DEA RESEARCH DISCUSSION PAPER
Number 73
September 2005

Namibia's protected areas: Their economic worth and the feasibility of their financing

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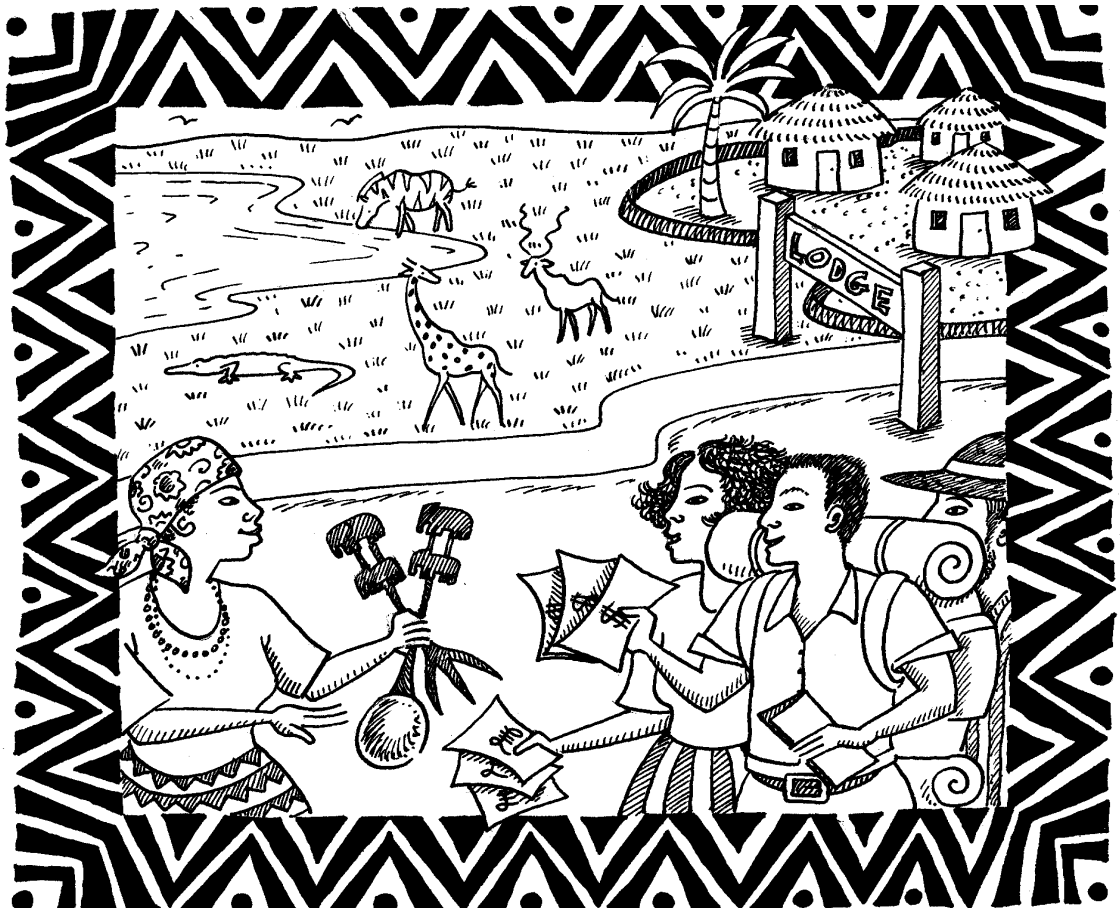

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Acknowledgements

This work was commissioned for the Ministry of Environment and Tourism's Strengthening the Projected Area Network (SPAN) Project. The study was funded by the United Nations Development Programme and the Global Environmental Facility through Namibia's Ministry of Environment and Tourism.

We are grateful to Ben Beytell of the Ministry's Directorate of Park and Wildlife Management and to Peter Mietzner of Namibia Wildlife Resorts Ltd for valuable discussions and data, as well as to several park managers, Dr John Mendelsohn and Chris Thouless for providing data. Members of the broader project team are gratefully acknowledged for their valuable inputs and guidance, particularly Midori Paxton, Dr Chris Brown, Dr Peter Tarr and Vernon Booth. The Directorate of Environmental Affairs kindly provided logistical support. Thanks also to Conrad Savy of Anchor Environmental Consultants for his assistance with the study.

All opinions and conclusions are the responsibility of the authors only, and should not be attributed to any of the above organisations or individuals. Any errors are also the responsibility of the authors only.

For further information on the SPAN Project and on other subcontracts commissioned under it, please visit www.span.org.na or email info@span.org.na.

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Abbreviations

GDP	gross domestic product
MET	Ministry of Environment and Tourism
NWR	Namibia Wildlife Resorts Ltd
SAM	Social Accounting Matrix
SPAN	Strengthening the Protected Areas Network (Project)
WTP	willingness to pay

Abstract

Given current limited budgetary allocations, Namibia's protected-area system fails not only to achieve its conservation objectives, but also to realise the true economic value that can be derived from it through nature-based tourism. This study investigated the economic value of non-consumptive tourism and other activities attributable to the presence of the parks system.

At present the aggregate expenditures made by tourists who visit the parks system result in an estimated annual direct contribution to GDP of between N$546 million and N$1,103 million (equivalent to 1.7% and 3.4% of GDP, respectively), depending on varying assumptions. The total annual contribution to GDP – or the total impact on GDP – resulting from these expenditures was estimated to range between N$1,013 million and N$2,022 million (equivalent to 3.1% and 6.3% of GDP, respectively). This total contribution includes the effects in the wider economy caused by backward linkages.

Some 20% of this income accrues to low-income segments of the population through wages, through returns to enterprises, and though rentals and royalties. In addition, some 17% of this total income accrues as revenues to Government from taxes and fees. This is very significant given the relatively small amounts of revenue derived by Government from park use and accommodation. It is also significant compared with the annual development and operational costs of managing the protected-area system – estimated to be in the region of N$40 million.

Increasing investment in the parks system to achieve their full development according to a common vision will require recurrent expenditures on improved management amounting to some N$127 million per annum. In addition, capital expenditure amounting to some N$155 million will be required. Cost-benefit analysis shows that this increased investment – given the value of Namibia's protected areas, assumptions on future growth in tourism to Namibia, and discount rates – will not only be economically efficient, but also socially justifiable and worthwhile. The rate of return to this investment has been estimated to lie in the area of 23%.

Current revenues to Government from parks can be enhanced considerably. The very high economic value of parks should help in drawing enhanced donor and central Government investment. Appropriate pricing and cost-cutting could enhance park use and accommodation revenues. Large amounts of new revenue could be generated though joint tourism ventures between Government and the private sector or communities.

Further research is needed on how to ensure the parks could contribute more to poverty alleviation in Namibia. Further research is also required on current protected-area tourism use patterns, protected-area demand characteristics, further evaluation and testing of a Wild Card system, and the further development of financial planning and monitoring systems.

1. INTRODUCTION

This paper is drawn from the full report (Turpie et al. 2004) for one of three subcontracts commissioned under a Project Design Phase B (PDF-B) grant to assist in preparing a project document for the United Nations Development Programme (UNDP)–Global Environmental Facility (GEF) project, known as the Strengthening the Protected Area Network in Namibia (SPAN) Project. The aim of the overall project is to safeguard the integrity of biodiversity and enhance the contribution of protected areas to Namibia's development process. The main aims of the economic analysis subcontract were to describe the economic value of and investigate options for improving financing of the protected-area system.

