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Profits, Equity, Growth and Sustainability

The Potential Role of Wildlife Enterprises in Caprivi  
and Other Communal Areas of Namibia

by

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This series of Research Discussion Papers is intended to present preliminary, new, or topical information and ideas for discussion and debate. The contents are not necessarily the final views or firm positions of the Ministry of Environment and Tourism. Comments and feedback will be welcomed.

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## PREFACE

In 1993, The Directorate of Environmental Affairs within the Ministry of Environment and Tourism in Namibia established a resource economics programme to bring an economic perspective to the management of Namibia's natural resources. At the time of writing, the economists' first months' work had generated very preliminary economic results, which are included in this paper. However, an on-going programme of economics research to assess the economic values and optimal uses of Namibia's wildlife and other natural resources is planned for the years ahead. During that time, additional and more robust results will be made available.

This paper draws heavily on other papers and economic analysis by J. Barnes, done in Botswana from 1987 to 1993, while working in the Department of Wildlife and National Parks. It also draws on "The Economics of Living with Wildlife in Namibia" written by G. Yaron, T. Healy, and C. Tapscott for the World Bank in 1993. That paper, one of the first to examine the value of wildlife utilisation in Namibia, in turn drew heavily on Ministry of Environment and Tourism data provided by M de Jager and D Morsbach, among others.

## SUMMARY

Namibia is endowed with valuable wildlife resources. It already earns some economic benefit from them, mainly through tourism which is one of the fastest growing industries in Namibia and worldwide. However, at present, these earnings are below potential, particularly in communal areas where economic incentives for sustainable management have been stifled. As a result, the bulk of economic benefits of wildlife accrue to private enterprise and the government, with residents of communal areas largely excluded. Emerging economic data and comparisons with data from Botswana indicate that wildlife utilisation does have potential to address economic priorities in Namibia: it could provide significant economic and financial returns in communal areas such as Caprivi. With improved legal rights and skills for communities to manage and earn income from wildlife, it could be a valuable and significant complement to livestock keeping. Wildlife utilisation enterprises would simultaneously promote sustainability and bio-diversity conservation.

For example, research presented in this paper indicates that:

- \* tourism enterprises in prime wildlife areas of Caprivi could generate positive and significant returns for both the investor and the Namibian economy: for example, an 18-bed lodge could contribute over \$500,000 per year to the Namibian economy, or nearly \$40 per hectare per year. Such enterprises are likely to represent a good use of land and resources for investors and for the economy.
- \* such enterprises in communal areas would probably still be profitable for the investor if there is revenue-sharing with communities.
- \* at present, enterprises in Caprivi appear less profitable than in comparable wildlife areas of Botswana, largely because the daily tariffs for tourists and hunters in Caprivi are lower. However, with developments in the tourism market, this may change.
- \* generally, the potential cash returns for farmers from wildlife-utilisation and livestock keeping are possibly comparable at present, given government subsidies to the livestock sector. A reduction in livestock subsidies would increase the relative attraction of wildlife utilisation (which is not subsidised).
- \* wildlife utilisation could be combined with livestock keeping in communal areas. This would boost farmers incomes and, of particular importance, diversify risk and reduce vulnerability to drought. Combining game and livestock increases the physical carrying capacity of the land and reduces the risk of environmental degradation, due to the different feeding and watering behaviour of game.

However, several changes are necessary if this economic potential of wildlife is to be fully and wisely exploited in Namibia. First, further research and information-sharing is needed to broaden understanding of the economic value of wildlife. Second, legislative change to give communities the right to manage and earn income from wildlife is

essential. Otherwise they will have no incentives for sustainable management, and the unequal distribution of wildlife-related benefits will continue. Third, land-use planning is required, to ensure that wildlife utilisation best complements other land uses: i.e. to ensure the most appropriate use of Namibia's land and natural resources for sustainable and equitable development.

## **A: INTRODUCTION**

Namibia has a rich and rare environmental endowment. This includes a diverse range of wildlife, many of which are adapted to the arid desert climate of the country, and beautiful wilderness areas. However, in the past, these environmental resources have been regarded as an inheritance to protect from human encroachment by some, and as an elitist, wasted asset by others, rather than as a valuable resource to be utilised sustainably for the benefit of the country as a whole. This paper examines the economic potential of Namibia's wildlife resources. It considers their relevance in the context of a newly-independent, post-apartheid nation, in which land, income and skills are still highly skewed, cattle is a cultural and economic mainstay for the majority, and more equitable and diversified development are national goals. The first half of the paper analyses existing uses of wildlife and the scale and distribution of benefits that are generated. The second half draws on data from Botswana and preliminary research in Namibia to put forward the hypothesis that the potential economic value of wildlife in Namibia is positive and significant, for entrepreneurs, communities, and the economy. As research in this area is just beginning, the paper contains few answers, but poses questions, hypotheses and future directions.

## **B: BACKGROUND AND CONTEXT**

Namibia is a country of 1.4 million people and 824,000 square kilometres,<sup>11</sup> located in the South Western tip of Africa. It has the driest climate south of the Sahel, and much of the country is desert or semi-desert. Until 1990, it was occupied by South Africa. Consequences of apartheid rule still pervade, such as grossly unequal distribution of income and land. By far the largest economic sector in terms of contribution to GNP is mining, but commercial livestock ranching (8% of GDP) and communal subsistence livestock (largely unmeasured) provide the livelihood of the vast majority, and the main form of land-use in the country.

These factors -- the harsh climate, unequal access to land and income, tradition of livestock, and priorities of a newly independent nation -- affect all aspects of political economy in Namibia, particularly wildlife utilisation, so require a little more explanation.

### **B.1. Ecology and Vegetation**

Namibia has a narrow coastal desert plain, from which the land rises to an extensive interior plateau, 1000 - 1,500 m above sea level. Water is probably Namibia's scarcest resource. Rainfall increases from south west to north east, ranging from under 50 mm per year to 700 mm. The driest areas also suffer the greater variability. There are no perennial rivers between the Kavango, Cunene, Kwando-Chobe, and Zambezi rivers on the northern borders with Angola, Zambia, Zimbabwe and Botswana, and the Orange on the southern border with South Africa.

Corresponding to rainfall and soil characteristics, there are three major vegetation zones: desert in the west, savanna in the centre and south, and woodland in the north east (see Figure 1). Wildlife species also correspond to these zones, with a few arid-adapted species (ostrich, springbok, oryx and "desert elephant") found in the desert, a slightly more diverse community of plains game in the central savannah, and a relatively rich fauna in the north east with species not found elsewhere such as buffalo, roan, sable and tsessebe, in addition to large herds of seasonally mobile elephants. The arid areas are particularly rich in invertebrates and reptiles, and most of Namibia's endemic species occur in the Namib and pro-Namib.

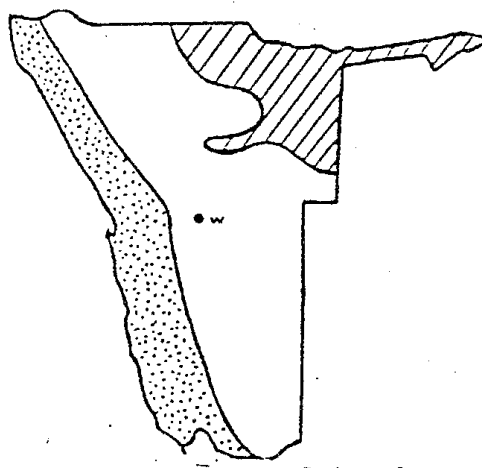


Figure 2. Natural vegetation biomes of Namibia: desert (stippled); savannas (unmarked); woodlands (hatched).

