
Park pricing and economic efficiency in Namibia

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Acronyms

CBM	contingent behaviour methodology
CS	consumer surplus
CVM	contingent valuation method
DEA	Directorate of Environmental Affairs
ED	excess demand
GR	game reserve
NGO	non government organisation
NP	national park
NR	non-residence
NWR	Namibia Wildlife Resorts
SADC	Southern African Development Community
TCM	travel cost method
TSA	tourism satellite accounts
WTO	World Tourism Organisation
WTP	willingness to pay
WWF	World Wide Fund for Nature
VAT	value added tax

Abstract

This paper is designed to introduce park managers and policy makers in Namibia to the economics of park pricing, and attempts to explain how park managers can maximise revenue from tourism for biodiversity conservation.

Tourism is an important export industry, foreign exchange earner and job creator in southern and eastern Africa. Most international tourists to these regions incorporate some nature-based tourism into their trip. Given the relatively cheap entry fees to many parks and game reserves in the region, such tourists usually have large consumer surpluses – the amount individuals would be willing to pay over and above actual prices. This consumer surplus represents forgone revenue, and this paper examines how such revenue can be most efficiently collected.

When setting prices, a number of issues must be considered – economic efficiency, social equity and environmental capacity. A revenue maximising strategy would require pricing differentiation on the basis of visitors' country of origin as well as between different parks within a country. Non-economic considerations must include the ecological carrying capacity of the park, the social carrying capacity of surrounding communities as well as ensuring that the location is not so crowded with tourists so as to reduce visitor satisfaction.

In the Namibian context, a number of changes to park pricing have occurred in the last decade, few of which have been the result of such factors, nor do they seem to have been the result of attempts to maximise revenue or even cover costs.

On the basis of two large surveys at two major tourist destinations in Namibia – Etosha National Park and Sossusvlei (in the Namib Naukluft Park) – it has been shown that, in order to contribute to biodiversity conservation, international tourists (predominantly those from Europe and the USA) would be willing to pay higher park entry prices than are currently being charged. In addition, the majority of these tourists believe that the fees currently being charged are too low.

Given two (hypothetical) choices – that an independent organization were to collect and manage park revenues for conservation and park maintenance or that government collects and manages park revenues and is responsible for conservation and park maintenance – international, regional and domestic tourists would all be willing to pay higher entry fees if an independent organisation were responsible for the funds.

In order to maximise revenue from park visitors, it is recommended that three categories of fees be introduced – for domestic, regional and other international tourists; further, that the fee for international tourists is quoted in hard currency (e.g. \$US; Euros or Pound Sterling), but should be allowed to be paid in Namibian dollars and that every visitor should pay a daily entrance fee regardless of the length of their stay. Cooperation between those responsible for park maintenance (and entry fees) and those responsible for accommodation within the parks is also vital to ensure that the combination of costs is not prohibitively expensive, and does not reduce visitors' overall satisfaction with their visit.

If such factors were instrumental in park price decision making, revenue would be maximised and, though it is likely to continue to be collected by government, should ensure continued biodiversity conservation and efficient park management.

1. INTRODUCTION

Africa hosts some of the world's most biodiversity rich areas, but many African countries find it difficult to maintain their biodiversity due to increasing land use pressures and insufficient conservation funds. The continuing conversion of natural habitat to agriculture and other uses is the main reason for the dramatic loss of biological diversity. Faced with many social and economic problems, governments are forced to cut their environmental budgets in favour of other priorities. In countries where the majority of the population lives in poverty, peoples' willingness to pay (WTP) for conservation is generally low, so alternative strategies to finance conservation are urgently needed to reduce or stop the current rate of biodiversity loss. Nature tourism has the potential to be a major source of funding for conservation in many African countries—besides international nature tourism (global use value), there is evidence of growing international demand for environmental protection in Africa (global non-use value). Studies show that societies in rich nations are concerned about wild species and habitats in Africa and are willing to pay for their protection. The challenge is to create mechanisms and institutions to capture this form of international WTP and to channel these values into African conservation. Charities in northern countries raising funds for rainforest or species conservation are examples of mechanisms that capture such international WTP.

This paper focuses on the traditional way of capturing tourism values for conservation—namely charging entry fees for national parks and other protected areas. Recent research on demand for international nature tourism in southern and eastern Africa suggests that park fee policies are not currently optimal in economic terms, nor are they in line with the social or environmental objectives of protected area management. Park fees in many African countries tend not to be based on a thorough understanding of supply and demand in the nature tourism market. The lack of information on supply and demand makes it difficult to predict the economic and environmental implications of park fee changes, and to estimate exactly how large the lost revenues resulting from existing (inefficient) pricing policies are.

The purpose of this paper is to introduce park managers and policy makers in Namibia to the economics of park pricing. Section 1 describes factors that should be considered when designing park pricing policies, focusing on experience in eastern and southern Africa. Section 2 takes a closer look at the history of park fees in Namibia; the economic and environmental implications of the current fee structure are discussed and suggestions for efficiency improvements are made.

2. NATURE TOURISM AND PARK PRICING IN AFRICA

2.1 Nature tourism and biodiversity conservation

Biodiversity conservation is particularly important for nature tourism. Protected areas, forests, beaches, coral reefs and wildlife in Africa attract several million international tourists every year. Nature tourism ranks in most eastern and southern African countries among the top three industries. It supports hundreds of thousands of jobs, earns urgently needed foreign exchange and contributes to economic development at the local and international level. International nature tourism can be partly interpreted as foreign tourists' demand for biodiversity conservation in Africa and, in turn, biodiversity conservation supplies the essential resources for the survival of the industry. The World Tourism Organisation (WTO) has estimated that the travel and tourism economy (that is, the direct and indirect effects of the tourism industry on an economy) contributed nine per cent to the Southern African Development Community (SADC) region gross domestic product in 1999; or approximately \$US14.7 billion. In addition to this contribution, the industry was estimated to employ approximately three per cent of the SADC labour force (approximately 1.5 million jobs provided directly by the

tourism industry), and contributed to around 12 per cent of total exports from the region (WTO, 1999).

Table 1 shows the number of international tourist arrivals to selected eastern and southern African countries. Total tourist numbers increased steadily over the past years, indicating a growing demand for tourism in the region.

Table 1 International tourist arrivals (overnight visitors) ('000)

Country	1995	1996	1997	1998	1999
Angola	9	21	45	52	45
Botswana	521	512	607	750	na
Congo, Dem. Rep.	35	37	30	53	na
Kenya	691	717			
Lesotho	87	134	144	150	186
Madagascar	75	83	101	121	138
Malawi	192	194	207	220	254
Mauritius	422	487	536	558	578
Namibia	399	461	502	560	na
Rwanda	1	1	na	na	Na
South Africa*	4,684	5,186	5,170	5,898	6,026
Swaziland	300	339	340	319	Na
Tanzania	285	315	347	450	Na
Uganda	188	205	na	na	Na
Zambia	163	264	341	362	456
Zimbabwe	1,539	1,746	1,495	2,090	2,328

* Total arrivals (including same-day visitors); na – not available

Source: WTO, 2001.

The figures indicate the total volume of the tourism market, of which nature tourism is only one part. Exact data on the share of nature tourism in the market is not available because national statistics do not typically differentiate between nature tourism and other forms of tourism¹. However, it is estimated that nature tourism in eastern and southern Africa accounts for at least 70 per cent of the overseas visitor market. In Kenya and Zimbabwe, around 80 per cent of tourists visit primarily to view wildlife, while in Namibia the figures has been estimated at around 73 per cent (Fillion et al., 1994; MET, 1997). Within the nature tourism market, wildlife viewing is clearly the single most important activity.

