

Laikipia Wildlife Economics Study
Discussion Paper CEC-DP-4

*The Opportunity Cost of the Hunting Ban to Landowners
in Laikipia, Kenya*

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November 1998



A F R I C A N
W I L D L I F E
F O U N D A T I O N

Conservation, Economics and Commerce Program

Summary of Main Findings

Hunting of big game has been banned in Kenya since 1977. Prior to this Kenya was the major trophy hunting destination in the world, with its fame stretching back to the Roosevelt hunt of 1907. The ban has effectively prevented citizens, residents and tourists from any form of game hunting in Kenya, whether for personal trophies, commercial sale or subsistence use. Last year a proposal to reintroduce hunting on a pilot basis in a limited number of community wildlife areas in Laikipia District met with opposition from within and outside Kenya, with disagreement centering on the answers to the following five questions:

- Will hunting bring adequate economic benefits at the local/community level?
- Does a viable monitoring and control system exist that will adequately prevent abuse?
- Will hunting have negative effects on international tourism to Kenya?
- Which types of hunting should be permitted and where?
- Which species should be hunted and how should quotas be set?

Hunting is a key issue in wildlife conservation in Africa and this paper intends to clarify and quantify some of the key economic issues, specifically as they relate to landowners in Laikipia District. However, we recognize that many of the arguments made against hunting as a whole, or against specific types of hunting, are non-economic – including ethical (cruelty, animal rights), social (elitism, equity), ecological (impact on wildlife populations) and practical (lack of effective control, incentives for illegal wildlife loss) arguments.

In economic terms hunting is a highly attractive form of land use in many countries. Nearly 14 million people hunted in the US in 1996, spending a total of \$21.3 billion on hunting trips and related goods and services. Trophy hunting in South Africa, Tanzania, Zimbabwe and Zambia contributes an estimated total of \$200 million p.a. to these economies, of which over half is contributed by foreign hunters. An estimated 75% of foreign hunters in Africa are from North America. The trophy hunting market is commercially well-developed with the bulk of the earnings stream captured by government and private sectors, and very limited earnings realized by local communities. Live game animal trade, currently banned in Kenya, is highly complementary to a vibrant trophy hunting industry.

We estimate that the opportunity cost of the hunting ban to Laikipia landowners is in the order of \$1.6 million - \$2.2 million p.a. A small portion of this opportunity cost would be realized by the current proposal to reintroduce a limited community based hunting program - the potential value of the community based hunting program proposed is estimated as \$136,000 p.a. to the community landowners. Meanwhile the proponents of the program are seeking to address the five key questions raised above and the non-economic concerns about hunting.

Acknowledgements

The African Wildlife Foundation is very grateful for a grant made for the Laikipia Wildlife Economics Study by Shikar Safari Club International. AWF would like to thank the members of the Laikipia Wildlife Forum for their invitation to undertake the study. LWF members have been very open and helpful with data collection and have provided much in-kind support to the AWF team in the field.

1. Introduction

The Laikipia Wildlife Economics Study is being undertaken to explore the economic case for wildlife management on privately owned land (owned by individuals or community groups) in Laikipia. The goal of the study is to establish whether the wildlife population in the district is viable economically under current conditions. The assumption made by the study is that the wildlife population in Laikipia is worth conserving – an assumption that we hope to examine more closely in the last paper of the series.

The first discussion paper in the series, *Making Wildlife "Pay" in Laikipia*, examined current rates of return to alternative land uses in Laikipia and concluded that the highest value use of marginal agricultural range-land is currently for wildlife tourism. Earnings from livestock and wildlife cropping are low by comparison. The second discussion paper, *Increasing Landowner Earnings from Wildlife Cropping in Laikipia*, looked at the issues driving current and potential returns from wildlife cropping. The third paper, *Developing Wildlife Tourism in Laikipia-Who Benefits?*, assesses the economic value of Laikipia's current wildlife tourism industry and looks at the scope for increasing opportunities for and earnings from wildlife tourism in Laikipia.

We emphasize that these are "discussion" papers. Our objective is to ascertain the economic and commercial factors influencing wildlife conservation. However, the analysis we undertake is at least in part driven by data and time constraints, and undoubtedly the subject warrants substantial further economic analysis.

This fourth paper, *The Opportunity Cost of the Hunting Ban to Laikipia Landowners*, differs significantly from the others in that most of the research has been conducted outside Laikipia and Kenya. Hunting is a key issue in wildlife conservation in Africa and this paper intends to clarify and quantify some of the key economic issues, specifically as they related to Laikipia landowners. However, we fully recognize that most of the powerful arguments against hunting as a whole, or against specific types of hunting, are non-economic – including ethical (cruelty, animal rights), social (elitism, equity), ecological (impact on wildlife populations) and practical (lack of effective control, incentives for illegal wildlife loss) arguments. Section 2 presents an overview of the key issues being raised in the current debate in Kenya. The rest of the paper explores the associated economic issues in more depth in order to assess the potential returns to landowners from hunting and to estimate the opportunity cost of the hunting ban to Laikipia District.

AWF has undertaken the preparation of this discussion paper not to argue for or against the hunting ban in Kenya, but to review the associated economic issues. It is our hope that this paper can contribute to clarifying some of the issues facing key stakeholders in making the decision as to whether to re-introduce hunting on a pilot basis.