Although Namibia's protected-area system has significant economic value from the direct and indirect income it generates through tourism and wildlife industries, its management is heavily dependent on insufficient budgetary appropriation. Consequently, the protected-area system currently fails to meet its conservation objectives. Limited investment results largely from the limited knowledge and scant recognition of the current and potential future economic value of the protected-area system. Yet, under-funded protected areas are more liable to become a drain on public funds than a source of economic benefit. The survival and success of protected areas will increasingly depend on strengthening funding through international grants and Government support.

Based on cost-benefit calculations, this paper will analyse whether future investment into Namibia's protected-area system is economically and socially justified. It will –

- provide a brief background on the protected-area system and tourism industry
- demonstrate the current and potential future economic benefits that the protected-area system will generate
- identify and analyse current costs and future capital requirements to enhance the protected-area system, and
- suggest a financing plan through which the protected-area system could be strengthened to achieve its conservation objectives and fully capitalise on its economic value.

2. BACKGROUND

2.1 The protected-area system in Namibia

Approximately 14.1% of Namibia is formally protected within a network of 21 national parks, game reserves and recreational areas (Barnard et al. 1998; Mendelsohn et al. 2000).[1] The main aim of the protected-area system is the conservation of biodiversity (Richardson 1998); however, the current system of protected areas is considered to be a legacy of ideological, sociological and veterinary factors with little consideration of biodiversity conservation requirements (Barnard et al. 1998). As a result, its ability to conserve a representative set of Namibian diversity has been described as seriously inadequate (Barnard et al. 1998). Nevertheless, the protected-area system provides an important core to a greater

[1] This area will be greatly expanded – to around 17% of Namibia – with the proclamation of the Sperrgebiet.

system of conservation areas that are both ecologically and economically linked.[2] All protected areas are managed and run by the Government by way of the Ministry of Environment and Tourism (MET). Since 1999, Namibia Wildlife Resorts Ltd (NWR), a parastatal company, has managed the resorts within the protected-area system. In addition, the NWR was entrusted to collect entry fees for parks until the end of March 2004.

2.2 The tourism sector

The tourism industry in Namibia is widely viewed as having major potential for economic growth and development, with international arrivals having grown steadily over the past 15 years to over 600,000 in recent years (MET 2004; Stubenrauch Planning Consultants 2004), and an average growth rate of around 16% a year over that period. This growth is reflected in the escalation in the tourism industry's output, which averaged at 14% a year between 1991 and 1996[3], significantly higher than growth rates in other sectors of the economy during the same period (Suich 2001).

Nature-based tourism[4] activities (nature and landscape touring – 51%, game viewing – 45%) are the top reason most visitors give for coming to Namibia (SIAPAC 2003). These are also the most commonly named leisure activities after shopping. This represents a change from 1997, when game viewing (73%) and bird-watching (62%) were the most common leisure activities. However, respondents in the SIAPAC (2003) study rated nature-based tourism activities as the most important of those associated with leisure (nature/landscape touring – 32%, game viewing – 26%), followed by shopping (11%) and fishing (8%). Only 4% of respondents rated hunting as most important. In terms of attractions, natural areas – on communal or private land – and designated protected areas made up half of the locations which attracted 10% or more of visitors surveyed, the remainder being towns and cities (SIAPAC 2003). Nine of the locations correspond to areas falling inside protected areas.

2.3 Value of nature-based tourism

The nature-based segment of the tourism market has been difficult to isolate from overall tourism within Namibia, but it is likely to be a large part of the market. Expenditure in this market segment has been estimated to contribute to 65% of all holiday expenditures (Hoff & Overgaard 1993, cited in Richardson 1998; Krug et al. 2002). According to Humavindu and Barnes' (2003) estimates, the contribution of nature-based tourism to the tourism sector is 75%. Within protected areas, the main tourism values are associated with non-consumptive wildlife or landscape viewing, with much of this value derived from foreign visitors. Yet, despite its small shares, trophy hunting and sales of live animals are still an important

[2] It is necessary to mention that wildlife and biodiversity conservation in Namibia is not confined to the protected areas system: the few scattered parks in the central areas are supplemented by a cluster of adjoining conservancies and similar, privately protected areas on private and communal lands, which add a further 14% of the total Namibian land surface to the conservation estate. The majority of this additional land (62%) occurs as registered or developing conservancies on communal lands. The remainder is on freehold land (33%) or classified as "forest conservancy" (4%). This pattern of conserved lands surrounding designated protected areas suggests that protected areas may have value in acting as regional magnets for development of private and communal nature-based tourism and wildlife enterprises (Ashley & Barnes 1996).

[3] Further evidence suggests that this rate may have increased (Suich 2001).

[4] *Nature-based tourism* is defined as "Tourism that involves travelling to relatively undisturbed natural areas with the specific objective of studying, admiring and enjoying the scenery, fauna and flora, either directly or in conjunction with activities such as trekking, canoeing, mountain biking, hunting and fishing" (adapted from Krug 2003).

contribution to overall values (Ashley et al. 1994; Barnes 1995b; Humavindu & Barnes 2003; Richardson 1998). The direct economic use values associated with wildlife-viewing tourism in 1995 were estimated by Barnes et al. (1997) to be in the region of N$398 million (US$108 m) a year. After subtracting foreigners' consumer surplus and an adjustment for foreign exchange, the total value accruing to Namibia was estimated to be N$280.3 million, of which N$30.3 million was Namibian tourists' consumer surplus.

According to a Stubenrauch Planning Consultants study (2004), the importance of nature-based tourism in the accommodation segment of the tourism industry, namely hunting lodges, guest farms and other lodges, is particularly high in terms of number of businesses (60%) and levels of employment in the industry (67%, including rest camps). Furthermore, the labour-intensive nature of nature-based tourism enterprises has been identified as one of the key factors contributing to their economic advantage over traditional livestock farming models in Namibia (Barnes & De Jager 1995).

3. THE TOURISM VALUE OF THE PROTECTED-AREA SYSTEM

3.1 Approach

The total economic value generated by protected areas can be categorised into different types of value, providing a useful framework for analysis.

- Direct use values are generated by the consumptive and non-consumptive use of park resources. In the case of Namibia's protected areas, most of this value is non-consumptive tourism value. Consumptive values include the tourism value generated by the six hunting concessions within protected areas. In addition, protected areas provide a source of live game for sale to private enterprises; they supply game to neighbouring conservancies through translocation programmes; and they provide game meat to drought relief programmes.

- Indirect use values are generated by outputs from the protected-area system that form inputs into production by other sectors of the economy, or that contribute to net economic outputs elsewhere by saving on costs. These outputs are derived from ecosystem functioning. Ecosystems potentially provide a wide range of such services. For example, Namibia's protected areas may contribute to some extent to carbon sequestration, water supply and regulation, and providing refugia and cultural values. However, these indirect use values have not been quantified in physical or monetary terms.

- Non-use values include option and existence value. *Option value* is the value of retaining the option to use resources in future, and is often associated with the genetic diversity of protected areas, the future potential value of which is unknown. *Existence value* is the value that society derives from knowing that the biodiversity in protected areas is preserved. These values are measurable to an extent, and are often shown to be much larger than direct use values. Some partial estimates of these values have been made for Namibia. Namibian tourists have been shown to be willing to pay N$104 per person towards wildlife conservation, amounting to at least N$28.7 million. International willingness to pay is also reflected in donor contributions to the wildlife sector, which amounted to some N$54 million in 2003/04.

Given data limitations, in order to calculate the economic benefits that are derived from Namibia's protected-area system, this study focused only on quantifying direct use values. In Namibia's protected areas, direct use values are mainly associated with tourism activities.

