Trophy hunting in the Namibian economy: an assessment

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Data derived from several sources were used to determine basic economic values for the trophy hunting industry in Namibia for the hunting season in 2000. Some 3640 trophy hunters spent 15 450 hunter-days, taking 13 310 game animals. Trophy hunting generated at least N$134 million (US$19.6 million) in direct expenditures, or gross output. Gross value added directly attributable to the industry was conservatively estimated at some N$63 million (US$9.2 million). Trophy hunting constitutes at least 14% of the total tourism sector and is a significant component of the Namibian economy. Some 24% of the income earned in the trophy hunting industry accrues to poor segments of society in the form of wages and rentals/royalties. About 21% of income generated is captured by the government, through fees and taxes. Trophy hunting is an important contributor to development. More research on the economics of the industry is needed.

Key words: economic value added, income allocation, Namibia, trophy hunting.

INTRODUCTION

Knowledge and understanding of the economic values of natural resources are important to ensuring that investments in their conservation are efficient and benefit society. The economic value of natural resources can be described as having several components namely: direct use value, indirect use value, option value, and existence value, all within the concept of 'total economic value' (Pearce & Turner 1990). Direct use values are those derived from the utilization of resources, they are frequently measurable from transaction in markets and are thus realizable as income. In a developing country, setting the ability of a natural resource to generate income is of considerable interest.

In Namibia, policy on wildlife has explicitly encouraged its utilization through tourism and consumptive harvesting. The aim is to enhance wildlife's economic direct use value, creating economic incentives for investment in wildlife and wildlife habitats, on both private and public land.[†] Despite this policy, the current and potential contributions of wildlife to Namibia's economy have not been adequately researched. A good example is the hunting tourism industry, which involves guided visits for tourists who hunt trophy-quality game animals and retain the trophies. Prices paid by trophy hunters for the experience are high, and the industry is regarded as important, due to both its revenue-generating potential and its role in creating incentives for conservation.

Trophy hunting is part of the Namibian tourism industry, offering experiences for upper-income recreational hunters, mostly from Europe, on both private and public land. Most hunting is on private land and bags offered here comprise mainly plains game species. Smaller quotas, including mostly high-value species, are offered by both communities and the state, on public land. The sector is regulated both by government and private agents. Namibian landowners with investments in wildlife stocks can register with the government as hunting farms and then offer hunts. Similarly on public land, either the state, or community conservancies can offer hunts.

Trophy hunting is only permitted in the company of a registered hunting guide. In 2000, 458 hunting guides, belonging to three categories, were registered (MET 2001). There were 157 ordinary hunting guides who may only guide hunts on a single, specific private hunting farm. There were 193 master hunting guides, who may only guide hunts on a maximum of three specific private hunting farms. There were 108 professional hunters who may guide hunts anywhere in the country, where such hunting is permitted, including on public land (Barnes 1996).

[†]Public land refers to land controlled by both the state and local communities, while private land refers to land under freehold or leasehold tenure.

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Hunters can choose between predetermined hunting packages, containing varying numbers of animals from each species. The available data show that hunting bags on private land consists almost exclusively of plains game, while hunting bags on public land have been dominated by highly valued trophies such as elephant (*Loxodonta africana*). Hunters must obtain export permits in order to take trophies home.

Barnes (1996) and Barnes & Ashley (1996) synthesized data from various tourism surveys to crudely estimate that the net value added to Namibia's national income from trophy hunting in 1996 was N$20 million. In the present, more complete study, specific hunting statistics and hunting enterprise models have been used to estimate the income generated in the Namibian trophy hunting industry during 2000. The aim was to determine the magnitude of the direct use value of hunting, to assess its relative economic importance by comparing this value with those of other activities in the tourism sector and the economy, and to identify the important beneficiaries of the income earned through trophy hunting.

METHODS

Various measures are possible to estimate the economic value of wildlife. In this paper, we focus on trophy hunting, one form of consumptive use of wildlife resources, and our measures of gross output and value added reflect only direct use value. Our values are measured in Namibia dollars (N$) at 2000 prices. N$1.00 equals ZAR1.00 or approximately US$0.15 at the time of the study (2000), and equals ZAR1.00 or US$0.13 currently (2003) (Bank of Namibia, 2000).