2. The Proposed Pilot Hunting Project in Laikipia

Hunting has been banned in Kenya since 1977. Prior to this Kenya was the major trophy hunting destination in the world, with its fame stretching back to the Roosevelt hunt of 1907. The ban has effectively prevented citizens, residents and tourists from any form of game hunting in Kenya, whether for personal trophies, commercial sale or subsistence use.

The current Laikipia proposal:

In 1997 the Laikipia Wildlife Forum put together a proposal to reintroduce hunting on a pilot basis on community land in Laikipia where game viewing tourism opportunities are limited. This proposal kicked off a heated public debate about the merits of a possible reintroduction of hunting in Kenya, and has effectively been shelved for a year. More recently Swara, the East African Wildlife Society magazine, dedicated much of a recent issue to airing the key issues that underly the hunting debate in Kenya (Swara, Volumes 20:6 & 21:1, 1998).

The key issues underlying the current debate include:

1. Who should benefit from hunting, and by how much?

To what extent should local people benefit from hunting and how to make this happen? The development of community conservation programs across eastern Africa testifies to the now widely respected view that those who bear the direct and opportunity costs of living with wildlife should benefit from it. Yet the case for compensation for opportunity cost is easier to make when the wildlife are living on land that the communities have some form of right to, rather than on individually-owned land. In Zimbabwe, for example, it is claimed that "citizen hunting" is a key benefit of the Campfire program for local people – the hunting program would be politically unacceptable if it was exclusively for the enjoyment of foreigners, though in reality foreign hunters are the primary participants in Zimbabwe's hunting industry.

The flow of benefits from hunting is driven by the type of hunting product offered and the way the business is structured, by barriers to entry (such as who qualifies for Professional Hunter status) as well as by the levels of government rent extraction through fees and taxes. The quotes below indicate the range of current opinion as to the role local people should play in hunting businesses:

"there are many Africans in Kenya who can be good professional hunters, but there are none of them that have the resources, experience, equipment and – most important of all – the clientele." (Dyer, 1997).

"hunting operators haven't yet acknowledged the fact that their real employers are the villagers... unless a relationship is forged the operator, his clients and the wildlife enterprise as a whole will continue to be seen as a distant 'white' force over which the community has no control, rather than as a community-based and managed resource enterprise" (Jansen, 1989, from a USAID evaluation of CAMPFIRE, Zimbabwe).

"shareholders of Il Ngwesi have been given an understanding by Dr Western [Director, Kenya Wildlife Service] that their young men will be given prior consideration for the

essential training that is vital to the running of a hunting safari and the management of a wildlife area" (Dyer, 1997)

So what is a valid share in the "benefits" for local people? Jobs? Meat? A real equity stake in a joint venture outfitting business? The chance to become a Professional Hunter? Clearly the marketing and networking required to run a successful hunting operation is out of the reach of most local communities acting alone. However, while the 'distant white force' of traditionally structured hunting industries may deliver significant economic benefits at the national level, the lessons from Zimbabwe suggest that meaningful participation at local level is key to assuring the incentives needed to conserve wildlife.

2. What is the likely level of abuse, and what constitutes a viable control system?

It is clear that hunting, as with other forms of "public good" utilization, is open to abuse – witness the so-called 'canned lions' in South Africa (Cook Report, 1998) and the decimation of wildlife populations in some parts of Tanzania:

In Kenya the hunting ban was enacted because of the rapid depletion of elephant and rhino populations through poaching. Despite the ban, wildlife populations in Kenya have halved in the last 20 years. It is suggested that the significant exception to this has been some tracts of private land where landowners are allowed to benefit from the wildlife they protect (LWF, 1997).

Clearly a more widespread and open hunting program is harder to control and therefore more open to abuse, as compared with a restricted program in terms of participants and geographic coverage. A key issue therefore is the need to get the right balance between equity (local access to the benefits flowing from hunting) and control. Appropriate control mechanisms include an agreed code of conduct and means of enforcement, independent regulators, a punitive system for dealing with violations and a clear and transparent system for issuing licenses and processing trophies. One suggestion worth further serious exploration is the need for a valid [international] hunting certification system – a "green bullet" program, as suggested by Lewis & Alpert, 1995.

3. What impact will hunting have on international tourism?

From interviews it appears that tour operators, particularly those in the higher value segments of the Kenyan safari market, are strongly opposed to reintroduction of hunting. They argue that many tourists, particularly higher value ones, will boycott Kenya if hunting is reintroduced. Yet the pro-hunting lobby points out that Kenya's tourism industry is rapidly losing share within Africa to just those countries with an established hunting industry including Zimbabwe and South Africa. In particular, in South Africa, hunting and tourism businesses are frequently operated on the same ranch, helped by the fact that the hunting season (April to August) occurs during the lowest part of the tourist season.

Unfortunately there seems to have been few attempts to undertake a systematic market survey to test this issue. One recent survey in Kenya (Tack International, 1996) appears to support the operators' argument, in that 2/3 of international tourists interviewed, and an even higher percentage of British tourists, said they would not come to Kenya for a safari if they knew that hunting was going on. However, the report does not disclose sample size or sampling techniques, and the results must therefore be treated with some caution.

A recent survey of US individuals who give money to African conservation charities found that the acceptability of hunting in Africa depends on the reason hunting is being done: 1) to keep animals from over-populating or destroying their habitat (65% found acceptable); 2) to provide food for subsistence communities (59% found acceptable); 3) to provide revenue to support conservation (31% found acceptable); and 4) for trophies (only 6% found acceptable).

