

Fuzzy Entitlements and Natural Resource Flows

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1 Introduction

Sen's entitlement approach to poverty analysis is predicated on individual ownership of assets and resources. Sen himself concedes that the entitlement approach cannot deal with contexts where ownership relations are ambiguously specified, or 'fuzzy' (Sen [1981]). There are several very common situations where ownership relations are 'fuzzy', including particularly intra-household distribution and common property regimes, yet issues of entitlement deserve consideration. Within the household, as within communities, access to resources (assets and incomes) is not equal, but is highly differentiated, specifically by age and gender. There are conceptual models which capture these dynamics. These models, notably 'co-operative conflict' (see Sen [1990], Kabeer [1994]), are predicated on the recognition of power inequalities within the household, with the household head - even if he/she is a 'benevolent dictator' - having preferential authority over the allocation of resources, disposal of assets, and so on. This is surely analogous to community management of natural resources, with the village headman or council of elders playing a role similar to that of the household head.

As a consequence of these similarities, some very useful parallels might be drawn with the 'new household economics' (Becker [1976,1981]) and its debates on the intra-household distribution of household resources. The focus of concern of the new household economics - the allocation of private property resources among household members - is directly analogous to the problem of natural resource management in communal societies - the allocation of common property resources (or 'environmental entitlements') between community members.

Community ownership, management and/or control of a resource such as land, or an endowment, does not necessarily imply equal access by all community members to benefits, or entitlements, generated from that land. Instead, access to common property resources (or to utilities/benefits derived from these resources) is strictly governed by rules and norms which are decided on the basis of seniority, gender, ethnicity and other axes of inclusion or exclusion.

Of the four main categories of resource regimes - private property, state property, open access and common property - entitlements are 'fuzziest' with respect to the last category: common property regimes. Under private property and state property regimes, entitlements are clearly defined and ownership is vested in individuals or state institutions. Ownership and control under private property regimes is usually very clear. For an example of state property regimes, a Ministry of Environment 'owns' the land contained within national parks, it regulates access to the parks by fencing off the area and legislating against poaching, and it manages the parks by imposing entry fees which are used to employ game guards and maintain campsites. Under open access regimes, entitlements are freely available to whomever chooses to take advantage of the resource. No exclusion rules are applied, no charges are levied and, unless and until the resource becomes over-used, there should be no competition over utilities generated by the resource.

In contrast, however, common property regimes are not as clearly delimited and the principle of exclusivity is applied under an often complex set of rules. Moreover, as Turner [1995] points out, common property regimes share more similarities with private property regimes than with open access regimes because the principle of exclusivity is applied by communities and by individuals within the

communities over 'their' property. Exclusivity is not only applied 'externally', that is with respect to outsiders, but also 'internally' within the community itself and within households in the community.

It is interesting that Sen [1981], in his elaboration of the entitlement approach to poverty and famine analysis, invariably chooses the household (or some allegedly homogeneous group such as landless labourers or Ethiopian barbers) as his unit of analysis, and insists on treating the household as a 'unit' rather than an aggregation of individuals engaged in 'co-operative conflict' over the fruits of their individual and joint productive efforts. (The entitlement approach has, in fact, been criticised for its blindness to intra-household dynamics - see Bongaarts and Cain [1982]; Devereux [1993]). Elsewhere, in his equally pioneering work on modelling the household, Sen generally avoids using the language of entitlement (but see Sen [1986]), perhaps because he is aware that entitlements within households are just as 'fuzzy' as entitlements within common property regimes. In a similar manner, development workers today still tend to use the 'community' as a 'unit' of focus of their activity, ignoring much of the differentiation within both communities and households within these communities.