## B.2. Land Distribution and Use

The country is divided into commercial farmland (45%, mainly in the south and centre) and communal land (former "homelands", 40%, largely in the north), as shown in Figure 2.<sup>11</sup> On both, livestock farming predominates as most of the country is too dry for arable farming, but in all other respects the differences are extreme. Commercial land is owned by approximately 4,600, mainly white, farmers (less than 1% of the population). These private farms average over 7,000 hectares. Stock production is for commercial (largely export) sale. Communal land accommodates 67% of the population, engaged mainly in subsistence stock farming and, in the north and north east, crop production.<sup>16</sup> Communal land is state-owned and farmers have only usufruct rights. Crops are produced on small, individually-allocated plots, but grazing is in commonly managed or open access areas. For most communal farmers

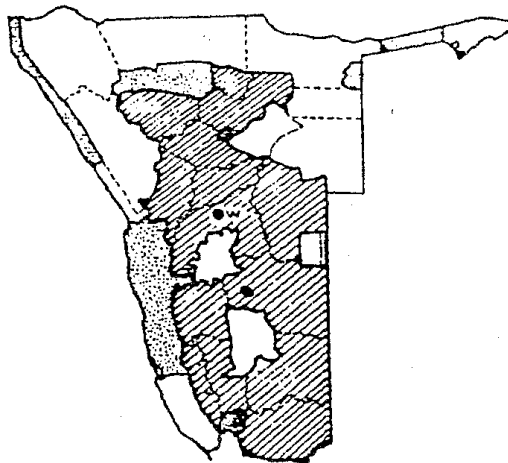


Figure 3. Land tenure: proclaimed conservation areas (stippled), commercial farmland (hatched); communal land (unmarked).

livestock serve many purposes, providing milk, manure, meat, and draught power, a mark of status, a store of wealth, and other social functions.

Of the remaining state-owned land, some 13% is covered by 14 protected areas, and 2% is for diamond mining.<sup>11</sup>

The "Land Question" remains unresolved: there is pressure for redistribution, but much of the commercial farmland is unsuitable for uses other than extensive livestock keeping, with between 10 and 25 hectares needed per large stock unit.

### B.3. Economic problems and prospects

Gross National Product in 1993 was R<sup>[1]</sup>8.372 billion (US \$2.6 billion).<sup>12</sup> However, this relatively high average per capita income (over US \$1,700) masks a sharply dualistic economy, in which the bottom 55% of the population earned 3% of national income, and the highest 5% earned 71%.<sup>17</sup>

Only a third of the active population are employed in the formal sector,<sup>13</sup> and estimates of unemployment range around 20-30% with underemployment even higher.<sup>1</sup> As the population is growing faster than the economy,<sup>14</sup> development of more labour-intensive sectors is a priority. Furthermore, with only 6% of formal sector jobs in the former Owambo region, where 43% of the population live, the need for geographically dispersed development is urgent.<sup>16</sup>

## **C: WILDLIFE UTILISATION: PAST AND PRESENT**

### **C.1. Past Practice and Policy**

In the pre-colonial era, hunter-gatherer groups, such as the San, relied on wildlife and veld foods, while hunting (for food and products) was a secondary and seasonal activity for pastoralists and agro-pastoralists in the north and stock farmers in the south. Hunting was generally organised by the community and regulated by local chiefs. However, under colonial rule, hunting was prohibited within communal areas. Wildlife, like land, was declared state property. Nevertheless, wildlife numbers declined due to increased population pressure, habitat degradation, droughts, and widespread poaching by colonial authorities and local residents.

In contrast, commercial farmers gained effective ownership of the wildlife on their farms under a 1967 Ordinance. Although off-take of wildlife is regulated by a state-run licensing system, the effect of this Ordinance was to attach a commercial value to game for farmers. The influence of economic incentives on wildlife numbers is apparent: the

<sup>1</sup> In October 1993, the Namibian dollar replaced the South African Rand as the currency of Namibia. Hence, figures explicitly referring to earlier years are in Rand, all others are N\$.

limited data available suggests that game numbers on commercial farmland have increased while those in communal areas have been static at low levels or declining.<sup>18</sup> Exceptions are noted in areas where community-based conservation projects have been initiated, such as in the Kunene region. Here game numbers, particularly of key species, have tended to increase.<sup>9</sup>

In proclaimed parks and reserves, the focus was on conservation and preservation -- the aim being to keep local residents outside the park fence and the animals inside -- rather than the development of a symbiotic relationship between the two. Statistics on wildlife numbers in the 21 protected areas are incomplete but suggest steady or slightly increasing numbers. However, conservation has been seen as an elitist activity for the benefit of commercial farmers, environmentalists, and park visitors from South Africa and overseas.

Since Independence, the policy environment has changed dramatically. The new Constitution commits the state to:

*"actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the following: maintenance of ecosystems, essential ecological processes, and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future."*

Instead of permanent protection of some resources and short term over-exploitation of others, the new priority is equitable and sustainable utilisation. However, this will require many changes in policy and practice, including economic planning of how to sustainably utilise the resource, evidence that wildlife-utilisation is a viable political and economic option, along with legislative and institutional change to entitle and enable communal farmers to share the benefits. These are the tasks currently being tackled by the Ministry of Environment and Tourism (MET), and non-governmental organisations (NGOs). MET has put forward legislative proposals that would give communal farmers rights to utilise wildlife by proclaiming "conservancy areas" on communal land. Within a defined area, the community would have similar rights to utilise and profit from wildlife (and therefore tourists) as commercial farmers enjoy, and would be able to enter joint ventures with private operators if they chose. NGOs, such as Integrated Rural Development and Nature Conservation (IRDNC) are supporting communities in the north west and north east to develop sustainable management of wildlife.

## **C.2. Current utilisation: scale and distribution of economic benefits.**

### (i) Wildlife-based tourism

Data on current wildlife utilisation practices and earnings is patchy. Wildlife and wilderness form the basis of Namibia's fast-growing tourism industry. This sector accounts for most wildlife utilisation (both non-consumptive through photo safaris<sup>[2]</sup>

<sup>2</sup> Photo-safaris and photo-tourism refer to tourism based on **viewing** (rather than hunting) wildlife -- not necessarily specialised photography.

and consumptive through sport and trophy hunting and angling) at present, and also for most of the available data.

National Parks and Reserves provide the focus of photo-safari trips, though the share of off-park tourism is growing. In commercial areas, there are guest farms for game viewing and hunting farms for trophy and sport hunting (considered in more detail in the following section). In some Communal areas, the government tenders trophy hunting concessions to private operators on an annual basis. In addition, many Communal areas such as Kunene, Caprivi and Otjozondjupa offer dramatic landscapes and wildlife in an unmanaged habitat for the more adventurous eco-tourist.

According to the Namibia Tourism Development Study,<sup>7</sup> an estimated 282,000 international tourists visited Namibia in 1992, 65% for holiday purposes, spending a total of N\$ 394 million in foreign exchange and generating employment for 20,000 people (half directly, half indirectly supplying the tourism industry).<sup>8</sup> It is evident then that by 1991 and 1992, tourism had already reached a scale to be compared with other key economic sectors:<sup>[3]</sup>

- \* foreign exchange earnings were equivalent to 12% of all Namibia's export earnings, and exceeded exports of either agricultural products or meat and meat products.
- \* government revenue generated from the tourism sector of N\$ 160 million amounted to over 5% of government current income;
- \* tourism-related jobs accounted for 15% of all private sector jobs;
- \* the total contribution to national income, estimated at N\$ 355 million in 1992, is equivalent to 5% of Gross Domestic and is similar to that of fishing and fish processing.

