



ECONOMIC RETURNS TO LAND-USE OPTIONS IN GONDWANA CAÑON PARK, KARAS, NAMIBIA

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Abstract

This is an analysis of the economics of the primary land uses possible in the area occupied by the Gondwana Cañon Park in Karas Region, Namibia. Three land uses, traditional small-scale livestock production, large-scale commercial livestock production and nature-based tourism were analysed with financial and economic budget/cost-benefit models. Empirical data on the physical, and financial characteristics of potential land uses were assembled and analysed. Among other things, the contributions of these activities to the national income, employment, private profitability, and local community livelihoods were measured.

The results of this study provide a very clear indication as to which land use is economically preferable for the study area. Tourism is able to contribute by far the most to profits, community income, economic growth and employment, and should be the land use. The lower economic and financial returns associated with the small-scale livestock system make it the least desirable system from the development point of view. The primary reasons for the low value of this land use include the open-access grazing system, which drives down production and net benefits, and the lack of access to capital experienced by small-scale farmers. Of the three land uses, tourism is also most likely to ensure conservation of the natural biological diversity. The heavy grazing pressure associated with the small-scale land use is likely to cause a negative impact on biological diversity.

The results reflect the specific conditions in the study area. These include high potential for tourism and relatively low potential for livestock production. Similar conditions are likely to occur in numerous places in southern Namibia, but they are not prevalent throughout. Thus the findings do not provide the means to determine the spatial allocation of land uses, which would maximise economic values in the Karas Region as a whole. For this, data giving the marginal values associated with each land use at different spatial points would be needed. Optimal allocation would occur when the marginal net benefits of the competing land uses are equal to each other.

The findings raise interesting questions for future research. Further work could focus on refining the models developed in this study, developing new ones, and developing optimisation models for land allocation. Probably most important, the conditions for economic efficiency in the broader tourism and livestock sectors, with all linkages included, could be studied. Both cross-sectional and time-series data would be useful as there is evidence that livestock values will drop in the long term and that livestock systems may lose their comparative advantage. Wildlife values on the other hand, are likely to increase in the long term, increasing the comparative advantage of wildlife-based land uses.

1. Introduction

1.1 Background

Land use in the south of Namibia, has traditionally been dominated by livestock grazing. Early pastoralists tended to be nomadic, grazing sheep, goats and cattle over wide areas of dwarf karroid shrublands in response to spatial variation in the sparse rainfall. In the last century, livestock production in the south of Namibia has become more sedentary around developed water points, and focused on sheep and goat production. Medium- to large-scale investments on private land have dominated, but pockets of small-scale production on communal land also occur. More recently there has been development of some wildlife land-use activities in the south. Barnes & de Jager (1996) described a gradual increase in the wildlife stocks on private land, and found that there were some financial and economic incentives for conversion from livestock production to wildlife-based tourism.

This study is a detailed examination of the economic characteristics of the land-use options in one site in southern Karas Region, the 87 000-hectare, privately owned Gondwana Cañon Park. This property consists of ten contiguous farms. Historically, the land was used sporadically by nomadic herdsman. Since then it has been used for large-scale, fenced, commercial small-stock production, and it is now used for wildlife-based non-consumptive tourism. The mean annual rainfall in the Park is very low (75 millimetres). The Park falls on the transition between dwarf shrub savanna and desert, and on the arid edge of the potential for livestock production. It is also situated near to the Ai-Ais Hot Springs Protected Area, containing the scenic tourist attraction of the Fish River Canyon.

There is a great need for assembling information about economically and environmentally beneficial land-use alternatives for Namibia. This should enable planners to obviate economic inefficiencies, resource wastage, and the adverse environmental impacts of inappropriate land uses. Three primary land uses are possible in the study area and these include:

- (a) Traditional, small-scale, small-stock (sheep and goat) production, as practised in communal lands to the east (Warmbad, Bondelswarts) and north (Nama),
- (b) Commercial, large-scale, small-stock (mostly karakul sheep) production, with limited use of wildlife, and
- (c) Commercial, nature-based tourism with lodge development for wildlife-viewing tourists, using both the property and the neighbouring protected area.

Empirical data have been assembled and analysed to develop detailed models for these three land-use options, and to describe their financial and economic features.

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2. Methods

2.1. Economic and financial analysis

The methods used for the financial and economic analysis were aimed at determining the direct use values of the land uses, as defined within the context of the 'total economic value' of natural resources, as described by Pearce & Turner (1990)¹. Direct use values contribute directly to income and employment, and have high importance for decision-makers in Namibia. The other components of total economic value, while important, particularly in the international context, are difficult to measure and have not been studied in Namibia. One of these is the economic value of biodiversity, which may embrace indirect use value, option value and existence or bequest values.

The primary measure of the economic direct use value used is that of *national income*, as defined by Gittinger (1982) and Pearce (1986). In the context of the land uses studied, national income refers to the income received by the factors of production (labour and capital) from the sale of their services to production in the form of wages, rent and net income. With some adjustments for trading gains or losses, it is equivalent to the concept of national product, which is the 'value added' generated in these land-use activities (total value of the goods and services produced, less raw materials and other goods and services consumed during the production process). We used value added as a base to estimate *net national income*, which is gross national income less depreciation of capital.

The estimates of net national income were measured using *economic* prices, which reflect the costs to society, of using or producing resources. Economic prices reflect opportunity costs (the values of the resources' best alternative use). Where financial prices differed significantly from opportunity cost, *shadow pricing* was applied, using the preliminary criteria of the Environmental Economics Unit in the Ministry of Environment and Tourism (Barnes, 1994). The approach was similar to those described in manuals developed for South Africa (CEAS, 1989) and the World Bank (Gittinger, 1982). The main shadow pricing adjustments made, were

¹ The components of total economic value include direct use, indirect use, option, bequest and existence values associated with the resources. *Direct use values* are derived from the actual *utilisation* of the resource. They contribute tangible value in the form of *income*, and make up the main component of formal economic growth, which in turn is the focus of national development efforts. *Indirect use values* are derived from ecological or social function (such as erosion protection, waste assimilation, political stability, etc.). *Option values* reflect the values perceived in retaining the option to use the resource in the future. *Bequest values* reflect the value perceived in preserving or retaining the resource for others in the future. *Existence values* reflect the value perceived in retaining the mere existence of the resource.

the elimination of domestic taxes and subsidies (where these were known²), an adjustment (up by 6%) to the value of tradable goods to reflect excess demand for foreign exchange, and an adjustment (down by 65%) to unskilled labour costs to reflect unemployment.

Cost and benefit flows were discounted over time to reflect the time value of money. For this study a discount rate of 8% was applied to both financial and economic models. In the financial enterprise models, the value of land was reflected as subsidised expenditure in rentals. In the economic analysis, land rental was treated as a domestic transfer and excluded. The economic measures of land-use value were thus made *before* inclusion of land opportunity costs. This allowed direct comparison between models regarding returns to land. The economic models also did not include central government expenditures in the wildlife and agricultural sectors.

The measures of gross and net national income were *measures of economic efficiency*. They provided an indication of the contribution of the land use to economic growth, development, and include the benefits of employment. The financial analyses resulted in profitability measures, indicating the private incentives for investment in the activity. The extent to which these private returns differ from the economic ones indicated the influence of policy and/or market imperfections, as described by Jansen *et al.* (1992).

Models were detailed spreadsheets with annualised income statements and ten-year cost-benefit, investment analyses. They were developed, as representative examples of the land uses, using data from both the literature, and empirical survey. Sensitivity analysis was used to test robustness of models and assumptions, and determine the strength of conclusions to be drawn from results. All models contained wildlife or livestock herd/flock projections, incorporating birth rates, mortality rates, off-takes and purchases, within the constraint of the rangeland carrying capacities.

2.2. Land-use models

The two livestock systems modelled were distinctive in terms of parameters such as flock sizes, flock growth, stocking rates, lambing rates, mortality rates, off-take rates, milk production, use of stock as a store of value, etc. The assumptions for the small-scale livestock model were synthesised from the survey results of Goldbeck (2002), DRD (1992), G. Cowlshaw (2003, pers. comm.) and Metzger (1994). All these surveys took place in the southern communal areas. Some corroboration of assumptions was possible using findings from elsewhere, including those of Flint (1986), Arntzen (1998), Phuti (1984, 1985), Yaron, *et al.* (1992) and Barnes *et al.* (2001).

The small-scale livestock model closely simulated conditions in the Warmbad area, where sheep, mostly karakul, are slightly dominant over Boer goats. Products included live sales, home consumption of meat and milk, sale of wool and pelts, and use of stock as a store of value (measured as capital appreciation). Less important products included use of donkeys and horses for transport (other than as an input to the enterprise), sales of cattle, and sale/consumption of irrigated vegetables. A typical small-scale enterprise made use of a shared borehole and 2330 hectares of unfenced communal land. Some 22 such enterprises

² Subsidies to commercial livestock production appear to have been largely eliminated during the 1990s. Communal land farmers still benefit from some, including water and veterinary subsidies, but the exact values are not clear. Approximate estimates have been used.

would make use of the 52 000 hectares of the 87 000-hectare property, which was deemed suitable for livestock production. Each would bear a share of the capital costs of shared infrastructure (waters, perimeter fencing, roads, etc.). The tendency for open-access grazing results in high stocking rate around the ecological carrying capacity.

The assumptions for the large-scale, commercial livestock model were synthesised using primary data from a workshop of nine commercial farmers held at Cañon Lodge on 13 January 2002. This information was supported from unpublished survey data (1991 to 1993) from the Directorate of Planning, Ministry of Water, Agriculture and Rural Development (C. van der Merwe, pers comm., 1993), and published survey data (1986) from the Combud Programme in South Africa (DL-E, 1986a, 1986b). Some corroboration was also possible using survey information from the South African Karoo (DEM, 1955). The system deemed best-suited to the study area was karakul sheep production. Products include pelts, slaughter stock, wool and, to some extent, use of stock as a store of value (measured as capital appreciation). Very small amounts of Boer goats are included, as well as limited consumptive use of gemsbok, kudu and springbok. Only some 52 000 hectares of the 87 000 hectare property was deemed to be utilisable for livestock production. The system allowed for exclusive access and enclosure (fencing) so that grazing pressure tended to be closer to the economic carrying capacity, than was the case with the small-scale system.

The wildlife-viewing tourism model was developed directly from the physical and financial records of the private sector investment on the study area, and also empirical physical and financial data collected, between 1986 and 1999, from tourism operators and projects throughout Namibia (Unpublished Data, Environmental Economics Unit, Ministry of Environment and Tourism, 2002). The whole of the available 87 000 hectares was deemed utilisable for tourism, although activities would be highly concentrated. The assumptions for the wildlife stock projection were derived from the records for the property, and also from Spinage (FGU-Kronberg, 1987), and Craig and Lawson (1990). Wild-game populations were assumed to grow at constant rates of *half* the intrinsic rate of increase for that species. Ecological carrying capacity was defined as the area of habitat required to support one large stock biomass unit, while maximum sustainable yield is possible. Biomass, as the measure of wildlife and livestock density, was calibrated in large stock unit equivalents (LSU). One LSU is the metabolic mass equivalent of a 450-kilogram bovine steer or ox, as determined for various species and intra-specific age groups by Meissner (1982a, 1982b). Wildlife pressure on the rangeland is not high.

Sensitivity analyses were conducted on all of the base-case land-use models by varying parameters such as livestock lambing rates, livestock mortality rates, product prices, capital costs, stocking rates, stock off-take rates, tourism occupancy rates, and person-power needs. This provided a good sense of the robustness associated with the parameters, and assumptions on these. Some of the key assumptions associated with the base-case models are shown in Table 1 for comparison. Summaries of the base-case models are presented in Appendix 1, and the full models are presented in Appendices 2, 3 and 4.

Table 1: Comparative key assumptions used in base-case land-use models for (a) small-scale traditional livestock, (b) large-scale commercial livestock and (c) tourism (Karas; 2001; per annum)

Item	(a) Small-scale livestock	(b) Commercial livestock	(c) Tourism
Land available (hectares)	87 000	87 000	87 000
Land used (hectares per enterprise)	2 330	52 200	87 000
No. livestock (head)	285	10 346	5 105
No. large stock units (LSU)	47	871	839
Stocking rate (ha/LSU)	50	60	104
öEconomicö carrying capacity (ha/LSU)	60	60	60
Lambing/kidding rate (% of ewes)	90%	130%	6
Lambing/kidding rate (% of young ewes)	90%	130%	6
Mortality rate (% of lambs)	40%	28%	6
Mortality rate (% of adults)	7%	5%	6
Ram rate (% of flock)	3%	3%	6
Stock off-take rate (% of stock numbers)	16%	31%	6
Biomass production (% of stock LSU)	14%	24%	17%
Tourist bed occupancy rate (%)	6	6	63%
Long-term borrowing (% of initial capital)	0%	25%	25%
Short-term borrowing (% recurrent costs)	0%	30%	30%

3. Results and discussion

Table 2 sets out selected *financial* results from the base-case models for the three land-use systems analysed. These show the income generated by these activities from the point of view of the investor, and the local community. In the case of the small-scale system, some 22 enterprises could be accommodated on the approximately 52 000 hectares of the property suited to livestock production, and the figures for this land use are aggregates. In general terms, financial benefits (net cash income plus community income per hectare), and financial rate of return on investment are by far the highest with tourism, and lowest with the small-scale livestock system. Generally, all land uses generate positive returns in the base cases. The only exception is the small-scale livestock system, where the internal rate of return is below the 8% opportunity cost. The *economic* characteristics of the three livestock models are presented in Table 3. Here, again the economic returns are by far the highest for the tourism land use, and lowest for the small-scale livestock system.

The results in Tables 2 and 3 indicate that traditional livestock production is the most extensive production system analysed. The inputs and returns per unit of land or stock are lowest for this system. This is partly because of the tendency for an open-access system of grazing, which results in high stocking rates, which are around the ecological carrying capacity of the range. Another reason is the poor access to capital among small-scale farmers

(Goldbeck, 2002). Table 4 shows the results of sensitivity analyses on the small-scale livestock model. These suggest that significant gains in both economic and financial profitability would be obtained if flock production parameters (lambing rates and mortality rates) could be improved. This points to the importance of initiatives to overcome the open-access problem on communal rangelands. Generally the results for the small-scale livestock model corroborate the theoretical premise that open access tends to dissipate net benefits and economic rent.

Tables 2, 3 and 5 show the commercial large-scale livestock system to be more intensive than the small-scale one, with higher inputs and returns per unit of land and stock. It is able to generate significantly higher benefits in terms of local community income (wages), although the number of employment opportunities it creates is not much higher. The sensitivity analyses in Table 5 show the commercial livestock system to be rather sensitive to changes in flock production parameters in both economic and financial terms. Clearly, improvements in these could pay off. Generally, however, the economic returns are higher and more resilient than the financial returns, for this system. The maintenance of stocking levels closer to economic carrying capacity is likely to explain the higher returns evident with this commercial livestock land use.

Tables 2, 3 and 6 show the financial and economic results for the nature-based tourism land-use models. Commercial tourism is shown to generate very large financial profits and economic returns. This activity makes very intensive use of the land at the site. Both inputs and returns are very significantly larger than those for the commercial livestock system, and overall rates of return both financially and economically are more attractive. Tourism is clearly the most appropriate land use for the study area, as it contributes by far the most to investor profits, community incomes and the national economy. This can be partly explained by the fact that the study area is on a prime site with fine scenery and close proximity to the renowned Fish River Canyon. It is also explained by the fact that the area is on the extreme edge of the spectrum of habitat conditions suitable for livestock production.

In the small-scale livestock production system, the economic net benefit (net value added) is consistently lower than the financial net profit (net cash income). This indicates that these small-scale enterprises are currently being subsidised. The opposite is the case with the commercial livestock and tourism enterprises, indicating that these are currently being effectively taxed.

In a similar study in northern Botswana, Barnes *et al.* (2001) compared the values for traditional small-scale cattle-keeping with commercial medium- to large-scale cattle ranching. In this Botswana study, the commercial system was found to be economically non-viable, while the small-scale system was found, at least potentially, to have higher economic merit. Two things would explain the differences between these findings and ours, here for small-stock production. Firstly, small-scale cattle-keeping in northern Botswana derives a high proportion of income from transport (plough and sled draft power), while our small-scale sheep and goat production system does not, and tends to simply resemble a small, under-capitalised and open-access, commercial enterprise. Secondly, commercial small-stock production has tended to be more profitable than commercial beef production. Evidence from Barnes & de Jager (1996) would tend to confirm this.

Table 2: Comparative base-case *financial* results for the (a) small-scale traditional livestock, (b) large-scale commercial livestock, and (c) tourism land uses (Karas; 2001, per annum)

Item	(a) Traditional livestock*	(b) Commercial livestock	(c) Tourism
Land available (hectares)	87 000	87 000	87 000
Land used (hectares)	52192	52 200	87 000
Stock (LSU equivalents)	1 047	871	839
Initial capital (N\$)	2 868 416	4 834 235	23 583 403
Initial capital per hectare** (N\$)	33	56	271
Initial capital per LSU (N\$)	2 739	5 551	28 116
Financial gross income (N\$)	410 019	1 282 214	14 312 659
Financial gross income per hectare (N\$)	4.71	15	165
Financial gross income per LSU (N\$)	392	1 472	17 063
Variable financial costs (N\$)	174 028	377 058	6 520 421
Fixed financial costs (N\$)	154 724	863 594	5 784 665
Net cash income (N\$)	81 267	41 563	2 007 573
Net cash income per hectare (N\$)	0.93	0.48	23
Net cash income per hectare used*** (N\$)	1.56	0.80	23
Net cash income per LSU (N\$)	78	48	2 393
Local community income (N\$)	94 016	284 580	1 652 400
Community income**** per hectare (N\$)	1.08	3.27	19
Community income per hectare used** (N\$)	1.80	5.45	19
Community income per LSU (N\$)	90	327	1 970
Financial rate of return (FRR)	5.5%	9.8%	12.9%
Financial net present value (N\$)	-365 330	441 424	6 648 671
Financial net present value per hectare (N\$)	-4.20	5.07	76
Land rental (N\$)	5 219	8 700	8 700
Land rental per hectare (N\$)	0.06	0.10	0.10

* Aggregate values for 22 small-scale enterprises

** Measured per hectare of land available

*** In the livestock systems, only about 52 200 hectares of the available 87 000 hectares were deemed suitable for production, and actually used

**** Community income is a measure of contribution to the livelihoods of people living in the region and includes unskilled and semi-skilled wages and small-scale farm net benefits

Table 3: Comparative base-case *economic* results for the (a) small-scale traditional livestock, (b) large-scale commercial livestock, and (c) tourism land uses (Karas; 2001, per annum)

Item	(a) Traditional livestock*	(b) Commercial livestock	(c) Tourism
Land available (hectares)	87 000	87 000	87 000
Land used (hectares)	52192	52 200	87 000
Stock (LSU equivalents)	1 047	871	839
Initial capital (N\$)	2 608 265	4 977 806	19 613 155
Initial capital per hectare** (N\$)	30	57	225
Initial capital per LSU (N\$)	2 491	5 715	23 382
Economic gross output (N\$)	474 020	1 393 779	13 886 977
Economic gross output per hectare (N\$)	5.45	16	160
Economic gross output per LSU (N\$)	453	1 600	16 556
Annual economic costs (N\$)	370 260	1 068 395	8 971 621
Annual economic costs per hectare (N\$)	4.26	12	103
Annual economic costs per LSU (N\$)	354	1 227	10 696
Gross value added (N\$)	103 760	325 384	4 915 356
Gross value added per hectare (N\$)	1.19	3.74	57
Gross value added per LSU (N\$)	99	374	5860
Net value added (N\$)	8 400	200 474	4 009 216
Net value added per hectare (N\$)	0.10	2.30	46
Net value added per hectare used*** (N\$/ha)	0.16	3.84	46
Net value added per LSU (N\$)	8.02	230	4 780
Economic rate of return (ERR)	11.1%	23.1%	29.4%
Economic net present value (N\$)	390 847	2 861 839	23 404 949
Economic net present value per hectare (N\$)	4.49	33	269
Employment created (full-time jobs)	24	29	153
Economic capital cost per job (N\$)	109 643	171 648	128 191

* Aggregate values for 22 small-scale enterprises

** Measured per hectare of land available

*** In the livestock systems, only about 52 000 hectares of the available 87 000 hectares were deemed suitable for production, and actually used

Table 4: Results of sensitivity analysis on the base-case assumptions for the small-scale traditional livestock production model (Karas; NS; 2001; base case in bold)

Lambing rate	54%	72%	90%	108%	126%
Net value added per hectare used	-3.20	-1.69	0.16	2.37	4.96
Net cash income per hectare used	0.14	0.79	1.56	2.44	3.45
Community income per hectare used	0.38	1.04	1.80	2.68	3.69
Mortality rate (lambs)	56%	48%	40%	32%	24%
Net value added per hectare used	-3.42	-1.92	0.16	2.95	6.60
Net cash income per hectare used	0.10	0.73	1.56	2.62	3.98
Community income per hectare used	0.35	0.98	1.80	2.87	4.22
Stock prices (variation)	60%	80%	100%	120%	140%
Net value added per hectare used	-1.60	-0.72	0.16	1.04	1.92
Net cash income per hectare used	-0.46	0.55	1.56	2.56	3.57
Community income per hectare used	-0.21	0.79	1.80	2.81	3.82
Capital costs (variation)	140%	120%	100%	80%	60%
Net value added per hectare used	-1.38	-0.61	0.16	0.93	1.70
Net cash income per hectare used	0.59	1.08	1.56	2.04	2.52
Community income per hectare used	0.84	1.32	1.80	2.28	2.76
Stocking rate (hectares per LSU)	60	55	50	45	40
Net value added per hectare used	-0.26	-0.09	0.16	0.46	0.76
Net cash income per hectare used	1.05	1.26	1.56	1.92	2.28
Community income per hectare used	1.29	1.50	1.80	2.16	2.52
Person-power needs (staff number*)		57	46	35	24
Net value added per hectare used		-1.94	-1.24	-0.54	0.16
Net cash income per hectare used		-4.36	-2.39	-0.42	1.56
Community income per hectare used		1.79	1.79	1.80	1.80

* Aggregate for 22 enterprises

Table 5: Results of sensitivity analysis on the base-case assumptions for the large-scale commercial livestock production model (Karas; N\$; 2001; base case in bold)

Lambing rate	78%	104%	130%	108%	182%
Net value added per hectare used	-7.77	-2.69	3.84	11.96	21.79
Net cash income per hectare used	-7.12	-3.57	0.80	6.03	12.20
Community income per hectare used	5.45	5.45	5.45	5.45	5.45
Mortality rate (lambs)	39%	34%	28%	22%	17%
Net value added per hectare used	-4.51	-0.76	3.84	9.42	16.13
Net cash income per hectare used	-4.65	-2.17	0.80	4.32	8.50
Community income per hectare used	5.45	5.45	5.45	5.45	5.45
Stock prices (variation)	60%	80%	100%	120%	140%
Net value added per hectare used	-3.68	-0.08	3.84	7.60	11.36
Net cash income per hectare used	-6.72	-2.96	0.80	4.55	8.31
Community income per hectare used	5.45	5.45	5.45	5.45	5.45
Capital costs (variation)	140%	120%	100%	80%	60%
Net value added per hectare used	1.68	2.76	3.84	4.92	6.00
Net cash income per hectare used	-0.95	-0.07	0.80	1.67	2.54
Community income per hectare used	5.45	5.45	5.45	5.45	5.45
Stocking rate (hectares per LSU)	70	65	60	55	50
Net value added per hectare used	1.80	2.68	3.84	5.00	6.75
Net cash income per hectare used	-1.13	-0.31	0.80	1.90	3.55
Community income per hectare used	5.45	5.45	5.45	5.45	5.45
Person-power needs (staff number)	41	35	29	23	17
Net value added per hectare used	1.23	2.53	3.84	5.15	6.46
Net cash income per hectare used	-2.94	-1.07	0.80	2.66	4.53
Community income per hectare used	7.63	6.54	5.45	4.36	3.27

Table 6: Results of sensitivity analysis on the base-case assumptions for the large-scale tourism model (Karas; N\$; 2001; base case in bold)

Occupancy rate	38%	50%	63%	76%	88%
Net value added per hectare used	9.60	28	46	64	83
Net cash income per hectare used	-6.80	8.10	23	38	53
Community income per hectare used	19	19	19	19	19
Product prices (variation)	60%	80%	100%	120%	140%
Net value added per hectare used	24	35	46	57	69
Net cash income per hectare used	4.70	14	23	32	42
Community income per hectare used	19	19	19	19	19
Capital costs (variation)	140%	120%	100%	80%	60%
Net value added per hectare used	33	40	46	53	59
Net cash income per hectare used	15	19	23	27	32
Community income per hectare used	19	19	19	19	19
Person-power needs (staff number)	214	184	153	122	92
Net value added per hectare used	36	41	46	51	57
Net cash income per hectare used	9.70	17	23	30	36
Community income per hectare used	27	23	19	15	11

4. Conclusions and policy implications

The results of this study provide a very clear indication as to which land use is economically preferable for the study area. Tourism is able to contribute by far the most to profits, community income, economic growth and employment, and should be the land use adopted. The lower economic and financial returns associated with the small-scale livestock system make it the least desirable system from the development point of view. The primary reasons for the low value of this land use include the open-access grazing system, which drives down production and net benefits, and the lack of access to capital experienced by small-scale farmers. Of the three land uses, tourism is also most likely to ensure conservation of the natural biological diversity. The heavy grazing pressure associated with the small-scale land use is likely to cause a negative impact on biological diversity.