In Namibia, land and its natural resources may fall into one of the four major resource regime categories. Resources may occur as private property, for example on so-called commercial farms mainly engaging in livestock production, or as state property, for example the game reserves and national parks, or as open access areas or common property, as occurs in the so-called communal areas where the majority of rural people live. As elsewhere, within a community, as well as within households in these communities, ownership, control, access and influence with respect to natural resources is differentiated. This paper uses examples from two communal farming areas of Namibia, formerly known as Damaraland and Hereroland, not as specific case studies but as examples to illuminate the concept of 'fuzzy entitlements' in relationship to environmental resource flows. For the purposes of this paper the following definitions are being used: ownership of resources refers to right to buy and sell resources and use profits for one's self, control refers to right of use and exclusion, and access refers to possibilities of use only. Common property and open access regimes confer a combination of these rights and opportunities on users of land and its associated natural resources depending on prevailing conditions.

2 Namibia, the country

Namibia is the driest country in southern Africa with its variable rainfall ranging from less than 20 mm per annum on the western coast to approximately 600 mm in the north east. Perennial rivers occur only on its northern and southern borders. As a consequence of its arid and variable climate, the availability of natural resources varies greatly from year to year. Reflecting the aridity, the population of about 1.6 million is unevenly distributed with rural population densities ranging from a low of 1.7/ km² to more than 26/ km² and more than half the population living within 100 km of the northern border. Commercial farmland occupies 46% and communal farmland 43% of the total area of 824 269 km².

Former Hereroland occupies an area in the Otjozondjupa and Omaheke Regions of eastern central Namibia (Botelle and Rohde 1994) which consists of sandy grassland with no permanent surface water and mean annual rainfall that ranges from about 300 - 500 mm. The area is mainly devoted to cattle farming supplemented by small stock. Most of the area is farmed communally although there are two areas where farms of approximately 5000 ha each have been fenced. Localised surface water is present for brief periods only in good rain years and people and livestock are dependent on groundwater boreholes and a pipeline originating several hundred kilometres distant from the area.

Former Damaraland occupies an area in the southern part of Kunene Region in north-western Namibia (!Guidao-Oab et al. 1996) where the landscape is much more rugged, rainfall ranges from less than 50 mm up to 300 mm per annum and ephemeral rivers briefly flow through the area after strong rains in their upper catchments. Farming is predominantly with small stock although cattle are also present. Most of the area is comprised of so-called Odendaal farms which were fenced by their previous owners for commercial farming. Water is provided from boreholes and a few natural springs.

Originally, before the colonial era, Hereroland and Damaraland were grazed on a seasonal basis as people and their livestock followed available surface water and grazing. For a period of about twenty years in the middle of the century, the government allocated Damaraland for commercial farming by white settlers. The government then repurchased these marginal farms, removed people of other ethnic groups and settled Damara-speaking people in the area. Both areas are used for farming and both, but particularly Damaraland, also serve a safety net function for the rural poor. Both areas are nominally communal farming areas in which the more wealthy individuals farm on a commercial basis. In both areas the traditional authority has been somewhat weakened over the past several decades and a still weak government authority is not yet fully effective (Hangula 1995).

3 People and resources

A number of actors functioning at the community and household levels are involved in natural resource flows. Although these actors may be categorised as in Table 1, and their roles are somewhat stereotyped, these roles differ within households and among various regions of Namibia. Residents in an area are predominantly of one ethnic group although persons and entire communities from other areas and origins are not uncommon. Diversity is also increasing as farm labourers from other regions of Namibia are more frequently hired, by absentee communal farmers in particular, with these individuals often becoming integrated and then remaining permanently within the community. In addition, in former Hereroland there are numerous San people who contribute to resource flows through their labour and consumption [Susman 1995], but who have no ownership or control of natural resources and only limited access thereto.

Of primary concern with regard to entitlements in the communal areas of Namibia is the pattern of residence which evolved during the apartheid era and has been reinforced since Independence in Namibia in 1990. During the apartheid era, the communal areas were viewed as labour reserves with many working-age males and some females living and working either on commercial farms or in towns [Lau and Reiner 1993; Fuller and Turner 1995]. Since Independence, employment opportunities have continued to be more available outside the communal areas or at least outside the communal farming economy. As a consequence, rural residents in communal areas tend to be predominantly older people, pre-school children, female heads of households and single males taking casual employment while those who own livestock are infrequently present. Because of its higher rainfall and more dynamic livestock economy, a higher proportion of working-age males are resident in former Hereroland than in former Damaraland. Nevertheless, in both areas, ownership of and control over livestock, but not necessarily use of livestock products such as milk and transport, is to a large extent in the hands of non-resident male farmers who are heads of extended families. This situation has long-term consequences for entitlements to natural resources - which often rest in the hands of wealthier, non-resident males - and empowerment of poor rural residents.