4. **What forms of hunting should be permitted?**

In addition to the issue of whether trophy, sport, resident and/or subsistence hunting should be permitted, there are also choices to be made as to types of weapon permitted (which guns? bow and arrow? spear?) and means of transport (foot? vehicle?).

The range of hunting available will differ between areas. For example in Laikipia, while there is a huge population of zebra, the populations of typical trophy species are much smaller or unknown, and the capacity of the district to supply trophy animals is therefore also unknown. Yet Laikipia is also best-placed of wildlife areas within Kenya to develop a biologically-sound model to estimate and evaluate potential hunting offtakes and impacts on resident wildlife populations – witness the zebra cropping model already developed by Dr. Nick Georgiadis and his team at Mpala Research Station in Laikipia.

“It is of extreme importance that sport hunting in Kenya should be developed so that the well established rules of FAIR CHASE and genuine sporting hunting methods should be used. The so called HUNTING in some of the other African countries has deteriorated to the extent that it is no longer HUNTING – it is merely SHOOTING.” (Dyer, 1997).

5. **Which species to hunt and what quota levels?**

Types of hunting in Africa

Several different types of hunting are practised in Africa, usually defined in one of three ways:

❖ *by the type of animals/birds targeted* e.g. the following three types:

- **sports hunting:** a broader category than trophy hunting, including, for example, weekend recreational hunting for non-trophy animals. Fees for sports hunting, and therefore potential landowner earnings, are usually much lower than for trophy hunting, because sports hunters are not taking trophy specimens and are usually not seeking luxury safari experiences.
- **trophy hunting:** the most lucrative segment. Usually booked abroad and paid for up-front, a local Professional Hunter working with an outfitting company takes a small group of hunters and observers in search of “trophy” animals to a pre-agreed quota, typically for 14-21 days. Trophy animals are indicated by their unique characteristics – particularly long or beautiful horns, large tusks or excellent skins. The safari is usually both on foot and in vehicles, and hunters may use guns or more traditional weapons.

- **game bird hunting:** a specific sub-segment, and the only form of hunting currently allowed in Kenya.

❖ *by the hunter*

- **tourist hunting:** the most lucrative segment, generally synonymous with trophy hunting. International hunters still come to Africa in their thousands in search of what they see as the romance and excitement of the 'big game' hunt (SCI, 1993).
- **resident/citizen hunting:** hunting by residents/citizens for trophies, sport or subsistence

❖ *by the purpose of the hunt*

- **trophy hunting:** for the personal satisfaction of the individual hunter
- **commercial hunting:** hunting to supply the trade in trophies, skins, meat or other products, which may be legal or illegal (e.g. ivory poaching, commercial bush meat)
- **subsistence hunting:** hunting wild game remains a major source of protein for poor rural people across Africa, whether from traditional hunter/gatherer communities or not. Sometimes legal but often illegal.

All forms of hunting are currently banned in Kenya, with the exception of game bird hunting under license from Kenya Wildlife Service. This study focuses on the general category of sports hunting, including trophy hunting, as a potential economic landuse for Laikipia landowners.

One of the biggest challenges to hunting in southern and eastern Africa is demonstrating that it is sustainable. Few hunting programs, except those on some private ranches, have adequate monitoring and evaluation capabilities. The accuracy of official offtake figures varies considerably, and little accurate data is available on the level of abuse or its impact on wildlife populations. Laikipia has a real advantage here in that the Mpala Research Station, KWS and local landowners have developed a fairly accurate monitoring system for large herbivores in the district. However, carnivore populations are not well known or understood, and a new research project led by Prof. Lawrence Frank at Mpala aims to address this.

Species and quota limits must reflect both supply and demand factors. Trophy hunters generally want to collect a mixed bag of trophy animals whereas sports hunters are more flexible in the species they are offered, but also pay lower fees. It is not yet clear what capacity Laikipia district has for supplying a steady stream of trophy animals from a number of species.

Many trophy hunters want to include elephant in their bag, and some hunters have suggested that problem elephants might be an appropriate target. Hunters are known to be willing to pay a \$45,000-50,000 to hunt a trophy elephant. Dyer estimates that 5 problem elephants have been killed in Laikipia in the past two years (and about 20 each year for all

of Kenya). However, the logistics and security issues associated with killing problem animals make this a very specialized sub-segment of the hunting market.

The challenge to LWF and other proponents of a return to hunting in Kenya is to find an acceptable path through the above issues. The rest of this paper assesses the potential returns to landowners from hunting and estimates the opportunity cost of the hunting ban to landowners in Laikipia District.

3. Current Returns from Hunting in Africa

Factors Driving Customer Choice

Over 75% of foreign hunters in Africa are thought to be Americans. For example, 5,000 foreign hunters visited South Africa during 1997, of which nearly 4,000 were from the US, compared with 200,000 local hunters (PUSWE, 1998). The international market for sport hunting appears to be robust (Bond, 1997), with all indicators increasing steadily in real terms.