In Namibia, a primary macro-economic measure of direct use value is the gross domestic product (GDP), a measure of the total value added (value of all the goods and services produced, less raw materials and other goods and services consumed during the production process) in all resident producing units. It is a concept of production. Central to the trophy hunting industry is the activity of recreational hunting, and the total direct expenditures made by the hunters. These expenditures are made for goods and services supplied by the producers in the hunting/angling tourism industry, and they are the equivalent of the turnover or *gross output* of the industry. The value added generated by the internal factors of production (labour, capital and entrepreneurship) of the producers of tourism services is a proportion of their output, and it is the measure used to calculate the hunting industry's GDP contribution.

More comprehensively, the economic impact of the client expenditures might be measured, incorporating not only the direct expenditures in the trophy hunting sector, but also the second and further rounds of expenditures, which occur in the economy, due to linkages and the effects of the income multiplier. Namibia currently lacks the necessary economic tools and data to measure impact, and the measures presented here are values, directly attributable to the trophy hunting industry as an entity. One advantage of this is that it allows direct comparison with the economic contributions attributed to other industries in the national accounts.

Trophy hunting returns for the year 2000 were collected from the Ministry of Environment and Tourism permit office and computerized. The prices charged to hunters for trophies and daily rates were extracted from empirical data of the Namibia Professional Hunting Association. These are the average prices charged on hunting farms. For fees and rates applicable on public land, specific research was conducted to solicit prices from outfitters, operators and experts. Daily rates charged to hunters normally include accommodation, meals, laundry and washing, services of hunting guides, trackers, use of vehicles, transport to and from airports, skinning and raw preparation of trophies for taxidermists.

To measure the revenues received by government, we multiplied the number of permits issued for hunting period 2000 by the permit price. To measure the direct expenditures by hunters on trophies and daily rates we multiplied the average prices by the number of trophies or total days hunted. These direct expenditures made up the gross output of the game farms, outfitters and hunting operators. The estimates of the number of days hunted were calculated as the period between the first and last kill made during each hunt. They are thus lower bound estimates, excluding any days hunters may have hunted outside this period.

We used enterprise financial data derived from empirically-based financial and economic models of trophy hunting activities to determine the proportion of output which represents gross value added (Environmental Economics Unit, Directorate of Environmental Affairs, Ministry of Environment and Tourism, unpubl. data, 1998). The results showed that gross value added by game farm,

Table 1. Summary of trophy hunting database (Namibian hunting season 2000).

Category	Number of clients	Total days stayed	Total trophies shot	Number of permits
Ordinary guides	374	1 217	1 131	563
Master guides	1 545	6 135	4 987	1 575
Professional guides	1 725	8 094	7 188	1 784
Total	3 644	15 446	13 306	3 922

outfitter and hunting operator enterprises was, on average, 47% of their gross output. We used this proportion to calculate value added for the industry as a whole.

The visiting hunters make other direct expenditures in Namibia during their trips. They buy crafts, spend time in urban hotels and use taxidermy services, among other things. Data from a Ministry of Environment and Tourism visitor survey (MET, 1997) show that within the general wildlife-based tourism population, visitors spend on average a further 60% to 80% in addition to their expenditures with safari operators/outfitters. Thus the total direct gross output associated with trophy hunting is likely to be some 60–80% higher than that earned specifically by game farms, outfitters and hunting operators. We used a proportion of 70% to calculate total trophy hunting industry output.

We used the empirically-based financial and economic models of trophy hunting activities, mentioned above, to extract estimates of the proportions of gross value added accruing to the government, the private sector, and the industry employees.

RESULTS AND DISCUSSION

Some characteristics of Namibian trophy hunting in 2000 are shown in Table 1. An estimated 3640 trophy hunters spent an estimated 15 450 hunter-days in the country and shot an estimated 13 310 game animals. The estimate of 'total days stayed' is a lower bound figure and likely an underestimate. On average, trophy hunters stayed at least 4.2 days in the country and it took more or less one day for a client to shoot one trophy.