A second group of actors having an influence on resource flows are the traditional and government authorities. Many have their main residence in distant towns or own commercial farms, while some may be absentee farmers from the same communal area in which they work or, in the case of government authorities, other rural communal areas in Namibia. These authorities, with different degrees of familiarity with an area, may have a strong influence on how natural resources are used or managed and on who gains access, especially to water and grazing. However, particularly in the east, wealthy communal farmers may ignore the traditional and government leaders when fencing off communal grazing for private use or drilling private boreholes on land not permanently settled. A third group of people influence resource flows through control of markets, shared natural resources - such as water in ephemeral rivers - or funding for development.

In none of these three different groupings do we find uniform levels of entitlement or empowerment with respect to natural resources in an area. Moreover, it is sometimes difficult to differentiate roles of individuals because of overlapping membership in several of these identified institutions, where each institution may have distinct or even competing claims over natural resources. This adds another dimension of complexity and 'fuzziness' to the specification of entitlement relations over natural resources. Overlapping institutions (in terms of membership) lead to multiple claims over natural

resources, and possible conflicts of interest. An example is the village headmen who are turning a blind eye to the 'illegal' fencing of grazing land in former Hereroland, because wealthy elites are paying them well for usufruct rights over this land.

Table 1 Roles of actors involved with natural resource flows in former Damaraland and Hereroland.

<p>PRIMARY ACTORS: Residents: working-age males and females old-age males and females young males and females newly arrived, related and unrelated persons Non-residents: working-age males and females</p>
<p>DIRECTLY INTERACTING PERSONS: Traditional authorities: chief/ king headmen Government authorities and structures: regional and constituency councillors (traditional and/or elected) regional and local development and water point committees extension and other government personnel (water, agriculture, lands, veterinary)</p>
<p>INDIRECTLY OR INTERMITTENTLY INTERACTING PERSONS: commercial farmers upstream through dams on ephemeral water courses commercial and other communal farmers seeking emergency grazing commercial farmers, speculators and meat processors who purchase livestock international and national development projects and donors urban settlements (with respect to water use and as source of investments and cash)</p>

Natural resource flows in the communal areas under consideration are based on a variety of resources that can be grouped into three categories (Table 2). These include the primary natural resources such as grazing and water - which are mainly captured through the use of a second category of resources: livestock - and a limited variety of sources of investments and cash incomes.

Water, in the form of rain and groundwater, is the primary limiting factor in the areas under consideration. Groundwater is made available through diesel and wind powered pumps from installations provided by the government. Currently water is an open access commodity for people and livestock although plans by the government to institute recovery of the cost, from the users, of maintenance and running expenses will convert it into a controlled commodity delivered from infrastructure which is 'owned' and looked after by a local community [DWA 1993]. Grazing, in contrast, ranges from an open access to a common property to an individually controlled commodity depending on the situation in which it occurs. Generally, the wealthier the individual the greater control that individual will have over available grazing, either through the number of livestock owned or through (usually) unauthorised fencing of communal lands [Fuller et al. 1996]. Woody vegetation used for construction, fencing and firewood appears to be an open access commodity. There may be some differential use, for example women are sometimes left to collect firewood nearby a village whereas men will collect firewood and construction poles at a greater distance, particularly when transport is involved in the collection process [see Fuller and Turner 1995, !Guidao-Oab 1996]. Wildlife is an open access commodity available mainly to men. After capture, however, the meat will be shared with children and the women who cook the meat. Wild fruits, on the other hand, are most often consumed directly by children in the veld, although they may be collected by women and children and either sold or used to prepare beverages or other products such as oil [Marsh and Seely 1992]. Valuable, localised commodities which may be used for export, such as the roots of *Harpagophytum procumbens* that are used as a herbal tea, are more likely to be controlled by men. In Damaraland, the pods of *Faidherbia albida* are an open access commodity collected by community

members and used or sold for livestock fodder, either within the community or to commercial farmers, or commercial farmers may collect for themselves on communal land [Jacobson *et al.* 1995].