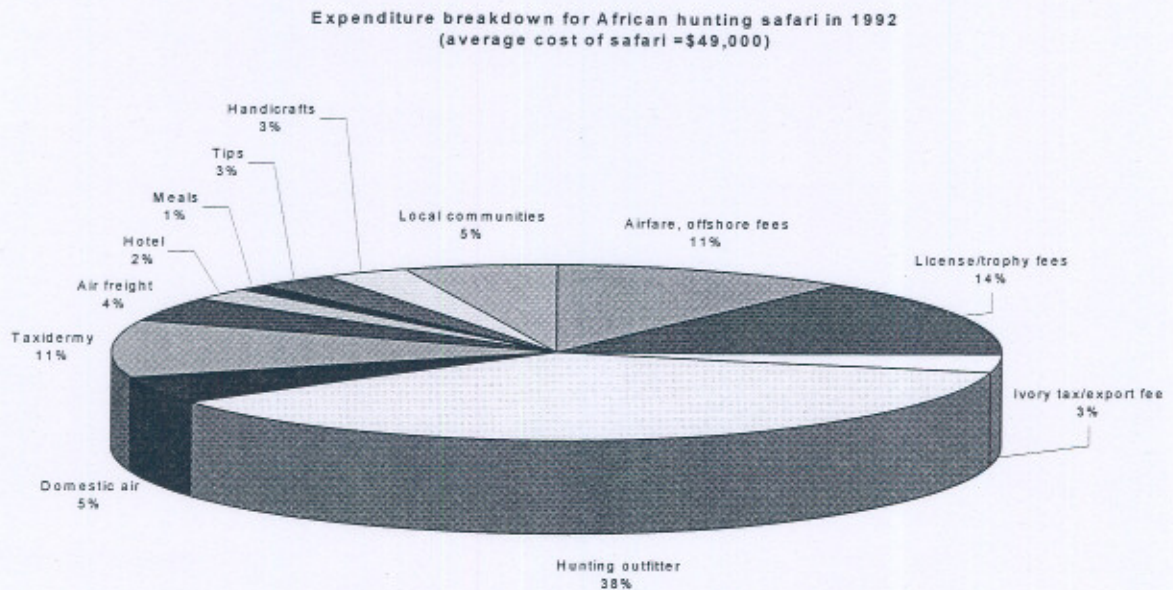
American hunters cite four main factors determining their choice of African safari destination (SCI, 1993):

1. price of safari
2. quota/range of species available
3. caliber of Professional Hunter
4. handling of trophies (taxidermy, packing, shipping)

The average trophy hunter spends 100 times more on his African safari than the typical well-heeled viewing tourist. The hunting industry is focused on handling a very small number of extremely exacting clients and offers highly tailored packages. As with personally designed up-market viewing safaris, hunting safaris tend to be booked face to face and a year in advance, with significant volumes of repeat trips. They can be very sensitive to adverse publicity e.g. a dispute about the lease process in Zambia in 1993 led to a virtual collapse in the number of hunting safaris booked.

Expenditure breakdown for a 'typical' trophy hunting safari

Safari Club International surveyed their members to find out how much was spent on an average hunt in Africa (SCI, 1993). The pie chart below shows what the average 21-day safari cost of \$49,000 was spent on.



Source: SCI, 1993

The split between overseas, national and local shares in this revenue stream is driven principally by the domicile of the outfitter and levels of taxes and fees. On average the outfitter takes 38% of the safari cost. This is then used to pay local costs including camps, food and the Professional Hunter's fees. According to SCI the outfitter will make a 30-40% gross profit on this income (25-30% say Hurt & Ravn, 1996), which may or may not find its way into the local economy. The government will usually receive the license fees and export duties, as well as related income and corporate taxes, and may receive the trophy fees depending on the structure of the industry.

National Earnings from Hunting

Hunting is an important income and foreign exchange earner for several African countries, as shown in Table 1.

Table 1: Annual Spending on Big Game Hunting in Selected Countries

Country	(1) Average cost of a 21-day hunting safari in 1996 (US\$)	(2) Estimated contribution of trophy hunting to national economy (US\$)
USA		21,300 billion
Canada		550 million
South Africa	\$25,263	120 million
Tanzania	\$53,180	30 million
Zimbabwe	\$40,800	30 million
Zambia	n.a.	10 million
Kenya – estimated potential		20 million

Source: (1) from Hurt and Ravn (1996); (2) US figures from US Fish and Wildlife Service (1997); Canada, Tanzania and Kenya from Hurt and Ravn (1996); South Africa from the Cook Report (1997) and PUSWE (1998); Zimbabwe estimated from Price Waterhouse in Leader Williams et al (1993); Zambia from Lewis and Alpert (1995).

Note: the direct contribution to the national economy, as estimated in Table 1, underestimates the total impact as it excludes indirect benefits to related industries including airlines, banks, hotels, curio sellers and so on (Hurt & Ravn, 1996). For example, the multiplier for tourism as a whole in Zimbabwe has been estimated at 1.6 (Bond, 1997), i.e. for every \$1 of tourism revenue earned directly, the national economy actually benefits by \$1.60.

Comparison - The US Hunting Industry

Nearly 14 million people hunted wild game in the US in 1996, spending \$5.2 billion on hunting trips, \$11.3 billion on equipment and \$4.8 billion on licenses, leases, memberships and magazines (US Fish and Wildlife Service, 1997). The US hunting industry continues to grow in value at a rate of over 10% p.a. This contrasts with trophy hunting in South Africa, Tanzania, Zimbabwe and Zambia, which is estimated to contribute a total of about \$200 million to these economies each year.