The general approach to calculating the protected-area system contribution to income and, thus, GDP was as follows:[5]

(a) Estimate the number of visitor days and the number of visitors to parks (separated by visitor origin), first by park and then in total
(b) Estimate direct expenditure in protected areas in the form of park fees and accommodation expenses
(c) Estimate total tourism expenditure attributed to protected areas, based on visitor numbers and existing survey data on expenditure patterns
(d) Disaggregate this expenditure into different categories, e.g. accommodation
(e) Further disaggregate accommodation expenditure into different types of accommodation as far as possible, aided by an analysis of where expenditure takes place in accommodation establishments near to parks
(f) For each type of accommodation establishment, estimate the distribution of turnover and the distribution of expenditure on intermediate goods and services for incorporation into a macroeconomic analysis
(g) Expand Namibia's Social Accounting Matrix to include the main types of accommodation used by tourists to build a "protected-area tourism" sector, and
(h) Estimate the direct value added and total value added to Namibia's economy by the expenditure generated by protected-area tourism.

3.2 Expenditure

3.2.1 Visitor numbers

Various studies have estimated the origins[6] of visitors to Namibia and to Namibia's parks. It is widely asserted that about 30% of Namibia's tourists (e.g. Suich 2001) and 30% of visitors to Namibia's protected areas (e.g. Krug 2003) are Namibian residents, the remainder being regional or overseas visitors. The number of tourists visiting each of the parks was estimated on the basis of 2003 bed-night occupancy data supplied by the NWR.[7] The data cover booked and paid bed-nights by all guests at all sites from 1 January to 21 December, excluding cancellations, no-shows or other unpaid bed-nights. This analysis covered only the 24 different resorts, camping areas or hiking trails within 12 of the country's protected areas; it excluded Duwisib Castle, the Reho Spa and Shark Island, which also fall under the NWR. The raw data provided by the NWR did not include any information on the number of day visits or on the total number of visitors to different parks. These numbers were obtained from forecast data for the 2004 financial year (unpublished NWR data, 2003).[8] For the remaining protected areas without any NWR accommodation facilities, the number of visitors was obtained directly from park wardens and staff who record the data. Recognising that many visitors are likely to have visited more than one park, it was necessary to estimate the average number of parks visited per visitor in order to calculate the total number of tourists involved.

[5] Research methods employed in this study will be outlined more specifically in the respective sections.
[6] The origin of visitors is particular important since overseas visitors spend more per day and have higher consumer surpluses than Namibian and regional tourists (Stoltz 1996).
[7] The NWR is responsible for all tourist accommodation within the protected area network.
[8] For comparative purposes, Krug (2003) is the only data source that presents estimates of total visitor numbers and day visits in conjunction with bed-night data, in this case for Etosha National Park in 1999.

Table 1 provides an overview of the estimated numbers of people that visited protected areas in Namibia in 2003. Two estimates, an upper bound one and a lower bound one, were made based on different assumptions about the average number of parks visited by each visitor (which was not known).

Table 1: Estimated total numbers of people that visited protected areas in Namibia in 2003, under different assumptions about numbers of parks visited by visitors

Estimate	Assumptions	Domestic	Regional	Overseas	Total
Upper bound	1 park per visitor	109,825	92,580	180,034	382,439
Lower bound	1.15 parks per domestic visitor, 2.3 parks per foreign visitor	95,500	40,252	78,276	214,028

3.2.2 Expenditure and accommodation within protected areas

Expenditure on accommodation was estimated on the basis of bed-night occupancy data supplied by the NWR.[9] NWR accommodation prices and tariffs for 2003/04 were obtained from the NWR website and cross-referenced with information brochures provided online via tourist bureau websites. In most cases, income from accommodation was calculated by multiplying the number of days per year during which a specific accommodation unit was occupied, by the per-unit rate. Based on the above, tourist expenditure on NWR accommodation within protected areas was estimated to be N$52.4 million during 2003, which is higher than the projected 2003/04 income of N$38.7 million (NWR 2003). The preliminary estimate of total revenue for the NWR for the 2004 financial year was N$104.3 million (ibid.).[10]

3.2.3 Expenditure on park fees

Gate fees[11] were estimated on the basis of visitor numbers and estimated vehicle numbers for all resorts where the NWR collected such fees. For the remaining parks, gate fees paid were obtained from park managers.[12] The average occupancy of cars was estimated to be 2.75 visitors and 20 per bus.[13] Income from vehicle fees was calculated from the rate for cars and the mean tariff for buses of various sizes. The estimated total revenue to protected areas generated by gate fees was in the order of N$16.3 million in 2003, with over 80% of this from park fees, and the remainder from vehicle fees.

3.2.4 Overall tourism expenditure attributable to protected areas

To determine spending by non-Namibian tourists, the mean of the values given by Barnes et al. (1997), SIAPAC (2003) and Stoltz (1996) was used. For Namibian tourists, a mean of the figures from Krug (2003) and Barnes et al. (1997) was used. These two mean values were then multiplied by the number of tourists from different origins, on a park-by-park basis. Table 2 shows the estimates of total expenditure by wildlife-viewing visitors to Namibia's national parks (N$ million).

[9] This included the number of days a year during which a particular accommodation unit was occupied and paid for, as many accommodation units are charged on a unit-per-night basis rather than person-per-night.
[10] This includes restaurants, shops and petrol stations, among others.
[11] Gate fees include (a) a daily park usage fee of N$20 (N$30 for Etosha and Sossusvlei) and (b) a once-off vehicle entry fee for all users. Namibians receive a 50% discount, and children under 16 pay N$2 per day. Due to a lack of information, it was assumed that 90% of visitors were adults.
[12] Data could not be obtained from the Naute Recreational Resort.
[13] Based on parks for which visitor numbers, vehicle numbers and income were known.

Table 2: Estimates of the total expenditure by wildlife-viewing visitors to Namibia's protected areas (N$ million)

Estimate	Domestic	Regional	Overseas	TOTAL From wildlife-viewing tourism	TOTAL including hunting tourism
Upper bound (382,439 visitors)	268.0	337.9	1,653.2	2,259.1	**2,332.4**
Lower bound (214,028 visitors)	233.0	146.9	718.8	1,098.7	**1,172.0**

These figures are relatively low compared with overall tourist expenditure in Namibia, which has been estimated to lie between N$1.49 billion (domestic and foreign; Stubenrauch Planning Consultants 2004) and N$4.81 billion (foreign only; Lange 2004), depending on how they are calculated. In comparison, Ashley & Barnes (1996) estimated that wildlife-related tourism expenditure (including activities other than visiting protected areas) makes up 70% of total tourism expenditure.

3.2.5 Distribution of expenditure

It is estimated that about 36% of visitors' in-country budget is spent on accommodation. Thus, the estimated amount of expenditure on accommodation ranges from N$417–830 million. On the one hand, this accrues to NWR resorts, while the remaining amount is spent in a variety of accommodation establishments outside of protected areas. Given the assumption that much of expenditure takes place in the accommodation establishment surrounding protected areas, the remaining expenditure patterns are likely to follow those of tourists in general. Thus, we concentrated on examining the proportion of different accommodation types available around protected areas that were likely to be highly dependent on their proximity to protected areas for their business. Tourist expenditure in these accommodation establishments was estimated at N$295 million.[14]

3.3 Value added: Impact on GDP and income distribution (a SAM-based analysis)

The impact of tourism expenditure in protected areas can be estimated to some extent by measuring direct and indirect income generated by tourism activities:

- *Direct income* or *value added* results from total expenditure generated through the purchases of tourism services,[15] and refers to that part of expenditure that is turned into income. In this study, direct value added by tourism expenditure on accommodation was estimated using enterprise models constructed in MS Excel for different types of accommodation enterprises. Data sources included a variety of published models developed by Barnes and others (e.g. Barnes 1995a, 1995b; Barnes & De Jager 1995; Barnes et al. 2002; Barnes & Humavindu 2003).
- *Indirect income* is derived from the demand generated in the rest of the economy by the tourism industry (also referred to as *backward linkages* or *upstream linkage* in the supply chain), which results from purchases by direct suppliers of tourist goods and services, and which creates further employment and income. The total economy-wide

[14] It is necessary to keep in mind that although these establishments may be heavily dependent on the protected-area system, not all of this turnover can be attributed to protected areas.