Consumers of the primary natural resources are mainly livestock which are, in all cases, owned by individuals. Cattle are more likely to be owned by men, although older women may also own cattle, particularly if they are widows or otherwise unmarried. Married women and children would have access to milk and other products and may be responsible for herding the animals (and thus have a type of control) in the absence of male family members. Small stock (goats and sheep), on the other hand, may be owned by women or men while women are often responsible for their control and supervision. Small stock are used more often than cattle for consumption or for cash sale to meet family expenses [e.g. EEAN 1991]. Donkeys are commonly used for transport, particularly in Damaraland, by men and women but are left to range free when not in harness.

Several categories of cash transactions affect natural resource flows. Old age social pensions are an entitlement for all Namibians over 60 years of age. They are often the sole source of cash income for entire rural family groups and make it possible for old people to stay on the land to manage the livestock of absentee owners. Food aid, nominally tied to drought, is an important, if temporary (in some areas permanent), entitlement for selected categories of the rural poor (for example, old people, young people and lactating mothers). Food aid, similar to social pensions, helps to support poor rural people to stay on the land where they have shelter and often manage other people's livestock while having access to milk and other products.

Drought relief fodder for livestock is a temporary entitlement (Devereux and Naeraa 1993) that, however, negatively effects sustainable resource flows. These subsidies from the government allow livestock to remain on the land, consuming marginal vegetation, when natural grazing is inadequate.

Primary natural resources generate cash incomes in some areas. Headmen or chiefs allocate access to land, a transaction which may be done against payment of a fee. People may collect open access natural resources which are then sold for cash, such as firewood. Less traditionally, income from tourism is seen to have great potential, particularly in Damaraland. It is expected that through the formation of community conservancies, local communities will be able to control and receive an income from tourism based upon wildlife and the landscape in this rugged area. Cash incomes from tourism will be controlled by community committees which tend to have both male and female members. Tourism-based direct cash incomes in Damaraland already include the sale of crafts made from natural resources or sale of unmodified curios such as semi-precious gem stones, a trade often controlled by young people, particularly males.

Table 2 Categories of natural resources available in Damaraland & Hereroland

<p>PRIMARY NATURAL RESOURCES:</p> <ul style="list-style-type: none"> land water grazing woody vegetation wildlife wild foods
<p>SECONDARY NATURAL RESOURCES:</p> <ul style="list-style-type: none"> goats sheep cattle donkeys
<p>TERTIARY RESOURCES:</p> <ul style="list-style-type: none"> old age social pensions drought relief fodder for livestock food aid (permanently available in some areas of Damaraland) cash for sale of natural resources income from ecotourism

4 Legal situation with its ambiguities in relationship to ownership, control, access

The Constitution of the Republic of Namibia states that all land, water and natural resources belong to the State if not otherwise lawfully owned [Article 100]. Consequently, all communal lands and their associated resources are owned by the State. This follows existing legislation, in place since 1922, wherein power to grant access to resources is vested in a magistrate or other government official [see Fuller and Turner 1995]. Nevertheless, most, if not all, people living in communal areas are unaware of the existing legislation and natural resources in communal areas are generally used under either open access or common property regimes or some combination thereof. Moreover, in communal areas there is an informal, *de facto* traditional system governing the allocation of resources [Fuller and Turner 1995] although this system may not exist or be enforced in some areas. Various pieces of legislation and a number of policies affect entitlements relating to natural resources in communal areas, some in direct conflict with one another. It should be noted, moreover, that communal or open access use of state-owned natural resources occurs under totally different conditions than state use of state-owned and state-controlled natural resources such as those occurring in national parks.