In theory, tourism revenues related to wildlife and rangelands (whether in state owned parks or on private or communal game ranches) should provide incentives for investment in conservation. However, studies on the economic value of tourism show that there is often a significant gap between nature tourism's actual and potential contribution to biodiversity conservation. The problem is generally twofold: first, the rate of benefit capture is low and, second, only a small proportion of the tourism revenues captured are channelled back to conservation and local communities. An additional problem—particularly in rural areas and especially on communal lands—is that local people, who are responsible for land use and conservation decisions, rarely benefit from tourism. Thus they are more

¹ Despite the growing importance of the tourism industry, no standard definition has been developed that would allow authorities to distinguish between nature tourism and other forms of tourism in national statistics. In a recent feasibility study of Tourism Satellite Accounts for Botswana, Namibia and South Africa, nature-based tourism was defined as all forms of tourism that rely on or incorporate visitation to natural environments (where natural environments may include cultural assets); that is, those environments that are not primarily man-made (Poonyth et al., 2001).

likely to convert natural habitat to land uses that provide an economic return such as livestock keeping or crop production (thus failing to protect natural habitats). Instead, a large share of the economic benefits linked to tourist expenditure is captured by commercial operators in the richer countries (where most tourists originate) and in larger cities of the host countries (Wells, 1997). Even protected areas—often providing the major attraction of a nature tourism experience—capture only a portion of their ‘true’ tourism value.

In order for nature tourism to be an effective mechanism for mobilising financial resources for conservation, innovative approaches are needed to enable rural communities, private landowners and park managers to capture tourism benefits for reinvestment in conservation activities. The process of land conversion and habitat destruction can only be slowed when the returns from conservation are used to compensate resource users for their forgone losses due to the protection of land and/or wildlife. The two main instruments for channelling tourism revenues into conservation are taxing the tourism industry or charging tourists a fee for entering nature tourism destinations and earmarking these funds for conservation expenditures. The latter may be particularly important as economic studies suggest that there are often large benefits from tourism that are not currently captured (even by tour operators), that could be realised by applying more efficient park pricing policies.

2.2 Estimating the economic value of nature tourism

National statistics tend only to give the size (in terms of volume) of the tourism industry in a country, and the industry is not included explicitly in the National Accounts, so it is very difficult to accurately estimate the impact of tourism on the domestic economy. In an attempt to measure the direct economic impact of tourism some countries such as the USA, Australia, France and Canada have compiled Tourism Satellite Accounts (TSAs), which provide a framework for analysing tourism’s contribution to the national economy. The most basic set of TSAs report visitor expenditure, production to meet this demand, the value added of the tourism industry and its contribution to employment. These accounts enable comparisons to be made between different industries within an economy to determine the relative size and importance of tourism when compared to traditionally defined industries, as reported in the National Accounts. Policy makers can use these accounts to help them decide how much to invest in nature conservation and the potential returns on these investments. If nature tourism’s share in the economy is significant—as one would expect for many African countries—it should provide a strong incentive for the government to invest in biodiversity conservation and provide other incentives to develop the nature tourism industry.

If TSAs are not available, information on tourist spending (on accommodation, food, travel, souvenirs, etc.) alone can give a good indication of the direct economic impact of tourism. This spending occurs at various spatial scales—and often only a small proportion is spent on site (Creemers, 1996). In the case of international tourism, money is spent in both the tourist’s home country and in the country visited. All the expenditure related to international nature tourism that remains in the tourists’ home countries can be interpreted as international benefits deriving from biodiversity conservation abroad. Brown et al. (1995) analysed the expenditure of international visitors to Hwange and Mana Pools National Park in Zimbabwe. They estimate that 61 per cent of the parks’ total use value (tourism expenditure) leaves the country to the benefit of tour operators and airlines in developed countries. Thus, protected areas in Africa, attracting millions of international visitors annually, create economic benefits in developed countries. Expenditure in the countries visited generates jobs and enhances domestic economic development in these countries. Table 2 shows the total tourist expenditure in eastern and southern African countries.

Table 2 Tourism expenditure* (\$US millions)

Country	1995	1996	1997	1998	1999
Angola	10	9	9	8	13
Botswana	162	93	136	175	234
Congo, Dem. Rep.	na	na	na	na	na
Kenya	447	474			
Lesotho	27	32	22	18	19
Madagascar	58	65	74	91	100
Malawi	9	5	11	15	20
Mauritius	430	452	485	503	545
Namibia	278	293	333	288	na
Rwanda	1	1	na	na	na
South Africa	2,125	2,575	2,769	2,738	2,526
Swaziland	48	38	40	37	35
Tanzania	259	322	392	570	733
Uganda	78	117	135	144	149
Zambia	47	60	75	75	85
Zimbabwe	154	219	230	177	202

* All foreign arrivals (same day and overnight visitors)

Source: WTO, 2001.

Tourist expenditures also induce backward linkages and ‘multiplier’ effects by stimulating further spending and thus further increase the (indirect) economic impact of tourism. However, linkage and multiplier effects can be limited by leakage of tourism revenues, where leakages are the proportion of the tourism expenditures derived from foreign visitors that leaves the country, mostly due to the fact that many countries import many of the goods and services necessary for tourism, because of their current inability to produce these goods and services domestically (Wells, 1997). Few studies exist on economic multiplier and leakage effects related to tourist expenditure, partly because of the difficulties in their estimation.

However, economic impact assessments remain incomplete measures of the economic value of nature tourism. They can be useful in demonstrating the spatial distribution of benefits or the distribution of benefits among different parts of the population, but they fail to capture values beyond the current market transactions.

In contrast, welfare assessments are capable of estimating the economic value of nature tourism, including non-market benefits tourists may hold, such as option and existence values². Most welfare assessment exercises measure the total value of tourism as the aggregate visitors’ willingness to pay (WTP) for their experience. WTP includes tourist expenditure and the amount that tourists are prepared to pay over and above the prevailing price (their consumer surplus). The consumer surplus reflects the revenue forgone by not charging higher prices, and can be interpreted as non-captured international use values deriving from biodiversity conservation in Africa (for foreign tourists).

The most common methods for determining tourists’ maximum WTP for a nature tourism activity are the contingent valuation method (CVM) and the travel cost method (TCM). The TCM measures only

² Option values relate to the amount that individuals would be willing to pay to conserve biodiversity for possible future use (i.e. no use is made of the resource now, but may be made of it in the future). Existence values (non-use values, passive use values) relate to the value of an environmental asset unrelated either to current or optional use. That is, the value placed on an environmental asset for simply ‘being there’ without having to be used.

direct use values, while CVM can measure both use values and non-use values (including direct use, option and non-use values). Both methods are still under debate due to methodical limitations. The main problems involved in travel cost applications are the treatment of multi-destination trips and the opportunity cost of time. Criticism about the contingent valuation technique centres around the method's ability to estimate 'true' preferences. However, extensive research during recent years has helped to improve both methods so that estimation biases can be kept to minimum.

2.3 The non-captured benefits of nature tourism: Empirical evidence

A number of studies were carried out during the 1990s, investigating tourists' WTP for nature tourism in various countries in southern and eastern Africa. Much of the work concentrated on the economic value of wildlife viewing in protected areas, and most studies identify a huge gap between tourists' WTP and their actual expenditure, suggesting that there are large uncaptured values in form of consumer surplus. A summary of empirical results is presented in Annex 1. All these studies indicate that the majority of this non-captured benefit (i.e. the difference between actual park prices and tourists WTP for park entry) is derived from international rather than regional or local tourists (in line with expectations). For Namibia, Barnes et al. (1999), suggest that a total consumer surplus of up to \$N40 million (in 1994/5) was forgone; Krug (2000 and 2002) indicates that approximately \$N10.2 million of this could be attributed to Etosha National Park and \$N4.4 million to Sossusvlei. For Botswana, the annual consumer surplus for wildlife-viewing trips was estimated to be \$US20 million in 1992 and for Kenya, this amount has been estimated up to \$US450 million in 1993 (Barnes, 1996; Moran, 1994). Given these findings, it is possible to conclude that that nature tourism is under-priced. The aggregate consumer surplus represents the forgone revenues for park managers and landowners. Table 3 gives consumer surplus estimates for some African national parks.