[15] Accommodation, restaurants, transportation services, crafts, recreation, cultural services, etc.

effect is then the sum of the direct plus the indirect impacts, which was estimated using multiplier analysis (Pyatt & Round 1984).

To analyse the distributional impacts at the household level, a Social Accounting Matrix (SAM) was used to analyse the effects on employment, incomes and poverty.[16]

3.3.1 Contribution to GDP

The impact of protected-area tourism on the national economy was calculated for two scenarios: a lower bound estimate and an upper bound estimate of protected-area tourism expenditure. As Table 3 shows, the *direct* contribution to GDP ranges from N$546 to N$1,103, which was roughly 1.7% to 3.4% of GDP in 2003. The *total* contribution (including indirect spin-offs) is much higher, amounting to N$1,013 to N$2,022 million or 3.1% to 6.3% of GDP. The GDP multiplier – the indirect stimulus from protected-area tourism to the rest of the economy – is 1.86 or 1.83 under the lower and upper bound estimates, respectively.[17]

Table 3: Contribution of protected-area tourism to GDP, 2003 (N$ million)

Contribution	Lower bound estimate	Upper bound estimate
Total protected-area tourism expenditure[18]	1,172	2,332
Contribution to GDP		
- Direct impact	546	1,103
- Total impact	1,013	2,022
- Multiplier	1.86	1.83
Protected-area tourism: Share of GDP[19]		
- Direct impact	1.7%	3.4%
- Total impact	3.1%	6.3%

3.3.2 Distribution of factor income

In all cases – lower and upper bound, direct and total – gross operating surplus is the largest component of income, amounting to around 45% of total income generated. Payments to labour constitute 29% of total labour income generated. For mixed income in agriculture, commercial farmers receive 5% of the total income. Traditional agriculture benefits directly from tourism due to the demand for crafts, and the income received by this sector amounts to some 4% of the total. Rent and royalties to communal lands used for protected-area tourism are generated by specific types of tourist accommodation and constitute a very small share of total incomes (less than 1%). Overall, low-income households receive some 22% of direct income, and 21% of total income, generated as a result of parks.[20] Another interesting finding is that the Government receives 17% of the total income generated through taxes on

[16] SAMs expand the national accounts in the format of a table that shows the linkages among all components of an economy: production and generation of income; distribution of income; expenditures; savings and investment; and foreign trade. Because SAMs provide detailed information about different types of households – how they receive and spend their income – they are used to analyse the distributional impacts of policy. There is an extensive literature on using SAMs (see Sinclair 1998 for a literature survey) and related input-output models for tourism analysis, which are used routinely by the World Travel and Tourism Council. In 2004, an SAM was constructed for Namibia (Lange et al. 2004), which has since been expanded for analysing protected-area tourism. A detailed description of the SAM framework, the protected-area tourism SAM, and the mathematical model used for calculations is provided in the full report on this study (Turpie et al. 2004).

[17] The multipliers are slightly different for the lower and upper bound estimates because the composition of tourist expenditures is slightly different for each estimate.

[18] Estimate from this study, as presented in Table 1.

[19] GDP in 2003 = $32,309 million (NPC 2004).

[20] This is the result of employment, traditional enterprises and rents/royalties.

production and products. Only a small part of this government revenue is the result of park use fees and park accommodation: most of it is the result of taxes on economic activity outside the parks system. When all this revenue resulting from the existence of parks is taken into account, Government revenues significantly exceed Government expenditures on parks.

3.3.3 Distribution of income among households

Income distribution among households is analysed through the SAM, which tracks primary and secondary income distribution.

- Primary income distribution:[21] According to the SAM, households receive 37% of all incomes, of which rural households receive 16% and urban households 20%. Another 39% is received by enterprises as part of the gross operating surplus, and 20% accrues to Government via taxes on production and products, plus a portion of the gross operating surplus for certain Government enterprises. The non-profit institutions serving households receive less than 1% of total income.
- Secondary income distribution:[22] Apart from Government, institutions are affected only negligibly by the payment of taxes and transfers or by secondary incomes.

In order to adequately account for total economic impacts, it is necessary to take dynamics such as trade balances and leakages into consideration: The total import effect of tourism is not immediately apparent from the figures for direct imports for tourism expenditures, as services are predominately provided domestically. However, these services have high import content, resulting in a high import multiplier (over 5 for both lower and upper bound estimates). Apart from petroleum products, it is likely that many imports are obtained in the southern African region; thus, although imports may not benefit Namibia, at least they may benefit the region.

Much of the expenditure by foreign tourists takes place outside the country by way of tours, airfares and travel gear – which are effectively leakages from the Namibian economy – including money spent on imports. These leakages dilute the economic impact of total expenditure by foreign tourists. Yet, a recent study in Namibia suggests that leakages are relatively small in Namibia, thanks to a relatively high proportion of local ownership of tourism enterprises (Relly 2004).

4. COSTS OF THE PROTECTED-AREA SYSTEM

Although the protected-area system can be shown to generate significant benefits to society, it is important to evaluate these benefits in the light of the costs that they incur. Even if the current costs are justifiable, the protected-area system is not adequately meeting its conservation objectives, and could provide greater benefits if better managed. In this study we estimate the costs of realising the above-mentioned vision for the country's protected areas, which will ultimately feed into the analysis whether the increased investment required for this vision would be economically justified, by means of a cost-benefit analysis.

[21] Distribution of factor incomes earned from production.
[22] Distribution of incomes, which takes into account transfer payments among institutions and payment of taxes on incomes and profits.

4.1 Current costs of the protected-area system

Four cost factors have been analysed to calculate current costs of the protected-area system, namely –

- development and management costs of the protected-area network
- tourism-related costs
- indirect costs, and
- opportunity costs.

4.1.1 Development and management costs of the protected-area network

At the time of research, about 46% (some N$21 million) of the total budget of the MET's Directorate of Parks and Wildlife Management is spent directly on protected areas. When the costs of scientific services, administration and support services (provided by separate Directorates within the Ministry) are added, current human resource costs for parks and wildlife management increase by about 50% to N$33 million. To this should be added an annual expenditure on protected-area development of about N$4 million, bringing the estimated total to N$37 million, which is somewhat lower than the amount budgeted by the MET for protected-area management, which stands at about N$43 million (unpublished MET data, 2004). Thus, we estimate the total annual development and operational costs of managing the protected-area system to be in the region of N$40 million.[23]

4.1.2 Tourism-related costs

The costs associated with tourist facilities are borne by the NWR, whose annual operating costs budgeted for 2003/04 were about N$116 million – although these would amount to N$129 if development plans go ahead (NWR 2003). Actual expenditure is assumed to fall within this range. Given that 97% of NWR resort beds are in protected areas, just about all of this can be assumed to be spent within protected areas.