Only 66% of hunting guides reported being active during 2000, but this proportion ranged from 99%, for professional hunters, to 44%, for ordinary hunting guides. In 2000, 48% of trophy hunters were from Germany, 11% were from Austria, 25% were from 26 other European countries, 12% were from the U.S.A., and 4% were from 17 other countries. Some 38 species were hunted, the most common being oryx (*Oryx gazella*), kudu (*Tragelaphus strepsiceros*), warthog (*Phacochoerus africanus*), springbok (*Antidorcas marsupialis*), and hartebeest (*Alcelaphus buselaphus*).

Table 2 shows the trophy fee and daily rate income received by game farms/trophy outfitters/operators, as well as the amount of this income paid to government for hunting permits, for each category of hunting guide. Table 3 shows that the aggregate direct gross income which accrued to game farms/trophy outfitters/operators from trophy hunting was roughly N$80 million (US$11.5 million). This figure excludes direct incomes for other related trophy hunting industry activities, such as taxidermy services, use of trophy export companies, use of urban hotels, in-country travel, and others. When estimates of these activities are included, gross output increases by 70%, to N$134 million (US$19 million). Total gross value added generated by all activities in the trophy hunting industry was estimated at N$63 million (US$9.2 million). As explained, due to the method used to estimate hunter days, all these estimates

Table 2. Income received by game farms/outfitters/operators from hunting clients, and hunting permit revenue received by government from game farms/outfitters/operators (Namibia, 2000 hunting season).

	Game farms/outfitters/operators		Government
Guide category	Trophy fee income (N$)	Daily rate income (N$)	Revenue (N$)
Ordinary hunters	4 144 198	2 094 652	14 075
Master hunters	18 596 505	10 559 317	39 375
Professional hunters	29 501 372	13 931 069	44 600
Total	52 242 075	26 585 037	98 050

Table 3. Total income and average client expenditures in the trophy hunting industry in Namibia (2000 hunting season).

Values	N$	US$
Direct expenditure (gross output)		
Trophies income	52 242 075	7 648 913
Accommodation and other services	26 585 037	3 892 392
Subtotal	78 827 112	11 541 305
Estimated other (70% of direct expenditures)	55 178 983	8 078 914
Total	134 006 096	19 620 219
Direct gross value added		
Sales of hunting permits	98 050	3 922
Estimated other (to 47% of gross output)	62 956 078	9 217 581
Total	62 982 865	9 221 503
Average expenditures		
Average expenditure per client	36 774	5 384
Average expenditure per day	8 675	1 270

are likely to be conservative. Table 3 also shows that average expenditure per trophy hunting client amounted to N$36 774 (US$5384) for the hunting period. Average expenditure per day was around N$ 8675 (US$1270).

Suich (2002) described the development of a set of preliminary tourism satellite accounts for Namibia and estimated the total gross value added for the tourism industry in 1996 at N$318 million, which if inflated to the 2000 price level, becomes N$450 million. We can deduce that the contribution of trophy hunting is at least 14% of that of the whole tourism sector. Suich (2002) also found that the whole tourism sector itself made up 2.3% of the whole national economy. Barnes *et al.* (1999) conducted a national questionnaire survey among nature-based tourists and estimated the gross value added by this segment of the tourism industry at N$250 million in 1995. The value of wildlife-based tourism is likely to be some three-quarters of the value of the whole tourism sector, and trophy hunting would be contributing 18% of this. Zeybrandt & Barnes (2001) and Barnes *et al.* (2002) estimated the 1997 gross value added for another important form of consumptive tourism in Namibia, namely, coastal angling. At 2000 prices, this was N$17 million, less than one third of our estimate for trophy hunting. It is clear that the bulk of the nature-based tourism industry comprises non-consumptive activities. This appears consistent with the situation in Botswana (Barnes, 2002).

