeared in the newspapers recently (for example in *The Namibian* 25 Oct., 29 Oct., 21 Nov.). Strong views are expressed by the protagonists, although the opinions of those most immediately affected - the livestock farmers in remote parts of northern Namibia - have not yet been widely reported. This paper in some measure gives their views a chance to be aired. It is also important that the views of those involved in enclosing the rangeland be heard, and this paper tries also to do justice to their position. Ultimately, the most useful role of research in this debate is to report as objectively as possible on the situation as witnessed. That is the goal of this paper.

Enclosure of the commons has many historical precedents and few industrial nations have not been subject to this process. Enclosure, for some, evokes a sense that the people's rights have been betrayed, while for others it represents a powerful mechanism for reforming antiquated land use systems while providing a unique opportunity for a few to enrich themselves. Not many people would disagree, however, that enclosure initially produces big winners and big losers. Whether the losses can be justified depends in part on the depth of the historical time through which the process is judged. The people now engaged in the struggle over land rights in Namibia do not have this luxury. Nor can this research provide many answers. One of the measures by which enclosure may be judged is whether enclosing the land leads to any real increase in output. Can a given area of land produce more, and more efficiently (and by implication - support more people) whether privately owned and enclosed, or communally-owned? Not an easy question to answer. The acquisition of evidence to answer this question would require longer research over a period of at least several years. But we can look to studies conducted elsewhere in similar environments (summarised in Behnke and Abel, 1997). These studies tend to show that range enclosure reduces the total output from livestock per land area, *but* that this diminished output is shared between much fewer people who are thus better-off. If true, the policy choices are quite clear, either a minority of people can be permitted to greatly increase their income from the range, while the majority must look elsewhere for their livelihoods, or else the same number of people can be supported on the rangelands but no one can look forward to getting rich quickly.

Field methods

The primary material presented here was obtained over two periods of field work; 3 weeks during the Namibian winter in July - August 1996, and 2 weeks at the end of the dry season in October of the same year. One of these weeks was spent in the village of Okgumbula, 140 km from Oshakati town, in the west of the study area. This site was selected as a starting point as the government councillor for Engodi Constituency resided there, as well as the traditional headman for most of the study area. A further five days were spent at the hamlet at Okangele borehole, a further 54 km east of Okgumbula and in the north centre of the study area. The study area is remote and very undeveloped, traversed only by ungraded sand tracks, and with no commercial or social facilities (e.g. shops, telephones, clinics, fuel stations etc.) to the east of Okgumbula. A week was also spent interviewing key informants in the towns of Ondangwa and Oshakati, on the first field trip. The second field trip began with four days of discussions with informants in the two towns, followed by five days at the borehole of Omboto, some 10 kms further east than Okangele and nearer to the main areas of enclosures in the study area. Three days were then spent camping on a newly-fenced farm next to Onamishu borehole and the field work concluded with two days of interviews with officials in Ondangwa and Oshakati.

The principal method of investigation has been open-ended interviews on the key socio-economic topics of the research. This research did not include collection of any quantitative data, as the overall research plan did not allow for the time necessary to design, carry out and analyse a quantitative survey. Readers who are more comfortable with numerical results are likely to be frustrated by the findings presented here. There is much scope for a longer, more detailed study which would quantify some of the environmental and production variables discussed in this paper.

In the rural areas, interviews were held with headmen of ten different settlements, with herders accompanying their livestock at the water points, with women and men farmers living in the settlements visited, with employed herders on the fenced farms and with herders encountered in the bush along the tracks travelled. In the two towns, interviews were held with government officials in different directorates of the Ministry of Agriculture, Water and Rural Development (MAWRD), with the Ndonga King and his councillors, as well as with the President of the Namibian National Farmers Union and the regional representative of that Union. There was also an opportunity to interview two commercial farmers living adjacent to the study area, in the designated commercial farming area south of the veterinary cordon fence.

In keeping with the conventions of social anthropology, the information provided by informants is not ascribed to any particular individual.

Key informants

Discussions were held with the following key informants, in addition to individual and group interviews at the research sites.

King Eliphaz Kaluma, (Ndonga tribal leader), Ondangwa
Peter Kaluma, Senior Councillor to the King
Tarah Imbili, Senior Councillor to the King
Mathieus Ngipunya, Senior Headman under Wilpard Mwandinge
Dr. Francois Blanc, NOLIDEP Regional Co-ordinator, Ongewdiva
Dr. Edwin Muradzikwa, State Veterinarian, North Central
Ben Namwandi, Chief Animal Health Inspector, Ondangwa

Magdalena Haludilu, Agricultural Extension Technician, Ondangwa
Headmen of the following villages:

Okgumbula, Oshangwe, Ongodi, Ayenda, Okangele,
Omboto, Omutoko, Okanua, Onalusheshete, Oshanashedila
Valde Sheyavali, Councillor for Engodi Constituency, Okgumbula
Mr. Leopoldt, Manager of Meatco, Oshakati
Gert Sachsenheim, livestock farmer south of veterinary cordon fence, Oshivelo
Mr. du Plessis, livestock farmer south of veterinary cordon fence, Oshivelo
Epafras Awala, Chairman of Omahangu Farmers Union (Four Northern Regions) Ondangwa
Gabriel Shihepo, President, Namibia National Farmers Union, Ongwediva
Mr. Rostami, Department of Water Affairs, Oshakati
Kathingo Shikwa, Department of Water Affairs, Oshakati
Isaac Ashipala, Department of Water Affairs, Windhoek
Dr. Ben Fuller, Social Sciences Division, University of Namibia, Windhoek
Dr. Chris Tapscott, University of Western Cape, Cape Town

Acknowledgements

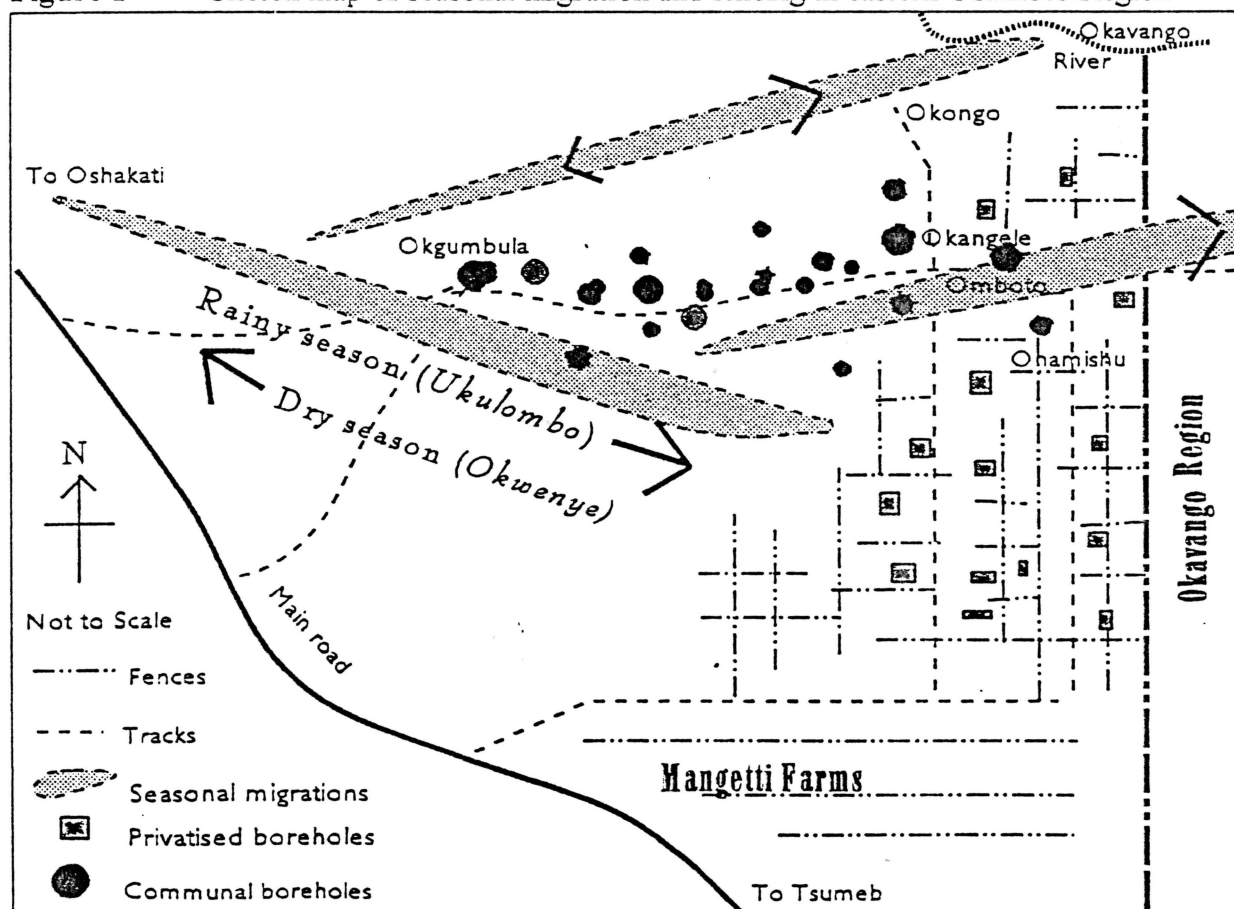
An enthusiastic and capable partner in the field work has been Peter Nakantimba, who acted as interpreter, guide and research assistant. Thanks are also due to Elizabeth Hamunyela and Theobald Ndoloma, who interpreted on the first field trip. Hospitality was extended while camping by Mr. Shetikela at Okangele borehole, Mrs. Josephina at Omboto borehole and Mr. Ndachapo of Okgumbula village. To all those people who spoke with us openly and at length in response to our questions, I am grateful, as well as for the contributions and insights of my research partners: Roy Behnke, Jon Cox and Wolfgang Werner. Very useful comments on the first draft were received from Francois Blanc, Martin Fowler, Ben Fuller and Kit Nicholson.

Seasonal grazing patterns

Eastern Oshikoto and Ohangwena Region (bordering on the Okavango river to the north) have long been areas of temporary dry season grazing for farmers from the more densely settled areas to the west (Krieke 1994). The Owambo people have customarily sent their cattle away from the settled areas after the harvest, to be tended by herders for the entire dry season at different cattle posts (*ohambo*) situated by shallow or deep wells (Williams 1994). During the 1950s and 1960s a number of boreholes were drilled in the area, but many were destroyed or abandoned in the independence struggle. Some settlers also left due to the conflict, but have started coming back to previous settlement sites.