Given the current rate of growth of tourism in Namibia and worldwide, its economic significance in Namibia is anticipated to grow further. Tourist numbers are expected to grow at an average rate of 8.5% per year for the next ten years is 8.5% per year.<sup>7</sup> This will mean a doubling of tourist numbers by 2002, from almost 300,000 per year now to over 600,000, with a target for the number of high-spending European tourists increasing 5-fold in that time.<sup>7</sup> If that happens -- and it will only happen with careful planning rather than by default -- that would make tourism second only to mining in economic significance.

But how significant is tourism to the political-economy of Namibia? To the need for labour-intensive growth and for economic development in communal areas controlled

<sup>3</sup> Figures for the tourism sector taken from Hoff and Overgaard, 1993, and Hoff and Overgaard, 1994. Figures for export earnings, government revenue, GDP, and sectoral contributions to these, taken from Ministry of Finance, 1994. Figures for total employment taken from NPC, 1992, based on the 1988 Manpower Survey.

by communal area residents? There are indications that tourism is more labour-intensive than other economic sectors<sup>4</sup>. Furthermore, it is one of the few industries that **must** be geographically decentralised away from urban centres and is suited to a number of communal areas.

However, at present, ownership and revenues lie with the state and private sector, not with residents of communal areas:

- \* because communities cannot own land or wildlife as commercial farmers can, they cannot enforce charges on those who wish to visit or hunt in their area;
- \* any private entrepreneur, including in principle, a community or local people, can apply to the government for a lease, concession or Permission to Occupy (PTO) to run a private venture on communal land. In practice, communities lack the financial resources, skills and opportunities, and the vast majority of such ventures are run by outsiders.
- \* when a hunting concession or PTO is granted to a private entrepreneur to operate on communal land, it is the government, not the community, that receives the revenue (though in many cases, community approval is sought, and in some cases a contribution may be paid to the community). The community has no legal right, or market power, to insist on a share.

Furthermore, communities suffer costs from wildlife and tourism, such as loss of land-use options, competition for other resources such as water, damage to natural resources such as bush foods by tourists, and damage to crops and stock by wildlife.

While economic benefits of tourism for people in communal areas remain restricted to craft sales and employment in private lodges and parks, tourism cannot be considered an economic alternative to subsistence farming or a significant option for the unemployed. However, measures to boost communities' rights and skills, such as the proposed conservancy legislation outlined above, could reverse this by facilitating profitable and sustainable use of wildlife.

(ii) Consumptive wildlife uses: game farming, culling, hunting and live sale.

Commercial farmers may shoot game on their farms for their own use or commercial sale (meat and products), they may allow sport hunters of venison and trophy hunters on their farm, or commission professional night culling teams or live capture teams to shoot/capture commercially. They have rights to any revenue from wildlife on their land, though the offtake is regulated through permits and licences. Data on the scale of the economic benefits accruing from consumptive uses on commercial farms is patchy

<sup>4</sup> According to the National Planning Commission, each increase of N\$1 million in GDP creates around 36 jobs.<sup>14</sup> However, models of up-market tourism enterprises indicates that 3-5 lodges would contribute around \$1 million to GDP while creating around 45-60 jobs.

and contradictory, but suggests the benefits are significant and increasing:

- \* Although only a minority of farmers utilise game for commercial purposes, the majority use game for their own use and for workers rations: 77% and 67% of commercial farmers respectively, according to an MET 1992 survey of 671 farmers.<sup>18</sup>
- \* Offtake for commercial sale accounts for over two-thirds of animals shot, while use by family and friends accounts for almost one third. Returns from nearly 1000 land-owners to the MET, indicate a yearly average per farmer of 28 animals per year for own use, and 60 for commercial use (half of these for commercial sale, and half for hunting).<sup>18</sup>
- \* Total offtake from commercial farms, estimated at 67,500 animals shot or caught alive in 1982, rose to 89,000 in 1990.<sup>18</sup>
- \* MET data on trophy hunting on commercial farms indicates that 8011 trophy animals were utilised in 1993, and there are now 414 hunting farms.<sup>10</sup> As Table 1 shows, the directly measurable gross revenue generated from trophy fees, daily fees, and meat sales, amounted to R 19.6 million in 1993, of which all but R 2 million would be foreign exchange. Another study estimated that foreign exchange earnings in 1991 from trophy fees, accommodation, air fares and trophy export charges amounted to R 44 million (Atwell, quoted in Yaron et al, 1993).

**Table 1: Trophy Hunting utilisation and revenue in the private sector, Namibia, 1993**

ITEM	NUMBER	VALUE / REVENUE <sup>6</sup> (N\$'000)
Trophy animals utilised	8011 <sup>1</sup>	9,043 <sup>2</sup>
Trophy hunters	2063	7,426 <sup>3</sup>
Observers	613	920 <sup>4</sup>
Sale of trophy animal meat	7,604 (animals)	2,226 <sup>5</sup>
<b>Total</b>		<b>19,615</b>

1: made up of over one thousand each of kudu, oryx, springbok and warthog. High value species include 16 elephants, 4 giraffe, 7 roan, and 1 tsessebe.

2: tariff payable to government for elephants is not included;

3: average 6 days per hunter, @ N\$ 600 per day;

4: average 6 days per observer, @ N\$ 250 per day.

5: prices per kg vary from \$2.20 for zebra to \$4 for ostrich, eland and springbok;

6: this does not take into account indirect revenue generated, but nor does it take costs into account so it is simply a measure of output and not national income.

Source: MET, 1993 Permit Office Report

As with tourism, the distribution of these benefits is as critical as the scale. Until now, all benefits have been exclusive to commercial farmers. Farmers on communal land do

poach some wildlife, particularly smaller species such as springhare. As such activities are illegal there is no overall data on its extent. Occasionally "pot permits" are issued by the MET to local chiefs, to shoot one or two animals for a local feast or celebration, or meat from MET culling is available to local communities. In 1993, a local community in Sesfontein area (Kunene Region) working with IRDNC, applied for permits to undertake a wildlife cull themselves. They shot 484 animals, earned N\$ 18,255 from sale of skins, and distributed meat among the community worth N\$ 146,860 (valued at N\$ 3.50 per kg). The cash income from skins did not cover operating costs, due to high ammunition and transport costs, and low prices for poor quality skins. However, with improved efficiency and training, the activity has potential to generate cash profits as well as valuable meat supplies for the community.<sup>15</sup> This indicates that there is potential for sustainable consumptive utilisation to contribute economic benefits to communal areas.

Farmers in communal areas such as Caprivi, eastern Kavango, Kunene, and north of Etosha, currently experience costs rather than benefits from wildlife. Lions, hyaenas and other predators prey on stock, while elephants damage crops and water points. Commercial farmers also suffer predators, but are more able to deal with them themselves or ensure prompt Ministry action to deal with "problem animals", and they can exploit the economic potential of the animals by selling their skins or offering them as hunting trophies.

In the past, the Government has rarely earned revenue through consumptive use of wildlife in National Parks. However, in 1993, a cull through sport hunting at Hardap Game Reserve raised N\$40,000 and a live auction at Waterberg Plateau Reserve brought in N\$1.3 million. The 1994 auction is estimated to raise N\$1.7 million. Despite pressures for "wildlife to pay its way," the financial incentives for the Ministry to substantially increase such activities is limited for two reasons: given the costs of capturing, keeping, and translocating the animals, and particularly staff time, net profit may be small; even if profit to the state is considerable, the MET would still face a financial dis-incentive because all the revenue generated goes to the central government, so MET cannot even recover its costs, let alone enjoy some profit. Other Ministry objectives for undertaking sales, such as the benefit of re-distributing bio-diversity, are likely to be as, or more, important than economic incentives.