In the US and Canada there is very little foreign participation in hunting. In South Africa foreign hunters account for an estimated 20% of spending on hunting. In the other key African

sports hunting countries foreign hunters are estimated to account for at least 50% of spending on hunting, and this would probably be the case for Kenya too.

Factors driving landowner earnings

The critical factors determining annual landowner earnings from hunting are:

1. *The "bag" offered*, which in turn depends on the quality of the wildlife resource and the landowner's utilization rights.
2. Where there is a vibrant *live animal market*, as in most southern African countries, the "bag" can be enhanced through the sale and purchase of wildlife stock.
3. *The number of hunts offered each year*
4. *The level of trophy fees*
5. *The direct profits earned from running a hunting operation, or the lease earnings if the landowner has leased the hunting operation to an outsider.* If the landowner runs his own hunting operation, his earnings are driven by the following factors. If he leases it to an external outfitter, the terms of the lease negotiated should be based on the same factors:
 - The number of hunting parties and hunters p.a. and their average length of stay
 - Whether or not the services of a Professional Hunter are used
 - The day rates charged to hunting clients
 - The investment made in camps and trails
 - Ongoing operating costs – e.g. fuel, food, labor

The box below illustrates potential earnings at the high end of the hunting industry in South Africa with the case of the Pongolapoort Biosphere Reserve.

The Case of the Pongolapoort Biosphere Reserve in KwaZulu Natal Province, South Africa

This reserve was formed by a group of farmers who sold their ranch land to a conservation company, Pongolapoort Biosphere Reserve, in which they are shareholders. The land has been converted from ranching to conservation and the owners have moved out of their farms to small plots set aside for them by the lake. The reserve consists of 9,500 ha of private land (the converted land), 1,900 ha of nature reserve and 11,000 ha of state land. All internal fences have been removed. Including the lake, the total surface area of the reserve is 31,000 ha.

Only three years into operation, Pongolapoort is already self-funding from hunting. Hunting on 5,500 ha of the reserve generates a net profit of \$300,000 p.a., or \$55/ha p.a. With live game sales included, Pongolapoort makes a total profit of \$370,000 p.a. from wildlife utilization for the reserve. The tourism facilities within the reserve are being steadily developed, and within five years of start-up the combined tourism and utilization program is expected to yield profits of over \$40/ha p.a. across the terrestrial area of the reserve. By comparison, under livestock ranching Pongolapoort could be earning a maximum of \$10/ha p.a.

Tourism development activities are being funded from the hunting operation. Tourism facilities will be offered to cover a variety of market segments, from the \$44/night local fisherman to the \$170/night (full board and game drives included) international tourist. Currently only 30% of Pongolapoort's hunting clients are foreign, but the plan is to increase this to close to 100%, as US hunters in particular are willing to pay \$350/day to a hunting outfitter for their trip (of which Pongolapoort receives \$170/day). Tourism and hunting operations are seen as fully complementary as they peak in different seasons.

The highest per hectare landowner earnings from hunting in Africa are found on private game ranches in South Africa. South Africa has the largest and most developed sport hunting

industry and live animal market in Africa. The Manager of Sabi Sand game reserve commented that their revenue from a combined wildlife utilization and hunting operation was 15 times higher than from livestock, and that the number of people employed by the reserve had increased 25 times (Tack International, 1996).

In Zimbabwe we must distinguish between the CAMPFIRE community hunting program, which distributes benefits at district and local levels, and ranch based private-sector hunting. Ranch based hunting in Zimbabwe is estimated to generate average net earnings of over \$8 p.a. per hectare and returns on investment of over 10% p.a. making hunting one of the most attractive form of land use in the arid and semi-arid parts of Zimbabwe (Price Waterhouse in Leader Williams et al, 1996).

Hunting in Tanzania generates an estimated \$30 million a year from a hunting area of about 18 million ha of public land, equivalent to \$1.7 p.a. per hectare (Leader Williams et al).

Morrill cites Richard Leakey as saying that ranchers in Narok District, Kenya, believe they could sell hunting concessions on their land for \$2 p.a. per hectare, as compared with only \$0.70 p.a. per hectare for tour operator leases (Morrill, 1994).

Factors driving outfitter earnings

There is a range of opinion as to the level of capital investment required in operating a hunting outfitting business. In South Africa, ranches developed for trophy hunting are reputed to require a capital investment 64 per cent higher than for meat hunting and 200 per cent more than for cattle farming (Tack International, 1996). An investor starting a company from scratch in neighboring Tanzania would need to invest about \$350,000 per camping area. These costs cover tents, vehicles, refrigerators, generators and lighting, camp building costs, equipment, food, fuel, utensils, and running expenses such as salaries, fuel, transportation of staff and air charters (Hurt and Ravin, 1996). These high costs ensure that only well-established or international firms survive in the outfitter business.

Factors driving government earnings

The structure and nature of the hunting industry differs greatly between countries in Africa, and the degree of government participation varies significantly. In South Africa, for example, with 5,000 foreign hunters each year, much of the hunting is done on private land and the bulk of the earnings accrues to the landowner. In Zimbabwe there is a well developed hunting industry on state land, ranch land and communal land, and hunting is the third largest foreign exchange earner after agriculture and mining. Whereas in Zambia and Tanzania, with an estimated 130 and 700 foreign hunters each year respectively, most hunting is carried out on state owned land, with license, trophy and export fees accruing to the government. In Zambia in 1994 an estimated 37% of hunting revenues were channeled through government, of which one third was then passed on to local communities (Lewis & Alpert, 1995). Morrill finds that the Tanzanian government collected only 8% of tourism revenues, but as much as 33% of hunting revenues (Morrill, 1994).