Increasingly graziers are attracted to the thickly-wooded area, following water development programmes since the 1970s culminating in the 1990s with a major programme of borehole installation in eastern Oshikoto initiated by the Government as part of drought relief measures (Groundwater Consulting Services 1994; Dept. of Water Affairs 1995). The new boreholes also attracted the attention of others who saw an opportunity to open up commercial ranches by privatising the rangeland around boreholes. Thus began the competition for grazing and water resources between mobile, subsistence-oriented livestock farmers from the west and north, and town-based commercialising ranch-owners.

Figure 1 Sketch map of seasonal migration and fencing in eastern Oshikoto Region



Livestock kept by villagers in the western settled areas are grazed on a pattern of transhumance (see Fig. 1). Migratory herds combine the cattle from several close relations (often brothers) and

are herded over distances of several hundred kilometres for at least half the year - often longer. This is essentially an elongated grazing rotation, since herders try to move their herds to fresh pastures as frequently as possible. Mobility is partially determined by the availability of water in the dry season. The basis of transhumance by Kwanyama herders is described by Kreike as based on "the free movement of cattle across space, sometimes over great distances and across ecological, ethnic and even national boundaries to make maximum use of the ecological diversity of the region" (1994: 2).

The direction and intensity of seasonal grazing movements has been altered in the past several decades. Currently, herders are having to make further adjustments due to the growing presence of enclosed ranches in former open access grazing areas. Up until the late 1940s, Kwanyama herders regularly took their cattle across the Okavango River during the dry season to graze in Angola, using land belonging to the same ethnic group (Kreike 1994; Fuller and Turner 1995), where water could be obtained from the river and the grass was plentiful. But this migration path has been hindered in recent years by lawlessness in Angola, and herders began to take their cattle southeast and eastwards into open land with no permanent settlements.

Not all livestock are taken on transhumance. Generally, the immature cattle (*omitanda*) and goats remain at the settlements, while oxen and mature milk cows are moved to the better grazing areas away from settlements. The immatures are left behind as they can get lost more easily in the bush, while oxen and cows, being prized, must receive the best grazing and are sent on transhumance.

The cycle of livestock movement starts with the move eastwards after the harvest when livestock have consumed most of the stubble from grain fields, and natural ponds (*endombe*) are beginning to dry up (see Fig. 1). This is the dry season - *okwenye* - from about June to November, and the cattle are moved slowly eastwards by groups of young men (*amati*), grazing new pastures as they move. This process of movement is termed *onthanda*. Water in the dry season is taken from wells or increasingly, from boreholes.

Once the rainy season (*ukulombo*) begins, some of the milk cows will be brought back westwards to the villages, provided there is sufficient grazing, in order that families can have the benefit of the milk. Plough oxen must also be returned to the villages as cultivation takes place at this time. But the bulk of the oxen and milk cows may remain at the cattle posts throughout most of the rainy season, and return only briefly to the villages for the following season, *ukufu*, the time of harvest from April to July. The cattle are brought back home at this season in order to manure the fields and feed off the post-harvest stubble, while the herdboys are re-united with their families and all enjoy the period of relative plenty.

There is also some north-south transhumance, on a smaller scale, and centred around the new boreholes dotted along the main west-east road (see Fig. 1). Very few cattle are sent to graze in the areas south of Okgumbula as the soil is described as very sandy (*etofa*) and cannot hold water even in the rainy season. There are only a few deep wells which provide water for cattle in the dry season, in the southern zone.

The length and direction of transhumance is determined by the quantity of grazing available. Following a good rainy season, cattle are kept around the settlements for longer after the harvest, before being sent off to the cattle post zones. Similarly, cattle may be brought back earlier from the cattle posts to the villages if there is ample green forage early on in the rainy season. If,

however, the rains are poor, a herdowner may have to send his cattle further afield to find sufficient pasture.

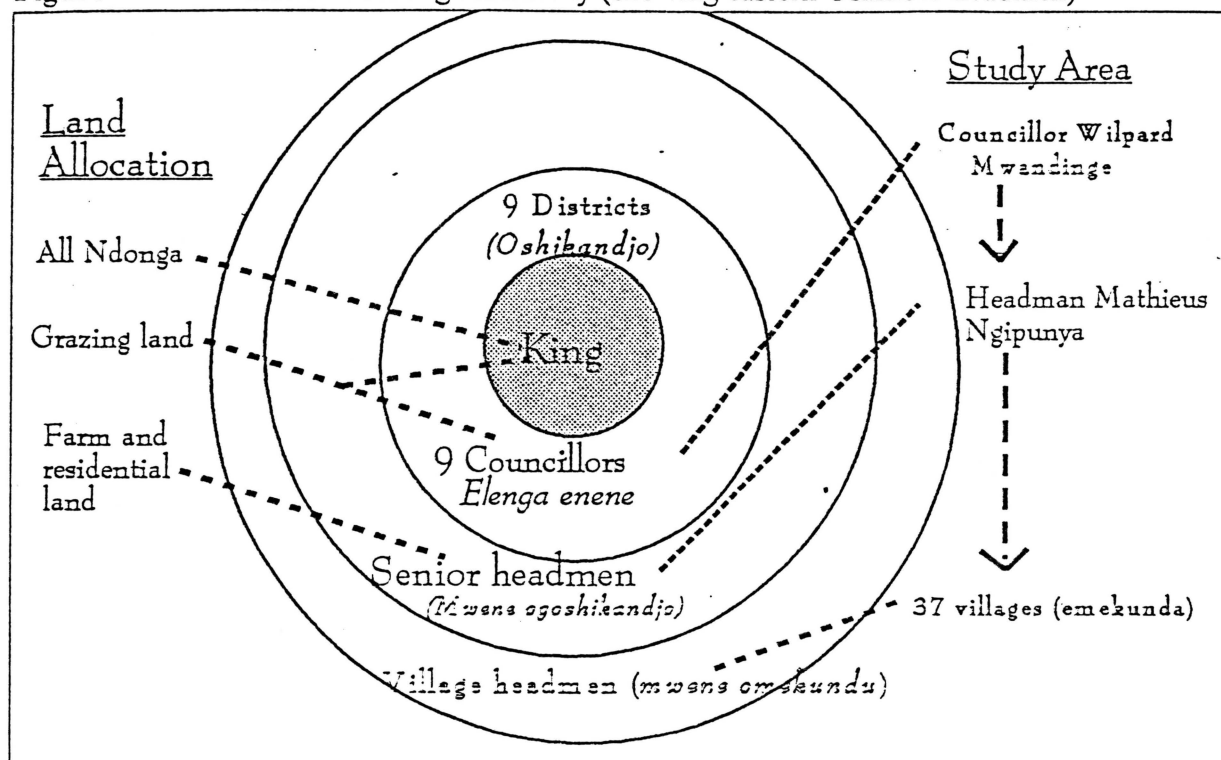
How far away and how long cattle can be herded at cattle posts depends also on the labour a family has available, and the number of cattle. A family with no young men willing to herd or a family with few cattle will not send their cattle far. But a relatively large cattle-owner will divide his herd into several groups to graze in a different direction, each under the care of a young male relative (typically a son, grandson or mother's brother's son - the latter under the matrilineal kinship system being a man's heir).

The patterns of movement and settlement in Oshikoto Region are propelled by the search for good pasture and water, and are a response to increasing population pressure in the *oshana* (flood plain) farming area to the west of the study area. Both for people moving through with their cattle or settling in to farm, access and use of natural resources has been governed by customary regulations, now changing, which are summarised next.

Customary practices relating to land and water property rights

The Oshikoto region lies within the Owambo tribal leadership of the Ndonga-speaking peoples. The Ndonga king, Eliphas Kaluma, resides at his palace near Ondangwa, and presides over a council of senior headmen or councillors (*elenga enene* sg. ; *omalenga* pl.), who have jurisdiction over land allocation as well as other matters of customary law within Oshikoto region (see Fig. 2). According to Williams (1994), this political structure is embedded in the past, although the present-day form is attenuated. The traditional leaders are the *omalenga* (councillors), while recently (according to Malan 1995) a lower level of sub-headmen has been added to the hierarchy. The Ndonga area is divided into nine senior headmanships or districts, (*oshikanjo* in Oshindonga; *lyoshitopulua* in Oshikwanyama language) of which four are located within Oshikoto region. The study area falls within the jurisdiction of a traditional sub-headman, Mathieus Nghipunya, who resides at Ohamuteya village adjacent to Ogekumbula village. Mathieus is responsible for 37 villages (*emekunda*) and their village headmen (*mwene omekundu*), stretching all the way to the east up to the Okavango border. He reports to the traditional senior headman (King's councillor) for the district within which the study area falls, who is Wilpard Mwandinge, residing at Amuteya village. The traditional sub-headmen are selected by the traditional Ndonga councillors and report through them to the King.

Figure 2 Traditional Ndonga hierarchy (showing eastern Oshikoto headmen)



Although the study area lies within the traditional jurisdiction of the Ndonga and continues to be the most important Ndonga grazing area, for some decades people from a neighbouring tribe to the north, the Kwanyama, have been using the area as a grazing resource and are increasingly being given permission by Ndonga traditional authorities to settle within the area (see also Fuller et al. 1996). Pragmatic considerations mean that in-migrants from other tribal areas usually take on a local identity. As one old man who had moved into the area put it, "I myself am Kwanyama but now I am Ndonga as this is Ndonga land".

Land allocation is administered according to the type of usage, state present-day informants. With regards to grazing land, a senior headman cannot give permission for an area to be used as grazing, as it belongs to the traditional authority as a corporate body. A senior headman may only allocate land to be used for cropping and residence. The matter of fencing will be discussed below.

The process of land allocation was described by various informants as follows. The first stage of moving into a new area occurs when cattle are herded seasonally by young men and boys at the *ohambo* (cattle post). A cattle post may have some basic wooden shelters for sleeping. Since seasonal cattle herding is migratory, such that cattle are being moved to different grazing areas within walking distance of a water point, herders may sleep in the open or at relatives' cattle posts en route. One of the distinguishing features of a grazing area is that no one has had to pay an "occupation fee" to be allowed to graze their cattle there (in contrast to land opened up for farming and settlement).