Table 3 Aggregate consumer surplus for nature tourism in selected African National Parks (\$US million, p.a.)*

Protected Area	Local tourists	International tourists	Total
Mana Pools and Hwange NP (Zimbabwe, 1994)	?	8.10	8.10
Mantadia NP (Madagascar, 1991)	?	0.24	0.24
Lake Nakuru NP (Kenya, 1991)	Few	Most	7.50
Tarangire NP (Tanzania, 1995/95)	0.10	0.25	0.35
Etosha NP (Namibia, 1997)	0.60	1.62	2.22 (\$N10.2m)
Sossusvlei (Namibia, 2000)	0.14	0.5	0.64 (\$N4.4m)

* Only contingent valuation results are reported.

Source: Navrud and Mungtana, 1994; Brown et al., 1995; Clark et al., 1995; Krug, 2000; Krug, 2002.

Most studies of nature tourism in Africa identify large uncaptured values in the form of consumer surplus. In all these case studies investigating local and foreign tourists' demand for nature tourism, foreign tourists' consumer surplus exceeds local consumer surplus significantly. This can be explained largely because park fees for foreign tourists are low relative to their average income and because foreign tourists outweigh domestic visitors in numbers. In Namibia, approximately 70 per cent of all park visitors are non-Namibian residents (Barnes et al., 1999). In many parks in Botswana, Zimbabwe, Kenya and Tanzania foreign tourists also make up a dominant proportion of the total visitor numbers (Barnes, 1996; Moran, 1994). The consumer surplus ratio (domestic/foreign) indicates that two thirds of the unrealised tourism values are not currently being captured from international tourists (rather than domestic tourists).

There is strong evidence that the institutions responsible for collecting park fees and financing conservation have a significant effect on tourists' willingness to pay for park fees. As discussed in more detail in Section 3.6, local and foreign visitors to Namibia's Etosha National Park and

Sossusvlei indicated that they would be willing to pay a higher fee if a non government organisation such as the World Wide Fund for Nature (WWF) were responsible for managing the park's revenues, rather than the government. This WTP difference reflects a public distrust of government institutions, and is a phenomenon that applies in most countries around the world.

2.4 Setting park fees in Africa

Park entrance fees are easy to implement and are applied in all eastern and southern African countries. Setting park fees correctly, however, is a difficult task that requires a careful balance of economic efficiency, social equity and environmental carrying capacity. Ideally, park fees should be set so that substantial revenues are captured from those with the ability to pay (e.g. foreign tourists) while remaining affordable for lower income groups (e.g. local and regional tourists, students and pensioners). Park fees should also be used as an instrument to prevent congestion and environmental damage in protected areas by limiting access to parks and other protected areas. The following three sections will discuss each of these issues in more detail.

2.4.1 Park pricing and economic efficiency

Most African wildlife authorities set park fees without proper analysis of demand and supply in the nature tourism market, so current pricing policies tend not to either restrict tourism to carrying capacity³ nor do they maximise revenues. Recent studies suggest that many parks in Africa are under-priced and hence large revenues are being lost.

Setting revenue maximising park fees for protected areas is not straightforward. It involves a careful investigation of demand and supply in the nature tourism market. Demand side analysis includes analysing tourists' mean and/or median WTP for park fees, as well as price and income elasticities. That is, how a marginal change in park fees affects demand for a park (an increase in price usually causes a reduction in demand); how demand for one park (or a group of parks) changes as result of a price change for a different park (an increase in demand would be expected to result from a price increase at another park); and how demand for parks changes as a result of marginal changes in income levels.

A supply side analysis usually involves an assessment of the quantity and quality of a country's protected areas and related tourist services, as well as an analysis of possible substitution effects between parks. Quality can in this context be described as the quality of the nature experience (e.g. species abundance and diversity) and related goods and services (e.g. infrastructure, accommodation, etc.).

A further step towards maximising revenues is price differentiation between parks. Raising fees at one park is likely to influence visitation rates at other parks depending on the price elasticities of demand and the availability of substitute sites. Demand for protected areas within a country is highly dependent on the site-specific characteristics such as ecosystem type, vegetation, wildlife diversity/density, possible recreational activities, tourism infrastructure, accessibility and the price. Tourists typically choose a set of parks within a country which, based on prior information, will give them the most enjoyment and pleasure. One can use differential pricing to influence visitation rates and hence maximise revenues.

³ Congestion in game parks often indicates that park fees are low relative to the tourist's average income. In Africa, this seems to apply especially to overseas tourists.

2.4.2 Park pricing and carrying capacity

There are three forms of carrying capacity: environmental carrying capacity, host social carrying capacity and tourist social carrying capacity (Lindberg, 1991). Environmental carrying capacity refers to a certain level of visitation beyond which environmental impacts become unacceptable. Host social carrying capacity refers to a limit beyond which tourism has unacceptable impacts on local societies and their cultures; and tourist social carrying capacity is the level beyond which visitor satisfaction drops unacceptably because of overcrowding within a park or protected area. Defining the carrying capacity for a given protected area involves determining the type and level of impact to occur before remedial action occurs, and using indicators to monitor these impacts.

Park prices can be adjusted to limit demand (and therefore tourist numbers) to meet any of these carrying capacities as an alternative to setting entry quotas to protected areas. A significant benefit of using prices as a means of limiting entry over quotas is that they allow park managers to maximise revenue, reduce impacts on the area and therefore ensure constant returns in the future. A combination of price and quota mechanisms may be necessary for exceptionally popular parks, where high prices do not limit demand sufficiently (e.g. the Parc de Volcans in Rwanda).

Tourist camps located within protected areas such as lodges, bungalows and campsites can have serious environmental impacts. High water consumption, waste dumps, staff villages and the transmission of diseases by domestic animals (kept by members of staff) are usually the main problems. There are examples all over Africa showing that these impacts can pose a serious threat to conservation. To mitigate the environmental impacts of tourism many park authorities in Africa have adopted policies promoting the development of accommodation facilities outside the park boundaries.

2.4.3 Park pricing and social equity

Simply charging local and foreign tourists their maximum WTP is not necessarily the right policy. Contingent valuation surveys usually examine tourists' maximum WTP and not the amount tourists consider most appropriate. While WTP is a useful concept for estimating demand curves when market data are not available, a somewhat lower fee can be more appropriate for policymakers⁴ when the goal is not strictly to maximise revenues but also to afford visitors a positive experience, to encourage them to return, and to improve visitation rates in the parks. Also, rents can be captured in different ways, for example, as income for local communities or the private sector.

Social equity must also be considered when setting park prices. Tourists from neighbouring countries and other overseas tourists currently pay the same entry fees, as they are both considered to be foreigners. Regional tourists however, are likely to find it difficult to pay the same prices as other overseas tourists are willing and able to pay. As a result of increased park fees for foreigners in recent years, the numbers of cross border visits to parks in neighbouring countries have decreased drastically. Barnes (1996) describes this phenomenon for Botswana (see above). The same applies to cross border visits between Kenya and Tanzania (Borner, 2001).

It may also be appropriate to offer discounts to selected groups such as pensioners and students. Kenya, for example, allows students to enter parks at a 50 per cent discount, thereby ensuring them affordable experience. The rationale behind this is not only socially motivated but also based on economic grounds. Students are potential future customers and are more likely to return if they have an enjoyable experience.

⁴ A study from Costa Rica shows that the fee tourists consider appropriate can be as low as 30 per cent of their maximum WTP, while a study in the USA suggests values of 57 to 76 per cent of stated maximum WTP (Chase et al., 1998; Christensen and Richer, 1999).

2.5 Park fees for protected areas in eastern and southern African countries

Table 4 gives the park fee structure for eastern and southern African countries in November 1998.