The Namibian Constitution grants everyone the right to live any place in Namibia that they so choose. This is interpreted by different people in different ways and has not been clarified by the government. Many people living in communal farming areas believe that anyone can move into any communal area, together with all their livestock, and assume residence. This is often given as the reason why farming is not done in a more sustainable manner - if water or grazing is conserved for an individual's future use someone else is likely to reap the benefits. (The same types of arguments are used for advocating commercialisation and individual ownership of communal farming lands.) A few examples of this pre-emptive approach to available natural resources by outsiders, backed by government officials or high-ranking traditional leaders, serve to reinforce the perceptions of a totally open access system. On the other hand, other traditional authorities in many areas insist that they have a role in allocation of land and temporary grazing and that the common property rights of residents prevail. A growing, but as yet untested, viewpoint adopted by some central government planners and developers, particularly those addressing sustainable use of natural resources, is that individual people have the right of residence anywhere in Namibia but do not have the right to use available natural resources for their livestock or to other forms of benefits there from.

Contributing to the confusion over 'fuzzy' entitlements to natural resource flows, and to whether they are used under common property or open access regimes, are the overlapping roles of different Ministries (Table 3). In Namibia, the Ministry of Lands, Resettlement and Rehabilitation nominally

has jurisdiction over land *per se* and land use planning. The Ministry of Local and Regional Government and Housing has jurisdiction over regional government authorities and traditional authorities and regional planning. Two Ministries, that of Agriculture, Water and Rural Development and that of Environment and Tourism, are both concerned with management and use of natural resources derived from the land. Adding to the confusion are the differences, particularly in Damaraland and Hereroland, in political affiliation between government and traditional authorities. This general state of confusion is exacerbated by the strong central government structures which allocate responsibility but not control or authority (empowerment) to the regional level.

Entitlements at the community and household levels are also influenced by traditional inheritance rules, some of which are in conflict with the Constitution of Namibia. Matrilineal inheritance rules apply to Herero-speakers wherein a man's sons inherit not from himself but from his wife's brothers. This situation has long term consequences for security of endowments and of entitlements and use of natural resources. While the traditional inheritance procedures for Damara-speaking people are not as structured, they also influence entitlements and control of and access to natural resources.

Table 3 Summary of status of various institutions and groups with respect to ownership, control and access to resource flows in communal farming areas in Namibia.

<i>Resources</i>	<i>State</i>	<i>MLRR</i>	<i>MRLGH</i>	<i>MAWRD</i>	<i>MET</i>	<i>trad. leaders</i>	<i>livestock owners</i>	<i>rural residents</i>
Land	o	c	c			'c'	a	a
Water	o			c,i		'c'	'c', a	a
Grazing	o			c,i		'c'	'c', a	a
Woody vegetation	o				c,i		a	a
Wildlife	o				c,i	'c'	a	a
Cash & aid	c					'c'	a	a

State = Constitution, legislation, policies, Cabinet; MLRR = Ministry of Lands, Resettlement and Rehabilitation; MRLGH = Ministry of Regional and Local Government and Housing; MAWRD = Ministry of Agriculture, Water and Rural Development; MET = Ministry of Environment and Tourism; livestock owners = resident and non-resident owners; o = ownership, c = control, a = access, i = influence.

5 De facto ownership/ access/ control at the community and household level

A number of factors relating to de facto ownership, control and or access to natural resources and the resultant 'fuzzy' entitlements are of note at the community and household levels in Damaraland and Hereroland. Particularly in Damaraland but also in Hereroland, absentee ownership of the secondary resources is common. Livestock is most frequently owned by the heads of household who leave the rural areas to find salaried jobs. If the job is a good one and funds are remaining for investment, the investment is frequently in the form of livestock to be sent back to the home area. The absentee owner is the only person with entitlements in this regard and the right to sell his/her own livestock. At the same time, the owner is less aware of the condition of the primary natural resources upon which the livestock depend. If the other household members also have livestock, their own animals may be negatively influenced by the often large herds of the absentee farmer and head of household. Resident owners and managers may be empowered by the absentee owner to use the products, such as milk and draught power, of the animals not owned by them. At no time, however, would the resident non-owners be in a position to destock in times of poor grazing or otherwise manage the livestock in a manner beneficial to the common primary resources in times of their reduced availability. 'Fuzzy' entitlements thus have an often negative influence over sustainable natural resource flows.