ULG Northumbrian Ltd. (2001) conducted an analysis of the direct expenditures by trophy hunters in Botswana on trophy fees, daily rates and hunting licenses in 2000. Their estimate of US$12.6 million compares well with ours of US$11.5 million (Table 3), and is expected, as Namibia and Botswana have fairly similar human populations, economies, and wildlife resources. Of interest is the finding that Botswana earned this income with only 5570 hunter days and with only 2500 trophy animals taken. To earn similar income, Namibia hosted 15 450 hunter-days, with 13 310 animals taken (Table 1). The difference can be ascribed to the fact that the Namibian trophy hunting industry is dominated by low-value plains game hunts on private farms, while the Botswana industry is dominated by high-value key species hunts on public land. Only 3% of the Namibian trophy animal off-take in 2000 can be classified as involving high-value key species, compared with 21% for Botswana.

In South Africa, estimates have been made of the gross output generated by hunters. Bothma (pers. comm.) quoted a figure of N$603 million, generated as gross output by foreign and local hunters in 2000 for the wildlife ranching industry in South Africa. Anderson (2003) estimated that in 2000 foreign hunters in South Africa generated gross output of about N$420 million for landholders and outfitters and about N$267 million for taxidermists. Local hunters generated about N$345 million, but this included both fee hunting (for biltong), and trophy hunting, and it is difficult to separate the two. It can be deduced that trophy hunting in South Africa generated about N$1000 million in gross output in 2000, some seven times more than our estimate for Namibia. South Africa's gross domestic product (GDP) was 38 times

Table 4. Estimated allocation of income (value added) generated by different earners in the trophy hunting industry in Namibia (2000 hunting season).

Category	Allocation by:	
	Percentage	Amount (N$ million)
Government	21	28.3
High-income employees	11	14.7
Low-income employees	12	16.1
Local communities	12	16.1
Owners of capital	44	59.1
Total	100	134.0

higher than Namibia's in 2000 (The World Bank, Washington, D.C., U.S.A., unpubl. data, 2003), which suggests that trophy hunting might be about five times more important as a contributor to the national economy in Namibia than it is in South Africa.

Table 4 shows the estimates of how the value added by the trophy hunting industry is allocated. The government derives revenues, fees, sales tax, and company tax from the industry amounting to 21%. Employees in trophy hunting industry activities derive wages and salaries amounting to 23%. These wages and salaries (returns to labour) can be broken down into high-income earners, who derive 11%, and low-income earners, who derive 12%. Local communities, in communal land conservancies, derive land rentals and resource royalties amounting to 12%. The owners of capital associated with the industry derive returns amounting to 44%. This can be broken down into returns *to* capital (profits, interest) which is 18%, and returns *of* capital (depreciation, amortization) which is 26%.

Financial and economic models of trophy hunting enterprises (Environmental Economics Unit, Directorate of Environmental Affairs, Ministry of Environment and Tourism, unpubl. data, 1998), show them to be profitable investments. They generate high profits as investments, and very high profits per animal harvested, but due to the highly selective off-take involved, tend not to generate high profits per unit of land. These characteristics give trophy hunting a unique role within combinations of land uses. Barnes & de Jager (1997) pointed to its importance in driving investments in wildlife on private land and Barnes *et al.* (2002) found it to be an important financial component in community wildlife use initiatives on communal land.

CONCLUSION

The conclusion can be made that the trophy hunting industry in Namibia is significant economically. All economic activities in the industry generate N$134 million (US$19.6 million) in gross output, and N$63 million (US$9.2 million) in gross value added. Trophy hunting makes up an estimated 14% of the whole tourism industry in Namibia, which itself makes up 2.3% of the whole Namibian economy. Furthermore, it is estimated to contribute 18% of the economic value of the wildlife-based component of the tourism industry. Some 24% of the income earned in the sector accrues to poor segments of society, through wages and rentals or royalties. The sector also contributes significantly to the treasury through taxes, amounting to an estimated 21% of income earned. Trophy hunting occupies an important role as a generator of income and contributor to development, and it provides financial incentives for investments in wildlife.

More detailed research on the economic characteristics of trophy hunting is needed. In particular, information on the economic characteristics of demand for hunting experiences would provide important pointers for policy and planning. Analysis of the full economic impacts of the direct expenditures (including the indirect and induced effects, resulting from backward and forward linkages as well as the income multiplier) would also be valuable for analysis of the efficiency of policy options.

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