Table 4 Park fees for African protected areas in November 1998 (in \$US)*

Country	Non-residents	Non-national residents	Citizens	Fee for a car (once per entry)**
<i>Eastern Africa</i>				
Kenya	15–27	2–4	2	L&F: 3.5
Malawi	15	?	?	F: 15 <u>per day</u>
Tanzania	15–25	15–25	1–2	L: 1; F: 30 <u>per day</u>
Uganda	7–15 [175 ¹⁾ ; 250 ²⁾	4–7 [150 ¹⁾ ; 180 ²⁾	1 [40 ¹⁾ ; 50 ²⁾	L: 4; F: 20
<i>Southern Africa</i>				
Botswana	11	2	0.5	L: 1; F: 2
Namibia	2–7	2–7	1–3	L&F: 2
South Africa (<u>once per entry</u>):				
- KZN NCS ³⁾	1	1	1	L&F: 6.6
- SAN Parks ⁴⁾	2–8	2–8	2–8	L&F: 5
Zambia	15–20	2	2	L: 5; F: 10
Zimbabwe ⁵⁾	5	5	0.3	L&F: 0.3

Notes:

- * - Daily park fees for adult visitors on a privately organised safari
 - A range of values is given for countries with a multiple park pricing policy
 - Fees in local currency are converted at November 1998 exchange rates

** L = locally registered vehicle, F = foreign registered vehicle

1) Gorilla trekking in Mgahinga Gorilla NP

2) Gorilla trekking in Bwindi Impenetrable NP (lower fees are charged for stand-by tickets).

3) KwaZulu-Natal Nature Conservation Service: On top of the park fee, visitors to protected areas in KwaZulu-Natal have to pay a community levy. Depending on the site, this levy ranges from \$0.2 - \$2.2 per entry and is used to support development in neighbouring communities (1997 exchange rate).

4) South African National Parks: Day visitors pay a daily park fee (for each day they enter). Overnight visitors to Kruger NP, Kalahari Gemsbok NP and Richtersveld NP pay the park fee only once when entering a park. At all other parks overnight visitors pay no park fee (1997 exchange rate).

5) Visitors have also the option to pay a park fee covering a period of seven days. This weekly fee is \$10 for foreigners and \$0.6 for citizens.

Source: Krug, 1999.

All countries except South Africa charge non-residents a much higher fee than citizens; some even differentiate between non-national residents and citizens. Most countries adopted a system of differential pricing between parks, to help reduce pressure at congested parks by channelling visitors to less popular sites.

Uganda, Kenya, Tanzania, Zambia and Zimbabwe quote park fees for non-residents in US Dollars, thereby ensuring that international demand for parks remains unaffected by exchange rate fluctuations. Park fees in Tanzania even have to be paid in US Dollars. Botswana, Namibia and South Africa quote their park fees in local currencies. As a result park visits became much cheaper for overseas tourists when currency devaluations occur. Quoting park fees in (stable) foreign currency prices (e.g. \$US or Euros) has two advantages: first, overseas tourist demand for park visits will not be affected by exchange rate fluctuations, which makes it easier for park managers to forecast demand. Second, a devaluation of the local currency will increase park revenues. However, foreign tourists should be allowed to pay fees in either the local currency or in foreign currency. Anecdotal evidence from Tanzania shows that tourists strongly dislike the fact that park fees have to be paid in US Dollars.

At present it seems that, with the exception of Kenya and South Africa, earnings from park fees in most African countries are not reinvested directly in conservation. Park revenues are normally treated by central government as sources of general revenue rather than being earmarked for park maintenance or biodiversity conservation. This tends to have the effect of destroying park managers' incentives to develop parks as profitable tourism destinations, and to collect higher revenues. It has also been shown (Krug, 1998) that visitor satisfaction and enjoyment increases significantly when they know that the money they spend on park fees is invested in conservation. Environmentally conscious tourists may choose to visit parks using such criteria. The potential impact of this psychological effect on demand for different sites has not often been recognised by policy makers and park managers.

3. PRICING PROTECTED AREAS IN NAMIBIA

3.1 Nature tourism in Namibia

Namibia is a booming destination in the international nature tourism market. Its diverse range of wildlife species, fascinating landscapes and wide-open spaces attract tourists from all over the world. Apart from Namibia's natural attractions, the country is known for its good infrastructure and political stability. International tourist numbers have increased steadily over the last decade and reached 760,000 in 2000 (see Table 5).

Table 5 International tourist arrivals in Namibia

Year	Number of tourists	Yearly growth rate
1991	213,000	+ 10%
1992	250,722	+ 17%
1993	254,978	+ 2%
1994	367,316*	+44%
1995	446,189*	+22%
1996	525,062	+18%
1997	571,174	+9%
1998	614,368	+8%
1999	693,777	+13%
2000	758,989	+9%

* estimates

Source: Directorate of Tourism, forthcoming.

After Independence in 1990, the Namibian Cabinet declared tourism a priority sector for economic development. Today tourism ranks among the top three export industries alongside fishing and mining and is regarded as a key sector with significant growth potential.

3.2 Protected areas in Namibia

National parks, game reserves and wilderness areas provide the foundation for Namibia's tourism industry (the share of wildlife-based tourism in the overall tourism market is estimated at 60 per cent (Hoff and Overgaard, 1993)). Some 13 per cent of the country is set aside for conservation. Table 6 provides a list of the major parks and resorts in Namibia. Wildlife abundance as well as the scenic beauty is considerable within these protected areas. Tourism infrastructure within the parks include bungalows, campsites and road networks.

For the purpose of demand analysis Namibian parks and resorts can be divided into four broad categories. Parks are allocated to a category depending on size and other attributes that may influence visitation rates.

- *desert parks*: Namib Naukluft Park, Skeleton Coast Park, Fish River Canyon;
- *developed wildlife parks*: Etosha National Park, Waterberg Plateau Park;
- *less developed wildlife parks*: Khaudum Game Park, Mahango Game Park, West Caprivi Game Park, Mamili National Park, Mudumu National Park;
- *small reserves, resorts and recreational sites*: Hardap Recreation Resort, Daan Viljoen Game Park, Von Bach Recreation Resort, Cape Cross Seal Reserve.

Table 6 Protected areas and recreational sites in Namibia

Park/Resort	Big game viewing	Size (in km ²)	Distance from capital (approx. km)	Tourist infrastructure within parks and resorts			
				Maintained Roads	Camping Facilities	Bungalows	Shop/Petrol Station
Desert Parks							
Fish River Canyon & Hobas			630	x	x	x	
Namib Naukluft Park		50,000		x	x		
Sossusvlei/Sesriem*			300	x	x		x
Skeleton Coast Park		16,390	580	x	x	x	
Developed Wildlife Parks							
Etosha National Park	x	22,270	530	x	x	x	x
Waterberg Plateau P.	x	405	250	x	x	x	x
Less developed wildlife parks							
Mahango Game R.	x	244	950	x			
Khaudum Game R.		3,840	700		x		
West Caprivi Game R	x	5,715	>1000				
Mamili National Park	x	320	>1200	?			
Mudumu National P.	x	1,000	>1200	?			
Small reserves, resorts and recreational sites							
Hardap Recreation R.		251	260	x	x	x	x
Daan Viljoen Game P		39	20	x	x	x	
v. Bach Recreation R.		43	60				
Cape Cross Seal Park		60	500				

* Although Sossusvlei/Sesriem is part of Namib Naukluft Park it is mentioned separately since tourist demand between this and the other parks differs greatly.

Desert parks are protected areas located in arid environments. Although Namibia's desert parks have interesting wildlife populations, scenic beauty, wide-open space and sand dunes are the main tourist attractions. Developed wildlife parks are the major sites for wildlife viewing in Namibia. They are called 'developed' because they provide full tourism infrastructure including bungalows, camping facilities, a road network, even petrol stations and shops. The only two parks of this kind are Etosha National Park and Waterberg Plateau Park. Vehicles are not allowed at Waterberg Plateau Park; visitors can only join guided tours and guided or unguided nature walks.