**D: SUMMARY OF BENEFITS TO DATE;  
HYPOTHESIS OF POTENTIAL BENEFITS IN FUTURE**

At present the bulk of economic benefits of wildlife-viewing tourism accrue to private enterprise, whether it occurs on private, state or communal land. Similarly, the bulk of economic benefits from consumptive use of game, for hunting and own consumption, accrue to commercial farmers and private enterprise. The Namibian government earns significant revenue from tourism, through tax, fees, levies, and park revenue. However, this revenue is sub-optimal mainly because the level of wildlife utilisation is itself sub-optimal, and also because government prices (for example Park fees and levies) are sub-optimal.

Fewest benefits accrue to communal area residents, even though wildlife-viewing and trophy hunting occur on their land, and most national parks are on former communal land. In addition, farmers in some communal areas bear significant costs of wildlife. Communities and local residents lack the legal rights to either utilise wildlife themselves, or enforce charges on others for access and use of wildlife and scenic areas. Furthermore, they are generally unable to take up the few market opportunities that do exist (through applying to the government for leases, concessions and PTOs) due to economic, social, and institutional constraints.

The prohibition on utilisation of wildlife in communal areas, and enormous obstacles faced by local residents to developing non-consumptive enterprises, means that market signals are completely suppressed. As a result, wildlife utilisation is well below its optimal level, and there are no incentives for maintaining the wildlife resource base.

Though economic analysis is very preliminary, our hypothesis is that removing these prohibitions and constraints would be economically worthwhile: wildlife utilisation could provide a significant financial return to communal farmers as a complement to livestock, and a significant economic return for Namibia. This is supported by comparisons with similar ecological zones in Botswana and with commercial enterprise in Namibia, and by evidence of limited and fluctuating cash returns to livestock farming.

**E: FINANCIAL AND ECONOMIC RETURNS TO WILDLIFE UTILISATION  
IN BOTSWANA AND NAMIBIA**

An indication of the potential economic significance of wildlife in Namibia can be drawn by comparing results from Botswana, where several years work have demonstrated the viability of wildlife enterprises, and by integrating preliminary data from Namibia.

**E.1. Photo-safari and trophy hunting enterprises**

Ngamiland District, northern Botswana has many similarities with Caprivi Region, north-east Namibia, so a comparison of tourism enterprises at sites in each provides

insights into the economic potential of wildlife in Caprivi. Ngamiland is in a Wildlife Management Area (WMA), which is a zone in communal land where the main intended form of land use is wildlife utilisation. Caprivi is the most north easterly part of Namibia, and shares a border with Northern Botswana. West Caprivi is a proclaimed Game Reserve, East Caprivi is communal land with two small National Parks, Mudumu and Mamili. In both regions, traditional livelihood rests on cattle keeping, but tourism and wildlife utilisation is growing.

Empirical data from up-market tourism lodges in northern Botswana was used to build an economic model of a typical case.<sup>2</sup> Investment in an up-market photo safari lodge in a 21,447 hectare concession of prime wildlife habitat in Ngamiland shows significant financial returns for the entrepreneur and economic returns for society. Table 2 summarises the main results.

Table 2: Financial and Economic Returns; Up-market Tourist Lodge in Ngamiland, Botswana, 1990

ITEM	Pula
Capital Investment	1 320 324
Financial net cash income per year per ha per P 100 capital investment	315 178 14.70 23.87
Financial internal rate of return over 10 years <sup>1</sup>	17.54%
Economic net benefit (value added) per year per ha per P100 (at economic prices) of capital	650 480 30.33 46.24
Economic rate of return over 10 years <sup>2</sup>	27.51%

<sup>1</sup>: Financial rate of return is the average annual return the investor receives on the initial investment during the first ten years, expressed as a percentage of the investment per year.

<sup>2</sup>: Economic rate of return is the average contribution to the Namibian economy per year, expressed as a percentage of the initial economic cost of the investment. Economic prices differ from financial prices because they are adjusted for taxes, subsidies (but not government investment), the additional cost to the economy of using foreign exchange, and additional benefit to the economy of employing unskilled labour.

Based on preliminary data from tourism lodges in Caprivi, a similar model for a typical photo-safari lodge in prime wildlife viewing area in Caprivi, with similar wildlife density, shows that returns are smaller but still significant. As Table 3 shows, the Caprivi model is for a lodge two thirds of the size of the Ngamiland lodge, in terms of concession area and number of beds. Total capital investment and daily tourist fees are only 40% of Ngamiland levels, and land rental fee is also much lower. The assumptions are tentative and therefore the findings no more than indicative, but they nevertheless indicate interesting comparisons with Ngamiland.

### **Findings:**

- \* It is estimated that the enterprise could earn the entrepreneur around N\$150,000 per year, and contribute over N\$ 550,000 per year to Namibia's economy.
- \* The estimated financial net income per bed (over N\$10,000 per year) and per hectare (around N\$14 per year) are just under half the return in Ngamiland. The rate of return the investor gets on the initial investment over ten years is positive and significant (around 10% per year) but lower than the 18% return of the Ngamiland model.
- \* The economic net incomes from the enterprise (ie value added to Namibia's economy per year, per bed and per ha) are also less than half the Ngamiland level. However, the economic rate of return, at 24%, is high and closer to that in Ngamiland, due to the substantially lower capital investment assumed in Caprivi.

### **Possible implications:**

- \* The difference in the profitability of the two models is largely because of the lower daily tariffs in the Caprivi example (N\$300 compared to N\$750 per day). This is possibly because, as yet, Caprivi is not a well-known tourist destination and is a little off the well-beaten tourist routes. It may also be affected by the availability of subsidised public resorts and facilities in Namibia which undercut the private sector. Botswana does not have subsidised public facilities. However, the up-grading of the Trans-Caprivi highway and the overall expansion of Namibian tourism, means that Caprivi's prices are likely to climb towards international levels and so the financial and economic returns can be expected to grow.<sup>[5]</sup>
- \* The estimated economic return of N\$25 per hectare and 24% economic rate of return, suggest that, even at current prices, this is likely to be a good use of this land and capital from an economic perspective (however opportunity costs of alternative land uses are not included in the economic model).

<sup>5</sup> If revenue assumptions in the Caprivi model are changed to match Ngamiland -- daily fees of N\$750 and occupancy rate of 33% -- without a corresponding increase in cost assumptions, net economic returns exceed those in Botswana (financial rate of return of 57%, economic rate of return of 69%). However, Caprivi prices are more likely to move towards than reach these levels.