4.1.3 Indirect costs

Indirect costs are negative impacts that arise from the protection of wildlife, i.e. mainly human–wildlife conflict such as crop damage, damage to buildings, damage to infrastructure, and injury. While many incidents have been documented, there is no systemic data collection or statistical analysis that yields an estimate of total indirect costs of Namibia's protected areas.

4.1.4 Opportunity costs

In Namibia, no estimates have been made regarding opportunity costs arising from the use of land as protected areas rather than other land uses. However, these costs are probably relatively low. Much of the protected-area estate is desert, which has little or no agricultural value. Most of the remaining area is north of the veterinary cordon fence, which limits the export of cattle and most game animals.

[23] As the midpoint of a range between N$37 and N$43 million.

4.2 The cost of developing a more effective protected-area system

Even if the current costs are justifiable, the protected-area system is not adequately meeting its conservation objectives, and could provide greater benefits if better managed. Another component of work in the SPAN Project investigated the way in which the protected-area system might better address Namibia's conservation needs. A further component addressed the institutional structure and support required to facilitate the effective implementation of this vision. Through the use of cost-benefit analysis, we addressed the question as to whether the increased investment required for this vision would be economically justified.

4.2.1 Approach

The costs of a more efficient protected-area system were estimated using a spreadsheet model which generates a staff structure and annual recurrent expenditure budget for parks, based on factors such as park size and priority issues. The steps that the model uses to derive the final budget are to –

- design the staff structure
- calculate the human resources costs of this structure using the salary scales currently in place, and
- estimate the operating costs needed for this staff complement to be able to function effectively.

The model estimated operating costs for the protected areas only. Capital investment required was estimated on the basis of the existing management plans for protected areas. This section does not take into account any potential incremental effect on conservation costs if the number of tourist beds were to be increased.

The suggested high-level institutional structure entails the Directorate of Parks and Wildlife Management being divided into three directorates, each governing conservation activities in (1) the north-west (incorporating Etosha and the Skeleton Coast), (2) the north-east, and (3) the south-central areas.

The model makes provision to input scores for variables that influence the staffing structures and overall costs of management.[24] Having set the scene, the model uses a set of formulae to produce estimates of required staff numbers and operating costs. The latter were estimated in a two-stage process:

- A nominal budget was calculated, making the assumption that staff salaries should not exceed a given proportion of the total budget, and
- This first-cut budget was then adjusted according to a checklist of factors that were likely to give rise to operating costs that were higher than average.

4.2.2 Estimated costs

It is estimated that the effective management of this system (which includes the Sperrgebiet) would require some 1,500 staff, 438 of which are in tourism-related activities. As Table 4 shows, an annual recurrent expenditure of N$127 million would be required, of which N$106

[24] Including size and vegetation characteristics, numbers of visitors and visitor facilities, the presence of dangerous animals (e.g. elephants, buffalo, rhino, lions), conservation importance and international status, presence of valuable species, ecological challenges to management (e.g. alien species, propensity for fires, etc.), and human challenges (perimeter length, neighbouring populations).

is for conservation management and N$21 million is specifically for managing tourism establishments.[25]

Table 4: Estimated total required annual recurrent costs of the protected-area system (N$)[26]

Parks	Direct conservation costs	Cluster costs	Head office costs	Tourism costs
North-west				
Etosha	12,108,749	3,139,923	8,472,869	6,494,221
Skeleton Coast	5,927,903	2,549,598	528,366	804,355
West Coast Recreation Area	6,024,756	576,479	119,467	2,118,695
North-east				
Kwando Section	1,582,413	747,895	35,454	117,221
Mudumu	1,840,764	747,895	35,454	207,129
Mamili	1,465,345	770,332	36,518	213,390
Forest Reserve	2,346,212	544,455	25,810	113,559
Babwata	3,757,488	451,562	25,810	212,595
Buffalo Area	1,697,397	886,087	50,646	216,927
Mahango	1,163,815	886,087	50,646	210,675
Popa Falls	221,757	818,117	46,761	343,905
Khaudum	3,649,825	231,500	50,096	322,605
Mangetti	1,214,157	23,854	5,162	115,617
Waterberg	2,377,555	4,694,216	1, 015,822	2,145,219
South-central				
Namib-Naukluft	8,997,320	2,050,292	1,568,858	1,311,789
Sperrgebiet	5,974,225	1,071,122	819,609	648,354
Ai-Ais	2,701,680	1,131,309	865,664	1,765,698
Hardap Recreation Resort	1,757,077	1,153,158	278,699	1,463,191
Naute Recreation Resort	1,079,941	213,584	51,620	78,549
Von Bach Recreation Resort	396,309	189,954	45,909	425,746
Daan Viljoen	425,897	552,300	133,482	468,363
Gross Barmen	249,628	1,070,281	258,669	902,110
Subtotal	66,960,212	24,500,000	14,521,390	20,699,914
CUMULATIVE TOTALS			**105,981,602**	**126,681,516**

4.2.3 Estimated capital cost requirements

Management plans have recently been drawn up for several protected areas. These plans include a provision for the capital outlay required for the improved management of the parks.[27] In addition, the NWR has devised a plan in which capital expenditure is envisaged to upgrade their tourist establishments. Total capital requirements for park development (excluding NWR resorts) over the next 56 years are anticipated to be in the order of N$155 million (Table 5). In addition to these requirements, the NWR's Master Development Plan requires an initial capital expenditure budget of N$70 million for infrastructure refurbishments and developments at different resorts, as well as corporate capital expenditure projects amounting to N$23 million.[28]

[25] In comparison, the Kruger National Park in South Africa has a conservation management cost of R105 million.

[26] Cluster and head office costs are centralised, but are assigned here to parks in proportion to their income-generating capability.

[27] In most cases, this includes the upgrading of buildings such as staff quarters, the purchase of equipment and vehicles, the erection of fences, and the construction or upgrading of roads.

[28] The above capital costs all exclude the implementation costs involved (e.g. tender process, costs of a project coordinator).

Table 5: Estimated capital expenditure required by protected areas (N$ millions)

Park	Buildings	Equipment & vehicles	Fences	Roads	TOTAL
Ai-Ais	4,100,000	2,525,000	540,000	5,325,000	12,490,000
Etosha[1]					3,000,000
Khaudum	3,364,167	7,406,000	–	–	10,770,167
Kwando-Caprivi	4,115,000	3,188,000	–	37,500	7,340,500
Mahango	4,191,667	4,811,000	–	300,000	9,302,667
Mamili	1,170,000	1,118,000	–	–	2,288,000
Mangetti	732,500	1,295,000	–	–	2,027,500
Mudumu	1,817,500	2,611,000	–	15,000	4,443,500
Namib-Naukluft	7,310,000	12,490,000	3,250,000	65,500,000	88,550,000
Remaining parks[1]					15,000,000
TOTAL					**155, 212,334**

[1] Rough estimates, this study

4.3 Is increased investment in the protected-area system economically justifiable?

The economic benefits of the protected-area system clearly outweigh the costs involved in its management. Capital costs of the existing system have been met in the past and total current costs in the order of N$160 million yield economic benefits in the range of N$940 to N$1,900 million. However, the question remains whether increased investment in an improved protected-area system would be economically justified. This was determined by a means of a simple cost-benefit analysis.

In this analysis we compared the anticipated incremental benefits that should be generated as a result of the additional capital and recurrent costs involved in implementing the vision for the protected-area system over the next 20 years. These additional costs are the difference between existing and proposed capital and operating expenditure, and include both conservation and tourism-related costs. Tourism benefits are derived in terms of increased demand, which is additional to the expected growth in tourism due to exogenous effects. Variables considered in the analysis include the current value added by tourism, the exogenously determined growth in protected-area tourism, additional growth in tourism ascribed to protected-area improvements, and the discount rate.