The category of less developed wildlife parks comprises all those protected areas that offer wildlife viewing but have a less developed tourism infrastructure. This may be due to remote locations or poor accessibility. Because of these limitations, less developed wildlife parks attract only a small number of visitors. The category of small reserves, resorts and recreational sites includes all other protected areas and recreational sites. They are of much smaller size and offer less of a wildlife experience than

the large wildlife parks. Namibia's two most popular tourist attractions are Etosha National Park and the Sossusvlei/Sesriem area within Namib Naukluft Park. Etosha is famous for its huge saltpan, savannah vegetation and particularly for its game viewing, because of its large populations of big game species. Sossusvlei/Sesriem is located in the Namib Desert. It offers an exceptional desert experience, and has some of the world's highest sand dunes (some of which exceed 300 meters).

3.3 Resort management

Until early 1999 the Namibian government managed all tourist resorts in parks and protected areas, with revenues going directly to central government treasury. In April 1999, the parastatal 'Namibia Wildlife Resorts' (NWR) assumed management of these tourism facilities (bungalows, campsites, shops) and retains the revenues. As parks and wildlife management remain government responsibility, the park entry fees (collected by NWR on behalf of the government) are now the only source of income from parks and protected areas for the government.

As far as pricing of accommodation is concerned, NWR smoothed the accommodation prices, some prices were increased and some remained the same. NWR is currently planning on carrying out research that will be a benchmark on which the company can base its prices and for the company's price policy.

3.4 Pricing parks and resorts in Namibia

Table 7 shows the history of park fees in Namibia since 1994. The last two columns show the development of accommodation charges at Okaukuejo Rest Camp in Etosha. It can be seen that Namibia applies differential pricing between foreigners and citizens as well as differential pricing between parks. Taking park fees for foreign tourists as the baseline, adult citizens were eligible for a 20 per cent discount until 1995 and a 50 per cent discount from 1996 onwards (60 per cent in 1997 and back to 50 per cent in 1998).

Table 7 The history of park fees in Namibia (in \$N)

Parks/Resorts	Foreigners		Citizens		Fees are payable	Vehicle fee (payable once per entry)	Accommodation / night in Okaukuejo / Etosha ¹⁾	
	Adults	Children (6-16)	Adults	Children (6-16)			Bungalow 2 rooms/4 beds	Camping site
1994			(-20%)	(-20%)			105	25
Etosha National Park	8	4	6.4	3.2	per day	10		
Skeleton Coast Park								
All other parks and resorts*	5	2.5	4	2	per day	5		
1995			(-20%)	(-20%)			130	40
Etosha National Park	16	8	12.8	6.4	per day	20		
Sossusvlei/Sesriem Skeleton Coast Park								
All other parks and resorts*	8	4	6.4	3.2	per day	8		
1996			(-50%)	(-50%)			150	40
Etosha National Park	20	10	10	5	per day	20		
Sossusvlei/Sesriem Skeleton Coast Park								
All other parks and resorts*	10	5	5	2.5	per day	8		
1997			(-60%)				200	40
Etosha National Park	20	2	8	2	per day	10		
Sossusvlei/Sesriem Skeleton Coast Park								
All other parks and resorts*	10	1	4	1	per day	10		
1998 (day visitors only)			(-50%)				320	130
Etosha National Park	30	2	15	2	per day	10		
Sossusvlei/Sesriem								
Skeleton Coast Park	20	1	10	1	per day	10		
All other parks and resorts*	10	1	5	1	per day	10		
1999 (day visitors only)			(-50%)				320	130
Etosha National Park	30	2	15	2	per day	10		
Sossusvlei/Sesriem								
Skeleton Coast Park	20	1	10	1	per day	10		
All other parks and resorts*	10	1	5	1	per day	10		
2000			(-50)				320	130
Etosha, Popa Falls, Sossusvlei/Sesriem Mahango GR and Khaudum GR	30	1	15	1	per day	10		
Skeleton Coast Park	20	1	10	1	per day	10		
All other parks and resorts*	10	1	5	1	per day	10		
2001			(-50%)				380	140
Etosha, Sesriem	30	2	15	1	per day	10		
Hardap, Daan Viljoen, Waterberg, Popa, Khaudum, Cape Cross, Ai-Ais, Hobas, Skeleton coast	20	2	10	1	per day	10		
All other parks and resorts*	10	1	5	1	per day	10		

NOTE:

1) Namibian citizens (adults) have been eligible for discounts on accommodation and camping fees:

1994–1996: no discount

1997: 20 per cent (low season only)

1998–2001: 25 per cent (50 per cent discount on park fees)

2) Namibian citizens over 60 years of age are eligible to various discounts:

1994–1995: 40 per cent on entrance and 25 per cent on accommodation and camping fees

1996: 50 per cent on entrance and 25 per cent on accommodation and camping fees

1997: 10 per cent on accommodation and camping fees

1998–2001: 35 per cent on accommodation and camping fees

* A few parks have no entry fees, e.g. Mudumu and Mamili National Parks

Table 8 Percentage changes in park and accommodation prices at Okaukuejo/Etosha NP (1995–2001)

Year	Park price % change (foreigners)	Park price % change (citizens)	% price change (Bungalow)	% price change (campsite)
1995	100	100	24	60
1996	25	-22	15	0
1997	0	-20	33	0
1998	50	88	60	225
1999	0	0	0	0
2000	0	0	0	0
2001	0	0	19	8

Table 8 shows the percentage change in park prices and accommodation prices at Okaukuejo in Etosha. Until 1997, Namibia had only two price categories for parks and resorts. Entry fees at Etosha, Sossusvlei/Sesriem (the most visited part of Namib Naukluft Park) and Skeleton Coast Park were almost double the entry fees at all other parks and resorts. In 1998, an additional category was introduced. Etosha and Sossusvlei/Sesriem remain in the high price category, though other parks have moved between the high, medium and low price categories. These changes were based on administrators' perceptions regarding demand.

Table 9 Differential pricing between overnight and day visitors (1994 to 2001)*

	Park fees payable	Amount payable (\$N)*
1994		
Overnight visitors	once per entry	8
Day visitors	once per entry	32
1995		
Overnight visitors	once per entry	16
Day visitors	once per entry	[?]
1996		64
Overnight visitors	once per entry	20
Day visitors	once per entry	80
1997		
Overnight visitors	daily	80
Day visitors	daily	80
1998–1999		
Overnight visitors	no park fees	-
Day visitors	daily	120
2000–2001		
Overnight visitors	daily	120
Day Visitors	daily	12

* assuming a four day visit for one person (excluding accommodation and vehicle costs)

For many years, different prices for day and overnight visitors to parks were charged. (Overnight visitors are defined as tourists staying overnight in the park. Day visitors are tourists visiting the park only during daytime). Until 1996, park fees were payable at a once per entry basis, which meant tourists only paid to enter a protected area or resort no matter how many days they stayed. For day visitors, however, entering parks in the morning for one or a subsequent number of days, the once per entry fee works out just as a daily fee. In 1997 the Ministry of Environment and Tourism introduced a

daily fee for both groups, but this policy was changed again in 1998 when it was decided overnight visitors should pay no park fees at all⁵. However, daily fees were re-introduced in 2000 and 2001. Table 9 shows how these changes affected park fee expenses for both groups in the respective years using a four day visit per person to Etosha National Park as an example.

The table shows that it made no difference to day visitors whether park fees were payable at a once per entry or a daily basis. The changes only affected overnight visitors. Prior to 1997, overnight visitors paid considerably less to stay in Etosha than to visit daily. This financial advantage returned in 1998/9 but was removed in 2000 when daily park fees were reintroduced.

3.5 Interpreting Namibia's park fee policy

Park fees in Namibia changed almost every year during 1994 and 1998 but remained constant from 1998 to 2001. While environmentalists and economists have welcomed some of the policy changes, some others are heavily debated. A general point of criticism is the lack of continuity in government policy. Due to the yearly changes in park fee and accommodation charges, tour operators face great uncertainty when planning and costing their tours in advance. Independent travellers also have the same difficulties. Whether this had a negative impact on demand for nature tourism or even Namibia's reputation in the international tourism market is difficult to say—some tour operators believe so.