The results reflect the specific conditions in the study area. These include high potential for tourism and relatively low potential for livestock production. Similar conditions are likely to occur in numerous places in southern Namibia, but they are not prevalent throughout. Thus the findings do not provide the means to determine the spatial allocation of land uses, which would maximise economic values in the Karas Region as a whole. For this, data giving the marginal values associated with each land use at different spatial points would be needed.

Optimal allocation would occur at the point where the marginal net benefits of the competing land uses are equal to each other.

The findings raise interesting questions for future research. Further work could focus on refining the models developed in this study perhaps using *Monte Carlo* simulations, developing new models, and developing optimisation models for land-use allocations. Probably most important, the conditions for economic efficiency in the broader tourism and livestock sectors, with all linkages included, should be studied. Both cross-sectional and time-series data would be useful as there are indications that livestock values will drop in the long term and that livestock may lose its comparative advantage. Wildlife values on the other hand, are likely to increase in the long term, increasing the comparative advantage of wildlife-based land uses (Barnes *et al.*, 2001).

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Appendix 1: Summaries of assumptions and results for models

**APPENDIX 1 (a) – TRADITIONAL LIVESTOCK BREEDING – KARAS REGION – 2001 – BASE CASE
FINANCIAL AND ECONOMIC MODEL – SUMMARY OF ASSUMPTIONS AND RESULTS**

ASSUMPTIONS	UNITS				ENTERPRISE	TOTAL
Land Extent	Hectares				6	87000
Grazing Land Used	Hectares				2330	52192
Stock	Large Stock Units (LSU)				47	1047
"Economic" Carrying Capacity	Hectares per LSU Equivalent				60	60
Stocking Rate	Hectares per LSU Equivalent				50	50
Lambing Rate	% per Annum				90%	90%
Lamb Mortality	% per Annum				40%	40%
Adult Mortality	% per Annum				7%	7%
Ram Rate	% per Annum				3%	3%
Stock Off-take Rate	% Head per Annum				16%	16%
Biomass Off-take Rate	% LSU per Annum				14%	14%
Long-term Borrowing	% of Initial Capital				0%	0%
Short-term Borrowing	% of Recurrent Costs				0%	0%
Jobs Created	No.				1.1	24
<hr/>						
RESULTS	% of TCI	N\$/LSU	N\$ / HECTARE		N\$	N\$
			Core	Ranch		
<hr/>						
Total Financial Capital (TCI)	6	2739.41	54.96	32.97	128054	2868416
Financial Gross Income	14.29%	391.58	7.86	4.71	18304	410019
Variable Financial Costs	6	166.20	3.33	2.00	7769	174028
Fixed Financial Costs	6	147.77	2.96	1.78	6907	154724
Net Cash Income	2.83%	77.61	1.56	0.93	3628	81267
Local Community Income	3.28%	89.79	1.80	1.08	4197	94016
Land Rental	6	4.98	0.10	0.06	233	5219
Resource Royalty	6	0.00	0.00	0.00	0	0
Project FRR (@ 10 Years)	6	6	6	6	5.49%	5.49%
Project FNPV (@ 8%, @ 10 Years)	6	6	-7.00	-4.20	-16309	-365330
Total Economic Capital	6	2490.96	49.97	29.98	116440	2608265
Economic Gross Output	18.17%	452.70	9.08	5.45	21162	474020
Economic Costs	14.20%	353.61	7.09	4.26	16529	370260
Gross Value Added (GNI)	3.98%	99.09	1.99	1.19	4632	103760
Net Value Added (NNI)	0.32%	8.02	0.16	0.10	375	8400
ERR (@ 10 Years)	6	6	6	6	11.10%	11.10%
ENPV (@ 8%, @ 10 Years)	6	6	7.49	4.49	17449	390847
Economic Capital Cost/Job	6	6	6		109643	109643
Domestic Resource Cost Ratio	6	6	6		2.08	2.08
Policy Analysis Matrix	Policy/Market Imperfection Effects		: on Output		-2857	6
			: on Tradable Inputs		-258	6
			: on Domestic Factors		6368	6
	Policy/Market Imperfection Net Effects		: on Annual Net Income		3253	6
			: on Net Present Value		-33758	6

**APPENDIX 1 (b) – COMMERCIAL LIVESTOCK BREEDING – KARAS REGION – 2001 – BASE CASE
FINANCIAL AND ECONOMIC MODEL – SUMMARY OF ASSUMPTIONS AND RESULTS**

ASSUMPTIONS	UNITS	TOTAL			
Land Extent	Hectares	87000			
Core Grazing Area Used	Hectares	52200			
Stock	Large Stock Unit Equivalents (LSU)	871			
"Economic" Carrying Capacity	Hectares per LSU Equivalent	60			
Stocking Rate	Hectares per LSU Equivalent	60			
Lambing Rate	% per Annum	130%			
Lamb Mortality	% per Annum	28%			
Adult Mortality	% per Annum	5%			
Ram Rate	% per Annum	3%			
Stock Off-take Rate	% Head per Annum	31%			
Biomass Off-take Rate	% LSU per Annum	24%			
Long-term Borrowing	% of Initial Capital	25%			
Short-term Borrowing	% of Recurrent Costs	30%			
Jobs Created	No.	29			
<hr/>					
RESULTS	% of TCI	N\$/LSU	N\$ / HECTARE		N\$
			Core	Ranch	
<hr/>					
Total Financial Capital (TCI)	6	5550.51	92.61	55.57	4834235
Financial Gross Income	26.52%	1472.20	24.56	14.74	1282214
Variable Financial Costs	6	432.93	7.22	4.33	377058
Fixed Financial Costs	6	991.55	16.54	9.93	863594
Net Cash Income	0.86%	47.72	0.80	0.48	41563
Local Community Income	5.89%	326.75	5.45	3.27	284580
Land Rental	6	9.99	0.17	0.10	8700
Resource Royalty	6	0.00	0.00	0.00	0
Project FRR (@ 10 Years)	6	6	6	6	9.78%
Project FNPV (@ 8%, @ 10 Years)	6	6	8.46	5.07	441424
Total Economic Capital	6	5715.35	95.36	57.22	4977806
Economic Gross Output	28.00%	1600.29	26.70	16.02	1393779
Economic Costs	21.46%	1226.70	20.47	12.28	1068395
Gross Value Added (GNI)	6.54%	373.59	6.23	3.74	325384
Net Value Added (NNI)	4.03%	230.18	3.84	2.30	200474
ERR (@ 10 Years)	6	6	6	6	23.14%
ENPV (@ 8%, @ 10 Years)	6	6	54.82	32.89	2861839
Economic Capital Cost/Job	6	6	6	6	171648
Domestic Resource Cost Ratio	6	6	6	6	1.41
Policy Analysis Matrix	Policy/Market Imperfection Effects		: on Output		-111564
			: on Tradable Inputs		-13496
			: on Domestic Factors		-33851
	Policy/Market Imperfection Net Effects		: on Annual Net Income		-158911
			: on Net Present Value (10 Yrs)		-2420415

**APPENDIX 1(c) – MEDIUM-SCALE TOURISM ON PRIVATE LAND – KARAS REGION – 2001 – BASE CASE
FINANCIAL AND ECONOMIC MODEL – SUMMARY OF ASSUMPTIONS AND RESULTS**

ASSUMPTIONS	UNITS	TOTAL		
Land Extent	Hectares	87000		
Land Used	Hectares	87000		
Core Wildlife Area	Hectares	54245		
Stock on Land	Large Stock Units (LSU)	839		
"Economic" Carrying Capacity	Hectares per LSU Equivalent	60		
Stocking Rate	Hectares per LSU Equivalent	104		
Number of Lodges/Camps	No.	4		
Number of Tourist Beds	No.	142		
Tourism Intensity	Hectares per Tourist Bed	613		
Occupancy Rate	% Available Bed Nights Used per Annum	63%		
Long-term Borrowing	% of Initial Capital	25%		
Short-term Borrowing	% of Recurrent Costs	30%		
Jobs Created	No.	153		
RESULTS	% of TCI	N\$/LSU	N\$/HECTARE	N\$
Total Financial Capital (TCI)	ó	28115.57	271.07	23583403
Financial Turnover	61%	17063.21	164.51	14312659
Variable Financial Costs	ó	7773.49	74.95	6520421
Fixed Financial Costs	ó	6896.34	66.49	5784665
Net Cash Income	8.5%	2393.38	23.08	2007573
Local Community Income	7.0%	1969.95	18.99	1652400
Land Rental	ó	10.37	0.10	8700
Resource Royalty	ó	0.00	0.00	0
Project FRR (@ 10 Years)	ó	ó	ó	12.9%
Project FNPV (@ 8%, @ 10 Years)	ó	ó	76.42	6648671
Total Economic Capital	ó	23382.34	225.44	19613155
Economic Gross Output	71%	16555.72	159.62	13886977
Economic Costs	46%	10695.75	103.12	8971621
Gross Value Added (GNI)	25%	5859.97	56.50	4915356
Net Value Added (NNI)	20%	4779.69	46.08	4009216
ERR (@ 10 Years)	ó	ó	ó	29.4%
ENPV (@ 8%, @ 10 Years)	ó	ó	269.02	23404949
Economic Capital Cost/Job	ó	ó	ó	128191
Domestic Resource Cost Ratio	ó	ó	ó	0.69
Policy Analysis Matrix	Policy / Market Imperfection Effects	: on Output		425682
		: on Tradable Inputs		-260565
		: on Domestic Factors		-2166759
	Policy / Market Imperfection Net Effects	: on Annual Net Income		-2001643
		: on Net Present Value (10 Years)		-16756278

Appendix 2: Small-scale livestock financial and economic model

APPENDIX 2: FINANCIAL/ECONOMIC MODEL – TRADITIONAL LIVESTOCK BREEDING – KARAS REGION – NS2001 – BASE CASE

ASSUMPTIONS*

Production System:	Mixed small-scale karakul sheep and goat breeding for production of livestock, meat, wool, pelts, with limited cattle					
Site:	Communally used ranch on arid edge of Dwarf Shrub Savanna with sand plains, limestone hills, granite hills, small numbers of springbok, with borehole water and "economic" rangeland carrying capacity of 45 ha per large stock unit					
Ranch Size:	2330 Hectares, or 23 Sq. Km					Core Area: 2330
Carrying Capacity:	60 hectares per LSU Equivalent, or 1.67 LSU Equivalents/Sq. Km.					
Stock Density:	2.01LSU Equivalents/Sq. Km. or, 50 Hectares per LSU Equivalent					
	100%	Initial Purchase of Breeding Ewes: 64				
Lamb/kidding Rates	100%	Young Ewes: 90%	Ewes less than 7 Yrs: 90%	Ewes more than 7Yrs: 90%		
Ram Rate	100%	3.0%	Ram Replacement Rate: 17%			
Mortality Rates	100%	Lamb/kid: 40.0%	Ewe: 7.2%	Ham/kap: 7.2%	Y. Ewes: 7.2%	Rams: 7.2%
Selected Prices:	100%	Capital Items	100%	Livestock	(Variations from Normal for Sensitivity Analysis)	
Capital Sources:	100%	Loan = 0%	Equity = 100%	and: 100%	Foreign 0%	Domestic 100%
Interest Rates:	100%	Rate for Capital Loans: 15%		Rate for Working Capital Loans: 25%		
Working Capital as Proportion of Annual Operating Costs:	0%					
Marketing Fees:	100%	Marketing Agents Fee as Percentage of Turnover: 2.28%				
Land Rental/Resource Royalty (N\$):	100%	Rental: 0.10 per Ha.	100%	Royalty: 0% of Turnover		
Personpower Needs:	100%	Managers: 0 Management:	Skilled Labour: 0 Foreign: 0%	Unskilled Labour: 0.06 Citizen: 100%		
Shadow Wage Adjustment:	100%	Managers: 1.00	Skilled Labour: 1.00	100%	Unskilled Labour: 0.35	
Foreign Exchange Premium:	100%	6% Adjustment Factor = 1.06				
Tax Adjustments:	100%	General VAT/Sales Tax: 11%	Import Taxes: from SACU: 0%	to SACU: n/a		
Discount Rates:	100%	Financial Discount Rate: 8%		Economic Discount Rate: 8%		
Opportunity Cost of Capital	100%	8%				

Static models depict enterprise at full production. Static financial model includes interest, amortisation government fees, royalties and land rentals. Static economic model takes foreign inflows and outflows into account, excludes other interest and transfers and values enterprise in economic prices before land and government costs

Dynamic models presented over 5 and 10 years, to measure IRR and NPV. Financial dynamic model, at constant prices, excludes interest and depreciation, and includes asset residual values. Economic model includes foreign inflows and outflows, and measures value of enterprise in economic prices before inclusion of land costs and public expenditures.

* Underlined percentages indicate degree of conformity with base case values, and can be changed

TABLE 1: CAPITAL REQUIREMENTS

ITEM	UNIT	QUANT.	PRICE (NS)	FINAN. COST	LIFE (Years)	AMORT. + INT.	DEPRECIATION	ECON. DEPR.	FOREX ADJ.	TAX ADJ.	ECON. COST
FIXED CAPITAL											
DOMESTIC ITEMS											
Houses Manager		1	500	330	40	53	8	7	1.00	0.89	294
Houses Labour		0	700	29	40	5	1	1	1.00	0.89	29
Office/Storerooms		0	5000	0	40	0	0	0	1.00	0.89	0
Tourist/Hunter Lodges		0	20000	0	40	0	0	0	1.00	0.89	0
Boreholes		0.13	40000	3432	40	548	86	76	1.00	0.89	3054
Plunge Dip		0	12000	0	40	0	0	0	1.00	0.89	0
Reservoirs/Pipes/Troughs		0.13	10000	858	40	137	21	19	1.00	0.89	764
Firebreaks/Roads	(km)	2.7	1000	2679	40	428	67	60	1.00	0.89	2384
Power/Road to Site		0.02	60000	884	40	141	22	20	1.00	0.89	787
CONTINGENCIES @ 5%				411	40	66	10	9	1.00	0.89	365
SUBTOTAL DOMESTIC ITEMS				8622							7676
TRADABLE ITEMS											
Pens, Boma		0.2	5600	739	20	118	37	35	1.06	0.89	697
Scale and Crush		0.2	6000	1200	15	205	80	75	1.06	0.89	1132
Pump/Windmill/Borehole Equipment		0.13	9450	811	15	139	54	51	1.06	0.89	765
Fencing Perimeter	(km)	4.5	12000	26786	15	4581	1786	1685	1.06	0.89	25270
Fencing Internal	(km)	0	7500	0	15	0	0	0	1.06	0.89	0
CONTINGENCIES @ 5%				1477	15	253	98	93	1.06	0.89	1393
SUBTOTAL TRADABLES				31013							29257
SUBTOTAL FIXED CAPITAL				39634							36934
MOVABLE CAPITAL											
TRADABLE ITEMS											
LDVs/Trucks/Carts		1.0	6000	6000	4	2102	1500	1415	1.06	0.89	5660
Tools/Ranch Equipment		0.1	10000	1000	6	264	167	157	1.06	0.89	943
Office/Other Equipment		0.1	20000	2400	6	634	400	377	1.06	0.89	2264
Feed/Salt Drums		0.0	3750	167	6	44	28	26	1.06	0.89	158
CONTINGENCIES @ 10%				957	6	253	159	150	1.06	0.89	903
SUBTOTAL TRADABLES				10524							9928
DOMESTIC ITEMS											
Breeding Stock	(batch)	1	26998	26998	40	4313			1.00	0.89	24028
Other Ewe, Hamel/kapater	(batch)	1	29453	29453	40	4705			1.00	0.89	26213
Rams	(batch)	1	3829	3829	40	612			1.00	0.89	3408
Cattle	(batch)	1	4675	4675	40	747			1.00	0.89	4161
Game	(batch)	1	338	282	40	45			2.00	0.89	502
Horses and Donkeys	(batch)	1	5578	5578	40	891			1.00	0.89	4965
CONTINGENCIES @ 10%				7081	40	1131			1.00	0.89	6302
SUBTOTAL DOMESTIC ITEMS				77896							69578
SUBTOTAL MOVABLE CAPITAL				88420							79507
WORKING CAPITAL											
VARIABLE					0	0			1.06	1.00	0
OVERHEAD					0	0			1.06	1.00	0
SUBTOTAL WORKING CAPITAL					0	0					0
TOTALS				128054	0	22145	4525	4257			116440

TABLE 2: STOCK COMPOSITION BY SPECIES AT FULL PRODUCTION

ITEM	HEAD	OFF-TAKE (NO.)	LSU FACTOR	LSU
Breeding Ewes	101	10	0.24	24
Young Breeding Ewes	19	2	0.12	2
Rams	4	1	0.35	1
Surplus Young Ewes	0	2	0.17	0
Lambs/kids	66	16	0.00	0
1st Year Hamels/kapaters	23	0	0.12	3
1st Year Ewes	23	0	0.10	2
2 Year Hamels/kapaters	16	5	0.16	3
3 Year Hamels/kapaters	11	4	0.22	2
4 Year Hamels/kapaters	7	2	0.25	2
5 Year Hamels/kapaters	5	2	0.30	1
6 Year Hamels/kapaters	3	1	0.30	1
7 Year Hamels/kapaters	1	1	0.30	0
8 Year Hamels/kapaters	0	1	0.30	0
9 Year Hamels/kapaters	0	0	0.30	0
Cattle	2	0	1.00	2
Donkeys	2	0	0.53	1
Horses	2	0	0.65	1
Kudu/Gemsbok	0	0	0.45	0
Springbok	0	0	0.11	0
TOTAL	285	48		47
STOCK DENSITY: 2.01 LSU PER SQ.KM	RANCH SIZE: 2330 HA	CORE AREA: 2330 HA		

TABLE 3: SALES AT FULL PRODUCTION

ITEM	QUANTITY (HEAD)	FINANCIAL VALUE	FOREX ADJ.	TAX ADJ.	ECON. VALUE
Cull Ewes (40% consumed)	10	3151	1.06	1.00	3340
Cull Young Ewes (40% consumed)	2	749	1.06	1.00	794
Young Ewes (40% consumed)	2	897	1.06	1.00	950
Hamels/kapaters (40% consumed)	17	6209	1.06	1.00	6582
Rams (40% consumed)	1	1167	1.06	1.00	1237
Pelts	16	1463	1.06	1.00	1551
Wool	6	100	1.06	1.00	106
Milk	6	2960	1.06	1.00	3138
Cattle	2	421	1.06	1.00	446
Donkeys/horses (Sale and Transport)	2	679	1.06	1.00	720
Game Animals and Fresh Produce	6	508	1.06	1.00	538
TOTALS	52	GROSS INCOME : 18304			19403