Under the most likely scenario of incremental growth in total value added to the economy due to increased investment in the protected-area system, the 20-year net present value (NPV) of Namibia's protected-area system is estimated to be in the order of N$17 billion.[29] The rate of return on the additional investments proposed above is at least 23%. Some 20% of the additional value added generated through investments in the protected-area system can be expected to go to unskilled labour, traditional farmers and communal lands (in the form of tourism-derived royalties) – thus contributing to poverty alleviation.

The results of the sensitivity analysis show that the 20-year NPV of the protected-area system is highly sensitive to the underlying assumptions outlined above. *Without* any additional investment, and using a 6% discount rate, the 20-year NPV of protected areas ranged between N$11–20 billion and N$24–40 billion (lower and upper bound values), depending on different assumptions about the rate of exogenously determined growth. *With* investment in

[29] Note that the benefits are dominated by tourism's value, and that the value of increased wildlife stocks is relatively small.

the protected-area system, additional tourism growth can be expected, and the NPV estimates ranged between N$10–26 billion and N$25–57 billion (lower and upper bound estimates).

The most important sensitivity analysis applies to the rate of return on investment. This shows that the assumed additional tourism growth due to improvement in the protected-area system is critical in determining whether the investment is worthwhile. If this incremental growth is less than 1% then the returns could be small or non-existent. However, the latter is considered to be an extremely conservative scenario and the probability of the investment being worthwhile is relatively high.

In conclusion, investment in the protected-area system is likely to yield positive returns and substantial benefits in terms of overall economic growth and poverty alleviation, given that the potential increase in tourism demand created by this investment is realised. This will require that investments are well spent – taking cognisance of consumer needs and wants, and that the added benefits are well marketed by the Namibia Tourism Board.

5. FINANCING A MORE EFFECTIVE PROTECTED-AREA SYSTEM

In spite of generating considerable economic income for Namibia, and indeed considerable financial revenue in the form of taxes in the wider economy for the Government, the protected-area system generates comparatively little direct revenue for Government from park usage and accommodation fees. In general, the revenues generated annually amount to less than half of the operating costs. Currently, accommodation and gate fees account for over 90% of income generated. Whereas the income generated by the NWR, including a proportion of the gate fees taken, goes directly to the parastatal, the remaining income generated by the parks goes to the central Government Treasury and to two trust funds.

It is of paramount importance to increase the efficiency with which existing funding is used, when funds are scarce. With a more efficiently managed protected-area system, which is more effective in terms of meeting its conservation objectives, capital costs of at least N$155 million will need to be incurred, and operating costs will escalate by about N$77 million a year. Thus, even with greater efficiency, the overall costs of managing protected areas as part of achieving the vision of an effective protected-area system in Namibia will be considerably higher than they are at present. This vision needs to be financed – and the more self-sufficiency involved, the better. In this section, possible options for increasing the revenues generated by the protected-area system are discussed, with suggestions for the development of a preliminary financing plan.

5.1 Potential sources of funds

Government remains the primary source of funding for protected-area systems around the world. Nevertheless, the level of Government funding varies dramatically from country to country, and is often perceived to be lower than would be justified by the economic value generated from such areas. One of the main reasons for this is the lack of knowledge of the value of protected-area systems, and that despite their high economic value, protected areas must still compete with other budgets for scarce financial resources from central treasuries. Currently, in Namibia, only about 40% of the recurrent budgets requested by the parks are met (Ministry of Finance data). Nevertheless, the more direct revenues they generate for Government, the better the case is for increasing levels of funding. Maximising the revenues generated by protected areas is, thus, considered a priority within the MET.

Table 6 provides an overview over potential sources of funding apart from Government, the feasibility of each of which is described in this section. Sources other than Government and donor funding could generate an estimated N$52–63 million, compared to the roughly N$19 million that is currently generated. This additional funding would go a long way towards covering the desired recurrent costs of the protected-area system, i.e. about N$105 million. However, not all of these financing mechanisms are equally easy to implement.

Table 6: Potential sources of funding apart from Government

Source	Current income	Potential income
Donor funding	< N$2.5 million	Related to fundraising effort and attractiveness of protected-area system
Visitor fees	N$16 million	N$20–25 million
Tourism royalties	< N$0.5 million	N$16 million
Hunting concessions	N$3.9 million	N$4–6.5 million
Sales of live game	< N$0.5 million*	N$12–15 million
Harvesting of plant material and bioprospecting	None	Unknown value, probably not large
Payments for ecosystem services	None	Unlikely to be viable
Known total	N$19 million	N$52–63 million

* Estimated medium-term average, based on a single auction

5.2 Donor funding

Donor funding is already a major source of funding of natural resource management in Namibia, but relatively little is directed at protected areas. Donors are not typically interested in committing to covering recurrent costs, but potentially provide a good opportunity to cover some of the capital costs required to establish the vision of a more efficient protected-area system. This could include funding for technical assistance, planning, baseline research, and development. It is probably worthwhile establishing a dedicated role within the Directorate of Parks and Wildlife Management of sourcing such funding. Attracting donor funding will be a critical component of the financing plan for Namibia's protected areas, especially for covering some of the initial outlay required, but it is difficult to estimate how much is potentially available. The amount of donor funding that could be raised will be dependent on the effort dedicated to fundraising (i.e. involving fundraising costs), and will also be contingent on donors being convinced of the long-term benefits to parks and/or economic upliftment.

5.3 Park fees

As quoted in Namibia Dollars, prices have remained static since 1998. However, in reality, park entry has become cheaper for Namibian and South African tourists since they have not tracked inflation, and they have fluctuated quite dramatically in foreign currency equivalents. Overall, the parks have become cheaper to most users, although the dramatic recovery of the South African Rand over the last two years has made them relatively more expensive for overseas visitors. Park entry (as well as other tourism costs) became increasingly cheap until 2002, but has now reverted to 1998 levels, possibly largely explaining the recent slow-down in tourism growth.

Fees are usually set without proper analysis of demand and supply, with the result that parks tend to be underpriced. Visitors to protected areas often pay less than they would be willing to pay for entry and services such as accommodation and guiding. The differential between

what they are willing to pay and what they actually pay is the consumers' surplus. If the aim is to maximise revenues from park fees, this consumers' surplus should be 'captured' as far as possible. Capturing this consumers' surplus is not entirely straightforward, however, since raising prices has impacts on aggregate demand. This effect is also felt between parks, since raising the price at one park leads to substitution effects among other parks and affects the optimal prices at those parks. It is critically important, therefore, to understand the characteristics of the demand for the use of protected areas

5.3.1 Capturing consumers surplus: Pricing and payment systems

As with other southern and east African studies, studies in Namibia[30] have found that foreign tourists have a much higher consumers' surplus than local tourists, and account for most of the uncaptured consumers' surplus. However, actual quantifications of tourists' willingness to pay (WTP) differ from study to study: the 1995 foreign tourists' WTP for park entry in total per trip was equal to US$25.90, equivalent to N$160 in today's prices. Subsequent research has yielded somewhat higher WTP. In 1995, tourists visiting Etosha were willing to pay a daily entrance fee equivalent to about N$29 in today's prices. Although foreign tourists had a higher WTP for single entry fees than Namibian tourists, there was no significant difference when it came to WTP for daily entry fees. Nonetheless, more recent studies have found clear discrepancies between Namibian and foreign WTP for daily entry fees. Changes in the value of the Namibian currency relative to the US$ and other foreign currencies have an effect here.