Namibia's pricing policy, which differentiates between tourists' origin and between parks/resorts, is common practice in most developing countries. The economic benefits of such a policy are outlined in Section 1.5. South Africa is the only country in the eastern and southern African region that charges foreign and local tourists the same amount. By doing so South African park authorities lose a large proportion of potential revenue, in form of foreign tourist's consumer surplus.

3.5.4 Daily and once per entry charges

Namibia followed the South African approach of charging on a once per entry basis for many years. Park managers tend to favour daily park fees for managerial reasons. Daily charges enable park managers to closely monitor daily visitor numbers and to influence visitation rates via the price. In contrast, once per entry pricing can make it difficult to monitor visitor numbers or to restrict tourist numbers to carrying capacity. Further, if park fees are the only source of income for parks, daily pricing is the only way to maximise revenues for park management.

3.5.5 Day and overnight visitor charges

Prior to the management of tourism facilities being taken over by NWR, the policy of allowing overnight visitors in free of charge could be interpreted as aiming to encourage visitors to use public tourist camps rather than private camps outside the parks. However, subsidising only the entry to parks does not guarantee more overnight visits. Tourist demand for accommodation inside and outside the park depends on the total costs of both options (accommodation charges plus park fees). Visitation rates also depend on the relative prices (and quality) of different accommodation options. If the aim of a policy is to increase overnight visits within the park, park authorities should aim to improve the quality and competitiveness of accommodation facilities within protected areas. This was possible when both park entry and accommodation facilities were managed by MET, but is considerably more difficult when they are under different management—coordination is required, while both management structures are likely to have different objectives.

⁵ Instead accommodation charges were raised.

Overnight visitors experience (and buy) to two different products—the first product is the ‘park experience’ (enjoying and learning about nature, wildlife viewing, safari adventure) and the second product is the ‘accommodation experience’. The first is generally the reason for the visit and the second serves as a means to enjoy the first for more than one day. Surveys show that tourists are willing to pay for each product according to its quality (perceived enjoyment or utility). Although it is the total price that will ultimately determine the level of demand, inappropriate pricing of individual products (e.g. free entry but high accommodation charges) can have a negative impact on visitor’s trip satisfaction and therefore on the park’s reputation in the tourism industry. Wildlife authorities should carefully examine tourists’ WTP for each product and set prices accordingly. NWR is planning research that will provide them with information regarding how visitors feel about accommodation prices. Daily park fees for overnight visitors are a step in right direction. The 1998/1999 pricing policy, however, with free access for overnight visitors and high accommodation charges is dangerous and may result in increasing dissatisfaction among tourists.

It is important that accommodation prices relate to the quality of accommodation. To give an example, the 1997 tourist survey in Etosha reveals that many tourists were unhappy about the quality of public rest camps (Krug, 1998). They complained about the cleanliness of ablution facilities, broken water taps and toilets. Some stated that the condition was unacceptable and that they would choose private accommodation next time.

3.5.6 Non-national residents and regional tourists

Non-national residents in Namibia must currently pay the same park entry fees as foreign tourists. This regulation is based on the assumption that most non-national residents are expatriates earning European or North American wages. However, many foreigners resident in Namibia earn local wages working for government, NGOs and charities as well as in the private sector. As the latter tend to pay tax in the country, contributing to economic development, it may be appropriate to introduce a third category of park prices to cater for non-national residents—a price higher than domestic tourists but lower than foreign tourists. In southern and eastern Africa, such a pricing scheme exists in Kenya, Uganda and Botswana, while Zambia does not differentiate at all between citizens and non-national residents.

Another problematic issue is the treatment of visitors from other countries within the region. Being foreign nationals, they currently pay the same fees as other overseas tourists. Many African countries have increased park fees for foreigners drastically in recent years—often based on (mostly North American and European) overseas tourists’ WTP—with little attention paid to tourists from the region. Most African park authorities have failed to account for the huge WTP difference between the two groups. As a result, the number of cross-border visits by African citizens to parks in neighbouring countries has dropped drastically.⁶ Tourist surveys in Namibia’s Etosha National Park and at Sossusvlei/Sesriem investigating regional and overseas tourists’ WTP for daily park fees in 1997 and 2000, shows enormous differences in WTP between the two groups (Krug, 1998 and 2002). Regional tourists stated a maximum WTP about 30 percent lower than other foreign tourists’ maximum WTP, and similar to domestic tourists’ WTP for Etosha and for Sossusvlei.

Pricing for regional tourists is very important. Decreasing visitation rates from neighbouring countries have so far not been regarded a problem since the drop of regional tourism was initially offset by increasing demand from other overseas destinations. However, an increasing dependence on overseas visitors can be dangerous. Experience shows that the overseas visitor market is very sensitive to both airfare prices and political instability. The larger the share of regional tourism, the smaller is the risk.

⁶ Barnes (1996) describes this phenomenon for Botswana.

Given that regional tourists account for almost a third of all foreign visitors to Namibia, it is recommended that a separate price category for regional tourists is introduced, according to their ability to pay. This could be a successful strategy to draw away regional tourists from other regional destinations to Namibian parks.

3.6 The optimal level and structure of park fees

The lack of data on tourism demand makes it difficult to calculate an optimal fee structure for Namibia's parks and resorts. Detailed information is available only for Etosha National Park and Sossusvlei/Sesriem. Large scale visitor surveys—carried out in 1997 in Etosha, and in 2000 at Sossusvlei—give a clear picture of tourists' opinion regarding the level and structure of park fees (Krug 1998 and 2002). The surveys distinguished between Namibian visitors, regional and overseas visitors. South African tourists accounted for over 85 per cent of tourists from within the region in both parks. Table 10 shows how tourists judged the Etosha park fees in 1997 and Table 11 outlines tourists' perceptions of park fees at Sossusvlei in 2000.

Table 10 Tourists' opinion about the daily park fees (adult) at Etosha in 1997

	Too low (%)	Just right (%)	Too high (%)
Overseas visitors (\$N20)	47	46	7
Visitors from within the region (\$N20)	11	47	42
Namibian visitors (\$N8)	22	72	6

Source: Krug, 1998.

Table 11 Tourists' opinion about the daily park fees (adult) at Sossusvlei in 2000

	Too low (%)	Just right (%)	Too high (%)	Don't know
Overseas visitors (\$N30)	47	45	6	2
Visitors from within the region (\$N30)	18	57	25	-
Namibian visitors (\$N15)	18	53	12	17

Source: Krug, 2002.

In both surveys the majority of overseas visitors state that park fees are too low. In the Etosha survey about 42 per cent of regional visitors state that park fees are too high. This was expected since South Africans spend more days in Etosha than tourists from other origins (see Table 12) and because they are used to once per entry pricing and relatively low park fees in their home country (see Table 4).

Table 12 Number of days tourists spend in Etosha

	Mean	Median
Overseas tourists	3.7	3.0
Visitors from within the region	6.0	5.0
Namibians	4.0	4.0

Source: Krug, 1998.

To investigate tourists maximum WTP for daily fees a contingent valuation methodology was applied. Tourists were asked to state their WTP for two hypothetical scenarios:

- **Scenario A:** An independent organisation, such as the WWF (World Wide Fund for Nature) manages the park revenues and makes sure that all the money raised stays in the park and is used exclusively for the protection of endangered species and the maintenance of the park;
- **Scenario B:** All money raised through park fees goes to the central government treasury, and the government takes care of the protection of endangered species and the maintenance of the park.

The results of the Etosha survey are given in Table 13 and for the Sossusvlei survey in Table 14.

Table 13 Etosha National Park: Maximum WTP for daily park fees in 1997 (in \$N)*

	Park fees in 1997	Max WTP for Scenario A NGO or Private Management	Max. WTP for Scenario B Government Management
Overseas tourists	20		
Mean		68	48
Median		40	30
Tourists from other African countries	20		
Mean		53	36
Median		30	20
Namibian tourists	8		
Mean		37	16
Median		20	8

* WTP values given exclude protest bids

Source: Krug, 2002.