4. Local Level Returns from Hunting

The premise underlying the rapid adoption of community based conservation approaches in Africa over the past decade is that there is a "strong link between the decline of Africa's wildlife heritage and the persistent poverty of its rural people" (Kiss, 1990). The process of empowering poor local communities to own and benefit from their wildlife resources has proved to be very challenging across Africa, and even now it is easier to identify lessons still to be learned than real success stories.

From the SCI data on the breakdown of expenditure on a typical hunting safari, the local economy, meaning the economy of the area within which the hunt takes place, typically receives at least 8% of the revenue (the items "handicrafts" and "local community" above) in the form of wages (e.g. as game scouts) and purchases of goods (food, handicrafts). Whereas in Tanzania an estimated 33% of the cost of a typical hunting safari flows into the local economy (Hurt & Ravn, 1996).

Luxury tourism tends to contribute less to the local economy than hunting. For example, Elliott and Mwangi estimate that less than 5% of the value of wildlife tourism in Laikipia flows into the local economy (Elliott and Mwangi, 1998). Not only is tourism having little impact on local employment, other linkages are also minimal as operators purchase most of their requirements directly from Nairobi. It is clearly anticipated locally that hunting would contribute to employment of guides, carriers and security personnel, but the extent to which this would actually happen would depend fundamentally on the structure of the hunting industry being proposed.

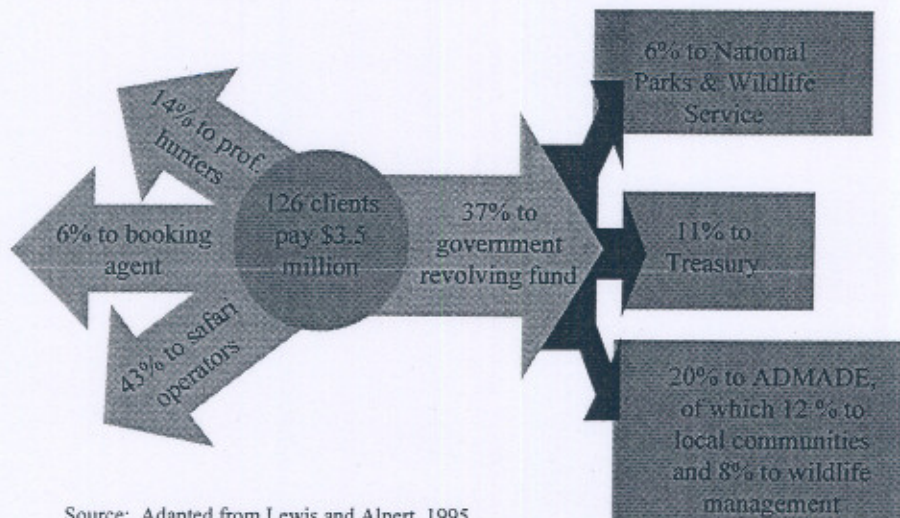
Morrill estimates that each hunting safari in Tanzania, costing on average \$53,000, generates over \$10,800 in local wages and \$5,400 in flows of non-monetary goods and services (Morrill, 1994). Hurt and Ravn estimate that the hunting industry in Tanzania directly employs about 3,740 people and indirectly supports 88,240 families. In Tanzania 25% of license fees are paid directly to local district councils in hunting areas (Hurt & Ravn, 1996). Through the Cullman Project, named after one of his hunting clients who first supported it, Robin Hurt Safaris charges a 20% surcharge above government license fees which is then paid to local communities along with additional donations from clients. This money funds rewards for anti-poaching activities as well as community social projects.

In Zimbabwe the CAMPFIRE program has achieved international recognition as a mechanism for delivering wildlife benefits to the local level. Sport hunting accounts for over 90% of wildlife based revenue received by District Councils involved in CAMPFIRE, and elephant hunting accounts for 64% of total sport hunting revenues in communal land (Bond, 1997), illustrating how key elephant hunting has been to the benefit flows from the CAMPFIRE program.

Murphree identifies seven "clay feet" that have constrained the success of CAMPFIRE, arising from conceptual gaps, implementational compromise and, paradoxically, elements of its success (Murphree, 1997). CAMPFIRE has made progress in dealing with these. Murphree notes that revenue retention by district councils has steadily dropped and that imposition in implementation is diminishing.

In Zambia the ADMADE project has tried to ensure that 12% of hunting revenues are distributed to local communities, both as wages for scouts and for communities to spend on their own projects. The following chart shows how hunting revenues are split in Zambia:

In Zambia in 1994 an estimated 37% of hunting revenues accrued to the government, of which 12% was passed on to local communities as scout wages and for social projects



Source: Adapted from Lewis and Alpert, 1995

It is clear that one of the main challenges to a successful community hunting program lies in finding a balanced and workable “deal” structure between the outfitter and the local community. Because the marketing and networking required to sell hunting safaris successfully is beyond the reach of most local communities, the outfitter and other intermediaries have a proprietary claim on the bulk of the earnings stream.