Once a head of a family decides to construct a homestead (*ewumbo*) and begin farming at a cattle post, he must first "survey" the area and talk to his prospective neighbours, to determine whether there is enough space for his cattle to graze and whether he would be accepted by the existing settlers. He must then approach the sub-*elanga enene* to make his request and to pay a fee. There

are two stages to securing such tenure rights; the first stage is *ukuawonda onele* (engagement fee), and the amount varies according to the size and quality of the grazing around the settlement site. The maximum fee is said (by senior headmen) to be below Namibian dollars 1000¹, which can be paid in the form of a cow or in cash. When a head of a homestead dies, it is the responsibility of the senior headman to report this to the King, as the land formerly allocated to the man now deceased reverts back to the traditional authorities who can re-allocate it to another family, on payment of another fee to the King through the senior headman.

Grazing land on which no settlement has been erected is handled differently. Since unsettled land by definition still belongs to the tribal authorities, they state that it is within their purview to allocate individuals the right to graze animals in a particular area. Generally, reciprocal rights of access prevail on grazing land within Oshikoto Region. Settlements do not have exclusive rights over the open grazing areas in their vicinity, but usage of grazing land is controlled *de facto* through the ownership and control over water points, especially in the dry season (see also Krieke, 1994).

In the long dry season, the only natural source of water for livestock from Oshikoto region is the Okavango river in the Kavango Region. Otherwise, livestock must be watered from man-made water points, of which several types exist in Oshikoto. Older records note that the "owner" of a cattle post (*omwene wohambo*) was the lead herder during transhumance, and would usually be the person who dug or developed a water point at a grazing area (Krieke 1994). Once a water point was developed, the position of "owner of a cattle post" could also be inherited. But the right of ownership could not be exchanged or sold, only inherited. Whoever controls these water points has some measure of control over the grazing area within a two-days walk (by cattle) to the water point, that being the minimum watering frequency for cattle at the end of the dry season.

Hand-dug wells were, until the post-independence period, the primary source of water in the dry season. Shallow pits (*omatambi; etambi* pl.) are dug down to a depth of about 3-4 m to reach the water table. Deep wells (*ondungu*) are lined with mud bricks, and their depth may extend to 30 m. (Other types of shallow wells are termed *omatope; etope* pl.). These wells were valuable resources in an otherwise waterless land, and those who constructed them were considered as their owners, and had to give permission before any one else could use them. This permission was given on a reciprocal basis. In the eastern part of Oshikoto, (the study area), where soils are described as water-holding, individual herding units had dug *omathima* (shallow wells) which were protected with thorn bush fences. These wells formed an essential nucleus around which cattle could be moved over the course of the long dry season. Although individual property, these wells constituted a network which allowed herd mobility - as one herder explained:

"These four wells [which he dug] are not close to each other. They are for my cattle, but I can help other cattle owners who are passing through, to use my wells for water, as I will need help from others while I am in transit".

It is not clear whether those individuals who constructed hand-dug wells had to make a payment to the *elenga enene* in return for gaining exclusive water rights, as claimed by some of the officers in the Department of Water Affairs as the reason why some boreholes later sited at traditional well points have been privatised. However, no informants in the study area ever mentioned having paid a "fee" to traditional authorities for the right to build a well. This is a point we shall return to later.

¹ Exchange rate (late 1996): 4.6 Namibian dollars = 1 US dollar.

Further information on customary rules pertaining to water rights is given in the paper by Werner (1997).

Construction of a well is not only a means to establish claims over surrounding land, but also to establish local political authority. To the west of the study area, settlement began earlier than in the study area (some two decades ago) and was based around hand-dug wells which had been made by one of the pioneering settlers. Typically the settler who made the well or wells became the village headman (*mwene omukunda*). Over time, a vigorous headman and his family may attract enough settlers to warrant a primary school, a government borehole and later on, even a shop. With the addition of each facility, the headman's status increases and his local power is consolidated.

Provision of a government borehole (*imbola* is the local term, a corruption of "bore") is a significant shift of scale in water availability compared to hand-dug wells. As many more livestock can be watered from a single site, the productive value of grazing land surrounding a new borehole changes dramatically. This leads to changes in the management of grazing land accessible from the borehole. If a borehole has been sited in a pre-existing settlement, the village headman and his family are usually in the best position to co-opt this precious new resource. In some cases this has led to personal enrichment, as discussed below in the section on borehole privatisation.

In sum, both the rights to allocate and to use land vary according to the type of land. Allocation privileges are hierarchically determined, following the rank of traditional authorities. Property rights over land and water which have not been delegated to lower authorities remain vested with the tribe as a whole, represented by the King. Thus the residual right to land not previously allocated - which constitutes the open land used for grazing - lies with the central authority. The degree of exclusive control maintained by an individual depends on the function of the land. There is a gradient of exclusive rights from residence (most exclusive) through farming to grazing land (non-exclusive). This study is concerned with the re-interpretation of these rights and usages by traditional authorities and by individuals. Political and legal shifts at the national level (see Werner 1996) have allowed a re-interpretation of customary property rights which is underpinning the contemporary movement to enclose land and privatise water sources in eastern Oshikoto region.

The enclosure of open rangeland and privatisation of boreholes

Enclosure of land

The customary rights to move livestock over grazing land were not constrained by any traditional authority, but only by access to water. Membership of the Ndonga tribe was sufficient for an individual to be able to take his cattle to a grazing area. Members of other tribes (particularly Kwanyama to the north) could also graze their cattle in the study area, with permission from the Ndonga authorities.

But grazing areas are only worth using if water is available. Thus rights to use a water point had to be negotiated on a reciprocal basis with the individual owning the water source. However, an exception has arisen to the principle of reciprocal access rights, in the form of fenced grazing land on which exclusive access prevails. Over the past decade or more (Holme and Kooiman 1994; Fuller et al. 1996), large open areas of Oshikoto Region have been enclosed by wire fences, termed locally *ondhalate*. Enclosure of Owambo tribal grazing land by fencing is said to have first occurred in the late 1970s (Tapscott and Hangula 1994). The precedent had already been

established when the colonial government created private fenced farms in the Mangetti area within the southern portion of then Owamboland (Werner, 1997).

According to customary practice, as articulated by the Ndonga King and his councillors, such parcels of land intended to be enclosed can only be allocated by the traditional Ndonga Council. Neither individual councillors (*elenga enene*) responsible for a traditional district nor headmen have the authority to allocate blocks of grazing land for fencing (see Fig. 2). The procedure for obtaining permission to fence an area is described by the councillors and the King as follows. The applicant first approaches the councillor for the traditional district in which the land lies, referring to the local name by which a grazing area is known. The councillor then takes up the matter at the King's Council, which in considering the request, applies certain criteria; namely, citizenship, the character and background of the person, and whether the applicant "already has many other grazing areas, as otherwise one person may end up with many grazing areas". The maximum size of a parcel for which fencing is permitted is 6 km on each side, that is 36 sq. km. or 3,600 ha. The Council normally demarcates the area (details are not available on how this is done), but councillors admit that sometimes the area fenced by an individual exceeds the allocated area.

Disputes arise between applicants as to where boundaries should lie, and the King's council has to settle the dispute. Fees are paid by the applicant to the councillor who is in charge of the district (*oshikanjo*) but no rates could be established. Granting the right to fence does not confer inalienable ownership to the applicant. If a fence-owner wants to leave, or dies, the land reverts back to the traditional authority, (as in the case of arable land), which can grant the parcel of fenced land to some one else. According to the traditional councillors this has not yet occurred. How the value of capital improvements (notably, fencing and sinking of private boreholes) would be calculated into this transfer could not be determined. Cases of transfer were encountered, however, in which one owner had transferred his fenced land to another person. No further details could be obtained. The process of land allocation, transfer between individuals and/or reversion to traditional authorities underlies the issue of transforming property rights, but is obscured by the fact that the process is not subject to public scrutiny. More lengthy field research would be required to understand this process thoroughly.

The senior traditional authorities defend this new form of property rights (fencing tribal land for private ranches) on several grounds, which can be summed up as redressing historical imbalances on the one hand and improved livestock husbandry and commercialisation on the other hand. The first justification is outlined below, while the second line of argument, that of improving husbandry, is discussed later under the section on commercialisation.

At the heart of the argument about redressing past injustices is a rejection of the division made by previous governments between commercial and communal land. These divisions entailed differences in the ways each type of land could be used for livestock-raising. As one senior traditional leader remarked:

"If we cannot get commercial farms, then we will make them in the so-called communal areas. Why should we call them 'communal areas'? Those people who are now in the commercial areas, those areas used to be communal areas".

There is an implication that double standards are being applied; other groups (European settlers) have in the past turned communal land into private ranches, but this method of farming is now denied to indigenous Namibians in the northern areas. The Ndonga traditional councillors also

point out that since Independence, many people in the north are simply fencing without permission from the tribal authorities, on the grounds that they fought for the land, that the government owns the land, that "land is a natural thing" and that according to the Namibian Constitution, every one has the right to settle "where he wants".

Other traditional councillors explain that people got the idea of fencing by looking beyond the Red Line (veterinary cordon fence). A well-placed urban individual, representing northern farmers, remarked that: "All communal farmers aim someday to come commercial but they can't afford to, while the Red Line is there". The argument runs that, due to the high price and relative scarcity of freehold farms for sale in the areas south of the veterinary cordon fence, (Red Line), fencing in the northern communal area is justified. The only alternative for aspiring commercial farmers in the north, according to one spokesman is: "to try and develop our small places which we have now. This is why the fences are coming up". Another perspective on this argument is that acquisition of land in the communal areas is relatively cheap (involving only an application fee payable to traditional authorities), as compared to the purchase prices of freehold land in the so-called "Commercial" areas south of the veterinary cordon (Tapscott and Hangula 1994).