TABLE 4: VARIABLE EXPENDITURE AT FULL PRODUCTION

ITEM	FINANCIAL VALUES			FOREX VALUE	TAX ADJ.	ECONOMIC VALUES			
	NS/LSU	NS/HA.	NS/HA.			NS/LSU	NS/HA.	VALUE	
	Ranch	Core	Core						
TRADABLE ITEMS									
Supplements	24.90	0.50	0.50	1164	1.06	0.89	23.49	0.47	1098
Dip Costs	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Replacement Rams	24.97	0.50	0.50	1167	1.06	0.89	24.97	0.50	1167
Ear Tags	4.36	0.09	0.09	204	1.06	0.89	4.11	0.08	192
Transport	8.43	0.17	0.17	394	1.06	0.89	7.95	0.16	372
Fuels, Oils	16.35	0.33	0.33	765	1.06	0.89	15.43	0.31	721
Live Game: Aerial Support	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Field Ops.	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Transport	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Cropping: Ammunition	0.21	0.00	0.00	10	1.06	0.89	0.20	0.00	9
: Supplies/Packaging	1.88	0.04	0.04	88	1.06	0.89	1.77	0.04	83
: Transport	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Other	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Miscellaneous Costs	41.41	0.83	0.83	1936	1.06	0.89	39.06	0.78	1826
SUBTOTAL TRADABLES	122.51	2.46	2.46	5727			116.99	2.35	5469
DOMESTIC ITEMS									
Veterinary and Medicine Costs	3.36	0.07	0.07	157	1.00	0.89	2.99	0.06	140
Marketing Fees	18.80	0.38	0.38	879	1.00	0.00	0.00	0.00	0
Game Licence Fees	0.00	0.00	0.00	0	1.00	0.00	0.00	0.00	0
VAT/Sales Tax	21.54	0.43	0.43	1007	1.00	0.00	0.00	0.00	0
SUBTOTAL DOMESTIC ITEMS	43.69	0.88	0.88	2042			2.99	0.06	140
TOTAL VARIABLE EXPENDITURE	166.20	3.33	3.33	7769			119.98	2.41	5608

TABLE 5: OPERATING OVERHEAD EXPENDITURE AT FULL PRODUCTION

ITEM	FINANCIAL VALUES			FOREX VALUE	TAX ADJ.	ECONOMIC VALUES			
	NS/LSU	NS/HA.	NS/HA.			NS/LSU	NS/HA.	VALUE	
	Ranch	Core	Core						
DOMESTIC ITEMS									
Salaries and Wages: Unskilled Labour	12.18	0.24	0.24	569	1.00	1.00	12.18	0.24	199
: Skilled Labour	0.00	0.00	0.00	0	1.00	1.00	0.00	0.00	0
: Managers	0.00	0.00	0.00	0	1.00	1.00	0.00	0.00	0
Administration	10.70	0.21	0.21	500	1.00	0.89	10.70	0.21	445
Maintenance and Repairs	21.99	0.44	0.44	1028	1.00	0.89	21.99	0.44	915
Insurance	1.13	0.02	0.02	53	1.00	0.89	1.13	0.02	47
Miscellaneous Fixed Costs	0.00	0.00	0.00	0	1.00	0.89	0.00	0.00	0
TOTAL OPERATING OVERHEAD EXPENDITURE	45.98	0.92	0.92	2150			45.98	0.92	1606

APPENDIX 2: FINANCIAL/ECONOMIC MODEL 6 TRADITIONAL LIVESTOCK BREEDING 6 KARAS REGION 6 2001 6 BASE CASE

TABLE 6: STATIC FINANCIAL MODEL (AT FULL PRODUCTION)

ITEM	UNITS			TOTAL
Ranch Extent	Hectares			2330
Core Grazing Area	Hectares			2330
Ranch Stock	Large Stock Units (LSU)			47
Total Capital Requirement	N\$			128054
	N\$/LSU	N\$/HECTARE		N\$
		Ranch	Core	
GROSS INCOME	391.58	7.86	7.86	18304
VARIABLE COSTS	166.20	3.33	3.33	7769
GROSS MARGIN	225.38	4.52	4.52	10535
OVERHEAD COSTS				
Overhead Operating Costs	45.98	0.92	0.92	2150
Loan Amortisation and Interest	0.00	0.00	0.00	0
Provisions for Capital Replacement	96.80	1.94	1.94	4525
Interest on Variable Working Capital	0.00	0.00	0.00	0
Interest on Overhead Working Capital	0.00	0.00	0.00	0
Land Rental	4.98	0.10	0.10	233
Resource Royalty	0.00	0.00	0.00	0
TOTAL OVERHEAD COSTS	147.77	2.96	2.96	6907
NET CASH INCOME	77.61	1.56	1.56	3628
NET CASH INCOME/P100 TOTAL CAPITAL INVESTMENT	2.83			
"TOTAL BENEFITS"*/P100 TOTAL CAPITAL INVESTMENT	4.93			
"TOTAL BENEFITS"*/HECTARE	2.71			

* "Total Benefits" = all of Net Cash Income, Salaries and Wages, Licences and Duties, Rental and Royalties.

TABLE 7: STATIC ECONOMIC MODEL (AT FULL PRODUCTION)

ITEM	UNITS	TOTAL		
Ranch Extent	Hectares	2330		
Core Grazing Area	Hectares	2330		
Ranch Stock	Large Stock Units (LSU)	47		
Total Capital Requirement	N\$	116440		
Economic Depreciation Cost	N\$	4257		
Foreign Financing (Prorated)	N\$	0		
Foreign Amortisation	N\$	0		
Foreign Capital Replacement Provision	N\$	0		
Foreign Interest Cost	N\$	0		
Domestic Interest Cost	N\$	17890		
<hr/>				
ECONOMIC BENEFITS	N\$/LSU	N\$/HECTARE		N\$
		(Ranch)	(Core)	
<hr/>				
Gross Income	415.07	8.33	8.33	19403
Stock Appreciation	37.63	0.75	0.75	1759
TOTAL ECONOMIC BENEFITS	452.70	9.08	9.08	21162
<hr/>				
ECONOMIC COSTS				
DOMESTIC COMPONENT				
Shadow Unskilled Citizen Wages	4.26	0.09	0.09	199
Other Citizen Wages	0.00	0.00	0.00	0
Opportunity Cost of Capital	199.28	4.00	4.00	9315
Other Domestic Economic Costs	33.08	0.66	0.66	1546
SUBTOTAL DOMESTIC COMPONENT	236.62	4.75	4.75	11061
<hr/>				
TRADABLE COMPONENT				
Foreign Remuneration	0.00	0.00	0.00	0
Foreign Services	0.00	0.00	0.00	0
Foreign Interest	0.00	0.00	0.00	0
Foreign Lease Payments	0.00	0.00	0.00	0
Foreign Rentals	0.00	0.00	0.00	0
Foreign Net Income	0.00	0.00	0.00	0
Other Tradable Economic Costs	116.99	2.35	2.35	5469
SUBTOTAL TRADABLE COMPONENT	116.99	2.35	2.35	5469
TOTAL ECONOMIC COSTS	353.61	7.09	7.09	16529
<hr/>				
NET ECONOMIC BENEFIT (Gross Value Added)	99.09	1.99	1.99	4632
NET VALUE ADDED (Excluding Depreciation)	8.02	0.16	0.16	375
<hr/>				
DOMESTIC RESOURCE COST RATIO =	2.08			
NET VALUE ADDED/P100 TOTAL CAPITAL COST =	0.32			
CAPITAL COST/EMPLOYMENT OPPORTUNITY CREATED =	109643			
NUMBER OF EMPLOYMENT OPPORTUNITIES/1000 HA.	0.03			

TABLE 8: CAPITAL PHASING, DEPRECIATION SCHEDULE AND CALCULATION OF RESIDUAL VALUE

ITEM	LIFE (Yrs)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
DEPRECIABLE ASSETS												
"Forty Year" Items	40											
Total Expenditure		8622										
Phased Expenditure		5173	3449	0	0	0	0	0	0	0	0	0
Depreciation		129	216	216	216	216	216	216	216	216	216	216
Residual value		5173	8492	8277	8061	7846	7630	7415	7199	6984	6768	6552
"Twenty Year" Items	20											
Total Expenditure		739										
Phased Expenditure		739	0	0	0	0	0	0	0	0	0	0
Depreciation		37	37	37	37	37	37	37	37	37	37	37
Residual value		739	702	665	628	591	554	517	480	444	407	370
"Fifteen Year" Items	15											
Total Expenditure		30273										
Phased Expenditure		18164	12109	0	0	0	0	0	0	0	0	0
Depreciation		1211	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Residual value		18164	29062	27044	25026	23008	20989	18971	16953	14935	12917	10898
"Six Year" Items	6											
Total Expenditure		4524						4524				
Phased Expenditure		3167	1357	0	0	0	0	3167	1357	0	0	0
Depreciation		528	754	754	754	754	754	754	754	754	754	754
Residual value		3167	3996	3242	2488	1734	980	3393	3996	3242	2488	1734
"Four Year" Items	4											
Total Expenditure		6000				6000				6000		
Phased Expenditure		6000	0	0	0	6000	0	0	0	6000	0	0
Depreciation		1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Residual value		6000	4500	3000	1500	6000	4500	3000	1500	6000	4500	3000
NON DEPRECIABLE ASSETS												
Stock	6											
Phased Fin, Expenditure		60279	974	974	903	1024	1140	1205	1195	1177	1185	1167
Phased Econ. Expenditure		60279	974	974	903	1024	1140	1205	1195	1177	1185	1167
Residual value		70870	66102	74306	82802	86092	90135	90487	92369	94542	95044	95114
Working Capital	6											
Phased Expenditure		0	0	0	0	0	0	0	0	0	0	0
TOTAL PHASED CAPITAL EXPENDITURE												
Domestic Component		65452	4422	974	903	1024	1140	1205	1195	1177	1185	1167
Tradable Component		28070	13467	0	0	6000	0	3167	1357	6000	0	0
Total Financial Value		93523	17889	974	903	7024	1140	4372	2552	7177	1185	1167
Total Economic Value		84734	16640	866	804	6571	1014	4060	2344	6708	1055	1039
TOTAL ASSET RESIDUAL VALUE												
Domestic Component		76043	74595	82583	90863	93938	97765	97902	99568	101526	101812	101666
Tradable Component		28070	38261	33952	29643	31333	27024	25882	22930	24621	20311	16002
Financial Value		104113	112856	116535	120505	125271	124789	123784	122498	126147	122124	117669
Economic Value		94160	102485	105529	108833	113165	112505	111549	110247	113585	109775	105580

TABLE 9: STOCK PROJECTION

STOCK ON HAND (AUGUST) (No.)	Growth	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes		64	77	94	87	99	110	107	106	104	102	101
Young Breeding Ewes		19	24	0	19	20	15	17	16	19	19	19
Rams		2	3	3	3	4	4	4	4	4	4	4
Surplus Young Ewes		0	0	0	0	0	0	0	0	0	0	0
Lambs/kids		0	45	55	51	58	64	68	67	66	67	66
1st Year Hamels/kapaters		26	0	21	21	17	19	19	22	23	23	23
1st Year Ewes		26	0	21	21	17	19	19	22	23	23	23
2 Year Hamels/kapaters		24	18	0	14	15	12	13	13	15	16	16
3 Year Hamels/kapaters		0	17	13	0	10	10	8	9	9	11	11
4 Year Hamels/kapaters		0	0	12	9	0	7	7	6	6	7	7
5 Year Hamels/kapaters		0	0	0	8	6	0	5	5	4	4	5
6 Year Hamels/kapaters		0	0	0	0	6	4	0	3	3	3	3
7 Year Hamels/kapaters		0	0	0	0	0	3	2	0	2	2	1
8 Year Hamels/kapaters		0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels/kapaters		0	0	0	0	0	0	0	0	0	0	0
Cattle	0.09	2	2	2	2	2	2	2	2	2	2	2
Donkeys	0.05	2	2	2	2	2	2	2	2	2	2	2
Horses	0.05	2	2	2	2	2	2	2	2	2	2	2
Kudu/Gemsbok	0.12	0	0	0	0	0	0	0	0	0	0	0
Springbok	0.18	0	0	0	0	0	0	0	0	0	0	0
TOTALS		167	190	223	240	255	272	275	280	284	286	285
PERCENT OF ORIGINAL NO.		100%	113%	133%	143%	152%	163%	164%	167%	170%	171%	170%
PERCENT OF FINAL NO.		59%	67%	78%	84%	90%	96%	97%	98%	100%	100%	100%
ANNUAL INCREASE (%)			13%	18%	8%	6%	7%	1%	2%	2%	0%	0%
STOCK SALES (No.)		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes		0	0	0	0	0	0	8	8	8	10	10
Young Breeding Ewes		0	0	0	0	0	0	1	1	1	2	2
Rams		0	0	1	1	1	1	1	1	1	1	1
Surplus Young Ewes		0	0	0	0	0	0	0	1	2	2	2
Lambs/kids		0	0	9	15	17	22	20	18	16	16	16
1st Year Hamels/kapaters		0	0	0	0	0	0	0	0	0	0	0
1st Year Ewes		0	0	0	0	0	0	0	0	0	0	0
2 Year Hamels/kapaters		6	6	0	5	5	4	4	4	5	5	5
3 Year Hamels/kapaters		0	6	4	0	3	3	3	3	3	4	4
4 Year Hamels/kapaters		0	0	4	3	0	2	2	2	2	2	2
5 Year Hamels/kapaters		0	0	0	3	2	0	2	2	1	1	2
6 Year Hamels/kapaters		0	0	0	0	2	1	0	1	1	1	1
7 Year Hamels/kapaters		0	0	0	0	0	3	2	0	2	2	1
8 Year Hamels/kapaters		0	0	0	0	0	0	2	2	0	1	1
9 Year Hamels/kapaters		0	0	0	0	0	0	0	0	0	0	0
Cattle		0	0	0	0	0	0	0	0	0	0	0
Donkeys		0	0	0	0	0	0	0	0	0	0	0
Horses		0	0	0	0	0	0	0	0	0	0	0
Kudu/Gemsbok		0	0	0	0	0	0	0	0	0	0	0
Springbok		0	0	0	0	0	0	0	0	0	0	0
TOTALS		6	12	18	26	30	37	43	42	42	46	47
PERCENT OFFTAKE RATE (No.)		4%	6%	8%	11%	12%	14%	16%	15%	15%	16%	16%
PERCENT OF FINAL SALES		13%	26%	38%	56%	64%	79%	93%	90%	90%	99%	100%

TABLE 9: STOCK PROJECTION (Continued)

STOCK PURCHASES (No.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	64	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	19	0	0	0	0	0	0	0	0	0	0
Rams	2	0	1	1	1	1	1	1	1	1	1
Surplus Young Ewes	0	0	0	0	0	0	0	0	0	0	0
Lambs/kids	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels/kapaters	26	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	26	0	0	0	0	0	0	0	0	0	0
2 Year Hamels/kapaters	24	0	0	0	0	0	0	0	0	0	0
3 Year Hamels/kapaters	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels/kapaters	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels/kapaters	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels/kapaters	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels/kapaters	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels/kapaters	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels/kapaters	0	0	0	0	0	0	0	0	0	0	0
Cattle	2	0	0	0	0	0	0	0	0	0	0
Donkeys	2	0	0	0	0	0	0	0	0	0	0
Horses	2	0	0	0	0	0	0	0	0	0	0
Kudu/Gemsbok	0	0	0	0	0	0	0	0	0	0	0
Springbok	0	0	0	0	0	0	0	0	0	0	0
TOTALS	162	1	1	1	1	1	1	1	1	1	1

LSU ON HAND (AUGUST)	LSU /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	0.24	15	18	23	21	24	26	26	25	25	25	24
Young Breeding Ewes	0.12	2	3	0	2	2	2	2	2	2	2	2
Rams	0.35	1	1	1	1	1	1	1	1	1	1	1
Surplus Young Ewes	0.17	0	0	0	0	0	0	0	0	0	0	0
Lambs/kids	0.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels/kapaters	0.12	3	0	2	3	2	2	2	3	3	3	3
1st Year Ewes	0.10	3	0	2	2	2	2	2	2	2	2	2
2 Year Hamels/kapaters	0.16	4	3	0	2	2	2	2	2	3	3	3
3 Year Hamels/kapaters	0.22	0	4	3	0	2	2	2	2	2	2	2
4 Year Hamels/kapaters	0.25	0	0	3	2	0	2	2	1	2	2	2
5 Year Hamels/kapaters	0.30	0	0	0	2	2	0	1	1	1	1	1
6 Year Hamels/kapaters	0.30	0	0	0	0	2	1	0	1	1	1	1
7 Year Hamels/kapaters	0.30	0	0	0	0	0	1	1	0	0	0	0
8 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
Cattle	1.00	2	2	2	2	2	2	2	2	2	2	2
Donkeys	0.53	1	1	1	1	1	1	1	1	1	1	1
Horses	0.65	1	1	1	1	1	1	1	1	1	1	1
Kudu/Gemsbok	0.45	0	0	0	0	0	0	0	0	0	0	0
Springbok	0.11	0	0	0	0	0	0	0	0	0	0	0
TOTAL STOCK LSU		32	33	38	40	43	46	45	46	47	47	47
PERCENT OF ORIGINAL LSU		100%	103%	118%	125%	135%	143%	141%	143%	145%	145%	145%
PERCENT OF FINAL LSU		69%	71%	82%	86%	93%	98%	97%	98%	100%	100%	100%
STOCKING RATE (Ha/LSU)		72	70	61	58	54	51	51	51	50	50	50

TABLE 9: STOCK PROJECTION (Continued)

LSU SALES	LSU /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	0.24	0	0	0	0	0	0	2	2	2	3	2
Young Breeding Ewes	0.12	0	0	0	0	0	0	0	0	0	0	0
Rams	0.35	0	0	0	0	0	0	0	0	0	0	0
Surplus Young Ewes	0.17	0	0	0	0	0	0	0	0	0	0	0
Lambs/kids	0.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels/kapaters	0.12	0	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	0.10	0	0	0	0	0	0	0	0	0	0	0
2 Year Hamels/kapaters	0.16	1	1	0	1	1	1	1	1	1	1	1
3 Year Hamels/kapaters	0.22	0	1	1	0	1	1	1	1	1	1	1
4 Year Hamels/kapaters	0.25	0	0	0	1	1	0	0	0	0	0	0
5 Year Hamels/kapaters	0.30	0	0	0	0	1	0	0	0	0	0	0
6 Year Hamels/kapaters	0.30	0	0	0	0	0	1	1	0	0	0	0
7 Year Hamels/kapaters	0.30	0	0	0	0	0	1	1	0	0	0	0
8 Year Hamels/kapaters	0.30	0	0	0	0	0	0	1	1	0	0	0
9 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
Cattle	1.00	0	0	0	0	0	0	0	0	0	0	0
Donkeys	0.53	0	0	0	0	0	0	0	0	0	0	0
Horses	0.65	0	0	0	0	0	0	0	0	0	0	0
Kudu/Gemsbok	0.45	0	0	0	0	0	0	0	0	0	0	0
Springbok	0.11	0	0	0	0	0	0	0	0	0	0	0
TOTAL LSU SALES		1	2	1	2	3	4	5	5	6	7	7
PERCENT OFFTAKE RATE (LSU)		3%	7%	3%	4%	7%	8%	12%	10%	12%	14%	14%
PRODUCTION (% LSU)		15%	37%	18%	26%	45%	57%	82%	74%	89%	101%	100%
LSU PURCHASES	LSU /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	0.24	15	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	0.12	2	0	0	0	0	0	0	0	0	0	0
Rams	0.35	1	0	0	0	0	0	0	0	0	0	0
Surplus Young Ewes	0.17	0	0	0	0	0	0	0	0	0	0	0
Lambs/kids	0.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels/kapaters	0.12	3	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	0.10	3	0	0	0	0	0	0	0	0	0	0
2 Year Hamels/kapaters	0.16	4	0	0	0	0	0	0	0	0	0	0
3 Year Hamels/kapaters	0.22	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels/kapaters	0.25	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels/kapaters	0.30	0	0	0	0	0	0	0	0	0	0	0
Cattle	1.00	2	0	0	0	0	0	0	0	0	0	0
Donkeys	0.53	1	0	0	0	0	0	0	0	0	0	0
Horses	0.65	1	0	0	0	0	0	0	0	0	0	0
Kudu/Gemsbok	0.45	0	0	0	0	0	0	0	0	0	0	0
Springbok	0.11	0	0	0	0	0	0	0	0	0	0	0
TOTAL LSU PURCHASES		28	0	0	0	0	0	0	0	0	0	0

TABLE 9: STOCK PROJECTION (Continued)

VALUE OF STOCK ON HAND (AUGUST) (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	308.00	19635	23688	28957	26872	30445	33896	32944	32669	32181	31442	30974
Young Breeding Ewes	385.00	7363	9395	0	7419	7600	5917	6703	6332	7254	7469	7406
Rams	1601.60	3829	4868	4517	5118	5698	6026	5976	5887	5926	5837	5756
Surplus Young Ewes	385.00	0	0	0	0	0	0	0	0	0	0	0
Lambs/kids	91.80	0	4108	5022	4661	5280	5879	6217	6165	6073	6113	6022
1st Year Hamels/kapaters	385.00	10124	0	7995	8190	6376	7224	7424	8505	8758	8947	9006
1st Year Ewes	385.00	10124	0	7995	8190	6376	7224	7424	8505	8758	8947	9006
2 Year Hamels/kapaters	385.00	9204	7047	0	5564	5700	4438	5028	5167	5920	6096	6227
3 Year Hamels/kapaters	385.00	0	6406	4904	0	3873	3967	3089	3499	3597	4120	4243
4 Year Hamels/kapaters	373.45	0	0	4325	3311	0	2615	2678	2085	2362	2428	2782
5 Year Hamels/kapaters	358.05	0	0	0	2886	2209	0	1745	1787	1391	1576	1620
6 Year Hamels/kapaters	346.50	0	0	0	0	1944	1488	0	1175	1204	937	1062
7 Year Hamels/kapaters	334.95	0	0	0	0	0	872	667	0	527	540	420
8 Year Hamels/kapaters	319.55	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels/kapaters	308.00	0	0	0	0	0	0	0	0	0	0	0
Cattle	2200.00	4675	4675	4675	4675	4675	4675	4675	4675	4675	4675	4675
Donkeys	1500.00	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391
Horses	2000.00	3188	3188	3188	3188	3188	3188	3188	3188	3188	3188	3188
Kudu/Gemsbok	1474.00	282	282	282	282	282	282	282	282	282	282	282
Springbok	389.00	56	56	56	56	56	56	56	56	56	56	56
TOTALS		70870	66102	74306	82802	86092	90135	90487	92369	94542	95044	95114
PERCENT OF ORIGINAL AMT.		100%	93%	105%	117%	121%	127%	128%	130%	133%	134%	134%
PERCENT OF FINAL AMT.		75%	69%	78%	87%	91%	95%	95%	97%	99%	100%	100%
ANNUAL VALUE INCREASE			-4768	8204	8496	3291	4042	352	1882	2174	502	70
VALUE OF SALES (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	308.00	0	0	0	0	0	0	2548	2476	2456	3225	3151
Young Breeding Ewes	385.00	0	0	0	0	0	0	445	504	476	727	749
Rams	1601.60	0	766	974	903	1024	1140	1205	1195	1177	1185	1167
Surplus Young Ewes	385.00	0	0	0	0	0	0	0	558	639	658	897
Lambs/kids	91.80	0	0	814	1384	1568	2063	1847	1665	1476	1486	1463
1st Year Hamels/kapaters	385.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	385.00	0	0	0	0	0	0	0	0	0	0	0
2 Year Hamels/kapaters	385.00	2301	2349	0	1855	1900	1479	1676	1722	1973	2032	2076
3 Year Hamels/kapaters	385.00	0	2135	1635	0	1291	1322	1030	1166	1199	1373	1414
4 Year Hamels/kapaters	373.45	0	0	1442	1104	0	872	893	695	787	809	927
5 Year Hamels/kapaters	358.05	0	0	0	962	736	0	582	596	464	525	540
6 Year Hamels/kapaters	346.50	0	0	0	0	648	496	0	392	401	312	354
7 Year Hamels/kapaters	334.95	0	0	0	0	0	872	667	0	527	540	420
8 Year Hamels/kapaters	319.55	0	0	0	0	0	0	772	591	0	467	478
9 Year Hamels/kapaters	308.00	0	0	0	0	0	0	0	0	0	0	0
Cattle	2200.00	0	421	421	421	421	421	421	421	421	421	421
Donkeys	1500.00	0	120	120	120	120	120	120	120	120	120	120
Horses	2000.00	0	159	159	159	159	159	159	159	159	159	159
Kudu/Gemsbok	1474.00	0	34	34	34	34	34	34	34	34	34	34
Springbok	389.00	0	10	10	10	10	10	10	10	10	10	10
TOTALS		2301	5250	4864	6208	7167	8244	10892	10970	11576	12874	13159
PERCENT OF FINAL VALUE		17%	40%	37%	47%	54%	63%	83%	83%	88%	98%	100%