**Table 3: Up-market photo-safari tourist lodges in Caprivi and Ngamiland  
Financial and Economic Returns (1994)**

		CAPRIVI	NGAMILAND	Caprivi as % of Ngamiland
		NS '000 except where stated otherwise		
1	No. of beds	18	30	60%
2	Concession area (ha)	14,403	21,447	67%
3	Large Stock Units on concession	465	715	65%
4	Wildlife density (ha/LSU)	31	30	103%
5	Capital investment	\$1,014.5	\$2,419.7	42%
6	Capital I per bed	\$56.4	\$89.5	63%
7	Price/adult/day	\$300	\$774	39%
8	Occupancy rate	40%	33%	121%
9	No. of visitor days per year	2,628	3,614	73%
<b>FINANCIAL RETURNS</b>				
10	Gross income	\$808.1	\$2,814.4	29%
11	Gross margin	\$610.8	\$1,631.3	37%
<b>Net income</b>				
12	per year	\$154.3	\$577.6	27%
13	per bed	\$8.6	\$19.3	45%
14	per ha (NS)	\$11	\$27	40%
15	per \$100 capital (NS)	\$15	\$24	64%
16	Internal rate of return (% p.a. over 10 years)	10%	18%	56%
<b>ECONOMIC RETURNS</b>				
17	Gross income	\$873.5	\$3,095.9	28%
<b>Net economic income</b>				
18	per year	\$353.9	\$1,192.1	30%
19	per bed	\$19.7	\$39.7	49%
20	per ha (NS)	\$25	\$56	44%
21	per NS\$100 capital (NS)	\$35	\$85	41%
22	Economic rate of return (% p.a. over 10 years)	24%	28%	85%
23	Jobs created (no.)	21	44	47%
24	Capital cost per job created	\$42.3	\$66.1	64%

**NOTES AND ASSUMPTIONS**

Row	For Caprivi figures:	For Ngamiland figures:
1,5,10,11	based on preliminary data from few operators in Caprivi	all Based on data collected from several enterprises over several years;
2	assuming tourist carrying capacity of 800 ha per bed	Prices from the model in Table 2 are converted into 1994 prices
3	based on species distribution in West Caprivi (3)	allowing for Botswana inflation of 11% pa
		and converted to Namibian dollars at NS 1.34 per pula.
		7 weighted average of 450 pula per foreigner, 350 per citizen (1990 prices)
In both models:		
Financial returns indicate costs and benefits faced by a private investor.		
Calculations of financial income take account of interest, amortisation, fees, and rentals (but not tax, for the sake of international comparison).		
19	gross margin is gross income less variable costs	
11	net income is gross margin less overhead costs, (eg capital payments)	
16	IRR calculations are at constant prices, exclude interest and depreciation, and include asset residual values.	
Economic returns indicate costs and benefits from the perspective of the national economy:		
17-24	i.e. including a foreign exchange premium of 10% on tradeables, discounting unskilled wages by 50% of market wage, and excluding domestic transfers, e.g. fees to government.	

Comparison of typical trophy hunting enterprises in Caprivi and Ngamiland generate similar results, as shown in Table 4. The Caprivi model is for an enterprise with a smaller but more valuable trophy quota, as it includes 21 elephants, along with a few hippo, giraffe, sable, tsessebe and other high value species that cannot be hunted in Botswana (it is based on very preliminary research, and is even less robust than the photo-safari model).

### **Findings:**

- \* Despite the more valuable trophy quota, the financial and economic net income are significantly lower in Caprivi because daily hunting fees are lower than they were in Botswana in 1991. The enterprise is still profitable but would not realise the financial rate of return of 16% and economic rate of return of 38% realised in Botswana.
- \* As in Ngamiland, the net income per year from trophy hunting in Caprivi is around half that of the photo-safari enterprise, on a concession nearly 10 times the size. Therefore the net income per ha is very much lower, although net income per N\$100 of capital investment is similar.

### **Possible Implications:**

- \* If trophy hunting rates in Caprivi rise to international levels, this will significantly improve economic and financial returns.
- \* The model is based on current wildlife numbers in Caprivi, which are low relative to potential carrying capacity. If numbers recover there is further potential for increased returns.
- \* Given the substantially higher net income per hectare from photo-tourism than hunting, prime wildlife habitat is best used for photo-safari, and less scenic, lower quality wildlife habitat is better used for hunting (where the two are mutually exclusive).

These admittedly preliminary findings, indicate that returns to wildlife utilisation in Caprivi are comparable but smaller than in Ngamiland. It is important to note that the Caprivi sites represent Namibia's highest potential area in terms of wildlife density and numbers. Other areas of the country, such as Etosha, the Kalahari, the Namib-Naukluft desert, and Kunene probably have lower but still positive economic values for wildlife-based tourism. However, these areas hold other advantages such as accessibility and infrastructure (in the former), and wilderness, expanse, desert-adapted species, and/or cultural interest in the others.

On the basis of these indications, the implications of other data from Botswana can be usefully considered.

**Table 4: Trophy hunting enterprises in Caprivi and Ngamiland  
Financial and Economic Returns (1994)**

			CAPRIVI	NGAMILAND	Caprivi as % of Ngamiland
			NS '000 except where stated otherwise		
1	Trophy offtake	(no.)	74	90	82%
2	Concession area	(ha)	131,023	181,119	72%
3	Wildlife density	(ha/LSU)	22	32	69%
4	Capital investment		\$762.2	\$979.4	78%
5	Rental fee		\$78.6	\$199.2	39%
6	No. of hunting days per year		135	197	69%
7	Hunter fees	(NS / day)	\$3,000	\$4,763	63%
8	Observer fees	(NS / day)	\$300	\$995	30%
<b>FINANCIAL RETURNS</b>					
9	Gross income		\$746.3	\$1,308.5	57%
10	Gross margin		\$553.2	\$936.5	59%
	<b>Net income</b>				
11	per year		\$76.0	\$250.8	30%
12	per ha	(NS)	\$0.6	\$1.4	42%
13	per \$100 capital	(NS)	\$10.0	\$25.6	39%
<b>ECONOMIC RETURNS</b>					
14	Gross income		\$820.9	\$1,439.4	57%
	<b>Net economic income</b>				
15	per year		\$296.6	\$528.4	56%
16	per ha	(NS)	\$2.3	\$2.9	78%
17	per NS100 capital	(NS)	\$36.1	\$93.8	38%
18	Capital cost per job created		\$58.7	\$73.7	80%
19	Jobs created	(no.)	14	14	100%

**NOTES AND ASSUMPTIONS**

Row	For Caprivi figures (a very preliminary model)
4, 7, 8,	based on data from Arvo Safaris quoted in Yaron et al (1993) combined with data from tourism lodges in Caprivi and Safan hunters in Botswana.
1	based on sustainable offtake rates for Caprivi game density
3	based on species distribution in West Caprivi (3)
Ngamiland	Based on data collected from several enterprises over several years; 1991 Botswana prices are converted into 1994 prices allowing for Botswana inflation of 11% per year and converted to Namibian dollars at an exchange rate of 1.34 NS per pula
	In both models, financial returns are from the perspective of the investor, economic returns from the perspective of the national economy
10	gross margin is gross income less variable costs
11	net income is gross margin less overhead costs, including capital payments
14,15	adjusting for foreign exchange premium of 10% on tradable costs and benefits adjusting for shadow wage rate at 50% of market wage excluding domestic transfers, eg fees to government
17	per \$100 economic cost of capital

## E.2. Economic returns to alternative resource-using enterprises

Barnes<sup>2</sup> listed various alternative natural resource utilisation enterprises in Botswana in order of their economic and financial rate of return. The results are shown in Table 5, along with comments of possible comparable areas/enterprises in Namibia.