A parallel and related trend of fencing grazing land around villages is also occurring in Oshikoto Region. This trend has arisen following the installation of more government boreholes since Independence. Once many non-resident herds are able to water at a new borehole, a serious repercussion for those settled around the new borehole is the depletion of pasture for their own animals. For this reason some headmen and other better-off families around a borehole have constructed private enclosures, in the past 2-4 years. The enclosures are fenced with wire in order to preserve some grazing for resident livestock (including goats) against the onslaught of hundreds and even thousands of other livestock that daily pass through the village environs to reach the boreholes. These new grazing reserves have their basis in a traditional form of land use, known as *ekove*, in which calves, sick animals and others requiring special attention were kept in areas adjacent to the homestead, fenced in by thorn bushes (a form of fencing called *ongumbu*), while the main herd of cattle were sent out to graze in the open. Those who have raised wire fences on the routes used by cattle to reach boreholes have typically enlarged their previous areas of bush-fenced *ekove*. The reason stated is that the new wire fences preserve grazing as well as providing better protection for crops against marauding cattle.

The new bigger, wire-fenced *ekove* do not compare in scale to the privatised fenced farms (*ofarama*; corruption of Afrikaans). The former have an area of only tens of hectares, (although no accurate measurements were taken) as compared to the thousands of hectares contained within an *ofarama*. Nevertheless, local people comment that the smaller fenced areas began appearing after the large farms, as villagers who could afford to, realised they could also claim and protect larger areas of grazing.

It is clear that traditional and new elites have undertaken an intentional redefinition of customary property rights over land. They claim it is their prerogative to do so, that these new property rights are necessary for modern livestock husbandry, and that it is an avenue open to them to rectify historical injustices. They recognise and regret that not everyone can take advantage of the new form of property. Summing up on this last point, a Councillor noted "We know that those who cannot afford to fence have the will but not the resources....But people have got the idea of fencing from the commercial farms [to the south] even though the area here is small and not everyone can be accommodated". The outside observer has the impression that a game of bluff is being played out, in which frustrated elites are signalling to the new government that if they do

not get cheap land in the commercial areas, they will take what they want in the communal areas, and challenge the government to prevent them.

This redefinition of landed property rights has profound implications for the productivity of livestock husbandry on the remaining open ranges, on the lives of ordinary livestock keepers, and on the land use and ecology of rangelands. But before these impacts can be outlined, there is another change in property rights which is associated with the new land privatisation.

Borehole privatisation

Under customary law, the first rights to water are assigned to the individual who develops the water source, as noted above (see also Werner, 1997). In the case of government-installed boreholes in eastern Oshikoto, the ownership rights were supposed to remain with the government, which undertook to maintain the boreholes. Management of new boreholes was supposed to be delegated by the Dept. of Water Affairs to an individual resident near the borehole, who, in some way selected by families around, was to take responsibility for the borehole. This individual was then given the key to the pump engine, and he or his designated representative given some brief instructions on operating the borehole. Since very few permanent settlements existed east of Okgumbula prior to the installation of boreholes, and the people found in the area were likely to be migrating through with their cattle, it is difficult to imagine how the process of selection was accomplished. It is hardly surprising that in a number of instances, disputes have arisen locally over who should be the official "key holder" of the borehole. Thus rights of control over boreholes do not always conform to official intentions (on the same point, see Hovey 1997 in the case of Kunene Region).

These somewhat ambiguous circumstances have led to two forms of borehole privatisation taking place; the first by nearby headmen, and the second by non-resident entrepreneurs. There are several cases in eastern Oshikoto where village headmen have constructed private fences around a new borehole and begun charging other borehole users. In 1995, herders were "chased away" from the borehole at Okatope as the local headman had started enclosing it with a fence. The same is occurring at Omtoko borehole and to a solar borehole at Omtwewashambundu. Exact charges demanded by headmen to allow others to obtain water from a newly-enclosed borehole were difficult to establish, but include payment in diesel and engine oil.

The creation of dominant (if not exclusive) property rights in such cases depends on clever social manipulation by the headman. It would not usually be in a headman's interests to block all other users - their contributions of diesel and money help to keep the borehole running, and a headman must also be seen to be socially responsible.

The second form of privatisation, of government boreholes by town-based entrepreneurs has been far more common. According to local headmen and herders in the study area, a number of government boreholes situated on open land have been subsequently enclosed by a privately-owned fence, particularly since 1994. This followed the drilling of 18 boreholes under the Ovambo Water for Grazing Programme scheme², financed by the Government of Namibia. The

² According to the report on the results, "it was found that areas within eastern Ohangwena and Oshikoto regions had substantial grazing potential" and these new boreholes were to "supply the agricultural needs of the rural population" (Groundwater Consultants 1994: vol. 1:1).

practice is also noted by the Dept. of Water Affairs; "It frequently occurs that some big stock owners, often Government employees informed in advance of the drilling programs, usually non resident in the concerned area, fence lands nearby the future borehole location" (Dept. of Water Affairs, 1995: 46).

Within the study area, by now most of the government boreholes north and south of Onamishu have been enclosed by private fencing, with the exception of one borehole and that is effectively controlled by a farm owner whose farm is adjacent to the borehole. A survey of this area in 1994 noted that most of it was "fenced off property" (Groundwater Consultants 1994). Onamishu is an area of traditional hand-dug wells which used to be a key resource for mobile herds using the surrounding cattle posts. A herder states that;

"Onamishu used to be a huge area for grazing, now everywhere you look there are fences, to the east, everywhere, so there's no grazing left, only the [traditional] wells at Onamishu. To the south, there is a borehole at Oshanashamonde, which has been fenced around, and south again another borehole, fenced. Therefore if I go with my cattle along there I may get water but if my cattle get inside the fence I'll be hit by the people there; then I may shoot them". [This herder was carrying a gun].

Headmen around relate that as soon as the government installed boreholes all around this area some 2-3 years ago (1993-94), "everyone else cleverly rushed to fence his own farm around the borehole". The few remaining open-access boreholes are now in the process of being "privatised".

A description of how this process happens was provided by the young herders of a livestock-owner who was planning to fence an area around Oshivambe borehole, near the boundary with Okavango Region in an area called Emania. The owner in question, described as a businessman who owned bottle stores and cattle, already had a ranch on the Mangetti farms. Three years ago he decided to expand his enterprise, by moving some cattle north from his Mangetti farm, which was becoming over-stocked, thereby allowing room for herd growth. He brought three of his employees (the young herders) to take care of the cattle, and they relocated around the newly-constructed government borehole. This area, Emania, had been used as a cattle post area, since it contained hand-dug wells. Once the large cattle owner's livestock moved in, the cattle post herders could no longer make use of the government borehole, which will shortly be fenced around by the businessman.

One of the avenues for gaining exclusive rights over a government borehole is through providing fuel. Fuel is one of the most important resources in a livestock production system located in a remote area and largely dependent upon mechanically-obtained water supplies. Access to fuel depends in turn on access to transport. The Dept. of Water Affairs does not provide for or pay for transporting fuel from the depot in Oshikati to the rural boreholes under its control. In some cases where boreholes have been privatised, it is possible that the fuel is still given freely by the Dept. of Water Affairs in Oshikati³. This is the only point in the North Central Region where the government distributes free fuel for boreholes. Some of the communities centred around open-access boreholes in eastern Oshikoto have become dependent upon the better-off private farmers,

³ A Dept. of Water Affairs list of boreholes which receive free fuel and servicing includes a number of borehole sites north of the Mangetti Farms which have been enclosed and are being managed as private concerns by the fenced farm owners. Government-maintained boreholes are allocated one 210 litre drum of diesel per month.

who through their ownership of a vehicle, can, in addition to supplying their own boreholes, supply fuel for those boreholes still managed communally. It is possible that, over time, the transport and farm-owner would gradually take over the management of a borehole, since its operation was dependent on his fuel provision.

Once privatised, boreholes can provide not only a secure water supply for one's own livestock but an additional source of income. Herders who formerly could rely on traditional wells or contribute towards the fuel costs of a communal borehole now must pay more to water their livestock from privatised boreholes. Whether a privatised borehole is exclusively used by the livestock belonging to a fenced farm owner or whether open-range users have access is very much up to the individual farm-owner. Some farm owners allow livestock from surrounding cattle-posts to be watered, but the herders must provide diesel - a typical rate was 25 litres of diesel to water one herd of cattle for a week. Cash or livestock are acceptable as "payment" also. Some herders cite a rate of N\$100 per day to be allowed to water cattle at a private borehole while on route between grazing areas. Other herders note that certain boreholes have more lenient controls, where the farm employees allow neighbouring livestock-owners access to the water even if they cannot pay immediately.

One larger herd-owner, not a farm-owner, had to "pay" one cow per season to a farm-owner to be able to water his cattle at a privatised borehole. The herd-owner, a well-respected senior headman, elaborated:

"The Government built boreholes there [in eastern Oshikoto] in 1993 and after. These were built for the community, who are supposed to pay for the cost of transporting fuel. But to get water now from these boreholes a cow must be given to those who have the key of the borehole. Those people have taken the boreholes as their own, so we have to be humble now to ask for watering at these boreholes, as they have been 'privatised' by the businessmen. Since the Government made these boreholes, the businessmen just supply their own fuel and charge others for the use of the water".

Another version of this process, given by some officials in town, is that individuals are able to buy wells (existing) from the Chief. When the Government started a programme of borehole drilling (contracted out) in 1993, the boreholes were sited without knowledge of where these individual rights over wells pertained. Therefore when an individual who had bought the rights to a well found a borehole drilled on his well site, he fenced around the borehole and claimed it as his own. It was not possible in the field research to verify this practice of buying well-rights from the tribal authorities.

In the case of privatisation of a government borehole at Okatope, another headman recounted the following:

"Last year [1995] at the government borehole at Okatope, when the cattle herders arrived there they saw a notice that anyone who wants to use this borehole must provide their own diesel and engine oil. The people complained to all the nearby village headmen...who took the matter to Okongo, to officers at Water Affairs. In any community there are rich, richer, richest; close to this borehole is a man working at the diamond mines in Oranjemund, who wants to privatise this borehole. The headmen were not successful...if you are having a fight and your opponent has more weapons than you will lose".

Before this borehole was "invaded", the same headman went on, there were wells at Okatope made by the people. Says the headman,

"Now when Water Affairs started up the boreholes, these people taking care of cattle in the bush were just peering at the new boreholes but not stepping forward to claim them, until the clever one like the man from Oranjemund grabbed the borehole".