The experience of real community participation in wildlife hunting operations has been very different in different African countries. However, as with the wildlife tourism industry, where real benefits have flowed to communities they have tended to be in the form of ‘handouts’ rather than sustainable livelihood enhancement. Both government and private sector programs have successfully delivered benefits to communities from hunting operations. *However, the structure of the high value end of the hunting industry is such that the power and claim on earnings streams lies with the marketing firms, the hunting outfitters and the professional hunters. Where communities own the land to be hunted on they can benefit from negotiating appropriate lease terms and from managing their wildlife resources to maximize their trophy fees. Where communities have no land or wildlife use rights to trade they tend to be, at best, passive recipients of handouts, and at worst, excluded from the benefit stream all together.*

The challenge to find mechanisms and processes that enable communities to be real partners in the development of wildlife hunting operations remains. This is recognized as a key issue by the proponents of the Laikipia pilot hunting program.

5. Estimating the Opportunity Cost of the Hunting Ban in Laikipia

Using comparative data from Tanzania, Ravn & Hurt estimate that Kenya is losing \$40 million p.a. of foreign exchange earnings alone due to the hunting ban (Ravn & Hurt, 1996). Most landowners in Laikipia believe that they would benefit economically from a relaxation of the hunting ban, particularly those who do not benefit from tourism and who are not managing their land to non-financial wildlife conservation objectives. Available data affirms this belief.

Possible capacity constraints

Effectively the Kenyan hunting industry moved to Tanzania 20 years ago. While few young Kenyan hunters have entered the business over the past years, there exists sufficient capacity within Kenyan based outfitters and sufficient numbers of Kenyan professional hunters to restart a Kenyan hunting industry if permitted. Tanzania currently has about 40 registered private outfitters, of which many are owned and managed by Kenyans. With a threat of a two-year closure of the Tanzanian industry still hanging, these operations would welcome a chance to build a presence in the Kenyan market.

The setting up of hunting operations need not entail major capital outlay for landowners. They can choose to sell or lease their hunting rights to external outfitters in return for trophy fees from the animals. Landowners who wish to run integrated hunting operations can choose to set themselves up in business alone or in partnership with an existing outfitter. Access to capital for local communities is likely to be very limited, except through donor funded aid programs.

One of the key constraints to the establishment of a successful community hunting industry in Kenya is the potential supply of trophy animals. With no official live animal market and fairly low wildlife densities and little species diversity on communal land, the potential "bag" for customers is limited in scope and number.

Estimating potential earnings per hectare

Several recent studies show that an individual or group ranch might make pre-tax profits of over \$50,000 per annum from a small hunting operation operating on a 20,000-40,000 acre ranch in Laikipia. Mwau (1996) has shown that hunting, if undertaken in Kenya, would earn higher returns than game cropping and livestock ranching. An analysis of Mwau's data, based on Tanzanian hunting fees, gives returns of \$3.09 per ha for trophy hunting, \$1.01 for cropping and \$1.22 for livestock ranching in Laikipia District (see Table 2 for a breakdown of the estimate for hunting). Mwau's calculations are based on the assumption that the hunters will be able to hunt the animals in Table 3 (quotas determined by LWF/KWS game counts).

One key issue arising from Mwau's analysis is the high proportion of zebra in a typical utilization quota for a Laikipia ranch. The availability of trophy animals and of a mixed bag of big game is key to a successful trophy hunting business, and at this point it is clear that Laikipia could only support a limited volume of trophy hunters. LWF estimates that Laikipia's wildlife population can currently attract and sustain an industry of about 20-60 trophy hunters each year. There are undoubtedly hunters, both foreign and local, willing to pay to hunt zebra in Laikipia, but the fees and earnings potential will be significantly lower than for a classic trophy hunt.

Table 2: Expected Returns to Trophy Hunting for an integrated hunting operation on a 40,000 acre ranch in Laikipia District

	US\$ p.a.
Client fees (21days @ \$1,500 + 7 days @ \$500)	35,000
Trophy fees	43,450
Total revenue	78,450
Capital costs (dep)	3,967
Fixed operating costs	7,886
Variable costs	15,043
Total costs	26,896
Net revenue (pre-tax profit)	51,554
Average farm size (ha)	16,667
Net rev/ha	\$ 3.09

Source: Mwau (1996)

Table 3: Anticipated annual hunting fees for a 40,000 acre ranch in Laikipia District

Trophy	Quota	@ US \$
Buffalo	2	1,000
Eland	1	1,000
Grant's Gazelle	1	250
Duiker	1	150
Giraffe	2	2,000
Hartebeeste	1	350
Impala	10	250
Oryx	1	850
Steenbok	1	150
Zebra	45	600
Warthog	1	200
Lion	1	2,500
Leopard	1	2,500

Source: Mwau (1996)

Hurt and Ravn (1996) estimate potential fees earned by a landowner in Laikipia who has leased out his 20,000 acre ranch to a private outfitter. With fees again based on Tanzanian levels, they estimate the landowner could earn annual revenues of over \$58,000 from an integrated hunting operation, or \$7.22/ha, as shown in Table 4 for virtually no capital outlay or operating costs.

Table 4: Expected net hunting earnings, assuming 12 hunters (6 groups) p.a.