In both surveys the mean ‘maximum WTP’ values for either scenario are much higher than the prevailing fees, indicating that Etosha and Sossusvlei are under priced. Tourists perceived substantial benefits in the form of consumer surplus. However, the results change when looking at median values⁷. Looking at the median WTP values for scenario B it can be seen that Namibian and other African tourists WTP above current fees is zero. The WTP difference between the two scenarios shows that tourists feel strongly about the institution that manages the park revenues and the way the money is spent. Visitors to Etosha and Sossusvlei would prefer an independent organisation to manage park revenues and thus, would be willing to pay higher entry fees if such an institution were to be responsible for conservation management. Public distrust in government institutions is not problem specific to Namibia, but rather a phenomenon that occurs in many countries. Interestingly, Namibian and other African tourists trust the Namibian government less than other overseas tourists (as can be seen in the WTP difference between scenario A and B).

⁷ Median values are unaffected by large bids in the upper tail of the distribution and reflect the average value which a one-person one-vote referendum system would allocate to the policy.

Table 14 Sossusvlei: Maximum WTP for daily park fees in 2000 (in \$N)*

	Park fees in 2000	Max WTP for Scenario A NGO or Private Management	Max. WTP for Scenario B Government Management
Overseas tourists	30		
Mean		104	75
Median		85	60
Tourists from other African countries	30		
Mean		74	51
Median		75	30
Namibian tourists	15		
Mean		46	21
Median		40	15

* WTP values given exclude protest bids

Source: Krug, 2002.

Namibia re-introduced daily park fees in 2000. Based on the 1997 survey results it is possible to draw *a priori* conclusions about the proposed fees for Etosha. Assuming scenario B represents the current situation in Namibia then the scenario B WTP figures are relevant. As a result, Namibian tourists will have to pay 100 per cent of their stated maximum WTP, overseas tourists 65 per cent and other African tourists 94 per cent. Namibian and other African tourists will be left with little or no consumer surplus while overseas tourists will enjoy 30 per cent consumer surplus. It is therefore possible to conclude that park fees for overseas tourists are too low. The Sossusvlei survey reveals similar results.

Using elasticities of WTP it is possible to forecast visitor numbers for given prices and therefore to estimate revenue maximizing park fees. Table 15 shows calculations by Krug (2002) and give the optimal set of park fees for Etosha NP and Sossusvlei under the assumption of an independent organisation managing parks in Namibia (Scenario A). In other words, the results represent the maximum amount of revenues for both parks under a) an optimal pricing scheme and b) non-government management regime. A comparison reveals that revenues at Etosha would increase by 44 per cent or \$N1.8 million. Even if fees for Namibian residents would remain constant at \$N8 an optimal pricing of regional and overseas tourists would increase revenues by 35 per cent or \$N1.5 million. Note that overseas visitors' revenue max. fees for Etosha in 1997 (\$N40) and for Sossusvlei in 2000 (\$N80) are almost the same in US Dollar terms (approximately \$US10)⁸.

⁸ The exchange rate in 1997 was \$N4.6:\$US1 and in 2000 \$N6.8:\$US1.

Table 15 Revenue estimates for Etosha NP, 1997*

	Namibian	Regional	Overseas	TOTAL
Revenue capture – 1997 fees				
Entry fee (\$N)	8	20	20	
Total number of visitor days	94,655	60,375	112,649	267,679
Revenue (in Namibian Dollars)	757,200	1,207,500	2,253,000	4,217,700
Revenue capture - optimal fees & independent management				
Entry fee (\$N)	20	30	40	
Total number of visitor days	56,092	46,802	88,733	191,627
Revenue (in Namibian Dollars)	1,121,800	1,404,100	3,549,300	6,075,200
<i>Revenue increase</i>	+48%	+16%	+57%	+44%

* Assuming all visitors pay adult fees. Accounting for concessionary rates for children and students would result in a slight reduction of revenues.

Table 16 Revenue estimates for Sossusvlei, 2000*

	Namibian	Regional	Overseas	TOTAL
Revenue capture – 2000 fees				
Entry fee (\$N)	15	30	30	
Total number of visitor days	30,851	13,341	39,189	83,381
Revenue (in Namibian Dollars)	462,765	400,230	1,175,670	2,038,665
Revenue capture - optimal fees & independent management				
Entry fee (\$N)	15**	50	80	
Total number of visitor days	30,851	10,000	25,000	65,851
Revenue (in Namibian Dollars)	462,765	500,000	2,000,000	2,962,765
<i>Revenue increase</i>	-	+25%	+70%	+45%

* Assuming all visitors pay adult fees. Accounting for concessionary rates for children and students would result in a slight reduction of revenues.

** Date limitations did not allow the estimation of revenue maximising fees for Namibian tourists. Hence, current fees are used.

Table 17 Suggested fees for Etosha and Sossusvlei under the assumption of independent management*

	Etosha	Sossusvlei
Overseas visitors	The \$N equivalent of \$US 10	The \$N equivalent of \$US 10
Regional visitors	\$N 30	\$N 50
Namibian Visitors	\$N 20	\$N 20

* Adult fees

3.6.7 Quoting park fees for overseas visitors in hard currency

As outlined in Section 1.6, there is good reason for developing countries to link park fees for overseas tourists to a certain 'hard currency' value (e.g. US Dollars or Euros). This is especially useful if the local currency is likely to lose value against so called hard currencies. Countries such as Kenya, Uganda and Zimbabwe quote park fees for foreign tourists in US Dollars, but allow visitors to pay the equivalent amount in local currency. This ensures that exchange rate fluctuations or a devaluation of local currency will not adversely affect receipts from protected areas. It also allows park authorities to forecast foreign demand more accurately and makes it easier for tourists and tour operators to plan trip costs. Another benefit is that it is likely to increase revenues: the weaker the local currency the

higher the revenues. Table 18 shows how exchange rates have influenced foreign tourists' park fee expenditure at Etosha National Park between 1994 and 2001.

Table 18 Overseas tourists' park fees expenses at Etosha – The impact of currency depreciation*

	1996	1997	1998	1999	2000	2001	Net change 1996-2001
Daily fee in \$N terms	20	20	30	30	30	30	+50%
<i>Exchange rate</i>	4.6	4.6	5.9	6.1	6.8	11	
Daily fee in \$US terms	4.3	4.3	5.1	4.9	4.4	2.7	-37%

* Not taking inflation into account

Although park prices have increased by 50 per cent in the period between 1996 and 2001, overseas tourists' park fee expenditure dropped by some 37 per cent in US Dollar terms.

3.6.8 The distributional effects of the introduction of the 1998/1999 park and accommodation charges

So far, this section has focused on park fees. Table 19 shows how foreign tourists' total expenditure changed with the introduction of the new park fee and accommodation charges. Results are given for groups of four and eight tourists staying for four nights and four days in Etosha.

Table 19 Foreign tourists' expenditure in Etosha*

	\$N in 1997	\$N in 1999	\$N in 2001
A group of eight tourists visiting Etosha for four days and four nights (excluding vehicle costs)			
Day visitors (staying in accommodation outside the park)	640	960 (+50%)	960 (-)
Overnight visitors – camping	800	520 (-35%)	1,520 (+192%)
Overnight visitors – bungalows (2 rooms/4 beds)	2,240	2,560 (+14%)	4,000 (+56%)
Group of four tourists visiting Etosha for four days and four nights (excluding vehicle costs)			
Day visitors (staying in accommodation outside the park)	320	480 (+50%)	480 (-)
Overnight visitors – camping	480	520 (+8%)	1,040 (+100%)
Overnight visitors – bungalow (2 rooms/4 beds)	1,120	1,280 (+14%)	2,000 (+56%)

* Using accommodation prices at Okaukuejo

Day visitors experienced an expenditure increase of 50 per cent. Overnight visitors, staying in a two-bedroom bungalow paid 79 per cent more between 1997 and 2001. The expenditure effect for overnight visitors using camping facilities depends on the size of the group. This is because campsites in Namibia can accommodate up to eight people and are charged at a flat rate. For a group of eight campers, expenditure increased by 90 per cent between 1997 and 2001; (significantly more between 1999 and 2001 with the reintroduction of daily fees for overnight visitors in 2000). Given the flat rate for a campsite, this increase was larger the smaller the camping group (115 per cent for a group of four). The 1998 policy to remove daily entry fees for overnight visitors greatly benefited the large number of Namibian camping tour operators (as can be deduced from the 35 per cent reduction in cost between 1997 and 1998/9, which was accompanied by a large increase in group bookings during this period). However, given that most visitors to Etosha camp rather than stay in bungalows (46 per cent; Krug, 1998), park revenues are likely to have declined, or at best only minimally increased. The reintroduction of daily park fees for overnight visitors in 2000 has meant that large camping groups are no longer subsidised by other park visitors.