The issue of property rights over government boreholes which have been enclosed and thus privatised - that is, removed from general or reciprocal access - lies at the very heart of our study, but inevitably, the facts of the matter are indistinct. In one sense, the property rights in these cases lie within two separate jurisdictions - the traditional Ndonga council has allocated rights to fence grazing land, while many of the areas fenced contain boreholes which are government property, belonging to the Department of Water Affairs. This lack of overlapping property rights may be convenient for the involved parties, since each authority can claim to be acting correctly within its own jurisdiction. The traditional leaders are entitled to allocate land, and the government is entitled to install boreholes. It is perhaps just a co-incidence when both fenced land and boreholes are associated. The possibility of collusion does exist, though.

Effects of enclosures

The most severe effect of the new enclosed ranches (*ofarama*) is to block access to water points and the pasture surrounding those points in the eastern portion of Oshikoto Region. Although fenced farms were earlier established in the southwestern part of the region, adjacent to and northwards from the Mangetti Farms in the 1970s and 1980s (Fig. 1), those fenced areas have not had much impact on seasonal grazing movements. This area was not favoured for grazing, due to the type of soil which will not retain water in the dry season.

The eastern part of the region is by contrast an important grazing area since in addition to good vegetation resources, there were reliable water points in the past. The soil of eastern Oshikoto is described by local herders as more red and supporting certain preferred grasses "which make cattle fat". Access to this zone has now been curtailed with the erection of fenced farms over the past 3-5 years, and ordinary herders find themselves increasingly constrained in the choice of where to graze their cattle in the dry season.

The new fenced farms affect seasonal grazing in several ways. As a greater proportion of open land is enclosed, the land which remains is less and less sufficient to support the livestock population. Secondly, as water resources are expropriated through privatisation of well-sites⁴ or boreholes cattle from surrounding cattle posts or in transit have much restricted access to water. Thirdly, herd-owners are fined, or punished (some say violently) if and when their cattle stray onto fenced farms. This is a common complaint, and herders are eloquent on this point. It is conceivable that some herders allow their cattle to encroach onto *ofarama*, to eat the retained grass which is no longer found in the open rangeland areas adjacent to the farms. Fourthly, the fences are blocking access to more distant grazing areas.

⁴ The following well sites were said by a number of local headmen to have been enclosed and privatised over the past couple of years: Onalushetete, Elavi, Epanya, Omungu, Okatope, Okolo.

As noted above, access to grazing land is largely contingent upon access to water in the dry season. In the rainy season, the relative abundance of pasture and water reduces the pressure for herders to closely define property rights. In the dry season, as often stated by herdsman, "it's impossible for the cattle to enjoy the grass without water". Thus any one, whether a village headman or a businessman having "purchased" a parcel of land for fencing, who gains exclusive rights to a borehole can in effect limit the number of cattle grazing the vicinity simply by restricting access to the borehole. It becomes apparent that in the first instance fencing is less about grazing control than about controlling access to water, the most limited resource.⁵

Charges are imposed by some owners of privatised boreholes, while other owners do not permit outsiders to water their cattle at the boreholes. If cattle stray inside the fences or are perhaps deliberately herded into the fenced areas, fines are exacted and sometimes physical violence occurs. In situations where a new *ofarama* has not been fenced around a pre-existing borehole, the *ofarama* owners can still govern use of the borehole as their on-site employees retain the pump key, drive belt or other essential part. These tactics allow exclusive control to be gained over the resource.

Reaction to fenced farms and privatised boreholes

The combined effect of these changes is that communal area cattle either have to graze on a much smaller area of land, or else a vent must be found for the pressure resulting from enclosures. A headman summarises their dilemma thus: "We now have very great difficulties getting grazing; there is no place now as our cattle may stray onto the *ofarama* and we cannot enter the farms to retrieve them".

One response by many herd owners to the appearance of fenced farms has been to send their cattle further east over the regional boundary and into Okavango Region. There the grazing land falls under the traditional jurisdiction of another tribal authority, but as one headman said: "The villagers' land [in the study area] has no more forest [uncultivated open bush/trees] so we have to move to Okavango for grazing, although it is not our land, as our own grazing land is now occupied by these *ofarama*".

Several local headman related that peoples of eastern Oshikoto had started taking their cattle across to Okavango areas about ten years ago, but only when the rains in Oshikoto were not good. Reciprocal agreements were made between the Owambo migrants bringing their cattle and the resident Okavango peoples - these agreements often involved Owambo providing labour to dig deep wells, in return for being permitted to graze cattle on Okavango land.

But the occasional emergency use of Kavango grazing land became a regular occurrence once the new fenced farms enclosed grazing and water in eastern Oshikoto. This release for the mounting pressure is unlikely to remain. Headmen and elders in the villages of eastern Oshikoto have been warned by the traditional leaders of Okavango that they cannot continue taking their cattle there every dry season. According to one headman:

"The King of Kavango is trying to chase us away as he says, 'Do we think the Kavango [people] have no cattle of their own?'. He is really very annoyed and has given a strong

⁵ This is in contrast to the conclusion reached by Fuller et al. (1996) that the new commercial farmers are fencing "in order to maintain control over the grazing resources" (p. 9).

warning that after this next rainy season, he does not want to see any hoof of Owambo cattle in his area”.

The young men who herd the cattle moving across to Okavango also note that they are no longer welcome there, and have been told by local residents that “they are not needed in the Kavango communities any more”.

Access to the Kavango grazing areas is also being restricted by the new farms which block the east-west migration routes. Herders trying to take their cattle through are prevented from watering at the privatised boreholes, even if they are willing to pay, because:

“as so many cattle are moving eastwards to Okavango, if the farm owners allowed even one herder to use the water, everyone else would demand it - in the fenced areas to the east, the owners don’t even want to see your cattle moving through so definitely you can’t ask for permission to water”.

Denial of access to the Kavango grazing lands, combined with the enclosing of rangeland in eastern Oshikoto, is already having a discernable impact on the grazing land and water points that remain under communal control. Headmen complain that cattle are being squeezed between the new farms and the Kavango boundary, and liken this to an Owambo proverb of being between two blades of a traditional double-bladed knife (referred to in the title of this paper). If you move to one side (Kavango) you will be cut by that blade, and moving to the other side (the *ofarama*) you will be cut by the other blade.

The immediate effect of this squeeze is being borne by the villages of Okangele, Omboto and Omotoko (see Figure 1). These villages have government-supported boreholes that still operate (in contrast to neighbouring villages where boreholes are either now privatised or have been broken for many months). The functioning boreholes are attracting all the cattle which are now blocked by fences from grazing to the south and east. This concentration of cattle onto ever-smaller open rangelands centred on communal boreholes is a backwash effect. With the former seasonal flow of cattle from west to east now largely impeded, the mass of cattle are being turned back westwards and exerting inordinate pressure on the few remaining open access areas.

Faced with diminishing grazing resources, some local people are beginning to feel desperate. They point out that those who are making fenced farms are taking away all the grazing land. One headman says: “The government is not looking carefully at the whole issue. The people are also human beings - those who make the fences now treat the people around like animals, not as though they are human”. Another headman in the affected area, whose own wells have been expropriated by one of the commercialising farmers, remarks that the fenced farms are not good for the nation, as one cattle post area can support up to 30 households, while one new *ofarama* can only support one household.

In the Onamishu area a young herder commented that:

“The fences are penetrating more and more, day by day, so people don’t know where they are going to get grazing any more. The Government should look on both sides, to think about the poor people who don’t have money to make fences, and should limit the area of enclosing. People may otherwise find the fences coming around their houses and they are asked to leave.”

The people feel that they have no recourse when confronted with a fence and expropriation of land or wells. The only authorities with which the local populace are familiar are the traditional tribal leaders. As the permission to enclose is granted and upheld by these very authorities, the headmen and cattle owners point out that their complaints have little chance of redress. In specific cases where cattle have strayed into fenced areas, it is claimed that the farm employees impose punishments on the cattle owners. When the owners in turn protest to the senior headmen, they are told they are at fault for allowing their animals to trespass onto the farms. It seems clear that the traditional leaders are prepared to uphold exclusive property rights over fenced farms, at the cost of communal access.

Another channel of redress might be the Local Government (not the traditional) elected Councillor for the area, who resides in Okgumbula. But according to local people, he never visits the far eastern part of Oshikoto where the fencing problem is most acute. In fact, people say that no one from the government visits their area. Others state that the Local Government Councillor is concerned with food distribution and drought relief and is not the proper authority on matters of land. The general feeling of helplessness is summed up by one headman; "Even though local people want action about the fences, we are not part of the government, so who will answer us?"

Opposition to the fencing is widely expressed. One of the intermediate traditional headmen was opposed to the excessive size and extent of the new farms, which he noted were only being allocated to urban businessmen who could afford the transaction fees and capital development costs. He pointed out that grazing land was being taken away from ordinary rural farmers, who could not afford to make enclosures. In the end, he predicted the process would "finish up the areas which belong to the Owambo people".

Commercialisation - Barriers and aspirations

The movement to establish, justify and legitimise fenced ranches in Oshikoto Region is based on commercial aspirations - to become wealthier through the sale of cattle (see also Fuller et al. 1996). Those advocating commercialisation argue that, given conditions in Namibia, fencing is necessary, in addition to several other changes.

Members of the traditional Ndonga council cite the desire to increase cattle marketing as a strong impetus behind the creation of privatised fenced farms. As one senior member stated:

"We [livestock farmers in the north] cannot sell now to the south as we are told livestock need vaccination, but we can only vaccinate our cattle if they can be kept away from others [protected from contact with unvaccinated animals] so we need to fence."

The new commercialising farmers are aiming in part to sell cattle to the Meatco⁶ abattoir in Oshakati. Animals sold to Meatco are inspected and quarantined, so that diseased animals are rejected. To be able to meet these animal health requirements, farmers must expend cash on

⁶ This is a nationally-based company, which began operations in the Northern Communal Areas in 1992, with an abattoir and office at Oshakati (Rawlinson 1994). Meatco buys cattle at periodic auctions held in rural areas, announced on the radio. Sellers in the north-central region can also bring their animals to the abattoir in Oshakati, where they will receive a higher price but must pay their own transport costs and arrange for quarantine. There is presently no competitor to Meatco other than the informal "open market" for meat.

veterinary inputs, either directly through purchase of veterinary drugs, or indirectly through payment of transport and other costs to veterinary officials when they visit the remote new fenced farms in eastern Oshikoto and carry out vaccinations or other treatments. Therefore the newly-commercialised farmers note that fencing helps in disease control, as one's own livestock can be inoculated or treated against certain diseases and then kept out of contact with untreated herds in the remaining communal areas.