Namibian WTP for Etosha was 33% of overseas tourist WTP in 1997, but that translates to 44% of overseas WTP in today's prices. The 2002 study showed a change from 46% to 84%. Although always being significantly higher than actual park fees, overseas tourists' WTP decreased in terms of the US$ price between 1997 and 2002. This translates to a decrease in terms of current N$ prices from N$65 to N$44 per day. However, the effect could be a result of 'starting point bias' in that visitors paying very low park fees in terms of their foreign currency in 2002 might thus have been inclined to state a lower WTP. Now that overall tourism price levels are higher, visitors are once again quite likely to expect to pay relatively more for park fees.

Another interesting point to note is that WTP for entry to Sossusvlei is up to 50% higher than for Etosha, presumably because most visitors make shorter visits to the former. The most recent study of Etosha suggests that regional visitors have a WTP of N$24 to N$44 per day, which is slightly lower than the WTP of overseas tourists. Current fees fall within the lower part of this range. Again, assuming equal reliability of the different studies, Namibians' WTP to visit Etosha increased in real terms, from N$16 in 1997 to N$34 in 2002. This is more than double the currently charged fee of $15 for Etosha. Visitors' WTP was also found to be related to the type of institution responsible for fee collection and financing conservation. Local and foreign visitors to Etosha and Sossusvlei indicated a higher WTP if a non-government organisation was responsible for managing park revenues, reflecting a general distrust of Government institutions (Krug et al. 2002).

[30] At least four studies have been conducted investigating tourists' demand for wildlife viewing in Namibia, though two of these – Stoltz (1996) and Barnes et al. (1997) – are based on the same dataset. In addition, Larson & Jarvis (1998) discuss optimal park pricing from a theoretical perspective. Much of this work is reviewed in Krug et al.'s (2002) discussion on park pricing and economic efficiency.

5.3.2 Elasticity of demand

Setting revenue-maximising prices ideally requires an understanding of the elasticity of demand,[31] i.e. the extent to which an increase in price will lead to a decrease in demand.[32] The demand for wildlife viewing in southern Africa by foreigners appears to be relatively price-inelastic (Barnes 1996). That is, foreign visitors are not particularly sensitive to price, and an increase in price leads to a relatively small decrease in demand. This is understandable when the prices of park entry are set in the context of the high cost of travelling to and within Namibia. In addition, park entry fees are still very low in comparison with those in other African countries. Price-elasticity of demand may be expected to increase with an increase in the overall level of prices. For regional and – especially – domestic tourists, the demand is likely to be more elastic than that for overseas tourists, because regional and domestic tourists are more likely to seek alternatives in response to increasing prices.

5.3.3 The importance of differential pricing

If pricing is not differentiated between market segments, then prices are often dictated by the WTP of local and regional visitors, leaving overseas visitors with large consumer surpluses. WTP studies have demonstrated that WTP is clearly distinguishable in terms of local, regional and overseas visitors. Park prices have been differentiated for Namibian and foreign tourists since at least 1994, with foreigners generally paying twice that of domestic visitors. However, because foreign prices do not distinguish between regional and overseas visitors, they must necessarily accommodate the needs of the group with the lower WTP (i.e. regional visitors). This will still leave overseas tourists with a relatively high consumers' surplus. Increasing the price differentiation to three tiers would allow the latter to be captured more effectively.

Similar principles apply to the pricing of park accommodation. However, also important to consider is that overseas tourists generally have much higher expectations in terms of the quality of accommodation and services offered. The NWR has planned a three-tier pricing arrangement for park accommodation, with a 10% discount to regional (SADC) visitors and, for Namibians, a 35% discount in peak periods and 50% in off-peak periods (unpublished NWR data, 2003).

Differential pricing for different parks serves to spread visitors more evenly throughout the protected-area system, avoiding congestion in some of the more popular parks. Domestic and regional visitors may be deterred from prime overseas visitor destinations by higher prices, but can be encouraged to utilise other parks by more favourable prices. At present, the prices are similar for most Namibian parks, but occupancy rates of the smaller parks are particularly low. In the case of some of the smaller parks, for which demand is probably relatively price-elastic, lower prices may increase overall revenues generated.

[31] It is also useful to understand how the change in price of one park leads to changes in the demand for alternative destinations, and how the different parks complement one another in terms of the overall tourism experience. It is important to understand visitor preferences and how demand relates to certain aspects of the quality of the experience and services offered by parks.

[32] If elasticity is high, then an increase in price can lead to a drop in revenues due to the drop in the number of visitors. If the demand is inelastic, then an increase in price will have a relatively small impact on visitor numbers, and will result in an increase in revenues.

5.3.4 The effect of daily versus once-off entry fees

Daily entrance fees, as currently applied in the Namibian parks, are generally preferable to once-off entrance fees in terms of overall revenue generation. They capture more accurately the value of use and, thus, more consumer surplus. Daily fees also allow much better monitoring of park use and are a more effective tool for regulating total visitor numbers.

5.3.5 The effect of lower charges for overnight visitors

The idea of charging lower prices for overnight visitors has been instituted by the MET and the NWR at different points in the past to encourage visitors to use accommodation in the parks, rather than private alternatives outside them. However, it is unlikely that this has the desired effect, since the facilities offered outside tend not to be comparable with resorts within parks and are not in direct competition. Accommodation outside parks tends to be more upmarket and expensive than accommodation in parks. Visitors willing to pay these prices are unlikely to be influenced by the relatively small discount offered for staying within parks.

5.3.6 Revenue-maximising versus optimal park prices

It is important to note that optimal park entrance fees may not be based entirely on maximising revenues. Park pricing strategies also need to take social equity and ecological sustainability into account, as well as the ecological and tourist carrying capacities of the parks. *Ecological* carrying capacity is the level of visitation beyond which there are negative impacts on the environment and biodiversity of the parks. These can be exceeded before revenue-maximising *tourist* carrying capacities are reached, i.e. when congestion levels have a measurable impact on visitors' enjoyment of the parks and their WTP.

Extracting maximum WTP from foreign tourists may not always be the most desirable solution, since this can reduce the opportunities for capturing consumers' surplus in other important areas of the economy, such as in expenditure on community-based tourism initiatives. In the case of domestic tourists, the goals may be to maximise the opportunity for locals to visit parks, which would require low entry fees. Furthermore, Namibians already pay for parks through taxes. These types of considerations may also extend regionally.

While social equity considerations may encourage lower prices for Namibians, the prices should still as a rule be set at sufficiently high levels that discourage visitor numbers from exceeding ecological and tourist carrying capacities. Increasing park fees to limit tourist numbers (and impacts) is usually compatible with increasing revenues, although this depends on the price-elasticity of demand, which in turn depends on the availability of substitutes within and beyond Namibia.

5.3.7 Setting optimal prices for Namibia's parks

Based on WTP studies, a motivation was put forward in May 2003 to increase the park fees to slightly more than double the existing levels. It was also proposed that the current system of providing discounts to Namibian tourists be expanded to incorporate separate discounts for Namibian and other African tourists. An increase in the discount offered to Namibian tourists would ensure that Namibians were not faced with a price increase.