In Namibia, tertiary resources such as drought relief fodder would also be owned by the owner of secondary resources. This subsidy would then allow the absentee farmer maintain his/her own livestock at the expense of the common property resources. In this way, and because of the 'cattle culture' of most of Namibia's rural residents, the entitlements of absentee owners reduce the .

entitlements of resident owners. Although access to secondary products of livestock remain, their value is reduced in times of stress induced by drought.

Primary common resources may also be negatively affected by the common practice of hiring single male herders from areas of Namibia with totally different environments. This practice has been nominally established to reduce the theft which is expected to result from having persons familiar with the local language and area in charge of livestock of absentee farmers. The immediate result is, however, that the herders are unable to contribute to appropriate use of the limited primary natural resources to the detriment of all livestock holders. In this way the structure of 'fuzziness' of entitlements is not altered, but the value of these entitlements is reduced for all users.

Under the current legislation obtaining in Namibia, everyone a citizen of the country has the right to live anywhere that freehold tenure rights are not in effect. For communal farmers, this means that at any time someone may come in from elsewhere with livestock and use the available grazing and water. Traditional management structures prevent this from happening in many instances. However, with the ongoing shift from control of access by traditional leadership to that of control by government, a number of practices which effectively reduce the entitlement of both resident and non-resident livestock owners occur. Such infractions of traditional or government control usually involve members of an extended family who can not be refused or powerful outsiders who have made arrangements with traditional leaders, for their own benefit, and which cannot be influenced by local residents. Although residents or absentee farmers retain their entitlement to their own livestock, the primary natural resources upon which the value of the livestock depends are greatly reduced.

Particularly in Damaraland, and to a lesser extent in Hereroland, the natural resources available may be reduced by actions distant from their point of use. A particularly pertinent example in Namibia is the control and removal of available water by people living upstream on ephemeral rivers. Regulations concerning water rights for upstream users are limited to preventing dams of greater than 10, 000 m³ being constructed without permission. Multiple small dams are allowed. As both Damaraland and Hereroland are situated downstream from commercial farmers with freehold title, reduction of surface water flow commonly occurs. This reduction is felt most severely during years of below average rainfall and limited surface flow. Although ownership and secondary resources and thus access to at least some primary natural resources is assured, entitlements are nevertheless reduced when the common property resources are reduced by other users at a point distant from consumption for the communal farmers.

In the two regions of Namibia used as examples for this paper, rights, responsibilities and burdens of resource use, conservation or depletion fall on different groups of people, often with overlapping memberships. Rights of ownership of secondary resources, and hence access to primary natural resources belong with people who are usually the heads of household and often absentee farmers. Responsibilities for management, on the other hand, usually fall on the resident caretakers - sometimes owners - of the secondary resources. Benefits of use and conservation of primary resources fall disproportionately on those persons who own the secondary resources, while burdens of primary resource depletion fall disproportionately on those persons with access of the products of the secondary resources. While this relationship is not unusual, it highlights the inequities of entitlement and empowerment to be found in such a common property system. Into this relationship must be included the influence of skills and knowledge which, again, are disproportionately accruing to those with ownership of secondary resources and hence enhanced access to primary natural resources. The following table (Table 4) provides a clear overview of the differences among various groups using the communal property resources and their access to the benefits accruing thereto.