Beef from the northern communal areas of Namibia can only be exported to the southern African region, and fetches a lower price per kg than beef which can be exported to the European Union from south of the cordon fence, which meets EU regulations (Leopoldt, Meatco manager, pers. com.). This is corroborated by commercial farmers living south of and adjacent to the cordon fence, who receive a lower price per kg when they are forced to sell their cattle for slaughter at the Oshakati Meatco abattoir, if the abattoirs in the south are over-full.

The commercialising farmers who have fenced off sections of land in eastern Oshikoto give additional reasons why commercialisation requires fencing.

Those who have invested capital in creating a ranch expect it to yield a cash return, and must protect their investment. Some of the boreholes within fenced farms were paid for by the new farmers, and in the words of one traditional leader, "If a person has suffered the budget of putting up the borehole", that person then fences to keep other animals out of his water point.

The marketing objectives and tactics of the newly commercialising farmers differ considerably from those of the smaller-scale producers on unenclosed land. The latter rarely sell to Meatco, citing lack of access and low prices, in comparison with the local "bush" price, as the main reason. Instead, cattle are sold or exchanged locally, according to need. A common exchange is for mature oxen (*ehove* in Oshikwanyama; *ondumetana* in Oshindonga) to be exchanged with another farmer who wants to slaughter an animal, in return for a heifer (*ondema*; *endema* pl.). Oxen are acquired for slaughter at a family reunion or celebration such as marriage, or for a funeral. Farmers also sell animals to each other for cash and a farmer may sell a heifer to another farmer rather than exchange for an ox. Oxen are also sold to neighbouring fenced farms. Informants state that five-to-six year old oxen are the ideal type of animal to sell. In dire need, a farmer will sell a younger male or even a heifer. Old cows are often allowed to die of natural causes and then the meat consumed locally.

Newly-commercialising farmers, by contrast, are changing the breed composition of their herds, to produce a beef animal that is more readily accepted by Meatco, using the grading system developed for the South African market (Meatco 1996). Compared with the introduced breeds from Europe and South Africa, the Ovambo cattle develop more slowly, with males only reaching full weight and maturity at 5-6 year, and carry more fat at maturity. These characteristics render the Ovambo type of cattle less economic in the export market, which demands tender (therefore younger) meat with a minimum of fat (Leopoldt 1996, pers. com.).

When they first start a fenced farm, most new commercial farmers in Oshikoto Region begin by buying some Brahman breeding stock, admired for its large body size which yields more weight when sold. In addition to Brahmans, more sophisticated semi-commercial farmers are introducing Afrikaner and Simmentaler bulls from the commercial ranches south of the cordon fence. These breeds (particularly the Afrikaner) are said to obtain the best prices at rural Meatco buying points. By comparison, some of the commercial farmers south of the veterinary cordon fence and

adjacent to Oshikoto Region are crossing Sussex and Charolais breeds with Afrikaaner. They say that these crosses give high meat yields combined with the low proportion of fat demanded by the European market.

The newly commercialising farmers typically sell their new cross-bred animals at 2-3 years of age, when the meat will still be tender but sufficient weight has been gained. Cattle sold to Meatco from the new farms of Eastern Oshikoto are nearly all castrated males, (*ehove*).⁷ Targeting young males for sale is one of the distinguishing features of a commercial livestock enterprise.

The semi-commercialised farmers in Oshikoto Region are producing cattle for two separate markets. They continue to market local Ovambo cattle, but these tend to be sold onto the local slaughter market (*matara*) displayed for sale along the road, or to the so-called "bush market". This market gives a more profitable return than Meatco prices for Ovambo cattle, which are sold at 5-7 years when the animal has gained its maximum weight. No reliable data on prices could be obtained in the course of this study, but informants consistently cited a price differential of 6:10 of Meatco to local slaughter prices, per kilogram for Ovambo-type cattle. That is, a mature Ovambo ox of 6 years sold to Meatco in Oshakati for export to South Africa would fetch only 60% of the local price. Old females (*endjindji*) are either sold to the local market or retained for home consumption by the farm labourers. The newly-commercialising farmers are thus engaging in both markets simultaneously, since they can realise a good return both on the introduced cross-bred cattle sold to Meatco, and the local breed sold locally.

The newly commercialising farmers also buy up cattle offered for sale by small-scale producers at the rural auctions organised by Meatco. In these situations, the small-scale livestock owner may sell on the spot to a commercialising farmer at a lower price, rather than return home with unsold animals not accepted by Meatco buyers. The commercialising farmers then retain these animals on their fenced farms. Sometimes these animals are matured, and other times held until bulk transport can be arranged to the northern urban areas where these cattle are slaughtered for the local market. Because of the remoteness of eastern Oshikoto, and the small scale at which they operate, poorer farmers are unable to take advantage of the price premium for cattle sold in towns, where population concentrations result in high demand for meat.

Livestock husbandry on the new commercialised farms⁸

One of the hallmarks of a more commercial approach to livestock raising is the use of purchased inputs financed from the regular sale of livestock (Behnke 1985; Kerven 1992). The newly commercialising farmers of Oshikoto region are no exception to this pattern. Management practices on the enclosed farms differ considerably from the surrounding smaller-scale farmers

⁷ According to statistics from Meatco, between 40 -75% of cattle sold to Meatco in the northern communal areas (excluding Caprivi) from 1994-96 were oxen. About a quarter of animals bought are between 18 months and two and a half years, while more than half the animals bought are aged more than two and a half years and much heavier. (Figures courtesy of Mr. Leopoldt, Manager of Meatco Oshakati). Based on the returns per kilogram, selling older, heavier animals is still in the producers' interests - see Behnke, NOLIDEP Nov. 1996.

⁸ Interviews were conducted on the management practices of 8 different farm owners. Five of these interviews were carried out at the farms, with farm workers and employed relatives of the owners.

using open rangelands. The differences encompass all aspects of production; grazing management, use of veterinary and feed inputs, breeds kept, labour use and management of water resources. Overall, fenced farm owners are able to sink more cash into their livestock enterprises, and are thus more able to commercialise. To what extent this investment is yielding a greater return compared to the more traditional livestock husbandry systems, cannot be quantified here. Assessment of the differences in output and the relative costs/benefits between the two types of management would require a more lengthy field survey than was possible in the time allocated for this research project.

Grazing management

Livestock on the fenced farms are not herded over long distances (in contrast to cattle kept outside the fences) but remain stable, generally being confined to graze within the fenced areas or occasionally being let out on a daily basis to graze the nearby areas. A minority of farms have been divided into grazing camps (paddocks), with mature cows and selected bulls kept together in one camp, immatures and oxen kept in another, and being rotating to ungrazed paddocks in turn.

Based on casual visual assessment⁹, at the end of the dry season (October 1996) there were large areas of tall standing grass in some of the paddocks, kept as a reserve. In contrast, the unenclosed rangelands appeared fairly uniformly grazed down within 10-15 kms. of each borehole, and it is only at the furthest points from boreholes that tall standing grass was still visible. Moreover, at that season, cattle and small stock could be frequently observed browsing leaves and seed pods from woody plants. Dry grass, however tall, has little nutritive value after flowering in the dry season. New farm owners cite the retention of grass inside the enclosures as one of their justifications for fencing, but they place greater emphasis on the need to fence in order to control breeding and protect their stock from diseases, as already noted.

Use of veterinary inputs

One of the principal recurrent inputs bought by the newly commercialising farmers are veterinary drugs, in addition to expending cash for veterinary services. In this respect, as in others, the owners of fenced ranches are pursuing a markedly different form of livestock husbandry than that practised by livestock-owners outside the fences. Although the details provided below may only be of interest to local authorities, the general picture which emerges is that of a new group of farmers in the north trying to emulate practices on the commercial ranches south of the veterinary cordon fence in Namibia.

The main kinds of drugs used by new commercial farmers are antibiotics. Various forms of terramycin are used to treat CBPP - Contagious bovine pleuro-pneumonia - (against veterinary advice), and these vaccines are also used to treat black quarter and botulism. These three diseases are widely recognised by ordinary livestock farmers as well as by employees on the fenced farms. The local name for black quarter is *okavimu*, while botulism is *oshinambunda* and CBPP is called *epunga*.

⁹ It was not within the scope of the socio-economic component of this research project to make empirical assessments of rangeland vegetation.

Okawimu (black quarter) is described as a swelling of the limbs and a gland at the joint under the leg. Some herders believe there is no treatment for this disease, while others claim that terramycin is effective. On some of the new farms, the black quarter vaccine was being used. This vaccine is bought from pharmacies in Ondangwa or Oshakati (price N\$ 28.00 per bottle), and the farm workers who use it vaccinate the cattle every two months.

Oshinambunda (botulism) is described as causing shaky legs and paralysis of the back. This is regarded as a serious threat and some herders say there is no treatment; once contracted they expect the animal to die from this disease.

According to all livestock-owners interviewed in Oshikoto Region, *epunga* (CBPP) is quite widespread. Only in one case did farm employees say that vaccine was given to prevent this disease, and this was carried out by the employees rather than Veterinary Department staff. The symptoms of *epunga* are described as initially coughing, listlessness and swelling of the chest. If spotted quickly and treated (with terramycin-type antibiotics), some farm employees say that recovery rates are good. Other employees say there is no treatment for *epunga*. If an animal is suspected to have died from this disease, herders immediately inspect the lungs upon slaughtering, which stick to the ribs in the case of *epunga*.