With the recommended prices, prices for Namibians remain unchanged; for regional visitors they increase by 50%; and for overseas visitors prices double. In the absence of quantified demand characteristics, the above recommendations were explored in terms of their possible effects on revenues. Assuming relatively price-inelastic demand, and no change in external influences on demand, revenues could increase by more than 50%. The results also indicate that even with a fairly elastic demand response among foreign visitors, revenues could be raised substantially.[33]

5.3.8 The effect of payment systems such as the Wild Card

There is a possibility of introducing a card as an alternative payment vehicle to payments upon entry to parks. The Wild Card system currently used in South Africa is an example of such a system: it aims to reward loyalty and encourage greater patronage. It is offered as an alternative choice to gate payments, so visitors can choose whether to buy a card or not. The main question is whether the introduction of a Wild Card payment system could increase the park use revenue in Namibian parks, after the transaction costs are taken into account. This might be contingent on whether a Namibian card system is introduced as an extension of the South African one, or whether it applies exclusively to Namibian parks.

Under the existing fee structure in Namibia and the low number of visitors to certain parks it is unlikely that the Wild Card will offer any direct financial benefits, given very high overhead costs. The overhead fees of administering the Wild Card might be less than the existing system within the MET, but a cost breakdown of this is not available and would be very difficult to quantify. The benefits from marketing and other rewards cannot easily be quantified, but overhead costs include card readers, bank terminal machines, and staff training. These would not be less than N$6,500 per park per year, before any visitors have entered the park. Because of these fixed costs, the Wild Card appears to be financially attractive only in parks with high visitor numbers. Nevertheless, further investigations, particularly into contractual agreements, risks and the pricing of the card, are necessary to ultimately evaluate its viability.

5.4 Income from accommodation and tourism services

5.4.1 Royalties from NWR and private–public sector partnerships

The resorts within the protected areas currently generate turnover in the order of N$40–50 million from a capital base, which belongs to the MET. This presents a significant opportunity for revenue generation for the parks. Ideally, the NWR should pay royalties amounting to 10–15% of its turnover to the MET. This should include park royalties and a rental for capital assets.

The most efficient way to develop further tourism potential in the parks will be to enter into private–public partnerships with concessionaires.[34] The MET would have the responsibility of

[33] Compared with tourists' expressed WTP (taking changes in exchange rate into account), the above proposal is considered to be desirable in terms of meeting the criteria of (a) capturing more foreign consumer surplus in the form of increased revenues, and (b) deriving revenues from Namibian visitors without compromising opportunities for visits by poorer citizens.

[34] Many of the parks are recognised to have the capacity for increased numbers of beds, particularly in the form of mid- to top-end establishments such as luxury bush camps.

identifying areas for tourism developments and providing the necessary infrastructure such as road networks and water holes. The costs in setting this up might be reduced if the MET identifies areas where development can take place in clusters. Private operators would be responsible for the building and maintenance of the camps. Although this means a lower potential rental on these developments, it also means that the private entrepreneurs are the ones to carry the higher risks. Royalty payments amounting to 4–10% of turnover could be expected. This could increase once lease periods[35] expire and the assets are transferred to the parks.

Tourism concessions provide the greatest potential source of new finance for the protected-area system, estimated at roughly N$16 million. Nevertheless, this income will take a long time to realise, especially in view of the financial problems associated with the NWR. Generating this revenue will also involve considerable costs (estimated at around N$23 million) in terms of research, planning, administration of tenders, monitoring, and fee collection. For potential investment to take place, appropriate infrastructure, efficient management, marketing, and a sense of security regarding the tenure and natural resource base upon which income depends will be needed. Most of the infrastructure requirements such as roads and water points are envisaged in the overall parks vision referred to above, but there may be additional capital costs needed to attract specific concessionaires.

5.5 Income from the consumptive use of wildlife resources

Income from the consumptive use of wildlife can be quickly realised and is relatively easy to access, but it is limited by potential conflict with wildlife-viewing activities and ethical considerations. Consumptive trophy hunting tourism requires some exclusivity and spatial separation from wildlife viewing. In a high-quality protected-area setting, wildlife viewing must get priority, since here it can generate greater financial and economic returns. Thus, it is preferable to be conservative in the allocation of land and resources to consumptive use in parks. Only land where hunting or other consumptive uses have comparative advantage should be used. Planning should take into account the complementary nature of consumptive and non-consumptive uses.

It is important to accept that some parks will be more inclined to make a financial profit while others will always make a loss. Furthermore, profitable parks will probably always have to subsidise other parks, as it is unlikely that the parks system as a whole will ever reach financial break-even. Nevertheless, the onus is on Government to continue its investment in making up this shortfall, as part of its obligations to the international community and to future generations. The Government should not see a financing plan as a means of reducing its input into park costs. On the contrary, the economic analysis above has provided plenty of justification as to why their input should actually increase.

6. CONCLUSIONS AND THE WAY FORWARD

Analysis of the current and potential future economic benefits associated with Namibia's protected-area system has shown that these are very significant indeed. The protected-area system underpins a large section of national tourism sector activity and is linked to some N$1–2 billion in total income. Some 20% of this income accrues to low-income segments of the population. Some 17% of this total income accrues as revenues to Government from taxes

[35] Typically 15–45 years.

and fees. This is very significant given the relatively small amounts of revenue derived by Government from park use and accommodation.

Analysis also shows that increased investment to improve the infrastructure and management of Namibia's protected-area system is very much in the national economic interest. Cost-benefit analysis indicates that the likely increase in economic benefits resulting from such investments will easily justify the necessary expenditure requirements. It can be concluded that increased investment in Namibia's parks is not only economically, but also socially justifiable and worthwhile.

To ensure that socio-economic benefits are maximised in this process, certain recommendations should be taken into consideration:

- Financing the parks may not always be wholly compatible with broader social and development goals. The financing plan should ensure that the project contributes positively to social equity and poverty alleviation. This will affect financing goals to some extent, but will help to ensure the maximisation of overall economic benefits.
- Maximising the capture of consumer surplus by charging higher park entry fees involves the risk of excluding poorer Namibians from the protected-area system. This problem can be avoided by keeping fees for Namibians low. The park pricing strategy needs to make allowance for poorer Namibians, but in such a way that income to the parks is not too heavily compromised. The best way to do this would be to keep prices for Namibians close to market rates, but to offer waivers for poorer Namibians (e.g. school groups).
- While the potential for tourism development within parks is recognised, such development may compete with opportunities outside parks. While competition is moderate at present, it can be expected to intensify if more upmarket developments are introduced into parks in the concession process. When allocating concessions, allowance should be made for increases in tourism developments outside parks, particularly providing entrepreneurial opportunities for communal land areas. Concessions within protected areas should have conditions that make it mandatory for the concessionaires to contribute to local economic development, such as employment of local labour, providing training opportunities, and encouraging small- to medium-sized enterprise development. Local communities should also be encouraged to participate in tourism opportunities in and around the parks.

Current revenues to Government from park use and park accommodation can be enhanced considerably, perhaps to three times their current levels. Analysis of the potential for financing park development has identified several important avenues. Our finding regarding the very high economic value of parks should help in drawing significantly enhanced donor and central Government investment. Appropriate pricing could significantly enhance park use revenues, while cost-cutting by the NWR could considerably enhance park accommodation revenues. Large amounts of revenue could be generated from joint tourism ventures between Government and the private sector or communities.

This study was entirely a desktop analysis – conducted using available existing data, and completed over a relatively short period of time. Several assumptions had to be made to fill data gaps and these need to be verified through ongoing research. Specifically, further research is needed on how to ensure the parks could contribute more to poverty alleviation in Namibia. Further research is also required on current protected-area tourism use patterns,

protected-area demand characteristics, further evaluation and testing of a Wild Card system, and the further development of financial planning and monitoring systems.

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