TABLE 5: COMPARATIVE ESTIMATED RETURNS TO SELECTED NATURAL RESOURCE UTILISATION ENTERPRISES IN BOTSWANA, 1990

ENTERPRISE	SOURCE OF REVENUE	Rate of Return (%)		NAMIBIAN COMPARISON
		Financial <sup>1</sup>	Economic <sup>2</sup>	
Community Project: prime wildlife area, high game density	Biltong, skins, lease rentals	21	55	Caprivi - conservation areas
Safari hunting: prime wildlife area	Trophy offtake, 12 bed lodge	16	45	West Caprivi riverine area
Tourist lodge: concession in prime wildlife area (Okavango Delta)	Exclusive 30 bed lodge	18	35	Concession site in or near Caprivi parks/reserve
Hardwood extraction: woodland	Sawn timber, logs	15	29	Caprivi sandveld woodland
Community project: poor wildlife area, Kalahari sand	Biltong, skins, lease rentals	21	28	Bushmanland
Ostrich farming: intensive, commercial	Skins, meat	19	14	Commercial farms, former Namaland & Damaraland
Crocodile farming/ranching	Skins, meat	18	11	Commercial farms, Kavango, Caprivi, Kunene
Game ranching: 9,000 ha farm	Biltong, fee hunting	6	7	Commercial farms
Commercial cattle ranching: 6,500 ha	Breeding beef	5	na <sup>3</sup>	Commercial farms

1: return to the investor - see explanatory notes to Table 2.

2: return to the economy - see explanatory notes to Table 2.

3: not available

### Finding and Implications:

- \* The results suggest that in Botswana, use of free ranging wildlife populations on public lands is more profitable than more capital intensive ranching and farming of wildlife and that many of the wildlife use enterprises are financially more attractive than the basic beef farming enterprise.
- \* Given general similarities in wildlife and habitat between the two countries, and the fact that both countries face similar international prices for many enterprise

inputs and outputs, the results could well also be applicable in Namibia. This is an important area for future research, in order to assist with land-use and development planning.

### E.3. The significance of government subsidies

More detailed analysis presented in Table 6, also from Barnes<sup>3</sup> confirms that from a national economic perspective, game farming in southern Botswana is likely to provide greater returns than beef ranching. However, from an investor's point of view, government subsidies make beef farming as, or more, profitable than game. Veterinary inputs, feed supplements, bull purchases, transport costs and upper grade carcass prices are all partially subsidised.

**TABLE 6: A Comparison of Financial and Economic Returns to Beef Farming and Game Ranching in Botswana, Illustrating the Effect of Government Beef Subsidies on Financial Returns (Pula '000, 1991)**

ENTERPRISE	BEEF*		BEEF* GAME**
	YES	NO	NO
SUBSIDIES INCLUDED			
Ranch Scale (Hectares)	10,000	10,000	10,000
Stock on Hand (Head)	930	930	2, 210
<u>Financial analysis</u>			
Initial Capital Investment	941	985	1324
Annual Gross Income (Sales)	221	197	242
Gross Margin <sup>1</sup>	184	126	202
<b>Annual Net Cash Income<sup>2</sup></b>	<b>67</b>	<b>3</b>	<b>70</b>
<b>Financial Rate of Return (10 yrs)</b>	<b>8.8%</b>	<b>2.0%</b>	<b>5.9%</b>
<b>Fin. Net Present Value (@ 12%)</b>	<b>-159</b>	<b>-512</b>	<b>-399</b>
<u>Economic analysis</u>			
Capital Outlays	1026	1026	1367
Annual Revenues	216	216	266
<b>Annual Net Economic Benefit</b>	<b>98</b>	<b>98</b>	<b>187</b>
<b>Economic Rate of Return (10 yrs)</b>	<b>2.3%</b>	<b>2.3%</b>	<b>6.6%</b>
<b>Economic Net Present Value (@ 6%)</b>	<b>-272</b>	<b>-272</b>	<b>59</b>

\* Beef breeding and rearing for production of slaughter steers in the eastern Kalahari

\*\* Mixed species game ranching for safari hunting and biltong production in the eastern Kalahari

1: Gross margin is gross income less variable costs

2: Net cash income is gross margin less fixed costs

**Findings and implications:**

- \* If subsidies are removed from the models for cattle ranching in Botswana, the estimated financial rate of return falls from 8.8% to 2%, and beef ranching becomes less profitable than game ranching.
- \* These results may reflect future trends, as in both Botswana and Namibia demands on government spending are likely to reduce future subsidies for commercial agriculture. Since game farming benefits from very little subsidy at present this means that the incentives for adoption of game farming are likely to increase. Furthermore, reduction in price supports in beef-importing countries would reinforce this trend, whereas venison prices are already at a low.

**E.4. Relative importance of photo-tourism vs consumptive uses.**

Another important finding from Botswana with implications for Namibia is the relatively high contribution of photo-tourism and relatively low contribution of wildlife product sales to the total economic benefit earned from an optimal combination of enterprises. A linear programming model of the wildlife sector in Botswana was used to determine the combination of enterprises which would optimise annual net economic benefit and ten year net present value at different levels of labour, capital and management resource availability.<sup>3</sup> At low (and probably current) levels of these three variable resources, investment in wildlife use is best concentrated mostly around wildlife viewing tourism (ie. 97 out of a potential total of 102 enterprises). Only as labour, capital and management resources double and triple is diversification desirable (to the point where wildlife viewing accounts for 182 out of a potential 330 enterprises) as other more rigid constraints are reached. This and associated studies for Botswana<sup>5</sup> also showed that potential for expansion in the wildlife sector is in the region of four to five times present use levels. In Namibia, as elsewhere, the high prices paid per trophy animal are well-known, and lead many to believe that this must be the most profitable enterprise, when the actual returns to land and capital investment can be lower than from photo-tourism.

The market for consumptive uses for wildlife can be anticipated to decline in the future<sup>3</sup> due to environmental preservationist pressures. However, the linear programming model showed that elimination of all consumptive wildlife uses would be likely to reduce the economic contribution of the wildlife sector by only about 16%. This suggests that any decline in wildlife product markets will not drastically reduce the value of, or potential for, wildlife use in Botswana -- and hopefully Namibia. This is further supported by the fact that some of the areas of greatest tourism potential in Namibia are those with the most unique and striking scenic attractions but low wildlife densities, such as in Namib region.

## **F: SIGNIFICANCE OF ECONOMIC RETURNS TO COMMUNAL AREAS**

The data above suggest that wildlife utilisation in Caprivi would probably be financially profitable for an investor and economically a good use of land. However, this does not necessarily mean it is a productive use of land and resources from the perspective of communal farmers. This issue rests on three other questions: firstly, if wildlife-based enterprises are undertaken by private entrepreneurs, is there sufficient return for substantial profit sharing? Secondly, how do the returns to wildlife utilisation (whether operated by communities or entrepreneurs, as part of the market or subsistence economy) compare to the other main use of communal land -- livestock grazing. And thirdly, do communities have the means to undertake wildlife utilisation and enterprises themselves? Each of these is considered in turn.

### **(i) if wildlife and tourism enterprises are undertaken by private entrepreneurs, by leasing out a concession on communal land, is there sufficient profit for substantial profit sharing?**

The data for lodge development in Caprivi suggests that there is scope for profit-sharing. If the current N\$5,000 rental fee were increased and paid to the community instead of the government, it could provide a significant community income while still leaving the enterprise profitable for an investor. An alternative approach is profit sharing: payment to the community of 10% of net profit (equivalent to 2% of revenue) would give the community around N\$15,000 per year once the lodge reached full operating capacity. One lodge in Caprivi already includes a N\$5 bed-levy in its N\$200 accommodation charge (i.e. 2.5% of one of the major sources of gross revenue) which earns around N\$10,000 per year for the community. If a lodge is as profitable as indicated in the model discussed above, a 10% profit share would still leave the investor with around \$140,000 per year. The appeal of ethical ecotourism means that it is often possible to pass such costs directly on to the tourist, therefore barely affecting the profits accruing to the investor, while increasing the total financial and economic benefits of the enterprise.