Table 4 Resources and persons and their ownership, control, access or influence in Hereroland and Damaraland (below in italics)

Resources	R - M	R - F	NR - M	NR - F	Old	Young	H'man
Land							
space	c,a <i>a</i>	a <i>a</i>	c,a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	c <i>c</i>
fenced space	c,a <i>a</i>	a <i>a</i>	c,a <i>a</i>	a <i>a</i>	- <i>-</i>	- <i>-</i>	c <i>c</i>
communal space	a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	- <i>-</i>	- <i>-</i>	c <i>c</i>
Water	o,c,a <i>c,a</i>	a <i>c,a</i>	o,c,a <i>c,a</i>	a <i>c,a</i>	a <i>a</i>	a <i>a</i>	a,c <i>a</i>
Grazing							
cattle	o,c,a <i>a</i>	a <i>a</i>	o,c,a <i>a</i>	a <i>a</i>	o,c,a <i>a</i>	- <i>-</i>	- <i>-</i>
goats	a <i>a</i>	o,c,a <i>a</i>	a <i>a</i>	o,c,a <i>a</i>	a <i>a</i>	a <i>a</i>	- <i>-</i>
donkeys	o,c,a <i>a</i>	a <i>a</i>	o,c,a <i>a</i>	a <i>a</i>	a <i>a</i>	- <i>-</i>	- <i>-</i>
Trees							
home construction	o,a <i>a</i>	o,a <i>a</i>	o,a <i>a</i>	o,a <i>a</i>	a <i>a</i>	a <i>a</i>	c <i>-</i>
fencing	o,a <i>a</i>	o,a <i>a</i>	o,a <i>a</i>	o,a <i>a</i>	a <i>a</i>	- <i>-</i>	c <i>-</i>
firewood	a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	- <i>-</i>
Wildlife							
tourist revenues	- <i>c,a</i>	- <i>-</i>	- <i>c,a</i>	- <i>-</i>	- <i>-</i>	- <i>-</i>	- <i>c</i>
meat	a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	a <i>a</i>	c <i>-</i>
wild fruits	- <i>a</i>	o,c,a <i>o,c,a</i>	a <i>a</i>	o,c,a <i>o,c,a</i>	a <i>a</i>	a <i>a</i>	- <i>-</i>
Cash							
sale of resources	o,c,a <i>o,c,a</i>	a <i>a</i>	o,c,a <i>o,c,a</i>	a <i>a</i>	o,c,a <i>o,c,a</i>	- <i>-</i>	- <i>-</i>
pensions	- <i>-</i>	-- <i>-</i>	- <i>-</i>	- <i>-</i>	o,c,a <i>o,c,a</i>	- <i>-</i>	- <i>-</i>
drought fodder	o,c,a <i>o,c,a</i>	- <i>-</i>	o,c,a <i>o,c,a</i>	- <i>-</i>	o,c,a <i>o,c,a</i>	- <i>-</i>	c <i>c</i>
food aid	- <i>-</i>	c,a <i>c,a</i>	- <i>-</i>	- <i>-</i>	o,c,a <i>o,c,a</i>	a <i>a</i>	c <i>c</i>

(R - M = resident male, R - F = resident female, NR - M = non-resident male, NR - F = non-resident female, Old = older persons male and female, Young = young children, H'man = head man; o = ownership, c = control, a = access, i = influence)

'Fuzzy entitlements' are an overriding issue with regard to property rights in households as well as common property and open access resource regimes. None of these systems of property rights implies equal nor continuous access to resources for any member of a household or the community. In Namibia, the arid environment exacerbates the fuzziness of entitlements to the detriment of all household and community members, with particular impact on the poorer individuals. When entitlements are dependent on the mixture of ownership, control and access imparted by common property and open access regimes they are also affected by seniority, gender, ethnicity, wealth and other axes of inclusion and exclusion. Moreover, factors affecting the populace in general, such as food security, poverty, sustainable use of the environment and burdens to be assumed by

environmental degradation, are also influenced by the degree of entitlement and empowerment associated with natural resource flows.

This paper has attempted to provide an overview of what is meant by 'fuzzy' entitlements as experienced in household, common property and open access regimes. It is clear from the preceding analysis that 'fuzzy' entitlements have a decided impact on the potential for sustainable use of natural resources. Further work is necessary to clarify how the relationship of 'fuzzy' entitlements to sustainable natural resource use may be changing in the face of predicted global change. Moreover, this analysis helps to highlight some of the challenges for governments and regions in terms of incorporating issues of entitlement and empowerment into addressing long-standing issues such as food security and combating poverty.

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