TABLE 9: STOCK PROJECTION (Continued)

FINANCIAL VALUE OF PURCHASES (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	308.00	19635	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	385.00	7363	0	0	0	0	0	0	0	0	0	0
Rams	1601.60	3829	766	974	903	1024	1140	1205	1195	1177	1185	1167
Surplus Young Ewes	385.00	0	0	0	0	0	0	0	0	0	0	0
Lambs/kids	91.80	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels/kapaters	385.00	10124	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	385.00	10124	0	0	0	0	0	0	0	0	0	0
2 Year Hamels/kapaters	385.00	9204	0	0	0	0	0	0	0	0	0	0
3 Year Hamels/kapaters	385.00	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels/kapaters	373.45	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels/kapaters	358.05	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels/kapaters	346.50	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels/kapaters	334.95	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels/kapaters	319.55	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels/kapaters	308.00	0	0	0	0	0	0	0	0	0	0	0
Cattle	2200.00	4675	0	0	0	0	0	0	0	0	0	0
Donkeys	1500.00	2391	0	0	0	0	0	0	0	0	0	0
Horses	2000.00	3188	0	0	0	0	0	0	0	0	0	0
Kudu/Gemsbok	1474.00	282	0	0	0	0	0	0	0	0	0	0
Springbok	389.00	56	0	0	0	0	0	0	0	0	0	0
TOTALS		60279	974	974	903	1024	1140	1205	1195	1177	1185	1167

ECONOMIC VALUE OF PURCHASES (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	308.00	19635	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	385.00	7363	0	0	0	0	0	0	0	0	0	0
Rams	1601.60	3829	766	974	903	1024	1140	1205	1195	1177	1185	1167
Surplus Young Ewes	385.00	0	0	0	0	0	0	0	0	0	0	0
Lambs/kids	91.80	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels/kapaters	385.00	10124	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	385.00	10124	0	0	0	0	0	0	0	0	0	0
2 Year Hamels/kapaters	385.00	9204	0	0	0	0	0	0	0	0	0	0
3 Year Hamels/kapaters	385.00	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels/kapaters	373.45	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels/kapaters	358.05	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels/kapaters	346.50	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels/kapaters	334.95	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels/kapaters	319.55	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels/kapaters	308.00	0	0	0	0	0	0	0	0	0	0	0
Cattle	2200.00	4675	0	0	0	0	0	0	0	0	0	0
Donkeys	1500.00	2391	0	0	0	0	0	0	0	0	0	0
Horses	2000.00	3188	0	0	0	0	0	0	0	0	0	0
Kudu/Gemsbok	1474.00	282	0	0	0	0	0	0	0	0	0	0
Springbok	389.00	56	0	0	0	0	0	0	0	0	0	0
TOTALS		60279	974	974	903	1024	1140	1205	1195	1177	1185	1167

TABLE 9: STOCK PROJECTION (Continued)

ASSUMPTIONS	Growth Rate	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Lambing Rate: Ewes		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Lambing Rate: Young Ewes		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Mortality Rate: Lambs/kids		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Mortality Rate: Others		0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Culling Rate: Breeding Stock		0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.11	0.11
Rate 2nd Year Ewes Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.11	0.11
Ram Rate		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Rate Lambs Slaughtered		0.00	0.00	0.16	0.30	0.30	0.35	0.30	0.27	0.24	0.24	0.24
Rate 1st Yr Hamels/kapaters Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 1st Yr Ewes Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 2nd Yr Hamels/kapaters Sold		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Rate 3rd Yr Hamels/kapaters Sold		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Rate 4th Yr Hamels/kapaters Sold		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Rate 5th Yr Hamels/kapaters Sold		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Rate 6th Yr Hamels/kapaters Sold		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Rate 7th Yr Hamels/kapaters Sold		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Rate 8th Yr Hamels/kapaters Sold		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Rate 9th Yr Hamels/kapaters Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cattle (% Sold)	0.09	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Donkeys (Rate Sold)	0.05	0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Horses (Rate Sold)	0.05	0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Kudu/Gemsb. (Rate Sold)	0.12	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Springbok (Rate Sold)	0.18	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18

TABLE 10: LOAN FINANCING SCHEDULE

ITEM	PERIOD (Yrs)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
LONG TERM LOANS												
TWENTY YEAR LOAN												
	20											
Total Expenditure		0										
Loan Disbursements		0	0	0	0	0	0	0	0	0	0	0
Loan Payments		0	0	0	0	0	0	0	0	0	0	0
Amortisation		0	0	0	0	0	0	0	0	0	0	0
Interest Payments		0	0	0	0	0	0	0	0	0	0	0
Loans Outstanding		0	0	0	0	0	0	0	0	0	0	0
FIFTEEN YEAR LOAN												
	15											
Total Expenditure		0										
Loan Disbursements		0	0	0	0	0	0	0	0	0	0	0
Loan Payments		0	0	0	0	0	0	0	0	0	0	0
Amortisation		0	0	0	0	0	0	0	0	0	0	0
Interest Payments		0	0	0	0	0	0	0	0	0	0	0
Loans Outstanding		0	0	0	0	0	0	0	0	0	0	0
SIX YEAR LOAN												
	6						6					
Total Expenditure		0						0				
Loan Disbursements		0	0	0	0	0	0	0	0	0	0	0
Loan Payments		0	0	0	0	0	0	0	0	0	0	0
Amortisation		0	0	0	0	0	0	0	0	0	0	0
Interest Payments		0	0	0	0	0	0	0	0	0	0	0
Loans Outstanding		0	0	0	0	0	0	0	0	0	0	0
FOUR YEAR LOAN												
	4											
Total Expenditure		0				0				0		
Loan Disbursements		0	0	0	0	0	0	0	0	0	0	0
Loan Payments		0	0	0	0	0	0	0	0	0	0	0
Amortisation		0	0	0	0	0	0	0	0	0	0	0
Interest Payments		0	0	0	0	0	0	0	0	0	0	0
Loans Outstanding		0	0	0	0	0	0	0	0	0	0	0
SHORT TERM LOANS												
Working Capital												
	1											
Overdraft		0	0	0	0	0	0	0	0	0	0	0
Interest Payments		0	0	0	0	0	0	0	0	0	0	0
TOTAL LONG TERM LOAN DISBURSMENTS												
Domestic Component		0	0	0	0	0	0	0	0	0	0	0
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL LONG TERM LOAN AMORTISATION												
Domestic Component		0	0	0	0	0	0	0	0	0	0	0
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL INTEREST PAYMENTS												
Domestic Component		0	0	0	0	0	0	0	0	0	0	0
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL LOANS OUTSTANDING												
Domestic Component		0	0	0	0	0	0	0	0	0	0	0
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0

* Economic Values

TABLE 11: PROJECT FINANCIAL ANALYSIS – 5 YEARS (N\$, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
EXPENDITURE						
Capital Expenditure	93523	17889	974	903	7024	1140
Variable Expenditure	777	4661	7769	7769	7769	7769
Overhead Expenditure	2383	2383	2383	2383	2383	2383
TOTAL EXPENDITURE	96682	24933	11125	11055	17175	11291
INCOME						
Gross Income	13639	12721	14300	15935	16568	17346
Asset Residual Value	0	0	0	0	0	124789
TOTAL INCOME	13639	12721	14300	15935	16568	142135
NET BENEFIT/COST	-83043	-12212	3175	4880	-607	130844

PROJ. FINANCIAL RATE OF RETURN (FRR) OVER 5 YEARS = 8.21%

PROJ. NET PRESENT VALUE (NPV) @ 8.00% = 786 PER HECTARE = 0.34

TABLE 12: PROJECT FINANCIAL ANALYSIS – 7 YEARS (N\$, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
EXPENDITURE								
Capital Expenditure	93523	17889	974	903	7024	1140	4372	2552
Variable Expenditure	777	4661	7769	7769	7769	7769	7769	7769
Overhead Expenditure	2383	2383	2383	2383	2383	2383	2383	2383
TOTAL EXPENDITURE	96682	24933	11125	11055	17175	11291	14524	12704
INCOME								
Gross Income	13639	12721	14300	15935	16568	17346	17414	17776
Asset Residual Value	0	0	0	0	0	0	0	122498
TOTAL INCOME	13639	12721	14300	15935	16568	17346	17414	140274
NET BENEFIT/COST	-83043	-12212	3175	4880	-607	6055	2890	127570

PROJ. FINANCIAL RATE OF RETURN (FRR) OVER 7 YEARS = 6.56%

PROJ. NET PRESENT VALUE (NPV) @ 8.00% = -7244 PER HECTARE = -3.11

TABLE 13: PROJECT FINANCIAL ANALYSIS – 10 YEARS (N\$, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
EXPENDITURE											
Capital Expenditure	93523	17889	974	903	7024	1140	4372	2552	7177	1185	1167
Variable Expenditure	777	4661	7769	7769	7769	7769	7769	7769	7769	7769	7769
Overhead Expenditure	2383	2383	2383	2383	2383	2383	2383	2383	2383	2383	2383
TOTAL EXPENDITURE	96682	24933	11125	11055	17175	11291	14524	12704	17329	11337	11319
INCOME											
Gross Income	13639	12721	14300	15935	16568	17346	17414	17776	18194	18291	18304
Asset Residual Value	0	0	0	0	0	0	0	0	0	0	117669
TOTAL INCOME	13639	12721	14300	15935	16568	17346	17414	17776	18194	18291	135973
NET BENEFIT/COST	-83043	-12212	3175	4880	-607	6055	2890	5072	865	6954	124654

PROJ. FINANCIAL RATE OF RETURN (FRR) OVER 10 YEARS = 5.49%

PROJ. NET PRESENT VALUE (NPV) @ 8.00% = -16309 PER HECTARE = -7.00

TABLE 14: ECONOMIC ANALYSIS – 5 YEARS (NS,1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
ECONOMIC COSTS						
Capital Expenditure	84734	16640	866	804	6571	1014
Unskilled Wages	199	199	199	199	199	199
Other Domestic Costs	619	928	1237	1546	1546	1546
Tradable Costs	547	2187	4375	5469	5469	5469
Foreign Amortisation	0	0	0	0	0	0
Foreign Profits	0	0	0	0	0	0
Foreign Loans Outst.	0	0	0	0	0	0
TOTAL COSTS	86099	19955	6678	8018	13786	8228
ECONOMIC BENEFITS						
Gross Income	14457	13484	15158	16891	17562	18387
Asset Residual Value	0	0	0	0	0	112505
Foreign Financing	0	0	0	0	0	0
TOTAL BENEFITS	14457	13484	15158	16891	17562	130892
NET BENEFIT/COST	-71641	-6470	8480	8873	3777	122664
ECONOMIC RATE OF RETURN (ERR) OVER 5 YEARS = 14.37%						
NET PRESENT VALUE (NPV) @ 8.00% = 21241 PER HECTARE = 9.12						

TABLE 15: ECONOMIC ANALYSIS – 10 YEARS (NS, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
ECONOMIC COSTS											
Capital Expenditure	84734	16640	866	804	6571	1014	4060	2344	6708	1055	1039
Unskilled Wages	199	199	199	199	199	199	199	199	199	199	199
Other Domestic Costs	619	928	1237	1546	1546	1546	1546	1546	1546	1546	1546
Tradable Costs	547	2187	4375	5469	5469	5469	5469	5469	5469	5469	5469
Foreign Amortisation	0	0	0	0	0	0	0	0	0	0	0
Foreign Profits	0	0	0	0	0	0	0	0	0	0	0
Foreign Loans Outst.	0	0	0	0	0	0	0	0	0	0	0
TOTAL COSTS	86099	19955	6678	8018	13786	8228	11275	9558	13922	8269	8253
ECONOMIC BENEFITS											
Gross Income	14457	13484	15158	16891	17562	18387	18459	18843	19286	19388	19403
Asset Residual Value	0	0	0	0	0	0	0	0	0	0	105580
Foreign Financing	0	0	0	0	0	0	0	0	0	0	0
TOTAL BENEFITS	14457	13484	15158	16891	17562	18387	18459	18843	19286	19388	124982
NET BENEFIT/COST	-71641	-6470	8480	8873	3777	10158	7184	9284	5364	11119	116729
ECONOMIC RATE OF RETURN (ERR) OVER 10 YEARS = 11.10%											
NET PRESENT VALUE (NPV) @ 8.00% = 17449 PER HECTARE = 7.49											

TABLE 16: SUMMARY OF ASSUMPTIONS AND RESULTS

ASSUMPTIONS	UNITS		ENTERPRISE	TOTAL		
Land Extent	Hectares		6	8700		
Grazing Land Used	Hectares		2330	52192		
Stock	Large Stock Units (LSU)		47	1047		
óEconomicó Carrying Capacity	Hectares per LSU Equivalent		60	60		
Stocking Rate	Hectares per LSU Equivalent		50	50		
Lambing Rate	% per Annum		90%	90%		
Lamb Mortality	% per Annum		40%	40%		
Adult Mortality	% per Annum		7%	7%		
Ram Rate	% per Annum		3%	3%		
Stock Off-take Rate	% Head per Annum		16%	16%		
Biomass Off-take Rate	% LSU per Annum		14%	14%		
Long-term Borrowing	% of Initial Capital		0%	0%		
Short-term Borrowing	% of Recurrent Costs		0%	0%		
Jobs Created	No.		1.1	24		
<hr/>						
RESULTS	% of TCI	N\$/LSU	N\$/HECTARE		N\$	N\$
			Core	Ranch		
Total Financial Capital (TCI)	ó	2739.41	54.96	32.97	128054	2868416
Financial Gross Income	14.29%	391.58	7.86	4.71	18304	410019
Variable Financial Costs	ó	166.20	3.33	2.00	7769	174028
Fixed Financial Costs	ó	147.77	2.96	1.78	6907	154724
Net Cash Income	<u>2.83%</u>	<u>77.61</u>	<u>1.56</u>	<u>0.93</u>	<u>3628</u>	<u>81267</u>
Local Community Income	3.28%	89.79	1.80	1.08	4197	94016
Land Rental	ó	4.98	0.10	0.06	233	5219
Resource Royalty	ó	0.00	0.00	0.00	0	0
Project FRR (@ 10 Years)	ó	ó	ó	ó	<u>5.49%</u>	<u>5.49%</u>
Project FNPV (@ 8%, @ 10 Years)	ó	ó	-7.00	-4.20	<u>-16309</u>	<u>-365330</u>
Total Economic Capital	ó	2490.96	49.97	29.98	116440	2608265
Economic Gross Output	18.17%	452.70	9.08	5.45	21162	474020
Economic Costs	14.20%	353.61	7.09	4.26	16529	370260
Gross Value Added (GNI)	3.98%	99.09	1.99	1.19	4632	103760
Net Value Added (NNI)	<u>0.32%</u>	<u>8.02</u>	<u>0.16</u>	<u>0.10</u>	<u>375</u>	<u>8400</u>
ERR (@ 10 Years)	ó	ó	ó	ó	<u>11.10%</u>	<u>11.10%</u>
ENPV (@ 8%, @ 10 Years)	ó	ó	7.49	4.49	<u>17449</u>	<u>390847</u>
Economic Capital Cost/Job	ó	ó	ó		109643	109643
Domestic Resource Cost Ratio	ó	ó	ó		2.08	2.08
Policy Analysis Matrix	: Effects of Policy / Market Imperfections		: on Output		-2857	
			: on Tradable Inputs		-258	
	: Net Effects of Policy / Market Imperfections		: On Domestic Factors		6368	
			: On Annual Net Income		3253	
			: On Present Value (10 Years)		-33758	

Appendix 3: Commercial livestock production financial and economic model

ASSUMPTIONS*

Production System:	Karakul breeding for production of pelts, with limited use of goats and game				
Site:	Ranch on arid edge of Dwarf Shrub Savana with sand plains, limestone hills, granite hills, with small numbers of springbok, kudu, oryx and ostrich, with borehole water and "economic" rangeland carrying capacity of 45 ha per large stock unit				
Ranch Size:	87000 Hectares, or 870 Square Kilometres	Core Area:	52200		
Carrying Capacity:	60 Hectares per LSU Equivalent, or, 1.67 LSU Equivalents/Sq. Km.				
Stock Density:	1.67 LSU Equivalents/Sq. Km., or 60 Hectares per LSU Equivalent				
	<u>100%</u>	Initial Purchase of Breeding Ewes:	1650		
Lambing Rates	<u>100%</u>	Young Ewes: 130%	Ewes less than 7 Yrs: 130%	Ewes more than 7 Yrs: 130%	
Ram Rate	<u>100%</u>	3.0%	Ram Replacement Rate: 17%		
Mortality Rates	<u>100%</u>	Lambs: 28.0%	Ewes: 5.0%	Hamels: 5.0%	Y. Ewes: 5.0% Rams: 5.0%
Selected Prices:	<u>100%</u>	Capital Items	<u>100%</u>	Livestock (Variations from Normal for Sensitivity Analysis)	
Capital Sources:	<u>100%</u>	Loan = 25%	Equity = 75%	and:	<u>100%</u> Foreign 0% Domestic 100%
Interest Rates:	<u>100%</u>	Rate for Capital Loans: 15%		15%	Rate for Working Capital Loans: 25%
Working Capital as Proportion of Annual Operating Costs:	30%				
Marketing Fees	<u>100%</u>	Marketing Agents Fee as Percentage of Turnover: 2.28%			
Land Rental and Resource Royalty (N\$):	<u>100%</u>	Rental: 0.10 per Ha.	<u>100%</u>	Royalty: 0% of Turnover	
Personpower Needs:	<u>100%</u>	Managers: 3	Skilled Labour: 5	Unskilled Labour: 21	
		Management:	Foreign: 0%	Citizen: 100%	
Shadow Wage Adjustment:	<u>100%</u>	Managers 1.00	Skilled Labour 1.00	<u>100%</u>	Unskilled Labour 0.35
Foreign Exchange Premium:	<u>100%</u>	6% Adjustment Factor = 1.06			
Tax Adjustments:	<u>100%</u>	General VAT/Sales Tax: 11%	Import Taxes: from SACU: 0%	to SACU: n/a	
Discount Rates:	<u>100%</u>	Financial Discount Rate: 8%		Economic Discount Rate: 8%	
Opportunity Cost of Capital	<u>100%</u>	8%			

Static models depict enterprise at full production. Static financial model includes interest, amortisation government fees, royalties and land rentals. Static economic model takes foreign inflows and outflows into account, excludes other interest and transfers and values enterprise in economic prices before land and government costs

Dynamic models presented over 5 and 10 years, to measure IRR and NPV. Financial dynamic model, at constant prices, excludes interest and depreciation, and includes asset residual values. Economic model includes foreign inflows and outflows, and measures value of enterprise in economic prices before inclusion of land costs and public expenditures.