It should be noted that community revenue of \$10-15,000 is small relative to total annual earnings of community members employed in a lodge: 6-15 employees would earn between \$30,000 and \$100,000 per year in total. However, the revenue share would still be a significant cash injection, particularly because it can be distributed more widely across the community.

If a full joint venture were entered into, based on a contractual partnership not a voluntary donation from the entrepreneur to community, the community's profit share would probably be higher, in return for their input of land and resources. However, in order to then still provide a sufficient return for the financial investment provided by the outsider, the enterprise would need to generate higher than normal profits. This is most likely if the community can contribute either uniquely attractive land and resources, or a highly-valued cultural/ethical tourist attraction. These conditions in turn depend on communal land rights and uses, and on development of the eco-tourism market.

However, whether revenue-sharing arrangements and joint ventures will be established, depends on communities' economic and legal rights. If community approval were required for PTO applications, communities could ensure revenue-sharing is built into private sector operations. If conservancy legislation gives communities the right to charge concession fees or contribute land and resources to a joint venture, the market value of their resources and their negotiating position will be further strengthened. Further research will be needed to determine the potential "bid price" of concessionaires and the potential revenue that communities could derive from other uses of such prime wildlife land, in order to help optimise community income within the constraints of what is financially feasible. However, many other questions would also have to be addressed -- particularly mechanisms for equitable distribution of cash -- before profit-sharing translates into improved living standards of households and communities.

i.e. This discussion suggests that it should be possible for an enterprise to contribute significant income to a community and remain financially viable for an investor, but care, effort, research, and negotiation will be needed to optimise benefits.

**(ii) How do the returns to wildlife utilisation --whether by communities or entrepreneurs -- compare to the other main use of communal land -- stock grazing?**

Very little data is available on the returns to keeping livestock on communal land, for two reasons: communal agriculture has been a neglected area of policy research, and livestock provide significant indirect and non-market benefits to farmers which are hard to quantify. For example, in Caprivi the cash value of cattle as meat is generally only realised as a last resort. However, cattle also provide milk, manure, draught power, a store of wealth, and a mark of status, and in some cases a claim to land. The importance of livestock is captured in the Oshindonga saying "a man without cattle is not a man" ("Omulumentu ngoka ke na oshimuna ke shi omuntu (omulumentu)").<sup>18</sup> Given the generally low financial profitability of livestock ranching, these non-use values appear to be important in motivating investment.

The returns to wildlife utilisation will vary enormously across areas. Comparison of returns to livestock presented here is most relevant to areas with potential for both wildlife and livestock, such as Caprivi and Kunene. Returns also depend on the form of wildlife use: whether for subsistence or through commercial enterprises. It is not possible to calculate the value of subsistence use of wildlife, given lack of information on nutritional and economic values of subsistence food, and current illegal poaching. In the case of enterprises, the type of enterprise and role of private investors will affect community earnings. For both subsistence and marketed uses of wildlife, the distribution of benefits between households may be different from the distribution of livestock benefits.

Preliminary analysis by Yaron et al,<sup>18</sup> compared the financial returns from cattle used for meat and draught power with returns from utilising wildlife for tourism, hunting and cropping in Caprivi. The results are not robust, as only major elements of costs and benefits were included (costs for wildlife enterprises are under-estimates), and the

estimates cover the entire Caprivi region which comprises low and high quality areas for both wildlife and livestock. However, they indicate that returns from wildlife enterprises compare favourably to cash returns from livestock. In line with the findings from Botswana above, they also suggest that if government subsidies are removed, the relative cash advantage of wildlife (which is not subsidised) may be even greater. Table 7 summarises their results.

Table 7: Comparative estimated returns to wildlife and livestock utilisation enterprises on communal land in Caprivi, 1993<sup>18</sup>

Financial return (\$ per annum)	LIVESTOCK <sup>1</sup>	WILDLIFE <sup>2</sup>
Net revenue	2,753,486	3,568,545
Net revenue - per ha <sup>3</sup>	1.41	1.83
- per kg	0.10	0.41
- per household	384	498
Net revenue without subsidies <sup>4</sup>	556,369	3,111,795

1: returns from slaughter for meat sale, and hiring out draught power.

2: returns from a combination of photo-tourism, trophy hunting, cropping and live-sale.

3: 1.9 million hectares in West and East Caprivi

4: subsidies include government provision of water points and veterinary services, that are received by the sector though are not specific to individual farmers.

As the return to wildlife is achieved with far less animal mass, the returns per kg are significantly higher. The environmental costs of overgrazing are probably considerably lower for three reasons: wildlife have evolved with the indigenous vegetation and there is a higher degree of symbiosis between them; wildlife has a far more diversified feeding range, from different level browsers to bulk and selective grazers; wildlife is much more mobile and less dependent on water points, so does not place pressure to the same extent on local vegetation.

On the other hand, there are two other considerations that make wildlife utilisation less attractive to communal farmers. Firstly, game farming requires different management and additional infra-structure compared to livestock. For example, shooting skills, on-farm slaughtering, refrigerated transport to distant markets, and different techniques of herd management. Secondly, the returns to tourism-based wildlife uses do not accrue exclusively to the community, because private companies will be involved in some of the enterprises and the state in park management and issuing of hunting licences. Both will still require some revenue. The same report estimates that if communities receive 50% of the income from tourists, park entry fees, craft sales, hunting fees, live capture revenue, plus the full value of game cropping and trophy meat, their annual revenue from wildlife enterprises is still only two thirds of that from keeping livestock for meat and draught. This is because the state and private business receive none of the revenue

from livestock, while the state contributes a significant amount to the community through subsidies. The clear implication is that wildlife utilisation must be **complementary** to, not a substitute for, cattle, even considering just cash income rather than total economic values.

Both cattle and wildlife have important non-cash use value and non-use values. The former includes their contribution to the subsistence economy, as food, fertiliser, exchange products or, in the case of cattle, draft power for own-use. The non-use value of cattle, in terms of status and store of wealth, has been mentioned. Wildlife also has existence values in many parts of Namibia. For example, participants in community-based conservation projects in both Caprivi and Kunene have told NGO staff that a major reason why they want to increase wildlife numbers is so that their children will see them. Wildlife and wilderness eco-systems also have existence and option values for non-residents of communal areas. Where these are concentrated among better off people and countries, mechanisms need to be developed to "capture" some of these values as revenue. However, from the communities' perspective, wildlife utilisation through tourism also brings non-cash costs, such as invasion of privacy and cultural intrusion.<sup>6</sup>

Given the social significance of cattle, the question of whether to farm wildlife **in place** of livestock is meaningless. So the complementarity between the two activities will be a crucial determinant of the adoption of wildlife enterprises, once communal farmers have the necessary legal rights and skills. Most wildlife utilisation options are consistent with livestock farming, though with some trade-offs and some need for land zoning. Water and grazing can usually be shared as game can range much further from water points, and have different browsing and grazing behaviour. Therefore total animal density can be higher, representing a more efficient use of land. However, periodic water shortages, high densities of either game or stock, or a combination of poor dry-season grazing with fences that prevent game movement, can result in competition between the two. Sharing rangelands with elephants and predators is a problem due to the damage they cause crops and stock (respectively). Tourists paying for wildlife-viewing and/or wilderness may be disturbed to see livestock. So in areas for elephants, predators, and photo-tourists, land zoning may be needed, for example to define core areas and multiple-use areas, along with the appropriate management practices in each.