The newly commercialising farmers of Oshikoto are very concerned about the prevalence of CBPP, and complain that the Veterinary Department is not doing enough about this. As one commercial farm owner remarked: "The main disease here in the north is CBPP - lung disease - but the government doesn't want to improve the veterinary system here as they are only still vaccinating against foot-and-mouth¹⁰, which is not a problem on our farms". According to the Veterinary Department in Ondangwa, the annual vaccination campaign against CBPP should be covering the entire Oshikoto region. The CBPP vaccine has not been used for the past year, however (Francois Blanc, pers. com). Herders in the all the area east of Okgumbula village consistently state that they never see anyone from the Veterinary Department in that area and their cattle are not vaccinated. Only on some of the new fenced farms did the resident workers or owners say that someone from the Veterinary Department was brought by the owner to vaccinate the cattle.

Farmers' representatives based in town (many of whom also own a fenced farm in eastern Oshikoto) are also keen that livestock on the new farms receive better veterinary treatment. It is claimed that only the richest farmers currently get veterinary attention for their animals on the new farms, as these farmers can afford to pay the transport and other costs of getting veterinary officers to the farms. There are also charges that the Veterinary Department keeps an insufficient supply of drugs, obliging individual farmers to buy veterinary drugs commercially at higher prices from local private pharmacies which have stockpiled these drugs.

The way in which veterinary drugs are being used by the new commercial farmers is not necessarily beneficial. Senior staff at the Government veterinary department strongly advise against treating CBPP with antibiotics, yet every commercial farm worker interviewed was doing exactly that. As noted, some commercial farmers were also buying vaccine at local pharmacies, to be administered by their employees at the farms. However, the efficacy of these vaccines is

¹⁰ Foot-and-mouth outbreaks would affect the southern commercial ranching industry, from where beef can be exported to the EU, if declared from an area free of foot-and-mouth disease.

highly dubious, given that the drugs were being kept for several months with no refrigeration at the cattle posts.

While there is considerable knowledge of the main local livestock diseases both among workers on enclosed farms and herders using the open range, it is mainly the fenced-ranch owners who have the financial capacity to take any measures to combat diseases, and these measures may not be very effective due to poor information. There is therefore a opportunity for external assistance, either through government or private channels, to make training and inputs available for the new group of livestock farmers who have both the financial resources and motivation to make use of improved veterinary treatment.

Veterinary intervention is one of the distinguishing features of the new more commercially-oriented management associated with fencing, in comparison with small-scale livestock management practices outside the fences. The newly-commercialising farmers are clearly choosing to invest (sometimes misguidedly) in a package of improved management, rather than only trying to appropriate land and water resources. The conventional portrayal of those engaged in fencing in the north has not necessarily highlighted this point (e.g. Fuller et al. 1996; Tascott and Hangula 1994 and various articles in the national press).

Breeding practices

The introduction of new, exotic cattle breeds to the Owambo area has already been discussed in the section on commercialisation. Herders and owners on the new farms remark that these new breeds of cattle and goats all require more feed and water in the dry season, compared to the indigenous Ovambo livestock (confirmed by research in Namibia; see Rawlinson 1994). As one farm owner phrased it: "The Ovambo animal takes care of himself. You just open the gate [of the kraal] in the morning and he goes, and he's still fat". By contrast, herders note that the new breeds such as Afrikaner and Brahman are "good in their body in the rainy season, but reduce their body size more than the Ovambo cattle, in the dry season". The Simmentaler cattle are also said to prosper provided fodder and water are close at hand, but do not take well to walking long distances.

Some new commercial farmers have brought in goats from Kunene, known locally as "Kaoko" goats. These are said to do well in on the Oshikoto farms, "except when there's thirst". Then a big difference is noticed, as the Kaoko goats get more thirsty while local goats are said to be "resistant to lack of water".

Despite the greater input and labour costs associated with the exotic breeds, new farm owners are still keen to introduce them, due to the more favourable Meatco prices received for this type of beef cattle which matures more quickly (see discussion in commercialisation section). It is the need to prevent random mating between exotic stock and local cattle that new farm owners often cite as a reason for fencing their land.

Use of other purchased inputs

The newly-commercialising farmers buy supplements for their cattle on the enclosed farms. Vitamin supplements were not used on all farms and were usually only given to the exotic breeds before the dry season, "to make them strong", as well as to any weak Ovambo cattle. Salt licks were used on all the farms contacted.

A few of the farms occasionally used supplementary fodder - lucerne bought from the commercial farmers' cooperative (Agra) in Tsumeb. The resident herders would give lucerne to any animal which looked weak or tired, with preference being given to calves. Although herders all acknowledged that the introduced breeds (Afrikaner, Brahman etc.) from the south got thinner and more hungry than the local Ovambo cattle in the dry season, additional feed was not selectively fed to the new breeds. Nor was any preference given according to an animal's age or sex.

By comparison, several commercial farmers immediately south of Oshikoto on the other side of the veterinary cordon fence were feeding their bulls and small stock a homemade feed concentrate every day, and giving a survival ration of 0.5kg of concentrate daily to the rest of the cattle. Small-scale farmers in eastern Oshikoto never purchase feed or mineral supplements, nor is there any market for the grain stubble on fields which is grazed off by village cattle after the harvest. There would be interest among the commercialising farmers north of the cordon fence to learn the low-cost and low-technology methods of processing local vegetation (branches, leaves and seed pods) into cattle feed which have been pioneered in the south. Such techniques might also be feasible at a village scale for small-scale livestock farmers.

Labour used

Each new fenced farm has between 2-5 resident young men, managing the livestock on a year-round basis. These men may be employees, brothers or nephews of the owner(s). They may receive a small monthly wage, and are provided with mealie meal when the owners drive out to their farms. The herders are also allowed to consume milk from the cattle during the rainy season, and to eat animals which die from natural causes. Their main duties are watering the animals and managing the privatised boreholes, including negotiating with herders from nearby cattle posts or in transit, who wish to water their cattle at the boreholes. Some herding is necessary when the livestock stray away from the enclosures in search of fresh grass. Long-distance herding is not, however, part of their job as the livestock stay in or around the enclosures all year. Farm employees also diagnose and treat sick animals, as noted above.

Village headmen near the new farms assert that many employees on these farms are Angolans, who cause problems locally as they are armed and can return to Angola after raiding local cattle. Other senior headmen stated that this is less of a problem than it used to be, due to greater government control recently.

Management of boreholes

Almost all the fenced farms contain a borehole. These have in some cases been paid for by the owners, and in other cases, privatised (see section on borehole privatisation). Whether the control of a borehole is *de facto* or *de jure*, it nevertheless confers a major advantage in livestock management, since one's own livestock can be watered as often as needed and do not have to either walk or wait to be watered, in contrast to the mobile herds managed by small-scale livestock farmers.

The principal inputs which a borehole requires are diesel and engine oil. One of the main responsibilities of the absentee farm owners is to ensure that their farms have a regular supply of fuel so that the boreholes keep running. There are no local sources of fuel near the farms, so that all supplies must come from Oshakati, Ondangwa or Okongo to the north, a minimum eight hour

round-trip by vehicle. Okongo does not have a commercial fuel supplier nor a Dept. of Water Affairs depot for free borehole diesel. But it is significantly nearer than Oshakati to the boreholes of eastern Oshikoto, and is therefore the first choice to obtain fuel for this area. Farm owners transport one or two 200 litre drums of fuel per trip, which last between 1-2 months in the dry season.

Different types of arrangement pertain between farm-owners, as to use of privatised boreholes. In one reciprocal form, neighbouring farm owners allow each other's livestock access to their boreholes, since pumps or engines frequently break down but livestock must continue to be watered. A more formalised arrangement is described as a "shift system", whereby each farm supplies diesel for several days' watering, and the animals from both farms are watered at one borehole.

Exclusive or dominant control over a borehole is one of the foremost means for gaining access to communal pasture. Since livestock must remain within a certain distance of water in the long dry season, the animals excluded from drinking at a borehole will be less likely to graze in its vicinity. This is to the advantage of the borehole "owner", as his livestock will then have preferential access to surrounding pasture which does not have to be shared with other herds. Control over a borehole is thus a channel for gaining exclusive rights over land, even where no fence exists.

Costs versus benefits of privatisation

There are clear differences in the way livestock, rangeland and water resources are being managed within and outside the new fenced ranches of eastern Oshikoto Region. Although some observers see the fences as a land grab, much more than this appears to be going on. Some of these differences in management have been described in this paper. The significance of these differences are assessed in terms of three criteria: changes in productivity; and impacts on social equity and natural resource management.

Productivity

Proponents of fencing, within Oshikoto Region and elsewhere, take as a foundation of their argument that fenced extensive livestock management increases output (see Werner 1997 for the case of Oshikoto Region). Adams and Werner (1990) point out that at least at the time of Independence for Namibia, a view persisted among agronomists and government officials that communal farming was associated with low productivity. The belief that traditional methods were not geared to free market conditions was stated, for example in the National Development Strategy for 1985. In this view, tenure systems are seen as precluding the implementation of pasture conservation, and official attempts to bring stocking rates in line with carrying capacities. (Similar concepts underlay fencing schemes imposed on pastoral areas at the same time in South Africa; see Boonzaaier 1987). The communal methods of livestock rearing were seen as linked to a reluctance to sell cattle commercially. The conceptualization of communal agricultural as less productive was the rationale for an emphasis on transformation to commercial agriculture, in the former Administration.

According to agricultural planners and politicians who subscribed to this viewpoint, the best way to change the communal farming system was to fence off communal land into camps and 'economic units', to facilitate rotational grazing and gradual improvement of pastures (Adams and

Werner 1990). In Namibia, the proposition has not yet been subjected to empirical testing (Werner 1996), although it continues to underpin much opinion about the relative productivity of communal versus freehold tenure areas (e.g. IFAD 1994; Lepen n.d.; Rawlinson 1994).

One of the main arguments in favour of private ownership is that it leads to greater capital investment and protection of the land, resulting in a higher yield. This position has been the subject of much controversy and some empirical investigation (see arguments and data summarised in Behnke and Abel, 1997). To gain information on this question in Namibia, a future study should compare the economic and biological costs and returns of three types of livestock management now being practised side-by-side under similar ecological conditions: open-range mobile livestock husbandry, newly-commercialising livestock husbandry on enclosed land north of the veterinary cordon, and lastly, established commercial livestock ranches just south of the veterinary cordon.