* Underlined percentages indicate degree of conformity with base case values, and can be changed

TABLE 1: CAPITAL REQUIREMENTS

ITEM	UNIT	QUANT.	PRICE N\$	FINAN. COST	LIFE Years	AMORT. + INT.	DEPREC- IATION	ECON. DEPR.	FOREX ADJ. ADJ.	TAX ADJ. ADJ.	ECON. COST
FIXED CAPITAL											
DOMESTIC ITEMS											
Houses Manager		3	33000	65340	40	10439	1634	1454	1.00	0.89	58153
Houses Labour		26	12000	205920	40	32898	5148	4582	1.00	0.89	205920
Office/Storerooms		1	40000	26400	40	4218	660	587	1.00	0.89	23496
Tourist/Hunter Lodges		0	20000	0	40	0	0	0	1.00	0.89	0
Boreholes		3	40000	79200	40	12653	1980	1762	1.00	0.89	70488
Plunge Dip		0	12000	0	40	0	0	0	1.00	0.89	0
Reservoirs/Pipes/Troughs		3	10000	19800	40	3163	495	441	1.00	0.89	17622
Firebreaks/Roads	(km)	60	1000	60000	40	9586	1500	1335	1.00	0.89	53400
Power/Road to Site		1	60000	39600	40	6327	990	881	1.00	0.89	35244
CONTINGENCIES @ 5%				24813	40	3964	620	552	1.00	0.89	22084
SUBTOTAL DOMESTIC ITEMS				521073							486406
TRADABLE ITEMS											
Pens, Boma		1	5600	3696	20	590	185	174	1.06	0.89	3487
Scale and Crush		1	6000	6000	15	1026	400	377	1.06	0.89	5660
Pump/Windmill/Borehole Equipment		3	9450	18711	15	3200	1247	1177	1.06	0.89	17652
Fencing Perimeter	(km)	100	12000	600000	15	102610	40000	37736	1.06	0.89	566040
Fencing Internal	(km)	0	7500	0	15	0	0	0	1.06	0.89	0
CONTINGENCIES @ 5%				31420	15	5373	2095	1976	1.06	0.89	29642
SUBTOTAL TRADABLES				659827							622481
SUBTO FIXED CAPITAL				1180900							1108887
MOVABLE CAPITAL											
TRADABLE ITEMS											
LDVs/Trucks		3	87500	262500	4	91945	65625	61911	1.06	0.89	247643
Tools/Ranch Equipment		1	10000	10000	6	2642	1667	1572	1.06	0.89	9434
Office/Other Equipment		1	20000	20000	6	5285	3333	3145	1.06	0.89	18868
Feed/Salt Drums		1	3750	3750	6	991	625	590	1.06	0.89	3538
CONTINGENCIES @ 10%				29625	6	7828	4938	4658	1.06	0.89	27948
SUBTOTAL TRADABLES				325875							307430
DOMESTIC ITEMS											
Breeding Stock	(batch)	1	907500	907500	40	144984			1.00	0.89	807675
Other Ewes, Hamels	(batch)	1	990000	990000	40	158164			1.00	0.89	881100
Rams	(batch)	1	128700	128700	40	20561			1.00	0.89	114543
Goats/Sheep	(batch)	1	137500	137500	40	21967			1.00	0.89	122375
Game	(batch)	1	624456	624456	40	99764			2.00	0.89	1111532
Horses and Donkeys	(batch)	1	0	0	40	0			1.00	0.89	0
CONTINGENCIES @ 10%				278816	40	44544			1.00	0.89	248146
SUBTO DOMESTIC ITEMS				3066972							3285371
SUBTO MOVABLE CAPITAL				3392847							3592802
WORKING CAPITAL											
				LOAN	INTEREST						
VARIABLE				113117	28279						
OVERHEAD				147371	36843						
SUBTO WORKING CAPITAL				260488	65122						
TOTALS				4834235	65122	794722	133141	124910			4977806

TABLE 2: STOCK COMPOSITION BY SPECIES AT FULL PRODUCTION

ITEM	HEAD	OFF-TAKE (NO.)	LSU FACTOR	LSU
Breeding Ewes	2700	537	0.12	324
Young Breeding Ewes	699	138	0.08	59
Rams	102	32	0.16	16
Surplus Young Ewes	0	175	0.12	0
Lambs	3326	1497	0.00	7
1st Year Hamels	910	0	0.09	78
1st Year Ewes	910	0	0.07	67
2 Year Hamels	874	0	0.11	93
3 Year Hamels	0	811	0.13	0
4 Year Hamels	0	0	0.14	0
5 Year Hamels	0	0	0.15	0
6 Year Hamels	0	0	0.15	0
7 Year Hamels	0	0	0.15	0
8 Year Hamels	0	0	0.15	0
9 Year Hamels	0	0	0.15	0
Boer Goats	344	103	0.20	67
Dorpers	0	0	0.11	0
Gemsbok	172	21	0.40	69
Kudu	172	21	0.45	77
Springbok	138	25	0.11	14
TOTAL	10346	3359		871
STOCK DENSITY: 1.67 LSU PER SQ.KM.; RANCH SIZE: 87000 HA CORE AREA: 52200 HA				

TABLE 3: SALES AT FULL PRODUCTION

ITEM	QUANTITY (HEAD)	FINANCIAL VALUE	FOREX ADJ.	TAX ADJ.	ECON. VALUE
Cull Ewes	537	214806	1.06	1.00	227695
Cull Young Ewes	138	68969	1.06	1.00	73107
Young Ewes	175	87376	1.06	1.00	92619
Hamels	811	405699	1.06	1.00	430041
Rams	32	66529	1.06	1.00	70520
Pelts	1497	269441	1.06	1.00	285608
Wool	6	50000	1.06	1.00	53000
Milk	6	0	1.06	1.00	0
Goats	344	41250	1.06	1.00	43725
Kudu/Gemsbok	344	68516	1.06	1.00	72627
Springbok	138	9628	1.06	1.00	10205
TOTALS	4015	GROSS INCOME : 1282214			1359147

TABLE 4: VARIABLE EXPENDITURE AT FULL PRODUCTION

ITEM	FINANCIAL VALUES			VALUE	FOREX ADJ.	TAX ADJ.	ECONOMIC VALUES		
	N\$/LSU	N\$/HA. Ranch	N\$/HA. Core				N\$/LSU	N\$/HA.	VALUE
TRADABLE ITEMS									
Supplements	32.24	0.32	0.54	28076	1.06	0.89	30.41	0.30	26487
Dip Costs	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Replacement Rams	76.39	0.76	1.27	66529	1.06	0.89	76.39	0.76	66529
Ear Tags	16.99	0.17	0.28	14794	1.06	0.89	16.02	0.16	13957
Transport	12.76	0.13	0.21	11110	1.06	0.89	12.03	0.12	10481
Fuels, Oils	9.35	0.09	0.16	8143	1.06	0.89	8.82	0.09	7682
Live Game: Aerial Support	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Field Ops.	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Transport	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Cropping: Ammunition	23.68	0.24	0.40	20625	1.06	0.89	22.34	0.22	19458
: Supplies and Packaging	9.47	0.09	0.16	8250	1.06	0.89	8.94	0.09	7783
: Transport	135.14	1.35	2.25	117700	1.06	0.89	127.49	1.28	111038
: Other	0.00	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Miscellaneous Costs	34.15	0.34	0.57	29747	1.06	0.89	32.22	0.32	28064
SUBTOTAL TRADABLES	350.16	3.51	5.84	304975			334.67	3.35	291479
DOMESTIC ITEMS									
Veterinary and Medicine Costs	37.53	0.38	0.63	32689	1.00	0.89	33.40	0.33	29093
Marketing Fees	29.44	0.29	0.49	25644	1.00	1.00	0.00	0.00	0
Game Licence Fees	15.79	0.16	0.26	13750	1.00	1.00	0.00	0.00	0
VAT/Sales Tax	0.00	0.00	0.00	0	1.00	1.00	0.00	0.00	0
SUBTOTAL DOMESTIC ITEMS	82.76	0.83	1.38	72083			33.40	0.33	29093
TOTAL VARIABLE EXPENDITURE	432.93	4.33	7.22	377058			368.07	3.68	320572

TABLE 5: OPERATING OVERHEAD EXPENDITURE AT FULL PRODUCTION

ITEM	FINANCIAL VALUES			VALUE	FOREX ADJ.	TAX ADJ.	ECONOMIC VALUES		
	N\$/LSU	N\$/HA. Ranch	N\$/HA. Core				N\$/LSU	N\$/HA.	VALUE
DOMESTIC ITEMS									
Salaries and Wages: Unskilled Labour	221.34	2.22	3.69	192780	1.00	1.00	221.34	2.22	67473
: Skilled Labour	105.40	1.06	1.76	91800	1.00	1.00	105.40	1.06	81702
: Managers	172.23	1.72	2.87	150000	1.00	1.00	172.23	1.72	150000
Administration	10.33	0.10	0.17	9000	1.00	0.89	10.33	0.10	8010
Maintenance and Repairs	36.01	0.36	0.60	31362	1.00	0.89	36.01	0.36	27912
Insurance	18.71	0.19	0.31	16294	1.00	0.89	18.71	0.19	14501
Miscellaneous Fixed Costs	0.00	0.00	0.00	0	1.00	0.89	0.00	0.00	0
TOTAL OPERATING OVERHEAD EXPEND.	564.02	5.65	9.41	491235			564.02	5.65	349598

TABLE 6: STATIC FINANCIAL MODEL (AT FULL PRODUCTION)

ITEM	UNITS	TOTAL			
Ranch Extent	Hectares	87000			
Core Grazing Area	Hectares	52200			
Ranch Stock	Large Stock Units (LSU)	871			
Total Capital Requirement	N\$	4834235			
		N\$/LSU	N\$/HECTARE	N\$	
			Ranch	Core	
GROSS INCOME	147	1472.20	14.74	24.56	1282214
VARIABLE COSTS	43	432.93	4.33	7.22	377058
GROSS MARGIN	104	1039.27	10.40	17.34	905156
OVERHEAD COSTS					
Overhead Operating Costs	56	564.02	5.65	9.41	491235
Loan Amortisation and Interest	23	228.12	2.28	3.81	198681
Provisions for Capital Replacement	11	114.65	1.15	1.91	99856
Interest on Variable Working Capital	3	32.47	0.33	0.54	28279
Interest on Overhead Working Capital	4	42.30	0.42	0.71	36843
Land Rental	1	9.99	0.10	0.17	8700
Resource Royalty	0	0.00	0.00	0.00	0
TOTAL OVERHEAD COSTS	99	991.55	9.93	16.54	863594
NET CASH INCOME	5	47.72	0.48	0.80	41563
NET CASH INCOME/P100 TOTAL CAPITAL INVESTMENT		0.86			
"TOTAL BENEFITS"*/P100 TOTAL CAPITAL INVESTMENT		10.84			
"TOTAL BENEFITS"*/HECTARE		6.03			

* "Total Benefits" = all of Net Cash Income, Salaries and Wages, Licences and Duties, Rental and Royalties.

TABLE 7: STATIC ECONOMIC MODEL (AT FULL PRODUCTION)

ITEM	UNITS	TOTAL		
Ranch Extent	Hectares	87000		
Core Grazing Area	Hectares	52200		
Ranch Stock	Large Stock Units (LSU)	871		
Total Capital Requirement	N\$	4977806		
Economic Depreciation Cost	N\$	124910		
Foreign Financing (Prorated)	N\$	0		
Foreign Amortisation	N\$	0		
Foreign Capital Replacement Provision	N\$	0		
Foreign Interest Cost	N\$	0		
Domestic Interest Cost	N\$	726703		
<hr/>				
ECONOMIC BENEFITS	N\$/LSU	N\$/HECTARE (Ranch)	(Core)	N\$
<hr/>				
Gross Income	1560.53	15.62	26.04	1359147
Stock Appreciation	39.76	0.40	0.66	34631
TOTAL ECONOMIC BENEFITS	1600.29	16.02	26.70	1393779
<hr/>				
ECONOMIC COSTS				
DOMESTIC COMPONENT				
Shadow Unskilled Citizen Wages	77.47	0.78	1.29	67473
Other Citizen Wages	266.03	2.66	4.44	231702
Opportunity Cost of Capital	457.23	4.58	7.63	398224
Other Domestic Economic Costs	91.30	0.91	1.52	79517
SUBTOTAL DOMESTIC COMPONENT	892.03	8.93	14.88	776916
<hr/>				
TRADABLE COMPONENT				
Foreign Remuneration	0.00	0.00	0.00	0
Foreign Services	0.00	0.00	0.00	0
Foreign Interest	0.00	0.00	0.00	0
Foreign Lease Payments	0.00	0.00	0.00	0
Foreign Rentals	0.00	0.00	0.00	0
Foreign Net Income	0.00	0.00	0.00	0
Other Tradable Economic Costs	334.67	3.35	5.58	291479
SUBTOTAL TRADABLE COMPONENT	334.67	3.35	5.58	291479
TOTAL ECONOMIC COSTS	1226.70	12.28	20.47	1068395
<hr/>				
NET ECONOMIC BENEFIT (Gross Value Added)	373.59	3.74	6.23	325384
NET VALUE ADDED (Excluding Depreciation)	230.18	2.30	3.84	200474
<hr/>				
DOMESTIC RESOURCE COST RATIO =	1.41			
NET VALUE ADDED/P100 TOTAL CAPITAL COST =	4.03			
CAPITAL COST/EMPLOYMENT OPPORTUNITY CREATED =	171648			
NUMBER OF EMPLOYMENT OPPORTUNITIES/1000 HA.	0.33			

TABLE 8: CAPITAL PHASING, DEPRECIATION SCHEDULE AND CALCULATION OF RESIDUAL VALUE

ITEM	LIFE (Yrs)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
DEPRECIABLE ASSETS												
"Forty Year" Items	40											
Total Expenditure		521073										
Phased Expenditure		312644	208429	0	0	0	0	0	0	0	0	0
Depreciation		7816	13027	13027	13027	13027	13027	13027	13027	13027	13027	13027
Residual value		312644	513257	500230	487203	474176	461150	448123	435096	422069	409042	396015
"Twenty Year" Items	20											
Total Expenditure		3696										
Phased Expenditure		3696	0	0	0	0	0	0	0	0	0	0
Depreciation		185	185	185	185	185	185	185	185	185	185	185
Residual value		3696	3511	3326	3142	2957	2772	2587	2402	2218	2033	1848
"Fifteen Year" Items	15											
Total Expenditure		656131										
Phased Expenditure		393679	262453	0	0	0	0	0	0	0	0	0
Depreciation		26245	43742	43742	43742	43742	43742	43742	43742	43742	43742	43742
Residual value		393679	629886	586144	542402	498660	454918	411176	367434	323691	279949	236207
"Six Year" Items	6											
Total Expenditure		63375						63375				
Phased Expenditure		44363	19013	0	0	0	0	44363	19013	0	0	0
Depreciation		7394	10563	10563	10563	10563	10563	10563	10563	10563	10563	10563
Residual value		44363	55981	45419	34856	24294	13731	47531	55981	45419	34856	24294
"Four Year" Items	4											
Total Expenditure		262500				262500				262500		
Phased Expenditure		262500	0	0	0	262500	0	0	0	262500	0	0
Depreciation		65625	65625	65625	65625	65625	65625	65625	65625	65625	65625	65625
Residual value		262500	196875	131250	65625	262500	196875	131250	65625	262500	196875	131250
NON DEPRECIABLE ASSETS												
Stock	6											
Phased Fin. Expenditure		2026200	50230	50230	47698	62240	73941	79273	75806	70471	69677	66529
Phased Econ. Expenditure		2026200	50230	50230	47698	62240	73941	79273	75806	70471	69677	66529
Residual value		2788156	2751857	3345475	4106470	4133680	4340774	4341097	4373063	4487548	4452365	4348889
Working Capital	6											
Phased Expenditure		260488	0	0	0	0	0	0	0	0	0	0
TOTAL PHASED CAPITAL EXPENDITURE												
Domestic Component		2338844	258659	50230	47698	62240	73941	79273	75806	70471	69677	66529
Tradable Component		704237	281465	0	0	262500	0	44363	19013	262500	0	0
Total Financial Value		3043081	540124	50230	47698	324740	73941	123635	94818	332971	69677	66529
Total Economic Value		2745948	495741	44704	42451	303036	65808	112405	85403	310361	62013	59211
TOTAL ASSET RESIDUAL VALUE												
Domestic Component		3100800	3265114	3845705	4593673	4607857	4801924	4789220	4808159	4909617	4861407	4744904
Tradable Component		704237	886254	766139	646025	788410	668296	592544	491442	633828	513713	393599
Financial Value		3805037	4151367	4611844	5239698	5396267	5470220	5381764	5299601	5543445	5375121	5138503
Economic Value		3424090	3742043	4145453	4697829	4844779	4904183	4821411	4742888	4967512	4811290	4594286

TABLE 9: STOCK PROJECTION

STOCK ON HAND (AUGUST) (No.)	Growth	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes		1650	2037	2548	2420	3157	3751	3418	3269	3039	2828	2700
Young Breeding Ewes		495	646	0	905	793	484	631	496	684	726	699
Rams		62	80	76	100	118	127	121	113	112	107	102
Surplus Young Ewes		0	0	0	0	0	0	0	0	0	0	0
Lambs		0	2008	2511	2385	3112	3697	3964	3790	3524	3484	3326
1st Year Hamels		681	0	953	835	510	665	614	847	900	920	910
1st Year Ewes		681	0	953	835	510	665	614	847	900	920	910
2 Year Hamels		619	646	0	905	793	484	631	583	804	854	874
3 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
Boer Goats	0.3	344	344	344	344	344	344	344	344	344	344	344
Dorpers	0.35	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	0.12	172	172	172	172	172	172	172	172	172	172	172
Kudu	0.12	172	172	172	172	172	172	172	172	172	172	172
Springbok	0.18	138	138	138	138	138	138	138	138	138	138	138
TOTALS		5012	6243	7867	9209	9817	10697	10820	10770	10786	10664	10346
PERCENT OF ORIGINAL NO.		100%	125%	157%	184%	196%	213%	216%	215%	215%	213%	206%
PERCENT OF FINAL NO.		48%	60%	76%	89%	95%	103%	105%	104%	104%	103%	100%
ANNUAL INCREASE (%)			25%	26%	17%	7%	9%	1%	0%	0%	-1%	-3%
STOCK SALES (No.)		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes		0	0	0	0	0	0	534	487	466	577	537
Young Breeding Ewes		0	0	0	0	0	0	69	90	71	130	138
Rams		0	19	24	23	30	36	38	36	34	33	32
Surplus Young Ewes		0	0	0	0	0	0	0	88	121	128	175
Lambs		0	0	753	1312	1712	2403	2180	1895	1586	1568	1497
1st Year Hamels		0	0	0	0	0	0	0	0	0	0	0
1st Year Ewes		0	0	0	0	0	0	0	0	0	0	0
2 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
3 Year Hamels		0	588	614	0	860	753	459	600	554	764	811
4 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels		0	0	0	0	0	0	0	0	0	0	0
Boer Goats		0	103	103	103	103	103	103	103	103	103	103
Dorpers		0	0	0	0	0	0	0	0	0	0	0
Gemsbok		0	21	21	21	21	21	21	21	21	21	21
Kudu		0	21	21	21	21	21	21	21	21	21	21
Springbok		0	25	25	25	25	25	25	25	25	25	25
TOTALS		0	606	1391	1335	2601	3191	3281	3195	2830	3200	3190
PERCENT OFFTAKE RATE (No.)		0%	10%	18%	14%	26%	30%	30%	30%	26%	30%	31%
PERCENT OF FINAL SALES		0%	19%	44%	42%	82%	100%	103%	100%	89%	100%	100%

TABLE 9: STOCK PROJECTION (Continued)

STOCK PURCHASES (No.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	1650	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	495	0	0	0	0	0	0	0	0	0	0
Rams	62	19	24	23	30	36	38	36	34	33	32
Surplus Young Ewes	0	0	0	0	0	0	0	0	0	0	0
Lambs	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels	681	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	681	0	0	0	0	0	0	0	0	0	0
2 Year Hamels	619	0	0	0	0	0	0	0	0	0	0
3 Year Hamels	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	344	0	0	0	0	0	0	0	0	0	0
Dorpers	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	172	0	0	0	0	0	0	0	0	0	0
Kudu	172	0	0	0	0	0	0	0	0	0	0
Springbok	138	0	0	0	0	0	0	0	0	0	0
TOTALS	4187	24	24	23	30	36	38	36	34	33	32

LSU ON HAND (AUGUST)	LSU /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	0.12	198	244	306	290	379	450	410	392	365	339	324
Young Breeding Ewes	0.08	42	54	0	76	67	41	53	42	57	61	59
Rams	0.16	10	13	12	16	19	20	19	18	18	17	16
Surplus Young Ewes	0.12	0	0	0	0	0	0	0	0	0	0	0
Lambs	0.00	0	4	5	5	6	7	8	8	7	7	7
1st Year Hamels	0.09	58	0	81	71	43	57	52	72	77	78	78
1st Year Ewes	0.07	50	0	70	61	37	49	45	62	66	67	67
2 Year Hamels	0.11	66	69	0	97	85	52	67	62	86	91	93
3 Year Hamels	0.13	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels	0.14	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	0.20	67	67	67	67	67	67	67	67	67	67	67
Dorpers	0.11	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	0.40	69	69	69	69	69	69	69	69	69	69	69
Kudu	0.45	77	77	77	77	77	77	77	77	77	77	77
Springbok	0.11	14	14	14	14	14	14	14	14	14	14	14
TOTAL STOCK LSU	651	613	702	844	864	903	883	884	903	889	871	
PERCENT OF ORIGINAL LSU	100%	94%	108%	130%	133%	139%	136%	136%	139%	137%	134%	
PERCENT OF FINAL LSU	75%	70%	81%	97%	99%	104%	101%	101%	104%	102%	100%	
STOCKING RATE (Ha/LSU)	80	85	74	62	60	58	59	59	58	59	60	

TABLE 9: STOCK PROJECTION (Continued)

LSU SALES	LSU /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	0.12	0	0	0	0	0	0	64	58	56	69	64
Young Breeding Ewes	0.08	0	0	0	0	0	0	6	8	6	11	12
Rams	0.16	0	3	4	4	5	6	6	6	5	5	5
Surplus Young Ewes	0.12	0	0	0	0	0	0	0	11	14	15	21
Lambs	0.00	0	0	2	3	3	5	4	4	3	3	3
1st Year Hamels	0.09	0	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	0.07	0	0	0	0	0	0	0	0	0	0	0
2 Year Hamels	0.11	0	0	0	0	0	0	0	0	0	0	0
3 Year Hamels	0.13	0	78	82	0	114	100	61	80	74	102	108
4 Year Hamels	0.14	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	0.20	0	20	20	20	20	20	20	20	20	20	20
Dorpers	0.11	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	0.40	0	8	8	8	8	8	8	8	8	8	8
Kudu	0.45	0	9	9	9	9	9	9	9	9	9	9
Springbok	0.11	0	3	3	3	3	3	3	3	3	3	3
TOTAL LSU SALES		0	81	87	6	123	111	142	166	159	206	213
PERCENT OFFTAKE RATE (LSU)		0%	13%	12%	1%	14%	12%	16%	19%	18%	23%	24%
PRODUCTION (% LSU)		0%	38%	41%	3%	58%	52%	66%	78%	74%	97%	100%

LSU PURCHASES	LSU /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	0.12	198	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	0.08	42	0	0	0	0	0	0	0	0	0	0
Rams	0.16	10	3	4	4	5	6	6	6	5	5	5
Surplus Young Ewes	0.12	0	0	0	0	0	0	0	0	0	0	0
Lambs	0.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels	0.09	58	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	0.07	50	0	0	0	0	0	0	0	0	0	0
2 Year Hamels	0.11	66	0	0	0	0	0	0	0	0	0	0
3 Year Hamels	0.13	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels	0.14	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	0.15	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	0.20	67	0	0	0	0	0	0	0	0	0	0
Dorpers	0.11	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	0.40	69	0	0	0	0	0	0	0	0	0	0
Kudu	0.45	77	0	0	0	0	0	0	0	0	0	0
Springbok	0.11	14	0	0	0	0	0	0	0	0	0	0
TOTAL LSU PURCHASES		423	3	4	4	5	6	6	6	5	5	5