	US \$
6 parties x camping fees @ \$ 1,500	9,000
12 buffalo @ 720	8,640
12 zebra @ 590	7,080
2 gerenuk @ 1,300	2,600
2 lesser/greater kudu @ 1,300	2,600
4 oryx @ 870	3,480
12 grant @ 220	2,640
12 tommy @ 190	2,280
12 impala @ 240	2,880
12 wildebeeste/hartebeeste @ 320	3,840
4 warthog @ 320	1,280
4 bushbuck @ 340	1,360
4 reedbuck @ 290	1,160
4 eland @ 840	3,360
1 lion @ 2,000	2,000
1 leopard @ 2,000	2,000
4 misc. small animals @ \$180	720
Bird shooting	1,500
<i>Annual landowner income from fees</i>	<i>\$58,420</i>

Source: Hurt and Ravn (1996)

Potential community earnings

The Laikipia Wildlife Forum has estimated potential earnings for one block of three community farms in Laikipia district from trophy fees alone. LWF estimates that Ol Moran, Sipili and Luoniek could earn \$51,000 p.a. (assuming gross equivalent to net because very little cost implications) from hunting off existing quotas:

50 zebra @ \$ 600 = \$ 30,000
15 eland @ \$ 1,000 = \$ 15,000
8 impala @ \$ 250 = \$ 2,000
4 buffalo @ \$ 1,000 = \$ 4,000
<i>Total</i> <i>\$ 51,000</i>

The Ksh 3m (\$ 51,000) that this group of three farms would earn in one year greatly exceeds the Ksh 0.5m earned from cropping zebra in the past three years on the same land (Laikipia Wildlife Forum, 1997). With an estimated 30,000 ha of land between them, hunting would thereby yield an estimated \$1.70/ha p.a. to these three communities. Moreover, it is feasible that at least another eight group ranches in the district would earn comparable levels of income under a pilot hunting program. Comparing this figure with the Hurt & Ravn estimate of \$7.20/ha indicates the potential increase in value added were local communities able to participate in operating first class outfitting companies.

Estimating opportunity cost to landowners

In Laikipia an estimated 25-33% of the 930,000 ha district is suitable for hunting. This is wildlife-rich communally and individually owned land that is either unsuitable for tourism or where hunting would be compatible with tourism.

Table 5 estimates the potential landowner profits from hunting in Laikipia under three scenarios:

- A) a pilot community hunting scheme covering 80,000 ha (as is currently proposed);
- B) hunting over 25% of Laikipia (230,000 ha);
- C) hunting over 33% of Laikipia (310,000 ha).

Three different levels of opportunity cost are taken:

- 1) the LWF estimate for earnings from the proposed scheme (\$1.70/ha from trophy fees);
- 2) the Hurt & Ravn estimated earnings for a typical Laikipia ranch (\$7.20/ha from trophy fees and outfitting operations);
- 3) the maximum earning rate identified for a private ranch in South Africa (\$55/ha from trophy fees and outfitting operations). We are not suggesting that Option 3) is current a realistic scenario for Laikipia, but only that it sets the upper limit for our estimate of opportunity cost.

Table 5: Estimating the Opportunity Cost of the Hunting Ban to Landowners in Laikipia District

Scenario	Opportunity Cost at \$1.70/ha p.a.	Opportunity Cost at \$7.20/ha p.a.	Opportunity Cost at \$55/ha p.a.
A) Pilot community hunting operation over 80,000 ha	\$136,000	n.a.	n.a.
B) Trophy/sport hunting over 230,000 ha	\$391,000	\$1,656,000	\$12,650,000
C) Trophy/sport hunting over 310,000 ha	\$527,000	\$2,232,000	\$17,050,000
Source: AWF estimates			

In calculating this rough estimate of opportunity cost we have excluded any impacts on returns from other land uses. One advantage of safari hunting is that it need not preclude livestock ranching across much of Laikipia district. The impact on local tourism is, however, a source of disagreement, although the experience of South Africa suggests that hunting and tourism operations can be conducted on the same area of land. Thus introduction of a limited pilot hunting project is unlikely to affect livestock earnings, though some observers believe that tourism earnings might fall. The potential returns from hunting are far higher than those currently earned from the cropping program. While the pilot hunting project is likely to reduce cropping earnings by an amount equivalent to the value of the animals hunted, this is unlikely to be a very significant figure.

Taking the Hurt & Ravn estimate of potential earnings, we estimate that the opportunity cost of the hunting ban to Laikipia landowners is in the order of \$1.6 million - \$2.2 million p.a. A small portion of this opportunity cost would be realized by the current proposal to reintroduce a limited community based hunting program. The potential value of the community based hunting program proposed is estimated as \$136,000 p.a. to the community landowners, based on the LWF estimates.

6. Conclusion

Hunting is clearly an economically significant potential land use option for landowners in Laikipia. In terms of potential returns per hectare it compares favorably with top-market wildlife viewing tourism, and is far more attractive than livestock or agriculture on large areas of Laikipia's low rainfall range land. This paper has laid out some of the economic arguments for hunting, and outlined some of the economic and non-economic sources of disagreement about the proposal to reintroduce hunting to certain community areas of Laikipia District on a pilot basis.

The economic case for re-introducing hunting is persuasive, particularly if mechanisms can be found to ensure that significant benefit streams accrue locally. However, the proponents of the program are very aware that they also need to address the five key issues raised in Section 2 in order to ensure that non-economic concerns about hunting are addressed.

AWF has undertaken the preparation of this discussion paper not to argue for or against the hunting ban in Kenya, but to review the associated economic issues. It is our hope that this paper can contribute to clarifying some of the issues facing key stakeholders in making the decision as to whether to re-introduce hunting on a pilot basis.

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