Fencing itself does not constitute a major shift in production system. When common land is fenced in without other changes being made, it is usually for defensive rather than productive reasons, i.e. to keep other people's animals out, not to implant a new form of management. But as this paper has documented, these fencing large areas of the commons in eastern Oshikoto are embarking on a different form of livestock management to that practised by their neighbours outside the fences. When the factors of production are altered under fenced livestock husbandry, this signifies a real change in commercial orientation. But some evidence suggests (a number of African cases discussed in Behnke and Abel, 1997) that this shift to commercialisation does not result in higher output per unit of land. There is a much higher rate of capital investment associated with the transition to privatised ranching, and the form of output changes from multiple use values - milk, meat and draught power - to a single commodity; usually meat. But the lower stocking rates and other changes accompanying this shift all tend to lower the output *per area* when compared to traditional open-range pastoral systems.

There are two direct consequences of this changing equation. Firstly, producing an equivalent amount of energy in a commercial commodity compared to a subsistence product is more costly. This cost is usually through substituting human labour by mechanical energy, fossil fuel and industrial inputs (such as wire fencing). Secondly, fewer people can be supported on the same area of land under commercial forms of production, since the volume of output is lowered and the stocking rate reduced. For the individual producer making this shift to commercial production, these drawbacks are outweighed by the higher margin of return over production costs, provided there is a sufficient market demand for the commodity. *Thus, privatised commercial ranching is a more profitable but less productive use of the land.* The immediate benefits of commercialising land will accrue only to a few, and many former producers will have to find alternative livelihoods.

Equity

Most of the commentators on the fencing in eastern Oshikoto conclude that this process is inequitable - in the words of some, "the process of enclosure also runs the risk of accelerating social differentiation within the communal areas (Tapscott and Hangula 1994). Underlying this conclusion is the notion of finite resources - that if some people gain exclusive access to a portion of these resources, there will be less to go around for the remainder of the people. It has been argued here that the most limited resource in the study area is not land but dry-season water. Prior to the installation of boreholes, the land was mostly used only as a seasonal grazing resource. Permanent water sources now allow the land to be grazed on a year-round basis. To

the extent that traditional wells and government boreholes are being expropriated by individuals, and *no new* water points are being created, privatisation does lead to greater inequality between producers. Denied access to water for their animals, the usefulness of open range vegetation is much reduced for livestock-keepers outside the fences. This point is well-recognised in another study on enclosures in the same area; "In effect the grazing in more distant 'corridors' [between new fenced farms] can cease to exist in the mind of a pastoral farmer if it is beyond the distance cattle can trek without water" (Fuller et al. 1996: 13).

One way to help restore a more equitable balance would be to expand the number of dry season water points in the remaining open range, and to ensure that these were not expropriated in the future. There is still under-used grazing land in eastern Oshikoto and in neighbouring regions (though no estimation can be made of the amount compared to that already enclosed¹¹). The under-used land is - not surprisingly - in those areas without dry season water sources. With appropriate development of water sources, these areas could be made available to herders now denied access to grazing land elsewhere through privatisation of water points. In light of the recent history of borehole privatisation, it would be imprudent both from the perspectives of equity and resource conservation (see below) to provide more diesel-driven boreholes in the presently under-grazed areas. Boreholes tend to attract not only large numbers of cattle, but some avaricious farmers (both local and non-local). A better option might be to encourage and materially assist local family groups to construct small-scale water points such as cisterns, small earth dams, improved wells, etc. This strategy would not only provide some restitution to local people who have already lost access to water points, but could impede privatisation through establishing first rights to any new water points by a visible public effort.

Questions about the equity of privatisation occurring in eastern Oshikoto also depend who can expect to benefit from any [presumed] increased output per animal associated with more commercial management practices. Only a minority of land-users in the study area can afford to create ranches by fencing the open range. Therefore the situation appears very inequitable. It seems as though the avenue for increasing incomes through commercialisation is blocked for most people, who cannot afford to erect fences. But commercialisation does not necessarily demand individual property rights. Ranches are not the only path - and some would argue not always the best means - to commercialisation. There are many instances in other parts of Africa where traditional pastoralists have re-configured their production systems towards new markets for livestock products, in response to demand, and become commercialised without simultaneously alienating communal land (Kerven 1992; Kerven 1994).

The needs of those livestock-keepers who are left outside the fenced ranches would be much better served by improving their opportunities for commercialisation than by further decrying the inequities of fencing. As the newly-commercialising farmers of Oshikoto all point out, successful participation in the profitable Namibian meat industry depends on having disease-free animals, of the right breed mix, receiving some feed and mineral supplementation, plenty of water and access to markets. These desiderata are beyond the means of most ordinary livestock-farmers in Oshikoto region, but could all be achieved without fencing, although not without assistance from other quarters.

¹¹ This estimate should be available in one of the other research papers of this project.

The past lack of northern livestock farmers' participation in the formal market may be due to the lack of marketing services and credit in communal areas compared to commercial (Adams and Werner 1990). In the pre-Independence period only 5% of the Department of Agriculture budget was allocated to communal areas. The risk that Foot and Mouth would re-occur and the prevalence of CBPP continues to hamper the full-scale participation of *all* northern livestock farmers into the lucrative cattle market (KPMG 1993; Rawlinson 1994). Addressing these constraints would greatly assist all livestock farmers, both in fenced and on unfenced land, to market their livestock more profitably and would go some way to restoring equity between groups.

Sustainable natural resource management

There is a widely-held notion that the rangelands of the former Owambo region (now North Central) are severely overgrazed. For example, according to Hangula (1995) rangelands in the Owambo regions "have to a large extent disappeared; overgrazing is still escalating..." He considers two factors responsible, population growth and fencing of rangelands, which has necessitated "massive livestock concentrations in certain areas, hence overgrazing, soil erosion, and general environmental degradation from which a much-needed recovery may not be possible." (p.10). Similar conclusions are drawn by Rawlinson (1994), and by external agencies (IFAD 1994), despite any long-term scientific data having been collected in the region which might substantiate these conclusions.

Against this very pessimistic view is the observation that grazing pressure (and thus possible damage) varies greatly throughout the region, from a high of 1 Livestock Unit (LSU) per 3.5 hectares in the central flood plain zone to 1 LSU/ 13.6 ha. in the "peripheral zones" (Tapscott 1990: 15, citing Soini 1981). Eastern Oshikoto is very much in the peripheral zones, with a human population ratio of less than 3 per sq. km (Dept. Water Affairs 1995).

The relatively average low stocking levels of Eastern Oshikoto should not however, cause complacency. Haphazard siting of boreholes over the past decade, financed by donors, Government and/or individuals, has in some cases led to over-concentration of livestock around boreholes. This is shown for example in the excellent mapping by Dept. of Water Affairs staff in 1995, covering the northern part of this study area, where boreholes were frequently sited less than the recommended distance of 20 km. apart. That report concluded: "in terms of grazing requirements...[the area] is over equipped with boreholes...hence with negative environmental impact" (DWA 1995:46). Evidence that borehole siting is not controlled in this region comes from field reports of finding new boreholes, often private, which the DWA did not appear to have recorded (see Ground Water Consultants 1994).

Overgrazing cannot occur without available stock water, in the environment of the study area. The definition of "overgrazing" is the subject of much discussion (see for example Behnke and Abel 1997 and works reviewed in Cousins 1996 applicable to South Africa), as is the question of whether overgrazing leads to permanent land degradation (and is, by implication, not sustainable). "Overgrazing" is used here as a situation recognised by local livestock-keepers when a temporary or permanent shortage of natural forage for livestock is caused by many animals grazing an area over a period of time. By this definition, overgrazing is occurring around some public-access boreholes, when one of two conditions apply: boreholes are either too close together or too far apart.

When boreholes are too close to each other, there is an imbalance between the number of livestock which are able to be watered and the amount of pasture land available in the borehole vicinity. The data available from Dept. of Water Affairs for the northern part of the study area suggests that in some instances private boreholes may be situated too near to government boreholes, while new donor projects are providing funds for installation of government boreholes in areas which already have a high concentration of private boreholes.

When boreholes are widely separated, herders are unable to spread their livestock evenly over the land, as they must keep their cattle within walking distance of water. The result is that rangeland far from a borehole is under-used, while that closer to a borehole may be over-used. The creation of fenced farms together with the privatisation of boreholes has meant that livestock must walk longer distances to reach the remaining accessible boreholes. This has led to a build-up of grazing pressure around accessible borehole, setting up a wave of reaction by those resident at the boreholes, who have subsequently placed protective fencing around the open-access borehole and privatised the nearby grazing land. The effect is to further reduce access to water for non-resident cattle, which must then be moved onto other, still open-access boreholes.

The ripple effect originating from the restriction of boreholes and grazing land through large-scale enclosure is thus inducing some communal farmers to more closely define their own property rights in relation to water and grazing land. A similar process has been noted in the Okakarara communal area in eastern Namibia, where private fencing of land by large-scale absentee farmers has led some members of local communities to erect "defensive fencing" around the remaining communal land (Fuller and Turner 1995). This response is, of course, a form of indigenous range management - so often claimed by outsiders to be lacking, and said to be necessary to prevent rangeland degradation (see for example IFAD 1994, concerning the Northern Livestock Development Programme in Namibia). Here it seems that some local people have spontaneously decided to control more strictly access to natural resources - land and vegetation - and to man-made resources - boreholes. This decision is due to the threat perceived in the first instance not to the environment but to an important source of their livelihood - keeping livestock.

It is typically headmen, not whole communities, who have taken such steps to protect their assets. The introduction of a new form of property rights, consisting of large-scale fencing and borehole privatisation, has led bolder, better-off and more socially-secure local individuals to review their own rights and losses. In the absence of external (i.e. government) intervention, the local response has been to re-interpret property rights on a smaller scale, by restricting access to hitherto communal resources. Both private (exclusive) and communal forms of range and water property rights now co-exist uneasily in an unstable situation. Whether this evolution of natural resource management is sustainable bears close inspection over the next few years. In the meantime, it is worth reflecting that when the oft-advocated range management improvements - closer control and fencing - are undertaken, in this case by both small and large-scale farmers, the problem simply shifts elsewhere. For every ranch created by an absentee farmer and every defensive fence erected by a local headman, someone else's livestock have to find their food and water elsewhere. This is the greatest challenge now facing the communities and those who wish to assist them.

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