TABLE 9: STOCK PROJECTION (Continued)

VALUE OF STOCK ON HAND (AUGUST) (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	400.00	660000	814757	1019192	967825	1262885	1500315	1367221	1307422	1215408	1131036	1079926
Young Breeding Ewes	500.00	247500	323161	0	452610	396324	241939	315699	247951	341781	363147	349504
Rams	2080.00	128700	167433	158994	207466	246471	264243	252686	234902	232258	221762	212087
Surplus Young Ewes	500.00	0	0	0	0	0	0	0	0	0	0	0
Lambs	180.00	0	361390	452068	429284	560159	665473	713457	682251	634236	627096	598758
1st Year Hamels	500.00	340313	0	476633	417359	254780	332455	307190	423436	449907	460068	454889
1st Year Ewes	500.00	340313	0	476633	417359	254780	332455	307190	423436	449907	460068	454889
2 Year Hamels	500.00	309375	323161	0	452610	396324	241939	315699	291707	402095	427232	436880
3 Year Hamels	500.00	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels	485.00	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	465.00	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	450.00	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	435.00	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	415.00	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	400.00	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	400.00	137500	137500	137500	137500	137500	137500	137500	137500	137500	137500	137500
Dorpers	500.00	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	1848.00	317625	317625	317625	317625	317625	317625	317625	317625	317625	317625	317625
Kudu	1474.00	253344	253344	253344	253344	253344	253344	253344	253344	253344	253344	253344
Springbok	389.00	53488	53488	53488	53488	53488	53488	53488	53488	53488	53488	53488
TOTALS		2788156	2751857	3345475	4106470	4133680	4340774	4341097	4373063	4487548	4452365	4348889
PERCENT OF ORIGINAL AMT.		100%	99%	120%	147%	148%	156%	156%	157%	161%	160%	156%
PERCENT OF FINAL AMT.		64%	63%	77%	94%	95%	100%	100%	101%	103%	102%	100%
ANNUAL VALUE INCREASE			-36300	593619	760995	27210	207094	322	31966	114485	-35183	-103476

VALUE OF SALES (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	400.00	0	0	0	0	0	0	213705	194747	186229	230830	214806
Young Breeding Ewes	500.00	0	0	0	0	0	0	34462	44968	35318	64911	68969
Rams	2080.00	0	38610	50230	47698	62240	73941	79273	75806	70471	69677	66529
Surplus Young Ewes	500.00	0	0	0	0	0	0	0	43756	60314	64085	87376
Lambs	180.00	0	0	135620	236106	308088	432557	392401	341126	285406	282193	269441
1st Year Hamels	500.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	500.00	0	0	0	0	0	0	0	0	0	0	0
2 Year Hamels	500.00	0	0	0	0	0	0	0	0	0	0	0
3 Year Hamels	500.00	0	293783	306873	0	429799	376349	229745	299788	277005	381830	405699
4 Year Hamels	485.00	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	465.00	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	450.00	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	435.00	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	415.00	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	400.00	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	400.00	0	41250	41250	41250	41250	41250	41250	41250	41250	41250	41250
Dorpers	500.00	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	1848.00	0	38115	38115	38115	38115	38115	38115	38115	38115	38115	38115
Kudu	1474.00	0	30401	30401	30401	30401	30401	30401	30401	30401	30401	30401
Springbok	389.00	0	9628	9628	9628	9628	9628	9628	9628	9628	9628	9628
TOTALS		0	332393	492724	283804	800126	882848	949586	1000190	914744	1093526	1112820
PERCENT OF FINAL VALUE		0%	30%	44%	26%	72%	79%	85%	90%	82%	98%	100%

TABLE 9: STOCK PROJECTION (Continued)

FINANCIAL VALUE OF PURCHASES (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	400.00	660000	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	500.00	247500	0	0	0	0	0	0	0	0	0	0
Rams	2080.00	128700	38610	50230	47698	62240	73941	79273	75806	70471	69677	66529
Surplus Young Ewes	500.00	0	0	0	0	0	0	0	0	0	0	0
Lambs	180.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels	500.00	340313	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	500.00	340313	0	0	0	0	0	0	0	0	0	0
2 Year Hamels	500.00	309375	0	0	0	0	0	0	0	0	0	0
3 Year Hamels	500.00	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels	485.00	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	465.00	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	450.00	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	435.00	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	415.00	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	400.00	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	400.00	137500	0	0	0	0	0	0	0	0	0	0
Dorpers	500.00	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	1848.00	317625	0	0	0	0	0	0	0	0	0	0
Kudu	1474.00	253344	0	0	0	0	0	0	0	0	0	0
Springbok	389.00	53488	0	0	0	0	0	0	0	0	0	0
TOTALS		2026200	50230	50230	47698	62240	73941	79273	75806	70471	69677	66529

ECONOMIC VALUE OF PURCHASES (N\$)	Value (N\$)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Breeding Ewes	400.00	660000	0	0	0	0	0	0	0	0	0	0
Young Breeding Ewes	500.00	247500	0	0	0	0	0	0	0	0	0	0
Rams	2080.00	128700	38610	50230	47698	62240	73941	79273	75806	70471	69677	66529
Surplus Young Ewes	500.00	0	0	0	0	0	0	0	0	0	0	0
Lambs	180.00	0	0	0	0	0	0	0	0	0	0	0
1st Year Hamels	500.00	340313	0	0	0	0	0	0	0	0	0	0
1st Year Ewes	500.00	340313	0	0	0	0	0	0	0	0	0	0
2 Year Hamels	500.00	309375	0	0	0	0	0	0	0	0	0	0
3 Year Hamels	500.00	0	0	0	0	0	0	0	0	0	0	0
4 Year Hamels	485.00	0	0	0	0	0	0	0	0	0	0	0
5 Year Hamels	465.00	0	0	0	0	0	0	0	0	0	0	0
6 Year Hamels	450.00	0	0	0	0	0	0	0	0	0	0	0
7 Year Hamels	435.00	0	0	0	0	0	0	0	0	0	0	0
8 Year Hamels	415.00	0	0	0	0	0	0	0	0	0	0	0
9 Year Hamels	400.00	0	0	0	0	0	0	0	0	0	0	0
Boer Goats	400.00	137500	0	0	0	0	0	0	0	0	0	0
Dorpers	500.00	0	0	0	0	0	0	0	0	0	0	0
Gemsbok	1848.00	317625	0	0	0	0	0	0	0	0	0	0
Kudu	1474.00	253344	0	0	0	0	0	0	0	0	0	0
Springbok	389.00	53488	0	0	0	0	0	0	0	0	0	0
TOTALS		2026200	50230	50230	47698	62240	73941	79273	75806	70471	69677	66529

TABLE 9: STOCK PROJECTION (Continued)

ASSUMPTIONS	Growth Rate	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Lambing Rate: Ewes		1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Lambing Rate: Young Ewes		1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Mortality Rate: Lambs		0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Mortality Rate: Others		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Culling Rate: Breeding Stock		0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.15	0.20	0.20
Rate 2nd Year Ewes Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.15	0.20	0.20
Ram Rate		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Rate Lambs Slaughtered		0.00	0.00	0.30	0.55	0.55	0.65	0.55	0.50	0.45	0.45	0.45
Rate 1st Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 1st Year Ewes Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 2nd Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 3rd Year Hamels Sold		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Rate 4th Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 5th Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 6th Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 7th Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 8th Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rate 9th Year Hamels Sold		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boer Goats (% Sold)	0.30	0.00	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Dorpers (Rate Sold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gemsbok (Rate Sold)	0.12	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Kudu (Rate Sold)	0.12	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Springbok (Rate Sold)	0.18	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18

TABLE 10: LOAN FINANCING SCHEDULE

ITEM	PERIOD (Yrs)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
LONG TERM LOANS												
TWENTY YEAR LOAN 20												
Total Expenditure		897935										
Loan Disbursements		538761	359174	0	0	0	0	0	0	0	0	0
Loan Payments		86073	143455	143455	143455	143455	143455	143455	143455	143455	143455	143455
Amortisation		26938	44897	44897	44897	44897	44897	44897	44897	44897	44897	44897
Interest Payments		59135	98559	98559	98559	98559	98559	98559	98559	98559	98559	98559
Loans Outstanding		538761	870997	826100	781204	736307	691410	646513	601617	556720	511823	466926
FIFTEEN YEAR LOAN 15												
Total Expenditure		164033										
Loan Disbursements		123025	41008	0	0	0	0	0	0	0	0	0
Loan Payments		21039	28052	28052	28052	28052	28052	28052	28052	28052	28052	28052
Amortisation		8202	10936	10936	10936	10936	10936	10936	10936	10936	10936	10936
Interest Payments		12838	17117	17117	17117	17117	17117	17117	17117	17117	17117	17117
Loans Outstanding		123025	155831	144896	133960	123025	112089	101154	90218	79283	68347	57411
SIX YEAR LOAN 6												
Total Expenditure		15844						15844				
Loan Disbursements		11091	4753	0	0	0	0	11091	4753	0	0	0
Loan Payments		2931	4187	4187	4187	4187	4187	4187	4187	4187	4187	4187
Amortisation		1848	2641	2641	2641	2641	2641	2641	2641	2641	2641	2641
Interest Payments		1082	1546	1546	1546	1546	1546	1546	1546	1546	1546	1546
Loans Outstanding		11091	13995	11355	8714	6073	3433	11883	13995	11355	8714	6073
FOUR YEAR LOAN 4												
Total Expenditure		65625				65625				65625		
Loan Disbursements		65625	0	0	0	65625	0	0	0	65625	0	0
Loan Payments		22986	22986	22986	22986	22986	22986	22986	22986	22986	22986	22986
Amortisation		16406	16406	16406	16406	16406	16406	16406	16406	16406	16406	16406
Interest Payments		6580	6580	6580	6580	6580	6580	6580	6580	6580	6580	6580
Loans Outstanding		65625	49219	32813	16406	65625	49219	32813	16406	65625	49219	32813
SHORT TERM LOANS												
Working Capital 1												
Overdraft		260488	260488	260488	260488	260488	260488	260488	260488	260488	260488	260488
Interest Payments		65122	65122	65122	65122	65122	65122	65122	65122	65122	65122	65122
TOTAL LONG TERM LOAN DISBURSMENTS												
Domestic Component		738501	404935	0	0	65625	0	11091	4753	65625	0	0
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL LONG TERM LOAN AMORTISATION												
Domestic Component		53394	74879	74879	74879	74879	74879	74879	74879	74879	74879	74879
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL INTEREST PAYMENTS												
Domestic Component		144757	188923	188923	188923	188923	188923	188923	188923	188923	188923	188923
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL LOANS OUTSTANDING												
Domestic Component		738501	#####	1015163	940284	931030	856151	792362	722236	712982	638103	563224
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0

* Economic Values

TABLE 11: PROJECT FINANCIAL ANALYSIS – 5 YEARS (NS, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
EXPENDITURE						
Capital Expenditure	3043081	540124	50230	47698	324740	73941
Variable Expenditure	37706	226235	377058	377058	377058	377058
Overhead Expenditure	499935	499935	499935	499935	499935	499935
TOTAL EXPENDITURE	3580722	1266294	927223	924692	1201733	950935
INCOME						
Gross Income	822052	811350	986371	1210740	1218763	1279822
Asset Residual Value	0	0	0	0	0	5470220
TOTAL INCOME	822052	811350	986371	1210740	1218763	6750042
NET BENEFIT/COST	-2758670	-454944	59148	286049	17030	5799107
PROJ. FINANCIAL RATE OF RETURN (FRR) OVER 5 YEARS = 14.78%						
PROJ. NET PRESENT VALUE (NPV) @ 8.00% = 978854 Per Hectare = 11.25						

TABLE 12: PROJECT FINANCIAL ANALYSIS – 7 YEARS (NS, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
EXPENDITURE								
Capital Expenditure	3043081	540124	50230	47698	324740	73941	123635	94818
Variable Expenditure	37706	226235	377058	377058	377058	377058	377058	377058
Overhead Expenditure	499935	499935	499935	499935	499935	499935	499935	499935
TOTAL EXPENDITURE	3580722	1266294	927223	924692	1201733	950935	1000629	971812
INCOME								
Gross Income	822052	811350	986371	1210740	1218763	1279822	1279917	1289342
Asset Residual Value	0	0	0	0	0	0	0	5299601
TOTAL INCOME	822052	811350	986371	1210740	1218763	1279822	1279917	6588943
NET BENEFIT/COST	-2758670	-454944	59148	286049	17030	328887	279288	5617132
PROJ. FINANCIAL RATE OF RETURN (FRR) OVER 7 YEARS = 11.81%								
PROJ. NET PRESENT VALUE (NPV) @ 8.00% = 729411 Per Hectare = 8.38								

TABLE 13: PROJECT FINANCIAL ANALYSIS – 10 YEARS (NS, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
EXPENDITURE											
Capital Expenditure	3043081	540124	50230	47698	324740	73941	123635	94818	332971	69677	66529
Variable Expenditure	37706	226235	377058	377058	377058	377058	377058	377058	377058	377058	377058
Overhead Expenditure	499935	499935	499935	499935	499935	499935	499935	499935	499935	499935	499935
TOTAL EXPENDITURE	3580722	1266294	927223	924692	1201733	950935	1000629	971812	1209964	946671	943522
INCOME											
Gross Income	822052	811350	986371	1210740	1218763	1279822	1279917	1289342	1323096	1312723	1282214
Asset Residual Value	0	0	0	0	0	0	0	0	0	0	5138503
TOTAL INCOME	822052	811350	986371	1210740	1218763	1279822	1279917	1289342	1323096	1312723	6420718
NET BENEFIT/COST	-2758670	-454944	59148	286049	17030	328887	279288	317530	113132	366052	5477196
PROJ. FINANCIAL RATE OF RETURN (FRR) OVER 10 YEARS = 9.78%											
PROJ. NET PRESENT VALUE (NPV) @ 8.00% = 441424 Per Hectare = 5.07											

TABLE 14: ECONOMIC ANALYSIS – 5 YEARS (NS,1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
ECONOMIC COSTS						
Capital Expenditure	2745948	495741	44704	42451	303036	65808
Unskilled Wages	67473	67473	67473	67473	67473	67473
Other Domestic Costs	124487	186731	248975	311219	311219	311219
Tradable Costs	29148	116592	233183	291479	291479	291479
Foreign Amortisation	0	0	0	0	0	0
Foreign Profits	0	0	0	0	0	0
Foreign Loans Outst.	0	0	0	0	0	0
TOTAL COSTS	2967057	866536	594335	712622	973206	735978
ECONOMIC BENEFITS						
Gross Income	871376	860031	1045553	1283385	1291889	1356611
Asset Residual Value	0	0	0	0	0	4904183
Foreign Financing	0	0	0	0	0	0
TOTAL BENEFITS	871376	860031	1045553	1283385	1291889	6260794
NET BENEFIT/COST	-2095681	-6505	451218	570763	318682	5524816
ECONOMIC RATE OF RETURN (ERR) OVER 5 YEARS = 30.37%						
NET PRESENT VALUE (NPV) @ 8.00% = 2530157 Per Hectare = 29.08						

TABLE 15: ECONOMIC ANALYSIS – 10 YEARS (NS, 1994)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
ECONOMIC COSTS											
Capital Expenditure	2745948	495741	44704	42451	303036	65808	112405	85403	310361	62013	59211
Unskilled Wages	67473	67473	67473	67473	67473	67473	67473	67473	67473	67473	67473
Other Domestic Costs	124487	186731	248975	311219	311219	311219	311219	311219	311219	311219	311219
Tradable Costs	29148	116592	233183	291479	291479	291479	291479	291479	291479	291479	291479
Foreign Amortisation	0	0	0	0	0	0	0	0	0	0	0
Foreign Profits	0	0	0	0	0	0	0	0	0	0	0
Foreign Loans Outst.	0	0	0	0	0	0	0	0	0	0	0
TOTAL COSTS	2967057	866536	594335	712622	973206	735978	782575	755574	980532	732183	729381
ECONOMIC BENEFITS											
Gross Income	871376	860031	1045553	1283385	1291889	1356611	1356712	1366703	1402482	1391486	1359147
Asset Residual Value	0	0	0	0	0	0	0	0	0	0	4594286
Foreign Financing	0	0	0	0	0	0	0	0	0	0	0
TOTAL BENEFITS	871376	860031	1045553	1283385	1291889	1356611	1356712	1366703	1402482	1391486	5953433
NET BENEFIT/COST	-2095681	-6505	451218	570763	318682	620633	574137	611129	421950	659303	5224053
ECONOMIC RATE OF RETURN (ERR) OVER 10 YEARS = 23.14%											
NET PRESENT VALUE (NPV) @ 8.00% = 2861839 Per Hectare = 32.89											

TABLE 16: SUMMARY OF ASSUMPTIONS AND RESULTS

ASSUMPTIONS	UNITS		TOTAL	
Land Extent	Hectares		87000	
Core Grazing Area Used	Hectares		52200	
Stock	Large Stock Unit Equivalents (LSU)		871	
"Economic" Carrying Capacity	Hectares per LSU Equivalent		60	
Stocking Rate	Hectares per LSU Equivalent		60	
Lambing Rate	% per Annum		130%	
Lamb Mortality	% per Annum		28%	
Adult Mortality	% per Annum		5%	
Ram Rate	% per Annum		3%	
Stock Off-take Rate	% Head per Annum		31%	
Biomass Off-take Rate	% LSU per Annum		24%	
Long Term Borrowing	% of Initial Capital		25%	
Short Term Borrowing	% of Recurrent Costs		30%	
Jobs Created	No.		29	

RESULTS	% of TCI	N\$/LSU	N\$/HECTARE		N\$
			Core	Ranch	
Total Financial Capital (TCI)	ó	5550.51	92.61	55.57	4834235
Financial Gross Income	26.52%	1472.20	24.56	14.74	1282214
Variable Financial Costs	ó	432.93	7.22	4.33	377058
Fixed Financial Costs	ó	991.55	16.54	9.93	863594
Net Cash Income	<u>0.86%</u>	47.72	0.80	0.48	<u>41563</u>
Local Community Income	5.89%	326.75	5.45	<u>3.27</u>	<u>284580</u>
Land Rental	ó	9.99	0.17	0.10	8700
Resource Royalty	ó	0.00	0.00	0.00	0
Project FRR (@ 10 Years)	ó	ó	ó	ó	<u>9.78%</u>
Project FNPV (@ 8%, @ 10 Years)	ó	ó	8.46	5.07	<u>441424</u>
Total Economic Capital	ó	5715.35	95.36	57.22	4977806
Economic Gross Output	28.00%	1600.29	26.70	16.02	1393779
Economic Costs	21.46%	1226.70	20.47	12.28	1068395
Gross Value Added (GNI)	6.54%	373.59	6.23	3.74	325384
Net Value Added (NNI)	<u>4.03%</u>	230.18	<u>3.84</u>	<u>2.30</u>	<u>200474</u>
ERR (@ 10 Years)	ó	ó	ó	ó	<u>23.14%</u>
ENPV (@ 8%, @ 10 Years)	ó	ó	54.82	32.89	<u>2861839</u>
Economic Capital Cost/Job	ó	ó	ó	ó	171648
Domestic Resource Cost Ratio	ó	ó	ó	ó	1.41
Policy Analysis Matrix	: Effects of Policy / Market Imperfections	: on Output			-111564
		: on Tradable Inputs			-13496
		: on Domestic Factors			-33851
	: Net Effects of Policy / Market Imperfections	: on Annual Net Income			-158911
		: on Net Present Value (10 Years)			-2420415

Appendix 4: Tourism financial and economic model

ASSUMPTIONS*

Production System:	142 beds. One up-market and three mid-market lodges, on private land with wildlife viewing and Fish River Canyon access.			
Site:	Several farms owned by investment company, with scenic sand plains, limestone hills, granite hills in southern Dwarf Shrub Savanna Low density, increasing populations of springbok, oryx, kudu, steenbok and other species of wildlife; no free range livestock			
Game Density:	<u>100%</u>	0.96 LSU Equivalents/Sq. Km. , or 104 Hectares per LSU Equivalent		
Carrying Capacity:	<u>100%</u>	0.163 Tourist Beds/Sq. Km., or 613 Ha. per Tourist Bed		
Land Extent	87000 Hectares, or 870 Square Kilometres		Core Wildlife Area: 54245	
Tourist Category:	Overseas: 35% Adults: 100%	Regional: 35% Children: 0%	Resident: 5%	Citizen: 25%
Occupancy Rate:	<u>100%</u>	63.0%	Average Length of Stay: 4 Days	
Daily Tariffs (N\$):	<u>100%</u>	Lodge: 415 Children: 100% of Adult Price	Roadhouse: 290	Camping: 110 Citizen Discount: 0%
Capital Item Prices:	<u>100%</u>	(Variation from Normal for Sensitivity Analysis)		
Capital Sources:	<u>100%</u>	Loan = 25%	Equity = 75%	and: <u>100%</u> Foreign: 0% Domestic = 100%
Interest Rates:	<u>100%</u>	Rate for Capital Loans: 15%		Rate for Working Capital Loans: 25%
Working Capital as Proportion of Annual Operating Costs: 30%				
Park Entry Fees:	<u>100%</u>	Fee per Tourist Night/Day (Average): N\$10.00		
Household Dividends:	700 Households @ N\$0			
Land Rental and Resource Royalty (N\$):	<u>100%</u>	Rental: 0.10 per Ha.	<u>100%</u>	Royalty: 0% of Turnover
Person-Power Needs:	<u>100%</u> <u>100%</u>	Managers: 9 Management:	Skilled Labour: 36 Foreign: 0%	Unskilled Labour: 108 Citizen: 100%
Shadow Wage Adjustment:	<u>100%</u>	Managers: 1.00	Skilled Labour: 1.00	<u>100%</u> Unskilled Labour: 0.35
Foreign Exchange Premium:	<u>100%</u>	6% Adjustment Factor = 1.06		
Tax Adjustments:	<u>100%</u>	General VAT/Sales Tax: 11%	Import Taxes: from SACU: 0%	to SACU: n/a
Discount Rates:	<u>100%</u>	Financial Discount Rate: 8%		Economic Discount Rate: 8%
Opportunity Cost of Capital	<u>100%</u>	8%		

Static models depict enterprise at full production. Static financial model includes interest, amortisation government fees, royalties and land rentals. Static economic model takes foreign inflows and outflows into account, excludes other interest and transfers and values enterprise in economic prices before land and government costs

Dynamic models presented over 5 and 10 years, to measure IRR and NPV. Financial dynamic model, at constant prices, excludes interest and depreciation, and includes asset residual values. Economic model includes foreign inflows and outflows, and measures value of enterprise in economic prices before inclusion of land costs and public expenditures.