Irrespective of the **scale** of financial returns from wildlife, an important advantage for farmers is diversification of risk, particularly given their vulnerability to drought in Namibia. For example, during the 1979-81 drought, communities in the north west lost 80% of their cattle.<sup>18</sup> The 1991-92 drought also forced increase stock sales and depressed prices, though not to the same extent. Diversification to include wildlife would have three advantages at such times: some wildlife is more drought resistant; cash income from wildlife enterprises (tourism or meat/live sale) would be subject to different cyclical fluctuations; game would be more likely to be culled for subsistence consumption than cattle (for social and cultural reasons) so could boost food security. It appears that commercial farmers' utilisation of game increases during years of poor rainfall and grazing, though this has not yet been documented, and this cushion would be even more important for subsistence farmers.

The non-market values of livestock are likely to continue influencing the action of communal farmers well after legislation gives them rights to use wildlife, though these values may gradually diminish as more farmers are integrated into the cash economy and as communal land tenure changes. If the government's aim is to maximise total economic benefit - not just cash income -- from the nation's resources, these non-market values, and those of wildlife, should also be taken into account in land-use and resource-use planning.

- i.e. The above discussion suggests that cash incomes from wildlife utilisation would compare favourably with livestock farming in some communal areas, although financial returns are reduced by the higher input costs involved, and the likelihood that some revenue would accrue to the government and private sector partners. Wildlife utilisation would also reduce vulnerability to drought, and provide some non-use values. However, given the high total economic value of cattle, including subsistence and social benefits, wildlife is more appropriate as a complementary activity to livestock.

**(iii) Do communities have the means to undertake such enterprises themselves.**

If wildlife-based enterprises are run by community institutions, or individual local residents, they are likely to generate more secondary economic and social benefits within the local area. However, at present, most communal farmers lack the business and institutional skills, and the financial backing, necessary to set up hunting, photo safari and culling enterprises.<sup>[6]</sup> All lack the legal rights to operate hunting or other consumptive wildlife enterprises, and can only acquire legal rights to operate tourist accommodation or service by applying for a PTO. These social, economic and legal constraints mean that sales of wildlife products and other crafts, cultural services for tourists (such as guided walks, a Traditional Village) and community campsites, are at present the extent of community enterprises. Many of these emerging enterprises represent enormous progress based on years of community-NGO-government cooperation.<sup>[7]</sup> Ongoing research indicates that such enterprises can yield income of around \$2-15,000 per year for the community -- comparable with a 10% share of revenue from a lodge, and much less than wage earnings from a lodge, but significant because it is generated, controlled and used by the community, represents a high return on low investment, promotes development of skills and institutions, and has growth potential.

This suggests that, initially, enterprises controlled entirely by communities or community members are likely to be small scale, while up-market ventures are likely to

<sup>6</sup> except perhaps north of Etosha, where some Owambo entrepreneurs have skills and resources, but the constraint is low tourist and wildlife numbers.

<sup>7</sup> For example, IRDNC and other projects supported by the LIFE (Living in a Finite Environment) Programme are supporting community enterprises in Kunene, Caprivi and Bushmanland.

involve a private investor or partner. However, capacity for local enterprise will increase if there is:

- \* time and space for enterprises to evolve and grow (i.e. resource-use may be sub-optimal at first);
- \* greater use of the existing legal system of PTOs and concessions by community members themselves;
- \* establishment of legal rights for wildlife utilisation through conservancies;
- \* development of skills and institutions;
- \* financial resources available to communities.

The exact nature of institutional support, training, and legislation that will be needed is outside the scope of this paper, but it is important to note that these will affect the nature of wildlife utilisation enterprises, the economic and financial returns, the balance between market and subsistence use of wildlife, and the priorities for future economic research.

## **G: CONCLUSIONS ON THE POTENTIAL VALUE OF WILDLIFE IN NAMIBIA**

Several tentative implications can be drawn from the economic analysis and comparisons presented above:

- \* financial and economic returns from tourism enterprises in prime wildlife areas of Caprivi appear to be positive and significant, though lower than in similar areas of Botswana. Therefore they may well represent a good use of land and resources for investors and for the economy.
- \* such enterprises in communal areas could probably still be profitable for the investor if there is substantial revenue-sharing with communities.
- \* in other parts of Namibia with less scenic resources, financial and economic returns to wildlife uses are likely to be lower but still positive. Other values -- of wilderness, culture, adventure -- need to be exploited.
- \* at present, enterprises in Caprivi appear less profitable than in comparable wildlife areas of Botswana, largely because the daily fees for tourists and hunters in Caprivi are lower. However, with developments in the tourism market, this may change.
- \* returns per hectare of land are much higher for photo-safari tourist enterprises than for trophy-hunting enterprises in prime areas of Caprivi (as in Botswana). This suggests that prime areas such as the rivers' edge, would be better used for photo-tourism, and adjacent areas for hunting.
- \* the potential contribution of photo-safaris to total net income from wildlife utilisation is probably much higher than that of other, consumptive activities. This is fortunate as the photo-tourism market is more likely to expand than the market for wildlife products (leather, ivory etc).

- \* generally, the potential cash returns for farmers from wildlife-utilisation and livestock keeping are possibly comparable at present, given that livestock farming is subsidised and wildlife is not. A reduction in subsidies would encourage wildlife utilisation, however, a switch to wildlife utilisation involves changes in skills, infra-structure and management methods which would reduce returns in the short term.
- \* both livestock and wildlife have non-market values. In areas where the non-market values of cattle are very significant, wildlife should be analysed as a complementary, but not an alternative, source of value.
- \* wildlife utilisation could generate significant cash income, non-marketed benefits, and a buffer against drought for residents of communal areas as a complementary activity to livestock. This requires appropriate legislative change and institutional support to give communities the rights and skills to manage wildlife and to retain a substantial part of the revenue. Wildlife utilisation is probably not preferable economically or socially, as an alternative, except to the extent of limited land zoning within a larger stock and wildlife area. However, if returns to stock farming (including non-use values) diminish with changes in markets, subsidies, land-ownership and fertility, and cultural values, the relative attraction of wildlife enterprises could increase.

## **H: IMPLICATIONS**

Although Namibia already gains significant, if unmeasured, economic benefits from its wildlife, it has not made best use of these resources in the past. Particularly on communal lands, utilisation has tended to be inequitable and sub-optimal. Research presented in this paper suggests that economic benefits from wildlife could be increased, in a manner

that is more equitable and sustainable than at present. Furthermore, their relative economic value could increase with changes in tourism and livestock markets.

However, many changes are needed for these potential benefits to be translated into reality:

- \* The economic potential of wildlife must be recognised, so that it is incorporated into the decision-making of individuals and policy-makers. Further economic research and discussion is needed to counter the view that wildlife has only a conservation value and not an economic value (a resource economics programme has begun in the Ministry of Environment and Tourism to assist this process).
- \* Legislative proposals need to be enacted that give communal farmers the means to earn income from wildlife on their land, and hence the incentive for sustainable management. They will probably also need social and institutional support to develop their enterprises and deal with private sector partners.
- \* Finally, optimal wildlife-utilisation requires land-use planning, to ensure it is both sustainable and complementary with other activities. At the national level,

this will depend on further development of the government's land-use planning system. At the community level, it will depend on changes in land tenure and strengthening of local and regional decision-making structures.

The need for analysis and action to realise this economic potential is urgent, because once the wildlife and wilderness has been depleted or degraded, the resources and their economic potential cannot easily be restored.

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