* Underlined percentages indicate degree of conformity with base case values, and can be changed

TABLE 1: CAPITAL REQUIREMENTS

ITEM	QUANT.	PRICE (NS)	FINAN. COST	LIFE Years	AMORT. + INT.	DEPREC- IATION	ECON. DEPR.	FOREX ADJ.	TAX ADJ.	ECON. COST
FIXED CAPITAL										
DOMESTIC ITEMS										
Houses Manager	9	324000	2883000	40	144150	72075	64147	1.00	0.89	2565870
Houses Labour	1	2350000	2338000	40	116900	58450	52021	1.00	0.89	0
Office/Storerooms	1	1320000	1306800	40	65340	32670	29076	1.00	0.89	1163052
Tourist/Hunter Lodges/Campsites	1	7120000	7120000	40	356000	178000	158420	1.00	0.89	6336800
Boreholes	6	160000	956000	40	47800	23900	21271	1.00	0.89	850840
Reservoirs	6	70000	419000	40	20950	10475	9323	1.00	0.89	372910
Waterpoint Development	1	300000	300000	40	15000	7500	6675	1.00	0.89	267000
Firebreaks/Roads (km)	30	10000	300000	40	15000	7500	6675	1.00	0.89	267000
Hiking Trails (km)	0	5000	0	40	0	0	0	1.00	0.89	0
Power installations	1	590000	590000	40	29500	14750	13128	1.00	0.89	525100
CONTINGENCIES @ 5%			810640	40	40532	20266	18037	1.00	0.89	721470
SUBTOTAL DOMESTIC ITEMS			17023440							13070042
TRADABLE ITEMS										
Boma/Pens	1	30000	30000	20	4793	1500	1415	1.06	0.89	28302
Campsite	1	96000	96000	15	16418	6400	6038	1.06	0.89	90566
Pump/Windmill	2	7500	5550	15	949	370	349	1.06	0.89	5236
Fencing Perimeter (km)	200	6000	600000	15	102610	40000	37736	1.06	0.89	566040
Other Items	0	3750	0	15	0	0	0	1.06	0.89	0
CONTINGENCIES @ 5%			36578	15	6255	2439	2300	1.06	0.89	34507
SUBTOTAL TRADABLES			768128							724651
SUBTOTAL FIXED CAPITAL			17791568							13794693
MOVABLE CAPITAL										
TRADABLE ITEMS										
LDVs/Trucks	1	994500	994500	4	348339	248625	234553	1.06	0.89	938211
Tools/Office Equipment	1	539500	539500	6	142556	89917	84827	1.06	0.89	508964
Other Equipment	1	689000	689000	6	182059	114833	108334	1.06	0.89	650003
Generator/Computers	1	97500	97500	6	25763	16250	15330	1.06	0.89	91982
CONTINGENCIES @ 10%			232050	6	61316	38675	36486	1.06	0.89	218916
SUBTOTAL TRADABLES			2552550							2408076
DOMESTIC ITEMS										
Stock : Small Game	Batch	0	0	40	0			1.00	0.89	0
: Large Game	Batch	0	124365	40	18725			1.00	0.89	110685
: Big Five		0	0	40	0			1.00	0.89	0
: Cattle		0	0	40	0			1.00	0.89	0
Horses and Donkeys		0	0	40	0			1.00	0.89	0
CONTINGENCIES @ 10%			12437	40	1872			1.00	0.89	11069
SUBTOTAL DOMESTIC ITEMS			136802							121754
SUBTOTAL MOVABLE CAPITAL			2689352							2529829
WORKING CAPITAL										
VARIABLE			1956126	489032				1.06	1.00	2073494
OVERHEAD			1146357	286589				1.06	1.00	1215139
SUBTOTAL WORKING CAPITAL			3102484	775621						3288633
TOTALS			23583403	775621	1762828	984595	906140			19613155

TABLE 2: STOCK COMPOSITION BY SPECIES AT FULL PRODUCTION

ITEM	HEAD	POT. OFF-TAKE		OFF-TAKE		PROP. TROPH	LSU FACTOR	LSU
		(%)	(NO.)	(%)	(NO.)			
Baboon	189	6.60%	0	0.00%	0	0	0.00	0
Duiker	153	22.60%	0	0.00%	0	0	0.07	11
Eland	0	6.70%	0	0.00%	0	0	1.00	0
Elephant	0	3.10%	0	0.00%	0	0	3.33	0
Giraffe	5	6.20%	0	0.00%	0	0	1.43	8
Klipspringer	252	20.20%	0	0.00%	0	0	0.07	18
Kudu	450	9.90%	0	0.00%	0	0	0.45	202
Leopard	36	15.00%	0	0.00%	0	0	0.00	0
Lion	0	12.00%	0	0.00%	0	0	0.00	0
Oryx	155	9.40%	0	0.00%	0	0	0.40	62
Ostrich	182	10.00%	0	0.00%	0	0	0.26	47
Springbok	2355	18.00%	0	0.00%	0	0	0.11	259
Steenbok	923	27.70%	0	0.00%	0	0	0.06	55
Warthog	0	14.40%	0	0.00%	0	0	0.18	0
Wild dog	0	15.00%	0	0.00%	0	0	0.00	0
Wildebeest	0	9.60%	0	0.00%	0	0	0.40	0
Zebra (Mountain)	90	8.40%	0	0.00%	0	0	0.63	56
Cattle	35	15.00%	0	15.00%	0	0	1.00	35
Goats	175	45.00%	0	45.00%	0	0	0.11	19
Donkeys/horses	105	10.00%	0	10.00%	0	0	0.63	66
TOTAL	5105		0		0	0		839
STOCK DENSITY:		0.96 LSU PER SQ.KM.		LAND EXTENT: 87000 HectaresHa/LSU: 104				

TABLE 3: SALES AT FULL PRODUCTION

ITEM	QUANTITY	@	VALUE (NS)	FINANCIAL VALUE	FOREX ADJ.	TAX ADJ.	ECON. VALUE
Safari Hunting	0camp	@	50000	0	1.06	0.89	0
Tourism ó Canon Lodge	1lodge	@	635588	635588	1.06	0.89	5995862
Tourism ó Roadhouse	1lodge	@	1314430	1314430	1.06	0.89	1240033
Tourism ó "Up-market" Lodge	1lodge	@	3471325	3471325	1.06	0.89	3274848
Tourism ó "Bus" Lodge	1lodge	@	2756641	2756641	1.06	0.89	2600615
Tourism ó Campsite	1site	@	169059	169059	1.06	0.89	159490
Live Game Sales	0animals	@	0	0	1.06	0.89	0
Venison: Biltong	0animals	@	0	0	1.06	0.89	0
Livestock sales	1batch	@	45617	45617	1.06	0.89	43035
Crafts	1outlet	@	200000	200000	1.06	0.89	188680
Gathering	0 hholds	@	0	0	1.00	0.89	0
Stones	0 hholds	@	0	0	1.00	0.89	0
TOTALS				GROSS INCOME: 14312659			13502562

TABLE 4: VARIABLE EXPENDITURE AT FULL PRODUCTION

ITEM	FINANCIAL VALUES			FOREX ADJ.	TAX ADJ.	ECONOMIC VALUES		
	N\$/LSU	N\$/HA.	VALUE			N\$/LSU	N\$/HA.	VALUE
TRADABLE ITEMS								
Marketing Costs: Advertising	203.56	1.96	170750	1.06	0.89	192.04	1.85	161086
: Agents Fees	542.61	5.23	455143	1.06	0.89	511.90	4.94	429381
Cost of Sales	3279.55	31.62	2750893	1.06	0.89	3093.93	29.83	2595192
Other Running Costs : Extra Accomodation	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Transport/Communications	114.66	1.11	96181	1.06	0.89	108.17	1.04	90737
: Agricultural Inputs	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Crafts	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Fodder and Supplements	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Other Costs : Office Supplies	102.55	0.99	86019	1.06	0.89	96.75	0.93	81150
: Capture Team	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Biltong Distribution	0.00	0.00	0	1.06	0.89	0.00	0.00	0
: Live Game Distribution	0.00	0.00	0	1.06	0.89	0.00	0.00	0
Consultancies, Travel and Training	122.02	1.18	102350	1.06	0.89	115.11	1.11	96557
Miscellaneous Costs	1123.37	10.83	942288	1.06	0.89	1059.79	10.22	888955
SUBTOTAL TRADABLES	5488.33	52.92	4603624			5177.69	49.92	4343059
DOMESTIC ITEMS								
Veterinary and Medicine Costs	127.29	1.23	106772	1.00	0.89	113.29	1.09	95027
Livestock Marketing Fees	0.00	0.00	0	1.00	1.00	0.00	0.00	0
Bank Fees	280.92	2.71	235632	1.00	1.00	0.00	0.00	0
Sales Tax	1876.95	18.10	1574392	1.00	1.00	0.00	0.00	0
SUBTOTAL DOMESTIC ITEMS	2285.16	22.03	1916797			113.29	1.09	95027
TOTAL VARIABLE EXPENDITURE	7773.49	74.95	6520421			5290.98	51.01	4438086

TABLE 5: OPERATING OVERHEAD EXPENDITURE AT FULL PRODUCTION

ITEM	FINANCIAL VALUES			FOREX ADJ.	TAX ADJ.	ECONOMIC VALUES		
	N\$/LSU	N\$/HA.	VALUE			N\$/LSU	N\$/HA.	VALUE
DOMESTIC ITEMS								
Salaries and Wages: Unskilled Labour	1181.97	11.40	991440	1.00	1.00	1181.97	11.40	347004
: Skilled Labour	787.98	7.60	660960	1.00	1.00	787.98	7.60	588254
: Managers	1072.96	10.34	900000	1.00	1.00	1072.96	10.34	900000
Administration	408.89	3.94	342976	1.00	0.89	408.89	3.94	305249
Maintenance and Repairs	394.69	3.81	331069	1.00	0.89	394.69	3.81	294651
Insurance	364.26	3.51	305543	1.00	0.89	364.26	3.51	271933
Miscellaneous Fixed Costs	344.78	3.32	289203	1.00	0.89	344.78	3.32	257391
TOTAL OPERATING OVERHEAD EXPEND.	4555.53	43.92	3821191			4555.53	43.92	2964483

TABLE 6: STATIC FINANCIAL MODEL (AT FULL PRODUCTION)

ITEM	UNITS		TOTAL
Land Extent	Hectares		87000
Stock on Land	Large Stock Units (LSU)		839
Total Capital Requirement	N\$		23583403
	N\$/LSU	N\$/HECTARE	N\$
TURNOVER	17063.21	164.51	14312659
VARIABLE COSTS	7773.49	74.95	6520421
GROSS MARGIN	9289.72	89.57	7792238
OVERHEAD COSTS			
Overhead Operating Costs	4555.53	43.92	3821191
Loan Amortisation and Interest	525.40	5.07	440707
Provisions for Capital Replacement	880.36	8.49	738446
Interest on Variable Working Capital	583.01	5.62	489032
Interest on Overhead Working Capital	341.66	3.29	286589
Land Rental	10.37	0.10	8700
Resource Royalty	0.00	0.00	0
TOTAL OVERHEAD COSTS	6896.34	66.49	5784665
NET CASH INCOME	2393.38	23.08	2007573
NET CASH INCOME/N\$100 TOTAL CAPITAL INVESTMENT	8.51		

TABLE 7: STATIC ECONOMIC MODEL (AT FULL PRODUCTION)

ITEM	UNITS	TOTAL		
Land Extent	Hectares	87000		
Stock on Land	Large Stock Units (LSU)	839		
Total Initial Capital Requirement	N\$	19613155		
Economic Depreciation Cost	N\$	906140		
Foreign Financing (Prorated)	N\$	0		
Foreign Amortisation	N\$	0		
Foreign Capital Replacement Provision	N\$	0		
Foreign Interest Cost	N\$	0		
Domestic Interest Cost	N\$	1647085		
<hr/>				
ECONOMIC BENEFITS		N\$/LSU	N\$/HECTARE	N\$
<hr/>				
Gross Output		16097.43	155.20	13502562
Stock Appreciation		458.29	4.42	384415
TOTAL ECONOMIC BENEFITS		16555.72	159.62	13886977
<hr/>				
ECONOMIC COSTS				
DOMESTIC COMPONENT				
Shadow Unskilled Citizen Wages		413.69	3.99	347004
Other Citizen Wages		1774.26	17.11	1488254
Opportunity Cost of Capital		1870.59	18.04	1569052
Other Domestic Economic Costs		1459.52	14.07	1224252
SUBTOTAL DOMESTIC COMPONENT		5518.06	53.20	4628562
<hr/>				
TRADABLE COMPONENT				
Foreign Remuneration		0.00	0.00	0
Foreign Services		246.38	2.38	206663
Foreign Interest		0.00	0.00	0
Foreign Lease Payments		0.00	0.00	0
Foreign Rentals		0.00	0.00	0
Foreign Net Income		0.00	0.00	0
Other Tradable Economic Costs		4931.31	47.54	4136395
SUBTOTAL TRADABLE COMPONENT		5177.69	49.92	4343059
<hr/>				
TOTAL ECONOMIC COSTS		10695.75	103.12	8971621
<hr/>				
GROSS VALUE ADDED (Net Economic Benefit)		5859.97	56.50	4915356
NET VALUE ADDED (Excluding Depreciation)		4779.69	46.08	4009216
<hr/>				
DOMESTIC RESOURCE COST RATIO =		0.69		
NET VALUE ADDED/N\$100 TOTAL CAPITAL COST =		20.44		
CAPITAL COST/EMPLOYMENT OPPORTUNITY CREATED =		128191		
NUMBER OF EMPLOYMENT OPPORTUNITIES/1000 HA.		1.76		

TABLE 8: CAPITAL PHASING, DEPRECIATION SCHEDULE AND CALCULATION OF RESIDUAL VALUE

ITEM	LIFE (Yrs)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
DEPRECIABLE ASSETS												
"Forty Year" Items	40											
Total Expenditure		17023440										
Phased Expenditure		10214064	6809376	0	0	0	0	0	0	0	0	0
Depreciation		255352	425586	425586	425586	425586	425586	425586	425586	425586	425586	425586
Residual value		10214064	16768088	16342502	15916916	15491330	15065744	14640158	14214572	13788986	13363400	12937814
"Twenty Year" Items	20											
Total Expenditure		30000										
Phased Expenditure		30000	0	0	0	0	0	0	0	0	0	0
Depreciation		1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Residual value		30000	28500	27000	25500	24000	22500	21000	19500	18000	16500	15000
"Fifteen Year" Items	15											
Total Expenditure		738128										
Phased Expenditure		442877	295251	0	0	0	0	0	0	0	0	0
Depreciation		29525	49209	49209	49209	49209	49209	49209	49209	49209	49209	49209
Residual value		442877	708602	659394	610185	560977	511768	462560	413351	364143	314934	265726
"Six Year" Items	6											
Total Expenditure		1558050						1558050				
Phased Expenditure		1090635	467415	0	0	0	0	1090635	467415	0	0	0
Depreciation		181773	259675	259675	259675	259675	259675	259675	259675	259675	259675	259675
Residual value		1090635	1376278	1116603	856928	597253	337578	1168538	1376278	1116603	856928	597253
"Four Year" Items	4											
Total Expenditure		994500				994500				994500		
Phased Expenditure		994500	0	0	0	994500	0	0	0	994500	0	0
Depreciation		248625	248625	248625	248625	248625	248625	248625	248625	248625	248625	248625
Residual value		994500	745875	497250	248625	994500	745875	497250	248625	994500	745875	497250
NON DEPRECIABLE ASSETS												
Stock	6											
Phased Fin. Expenditure		0	0	0	0	92393	31973	0	0	0	0	0
Phased Econ. Expenditure		0	0	0	0	92393	31973	0	0	0	0	0
Residual value		1175473	1303976	1453871	1629252	1908996	2183834	2479162	2828105	3241712	3733521	4320154
Working Capital	6											
Phased Expenditure		3102484	0	0	0	0	0	0	0	0	0	0
TOTAL PHASED CAPITAL EXPENDITURE												
Domestic Component		10214064	6809376	0	0	92393	31973	0	0	0	0	0
Tradable Component		2558012	762666	0	0	994500	0	1090635	467415	994500	0	0
Total Financial Value		12772076	7572042	0	0	1086893	31973	1090635	467415	994500	0	0
Total Economic Value		11503745	6779844	0	0	1020441	28456	1028905	440959	938211	0	0
TOTAL ASSET RESIDUAL VALUE												
Domestic Component		11389537	18072065	17796373	17546168	17400326	17249578	17119321	17042677	17030698	17096921	17257969
Tradable Component		2558012	2859255	2300246	1741238	2176729	1617721	2149347	2057754	2493245	1934237	1375228
Financial Value		13947549	20931320	20096620	19287406	19577056	18867299	19268668	19100431	19523944	19031158	18633197
Economic Value		12549916	18781559	18008825	17258773	17539817	16878282	17263890	17109268	17509449	17041019	16656982

TABLE 9: STOCK PROJECTION

STOCK ON HAND (NO.)	GROWTH	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon	6.60%	100	107	114	121	129	138	147	156	167	178	189
Duiker	22.60%	20	25	30	37	45	55	68	83	102	125	153
Eland	6.70%	0	0	0	0	0	0	0	0	0	0	0
Elephant	3.10%	0	0	0	0	0	0	0	0	0	0	0
Giraffe	6.20%	0	0	0	0	0	4	4	5	5	5	5
Klipspringer	20.20%	40	48	58	69	83	100	121	145	174	210	252
Kudu	9.90%	175	192	211	232	255	281	308	339	372	409	450
Leopard	15.00%	9	10	12	14	16	18	21	24	28	32	36
Lion	12.00%	0	0	0	0	0	0	0	0	0	0	0
Oryx	9.40%	35	38	42	46	90	99	108	118	129	141	155
Ostrich	10.00%	70	77	85	93	102	113	124	136	150	165	182
Springbok	18.00%	450	531	627	739	872	1029	1215	1433	1691	1996	2355
Steenbok	27.70%	80	102	130	167	213	272	347	443	566	722	923
Warthog	14.40%	0	0	0	0	0	0	0	0	0	0	0
Wild dog	15.00%	0	0	0	0	0	0	0	0	0	0	0
Wildebeest	9.60%	0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)	8.40%	40	43	47	51	55	60	65	70	76	83	90
Cattle	15.00%	35	35	35	35	35	35	35	35	35	35	35
Goats	45.00%	175	175	175	175	175	175	175	175	175	175	175
Donkeys/horses	10.00%	105	105	105	105	105	105	105	105	105	105	105
TOTALS		1334	1489	1670	1884	2177	2483	2842	3268	3776	4381	5105
ANNUAL INCREASE (%)			12%	12%	13%	16%	14%	14%	15%	16%	16%	17%
LSU ON HAND (NO.)	LSU FACTOR	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon	0.00	0	0	0	0	0	0	0	0	0	0	0
Duiker	0.07	1	2	2	3	3	4	5	6	7	9	11
Eland	1.00	0	0	0	0	0	0	0	0	0	0	0
Elephant	3.33	0	0	0	0	0	0	0	0	0	0	0
Giraffe	1.43	0	0	0	0	0	6	6	6	7	7	8
Klipspringer	0.07	3	3	4	5	6	7	8	10	12	15	18
Kudu	0.45	79	87	95	105	115	126	139	152	168	184	202
Leopard	0.00	0	0	0	0	0	0	0	0	0	0	0
Lion	0.00	0	0	0	0	0	0	0	0	0	0	0
Oryx	0.40	14	15	17	18	36	39	43	47	52	56	62
Ostrich	0.26	18	20	22	24	27	29	32	35	39	43	47
Springbok	0.11	50	58	69	81	96	113	134	158	186	220	259
Steenbok	0.06	5	6	8	10	13	16	21	27	34	43	55
Warthog	0.18	0	0	0	0	0	0	0	0	0	0	0
Wild dog	0.00	0	0	0	0	0	0	0	0	0	0	0
Wildebeest	0.40	0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)	0.63	25	27	30	32	35	38	41	44	48	52	56
Cattle	1.00	35	35	35	35	35	35	35	35	35	35	35
Goats	0.11	19	19	19	19	19	19	19	19	19	19	19
Donkeys/horses	0.63	66	66	66	66	66	66	66	66	66	66	66
TOTALS		315	339	367	398	451	499	549	607	673	750	839

TABLE 9: STOCK PROJECTION (Continued)

STOCK OFF-TAKE (NO.)	OFF-TAKE	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon	0.00%	0	0	0	0	0	0	0	0	0	0	0
Duiker	0.00%	0	0	0	0	0	0	0	0	0	0	0
Eland	0.00%	0	0	0	0	0	0	0	0	0	0	0
Elephant	0.00%	0	0	0	0	0	0	0	0	0	0	0
Giraffe	0.00%	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	0.00%	0	0	0	0	0	0	0	0	0	0	0
Kudu	0.00%	0	0	0	0	0	0	0	0	0	0	0
Leopard	0.00%	0	0	0	0	0	0	0	0	0	0	0
Lion	0.00%	0	0	0	0	0	0	0	0	0	0	0
Oryx	0.00%	0	0	0	0	0	0	0	0	0	0	0
Ostrich	0.00%	0	0	0	0	0	0	0	0	0	0	0
Springbok	0.00%	0	0	0	0	0	0	0	0	0	0	0
Steenbok	0.00%	0	0	0	0	0	0	0	0	0	0	0
Warthog	0.00%	0	0	0	0	0	0	0	0	0	0	0
Wild dog	0.00%	0	0	0	0	0	0	0	0	0	0	0
Wildebeest	0.00%	0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)	0.00%	0	0	0	0	0	0	0	0	0	0	0
Cattle	15.00%	0	5	5	5	5	5	5	5	5	5	5
Goats	45.00%	0	79	79	79	79	79	79	79	79	79	79
Donkeys/horses	10.00%	0	11	11	11	11	11	11	11	11	11	11
TOTALS		0	95	95	95	95	95	95	95	95	95	95
STOCK PURCHASES (NO.)		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon		0	0	0	0	0	0	0	0	0	0	0
Duiker		0	0	0	0	0	0	0	0	0	0	0
Eland		0	0	0	0	0	0	0	0	0	0	0
Elephant		0	0	0	0	0	0	0	0	0	0	0
Giraffe		0	0	0	0	0	5	0	0	0	0	0
Klipspringer		0	0	0	0	0	0	0	0	0	0	0
Kudu		0	0	0	0	0	0	0	0	0	0	0
Leopard		0	0	0	0	0	0	0	0	0	0	0
Lion		0	0	0	0	0	0	0	0	0	0	0
Oryx		0	0	0	0	50	0	0	0	0	0	0
Ostrich		0	0	0	0	0	0	0	0	0	0	0
Springbok		0	0	0	0	0	0	0	0	0	0	0
Steenbok		0	0	0	0	0	0	0	0	0	0	0
Warthog		0	0	0	0	0	0	0	0	0	0	0
Wild dog		0	0	0	0	0	0	0	0	0	0	0
Wildebeest		0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)		0	0	0	0	0	0	0	0	0	0	0
Cattle		0	0	0	0	0	0	0	0	0	0	0
Goats		0	0	0	0	0	0	0	0	0	0	0
Donkeys/horses		0	0	0	0	0	0	0	0	0	0	0
TOTALS		0	0	0	0	50	5	0	0	0	0	0

TABLE 9: STOCK PROJECTION (Continued)

NET IMMIGRATION (NO.)		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon		0	0	0	0	0	0	0	0	0	0	0
Duiker		0	0	0	0	0	0	0	0	0	0	0
Eland		0	0	0	0	0	0	0	0	0	0	0
Elephant		0	0	0	0	0	0	0	0	0	0	0
Giraffe		0	0	0	0	0	0	0	0	0	0	0
Klipspringer		0	0	0	0	0	0	0	0	0	0	0
Kudu		0	0	0	0	0	0	0	0	0	0	0
Leopard		0	0	0	0	0	0	0	0	0	0	0
Lion		0	0	0	0	0	0	0	0	0	0	0
Oryx		0	0	0	0	0	0	0	0	0	0	0
Ostrich		0	0	0	0	0	0	0	0	0	0	0
Springbok		0	0	0	0	0	0	0	0	0	0	0
Steenbok		0	0	0	0	0	0	0	0	0	0	0
Warthog		0	0	0	0	0	0	0	0	0	0	0
Wild dog		0	0	0	0	0	0	0	0	0	0	0
Wildebeest		0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)		0	0	0	0	0	0	0	0	0	0	0
Cattle		0	0	0	0	0	0	0	0	0	0	0
Goats		0	0	0	0	0	0	0	0	0	0	0
Donkeys/horses		0	0	0	0	0	0	0	0	0	0	0
TOTALS		0	0	0	0	0	0	0	0	0	0	0

VALUE OF STOCK (N\$)	VALUE /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon	328	32803	34968	37276	39736	42359	45155	48135	51312	54699	58309	62157
Duiker	461	9217	11301	13854	16986	20824	25531	31301	38374	47047	57680	70715
Eland	3297	0	0	0	0	0	0	0	0	0	0	0
Elephant	24640	0	0	0	0	0	0	0	0	0	0	0
Giraffe	6395	0	0	0	0	0	25578	27164	28848	30637	32536	34553
Klipspringer	2327	93076	111877	134476	161641	194292	233539	280714	337418	405577	487503	585979
Kudu	1474	257958	283496	311562	342407	376305	413559	454502	499497	548948	603293	663019
Leopard	6896	62062	71371	82077	94388	108547	124829	143553	165086	189849	218326	251075
Lion	15285	0	0	0	0	0	0	0	0	0	0	0
Oryx	1848	64675	70754	77405	84681	166555	182212	199340	218077	238577	261003	285537
Ostrich	752	52651	57916	63707	70078	77086	84794	93274	102601	112861	124147	136562
Springbok	389	175003	206504	243675	287536	339293	400365	472431	557469	657813	776219	915939
Steenbok	925	73996	94493	120668	154093	196777	251284	320890	409777	523285	668235	853336
Warthog	570	0	0	0	0	0	0	0	0	0	0	0
Wild dog	3400	0	0	0	0	0	0	0	0	0	0	0
Wildebeest	1721	0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)	2162	86476	93740	101614	110150	119402	129432	140304	152090	164866	178714	193726
Cattle	2222	77778	77778	77778	77778	77778	77778	77778	77778	77778	77778	77778
Goats	244	42778	42778	42778	42778	42778	42778	42778	42778	42778	42778	42778
Donkeys/horses	1400	147000	147000	147000	147000	147000	147000	147000	147000	147000	147000	147000
TOTAL VALUE OF STOCK		1175473	1303976	1453871	1629252	1908996	2183834	2479162	2828105	3241712	3733521	4320154
% OF FINAL RESID. VAL.		27.21%	30.18%	33.65%	37.71%	44.19%	50.55%	57.39%	65.46%	75.04%	86.42%	100.00%
ANNUAL VALUE INCREASE			128503	149895	175381	279744	274838	295329	348943	413607	491809	586633

TABLE 9: STOCK PROJECTION (Continued)

VALUE OF SALES (N\$)	VALUE /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon	328	0	0	0	0	0	0	0	0	0	0	0
Duiker	461	0	0	0	0	0	0	0	0	0	0	0
Eland	3297	0	0	0	0	0	0	0	0	0	0	0
Elephant	24640	0	0	0	0	0	0	0	0	0	0	0
Giraffe	6395	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	2327	0	0	0	0	0	0	0	0	0	0	0
Kudu	1474	0	0	0	0	0	0	0	0	0	0	0
Leopard	6896	0	0	0	0	0	0	0	0	0	0	0
Lion	15285	0	0	0	0	0	0	0	0	0	0	0
Oryx	1848	0	0	0	0	0	0	0	0	0	0	0
Ostrich	752	0	0	0	0	0	0	0	0	0	0	0
Springbok	389	0	0	0	0	0	0	0	0	0	0	0
Steenbok	925	0	0	0	0	0	0	0	0	0	0	0
Warthog	570	0	0	0	0	0	0	0	0	0	0	0
Wild dog	3400	0	0	0	0	0	0	0	0	0	0	0
Wildebeest	1721	0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)	2162	0	0	0	0	0	0	0	0	0	0	0
Cattle	2222	0	11667	11667	11667	11667	11667	11667	11667	11667	11667	11667
Goats	244	0	19250	19250	19250	19250	19250	19250	19250	19250	19250	19250
Donkeys/horses	1400	0	14700	14700	14700	14700	14700	14700	14700	14700	14700	14700
TOTAL SALES VALUE		0	45617	45617	45617	45617	45617	45617	45617	45617	45617	45617
% OF FULL PROD. SALES		0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

PURCHASES (FINANCIAL)	VALUE /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon	328	0	0	0	0	0	0	0	0	0	0	0
Duiker	461	0	0	0	0	0	0	0	0	0	0	0
Eland	3297	0	0	0	0	0	0	0	0	0	0	0
Elephant	24640	0	0	0	0	0	0	0	0	0	0	0
Giraffe	6395	0	0	0	0	0	31973	0	0	0	0	0
Klipspringer	2327	0	0	0	0	0	0	0	0	0	0	0
Kudu	1474	0	0	0	0	0	0	0	0	0	0	0
Leopard	6896	0	0	0	0	0	0	0	0	0	0	0
Lion	15285	0	0	0	0	0	0	0	0	0	0	0
Oryx	1848	0	0	0	0	92393	0	0	0	0	0	0
Ostrich	752	0	0	0	0	0	0	0	0	0	0	0
Springbok	389	0	0	0	0	0	0	0	0	0	0	0
Steenbok	925	0	0	0	0	0	0	0	0	0	0	0
Warthog	570	0	0	0	0	0	0	0	0	0	0	0
Wild dog	3400	0	0	0	0	0	0	0	0	0	0	0
Wildebeest	1721	0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)	2162	0	0	0	0	0	0	0	0	0	0	0
Cattle	2222	0	0	0	0	0	0	0	0	0	0	0
Goats	244	0	0	0	0	0	0	0	0	0	0	0
Donkeys/horses	1400	0	0	0	0	0	0	0	0	0	0	0
TOTALS		0	0	0	0	92393	31973	0	0	0	0	0

TABLE 9: STOCK PROJECTION (Continued)

PURCHASES (ECONOMIC)	VALUE /UNIT	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Baboon	328	0	0	0	0	0	0	0	0	0	0	0
Duiker	461	0	0	0	0	0	0	0	0	0	0	0
Eland	3297	0	0	0	0	0	0	0	0	0	0	0
Elephant	24640	0	0	0	0	0	0	0	0	0	0	0
Giraffe	6395	0	0	0	0	0	31973	0	0	0	0	0
Klipspringer	2327	0	0	0	0	0	0	0	0	0	0	0
Kudu	1474	0	0	0	0	0	0	0	0	0	0	0
Leopard	6896	0	0	0	0	0	0	0	0	0	0	0
Lion	15285	0	0	0	0	0	0	0	0	0	0	0
Oryx	1848	0	0	0	0	92393	0	0	0	0	0	0
Ostrich	752	0	0	0	0	0	0	0	0	0	0	0
Springbok	389	0	0	0	0	0	0	0	0	0	0	0
Steenbok	925	0	0	0	0	0	0	0	0	0	0	0
Warthog	570	0	0	0	0	0	0	0	0	0	0	0
Wild dog	3400	0	0	0	0	0	0	0	0	0	0	0
Wildebeest	1721	0	0	0	0	0	0	0	0	0	0	0
Zebra (Mountain)	2162	0	0	0	0	0	0	0	0	0	0	0
Cattle	2222	0	0	0	0	0	0	0	0	0	0	0
Goats	244	0	0	0	0	0	0	0	0	0	0	0
Donkeys/horses	1400	0	0	0	0	0	0	0	0	0	0	0
TOTALS		0	0	0	0	92393	31973	0	0	0	0	0

TABLE 10: LOAN FINANCING SCHEDULE

ITEM	PERIOD (Yrs)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
LONG TERM LOANS												
TWENTY YEAR LOAN	20											
Total Expenditure		4297560										
Loan Disbursements		2578536	1719024	0	0	0	0	0	0	0	0	0
Loan Payments		411951	686585	686585	686585	686585	686585	686585	686585	686585	686585	686585
Amortisation		128927	214878	214878	214878	214878	214878	214878	214878	214878	214878	214878
Interest Payments		283024	471707	471707	471707	471707	471707	471707	471707	471707	471707	471707
Loans Outstanding		2578536	4168634	3953756	3738878	3524000	3309122	3094244	2879366	2664487	2449609	2234731
FIFTEEN YEAR LOAN	15											
Total Expenditure		184532										
Loan Disbursements		138399	46133	0	0	0	0	0	0	0	0	0
Loan Payments		23669	31558	31558	31558	31558	31558	31558	31558	31558	31558	31558
Amortisation		9227	12302	12302	12302	12302	12302	12302	12302	12302	12302	12302
Interest Payments		14442	19256	19256	19256	19256	19256	19256	19256	19256	19256	19256
Loans Outstanding		138399	175305	163003	150701	138399	126097	113795	101493	89190	76888	64586
SIX YEAR LOAN	6						6					
Total Expenditure		389513						389513				
Loan Disbursements		272659	116854	0	0	0	0	272659	116854	0	0	0
Loan Payments		72047	102924	102924	102924	102924	102924	102924	102924	102924	102924	102924
Amortisation		45443	64919	64919	64919	64919	64919	64919	64919	64919	64919	64919
Interest Payments		26603	38005	38005	38005	38005	38005	38005	38005	38005	38005	38005
Loans Outstanding		272659	344069	279151	214232	149313	84394	292134	344069	279151	214232	149313
FOUR YEAR LOAN	4											
Total Expenditure		248625				248625				248625		
Loan Disbursements		248625	0	0	0	248625	0	0	0	248625	0	0
Loan Payments		87085	87085	87085	87085	87085	87085	87085	87085	87085	87085	87085
Amortisation		62156	62156	62156	62156	62156	62156	62156	62156	62156	62156	62156
Interest Payments		24928	24928	24928	24928	24928	24928	24928	24928	24928	24928	24928
Loans Outstanding		248625	186469	124313	62156	248625	186469	124313	62156	248625	186469	124313
SHORT TERM LOANS												
Working Capital	1											
Overdraft		3102484	3102484	3102484	3102484	3102484	3102484	3102484	3102484	3102484	3102484	3102484
Interest Payments		775621	775621	775621	775621	775621	775621	775621	775621	775621	775621	775621
TOTAL LONG TERM LOAN DISBURSMENTS												
Domestic Component		3238219	1882011	0	0	248625	0	272659	116854	248625	0	0
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL LONG TERM LOAN AMORTISATION												
Domestic Component		245753	354255	354255	354255	354255	354255	354255	354255	354255	354255	354255
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL INTEREST PAYMENTS												
Domestic Component		1124619	1329517	1329517	1329517	1329517	1329517	1329517	1329517	1329517	1329517	1329517
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0
TOTAL LOANS OUTSTANDING												
Domestic Component		3238219	4874477	4520222	4165967	4060337	3706081	3624485	3387084	3281454	2927198	2572943
Foreign Component *		0	0	0	0	0	0	0	0	0	0	0

* Economic Values

TABLE 11: PROJECT FINANCIAL ANALYSIS – 5 YEARS (N\$, 2001)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
EXPENDITURE						
Capital Expenditure	12772076	7572042	0	0	1086893	31973
Variable Expenditure	652042	3912253	6520421	6520421	6520421	6520421
Overhead Expenditure	3829891	3829891	3829891	3829891	3829891	3829891
TOTAL EXPENDITURE	17254009	15314186	10350312	10350312	11437205	10382285
INCOME						
Gross Income	1431266	8587595	14312659	14312659	14312659	14312659
Asset Residual Value	0	0	0	0	0	18867299
TOTAL INCOME	1431266	8587595	14312659	14312659	14312659	33179958
NET BENEFIT/COST	-15822743	-6726590	3962347	3962347	2875454	22797673
PROJECT FINANCIAL RATE OF RETURN (FRR) OVER 5 YEARS = 10.55%						
PROJECT NET PRESENT VALUE (NPV) @ 8.00% = 1963614 Per Hectare = 22.57						

TABLE 12: PROJECT FINANCIAL ANALYSIS – 7 YEARS (N\$, 2001)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
EXPENDITURE								
Capital Expenditure	12772076	7572042	0	0	1086893	31973	1090635	467415
Variable Expenditure	652042	3912253	6520421	6520421	6520421	6520421	6520421	6520421
Overhead Expenditure	3829891	3829891	3829891	3829891	3829891	3829891	3829891	3829891
TOTAL EXPENDITURE	17254009	15314186	10350312	10350312	11437205	10382285	11440947	10817727
INCOME								
Gross Income	1431266	8587595	14312659	14312659	14312659	14312659	14312659	14312659
Asset Residual Value	0	0	0	0	0	0	0	19100431
TOTAL INCOME	1431266	8587595	14312659	14312659	14312659	14312659	14312659	33413090
NET BENEFIT/COST	-15822743	-6726590	3962347	3962347	2875454	3930374	2871712	22595363
PROJECT FINANCIAL RATE OF RETURN (FRR) OVER 7 YEARS = 11.88%								
PROJECT NET PRESENT VALUE (NPV) @ 8.00% = 3957203 Per Hectare = 45.49								

TABLE 13: PROJECT FINANCIAL ANALYSIS – 10 YEARS (N\$, 2001)

ITEM	1997 Year 0	98 Year 1	99 Year 2	0 Year 3	1 Year 4	2 Year 5	3 Year 6	Year 7	Year 8	Year 9	Year 10
EXPENDITURE											
Capital Expenditure	12772076	7572042	0	0	1086893	31973	1090635	467415	994500	0	0
Variable Expenditure	652042	3912253	6520421	6520421	6520421	6520421	6520421	6520421	6520421	6520421	6520421
Overhead Expenditure	3829891	3829891	3829891	3829891	3829891	3829891	3829891	3829891	3829891	3829891	3829891
TOTAL EXPENDITURE	17254009	15314186	10350312	10350312	11437205	10382285	11440947	10817727	11344812	10350312	10350312
INCOME											
Gross Income	1431266	8587595	14312659	14312659	14312659	14312659	14312659	14312659	14312659	14312659	14312659
Asset Residual Value	0	0	0	0	0	0	0	0	0	0	18633197
TOTAL INCOME	1431266	8587595	14312659	14312659	14312659	14312659	14312659	14312659	14312659	14312659	32945856
NET BENEFIT/COST	-15822743	-6726590	3962347	3962347	2875454	3930374	2871712	3494932	2967847	3962347	22595544
PROJECT FINANCIAL RATE OF RETURN (FRR) OVER 10 YEARS = 12.94%											
PROJECT NET PRESENT VALUE (NPV) @ 8.00% = 6648671 Per Hectare = 76.42											

APPENDIX 4: FINANCIAL/ECONOMIC MODEL 6 MEDIUM-SCALE TOURISM ON PRIVATE LAND 6 KARAS REGION 6 2001 6 BASE CASE

TABLE 14: ECONOMIC ANALYSIS – 5 YEARS (NS, 2000)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
ECONOMIC COSTS						
Capital Expenditure	11503745	6779844	0	0	1020441	28456
Unskilled Wages	347004	347004	347004	347004	347004	347004
Other Domestic Costs	1085002	2170005	2712506	2712506	2712506	2712506
Tradable Costs	434306	2605835	4343059	4343059	4343059	4343059
Foreign Amortisation	0	0	0	0	0	0
Foreign Profits	0	0	0	0	0	0
Foreign Loans Outst.	0	0	0	0	0	0
TOTAL COSTS	13370057	11902688	7402569	7402569	8423010	7431024
ECONOMIC BENEFITS						
Gross Income	1350256	8101537	13502562	13502562	13502562	13502562
Asset Residual Value	0	0	0	0	0	16878282
Foreign Financing	0	0	0	0	0	0
TOTAL BENEFITS	1350256	8101537	13502562	13502562	13502562	30380845
NET BENEFIT/COST	-12019801	-3801150	6099994	6099994	5079553	22949820
ECONOMIC RATE OF RETURN (ERR) OVER 5 YEARS = 28.51%						
NET PRESENT VALUE (NPV) @ 8.00% = 12857068 Per Hectare = 147.78						

TABLE 15: ECONOMIC ANALYSIS – 10 YEARS (NS, 2000)

ITEM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
ECONOMIC COSTS											
Capital Expenditure	11503745	6779844	0	0	1020441	28456	1028905	440959	938211	0	0
Unskilled Wages	347004	347004	347004	347004	347004	347004	347004	347004	347004	347004	347004
Other Domestic Costs	1085002	2170005	2712506	2712506	2712506	2712506	2712506	2712506	2712506	2712506	2712506
Tradable Costs	434306	2605835	4343059	4343059	4343059	4343059	4343059	4343059	4343059	4343059	4343059
Foreign Amortisation	0	0	0	0	0	0	0	0	0	0	0
Foreign Profits	0	0	0	0	0	0	0	0	0	0	0
Foreign Loans Outst.	0	0	0	0	0	0	0	0	0	0	0
TOTAL COSTS	13370057	11902688	7402569	7402569	8423010	7431024	8431474	7843528	8340780	7402569	7402569
ECONOMIC BENEFITS											
Gross Income	1350256	8101537	13502562	13502562	13502562	13502562	13502562	13502562	13502562	13502562	13502562
Asset Residual Value	0	0	0	0	0	0	0	0	0	0	16656982
Foreign Financing	0	0	0	0	0	0	0	0	0	0	0
TOTAL BENEFITS	1350256	8101537	13502562	13502562	13502562	13502562	13502562	13502562	13502562	13502562	30159545
NET BENEFIT/COST	-12019801	-3801150	6099994	6099994	5079553	6071538	5071089	5659034	5161782	6099994	22756976
ECONOMIC RATE OF RETURN (ERR) OVER 10 YEARS = 29.37%											
NET PRESENT VALUE (NPV) @ 8.00% = 23404949 Per Hectare = 269.02											

TABLE 16: SUMMARY OF ASSUMPTIONS AND RESULTS

ASSUMPTIONS	UNITS		TOTAL		
Land Extent	Hectares		87000		
Land Used	Hectares		87000		
Core Wildlife Area	Hectares		54245		
Stock on Land	Large Stock Units (LSU)		839		
"Economic" Carrying Capacity	Hectares per LSU Equivalent		60		
Stocking Rate	Hectares per LSU Equivalent		104		
Number of Lodges/Camps	No.		4		
Number of Tourist Beds	No.		142		
Tourism Intensity	Hectares per Tourist Bed		613		
Occupancy Rate	% Available Bed Nights Used per Annum		63%		
Long Term Borrowing	% of Initial Capital		25%		
Short Term Borrowing	% of Recurrent Costs		30%		
Jobs Created	No.		153		
<hr/>					
RESULTS	% of TCI		N\$/LSU	N\$/HECTARE	N\$
<hr/>					
Total Financial Capital (TCI)	6		28115.57	271.07	23583403
Financial Turnover		61%	17063.21	164.51	14312659
Variable Financial Costs	6		7773.49	74.95	6520421
Fixed Financial Costs	6		6896.34	66.49	5784665
Net Cash Income		8.5%	2393.38	23.08	2007573
Local Community Income		7.0%	1969.95	18.99	1652400
Land Rental	6		10.37	0.10	8700
Resource Royalty	6		0.00	0.00	0
Project FRR (@ 10 Years)	6	6		6	12.9%
Project FNPV (@ 8%, @ 10 Years)	6	6		76.42	6648671
Total Economic Capital	6		23382.34	225.44	19613155
Economic Gross Output		71%	16555.72	159.62	13886977
Economic Costs		46%	10695.75	103.12	8971621
Gross Value Added (GNI)		25%	5859.97	56.50	4915356
Net Value Added (NNI)		20%	4779.69	46.08	4009216
ERR (@ 10 Years)	6	6		6	29.4%
ENPV (@ 8%, @ 10 Years)	6	6		269.02	23404949
Economic Capital Cost/Job	6	6		6	128191
Domestic Resource Cost Ratio	6	6		6	0.69
Policy Analysis Matrix	: Effects of Policy / Market Imperfections		: on Output		425682
			: on Tradable Inputs		-260565
			: on Domestic Factors		-2166759
	: Net Effects of Policy / Market Imperfections		: on Annual Net Income		-2001643
			: on Net Present Value (10 Years)		-16756278