3.6.9 Difficulties in pricing local visitors

While park fees for foreign tourists are mainly based on economic and environmental considerations, setting fees for local visitors is more difficult and involves a careful balance of social and economic issues. One does not want to exclude low-income groups (usually citizens) from their natural heritage. However, throughout Africa, the majority of local visitors to parks originate from the wealthy parts of the population. Visitation levels from low-income groups or from rural communities are low. The reported WTP values for citizens (based on samples of actual park users) are not representative for the local population and reflect WTP of high income earners within the country. Several countries have therefore set local park fees far below park users WTP. However, experience shows that reducing park fees for citizens has little effect on the visitation rates from low-income groups. One explanation for this is that it is not only park fees that determine demand, but rather total trip costs. As park fees are only a small proportion of total trip costs, transport and accommodation costs are most likely to be the limiting factors preventing visits from lower income earners. Policies aimed at promoting visits to protected areas by low-income groups should therefore focus on subsidising transport and accommodation rather than solely on park prices.

4. CONCLUSION

Empirical evidence shows that parks and game reserves in eastern and southern Africa are under-priced and there are large revenues that are not captured by park management. The situation is no different in Namibia. These uncaptured revenues are the result of large consumer surpluses, particularly those of international tourists (though to a lesser extent, also those of domestic and regional tourists). The surveys conducted in Etosha National Park and Sesriem/Sossusvlei show that many international tourists, as well as some regional and domestic tourists, believe that the entry fees for each of these locations is too low. In addition, the average willingness to pay for all tourists was substantially higher than the actual prices charged for both parks. This presence of large consumer surpluses, particularly of foreign visitors indicates that there is an opportunity for park managers to increase entry fees for, at the very least, some of Namibia's most popular parks and game reserves.

This study also indicates that tourists would be willing to pay more if their entry fees were to be managed by an independent organisation (i.e. not by government) and were used for biodiversity conservation and park maintenance, than if government collected the revenues and managed parks and conservation. Given that it is unlikely that government will hand over responsibility for parks to an independent organisation, the feasibility of earmarking funds collected from Namibia's protected areas for expenditure on biodiversity conservation and park maintenance should be examined.

If park managers were to consider changing entry prices for protected areas in Namibia, a number of factors should be taken into account. The first is that any fee structure should be chosen to maximise the revenues earned by each park/game reserve. This is likely to require a three-tiered fee structure, charging different prices for domestic, regional and other international visitors. Such a structure would enable park managers to maximise revenue from visitors, but would also help to ensure social equity by ensuring that no category of visitor was excluded because of unaffordable entry fees.

Different fees for different parks – depending on their popularity, accessibility and the amenities offered within the park – would also be necessary. (Namibia already charges different prices for different parks/game reserves, but to ensure the economic efficiency of these differences an assessment of the quality of each of Namibia's protected areas would need to be undertaken.) Given that some of the more remote and inaccessible parks are unlikely to generate significant income, there may need to be some system of cross-subsidisation of the lower earning parks from the higher

earners. (This could only be the case if total park revenue was sufficient to cover both park maintenance and biodiversity conservation costs in Namibia.)

Other factors that would need to be considered would be setting prices that would maximise revenue while not allowing tourist numbers to exceed the ecological carrying capacity of the park; that would limit tourist numbers to the social carrying capacity of surrounding communities; and that would limit visitor numbers to prevent congestion in protected areas.

It must be recognised that tourists purchase two different products if they stay overnight in a park/game reserve – the wildlife/wilderness experience and accommodation. Park managers and NWR should cooperate when setting prices to ensure that the combined cost of entering and staying in protected areas is not excessive.

Historically, park fees do not seem to have been set with these factors in mind. This research shows that if prices were to be set at economically efficient levels, it would be possible to maximise the revenues from parks and game reserves which could, in turn, contribute to improved park maintenance and biodiversity conservation in Namibia.

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ANNEX 1 STUDIES ON INTERNATIONAL NATURE TOURISM - WTP ESTIMATES FOR PROTECTED AREAS *

Study	Country/ base year	Valuation methods	Type of values estimated	Economic values (\$US)**	Significance of uncaptured international benefits (CS)
Barnes, 1996	Botswana 1992	CVM and TCM survey among tourists in Chobe NP and Moremi Game Reserve Separate results for African and overseas tourists	WTP for wildlife viewing trips to Botswana (direct use values and to some extent also non-use values) WTP for a wildlife conservation fund (non-use values)	Total economic value (WTP) of wildlife viewing industry: \$115 m <u>CS per trip to Botswana:</u> - African tourists: \$106 - Overseas tourists: \$438 Total CS/year: \$20 million <u>WTP for conservation fund:</u> - African tourists: \$45 - Overseas tourists: \$145 Total WTP/year: \$4 million	Most CS derives from international tourists <u>Uncaptured benefit ratio (regional/international):</u> - trip consumer surplus: 1/4 - WTP for conservation fund: 1/3
Barnes, Schier & Rooy, 1997	Namibia 1994/95	CVM and TCM survey among tourists using wildlife-based tourism facilities throughout Namibia Separate results for local and international tourists	WTP for wildlife viewing trips to Namibia (direct use values and to some extent also non-use values) WTP into a wildlife conservation fund (non-use values)	Total economic value (WTP) of wildlife viewing industry: \$203 m <u>CS per trip to Namibia:</u> - Namibian tourists: \$98 - Other African tourists: \$153 - Overseas tourists: \$169 Total CS/year: \$40 million <u>WTP for conservation fund:</u> - \$28/tourist (all tourists) - Total WTP/year: \$7.7 million	CS ratio (local/international) for wildlife viewing trips to Namibia: 1/4
Brown <i>et al.</i> , 1994	Kenya 1993	CVM and TCM survey among foreign tourists in Kenyan parks and at Nairobi airport	WTP for viewing and preserving wildlife in Kenyan parks as a percentage of total trip cost (direct use values and non-use values)	Consumer surplus per visitor: - \$499-858 (TCM) - \$332-550 (CVM)	CS estimates reflect uncaptured international benefits
Brown <i>et al.</i> , 1995	Zimbabwe 1994	CVM and TCM survey among foreign tourists in Hwange and Mana Pools NP	WTP for viewing and preserving wildlife in two National Parks as a percentage of total trip cost (direct use values and non-use values)	- Total economic value (WTP) of wildlife viewing industry: \$49.9 m - Total tourist expenditures: \$41.8 m - Total CS/year: 8.1 m - CS per visitor: \$326-485	CS estimates reflect uncaptured international benefits Only 39 percent of the parks' total use value remains in the country

Study	Country/ base year	Valuation methods	Type of values estimated	Economic values (\$US)**	Significance of uncaptured international benefits (CS)
Chase <i>et al.</i> , 1998	Costa Rica 1995	CBM survey among foreign tourists in Irazú Volcano, Poás Volcano and Manuel Antonio NP	WTP for a daily entry fee for each of the three parks (mainly direct use values) After estimating own-price elasticities and cross-price elasticities between parks Chase <i>et al.</i> 1998 calculate the revenue maximising fees for the three parks Revenue maximising fees would increase total park revenues sharply, by \$1.04 million (+ 68%)	<u>Daily WTP/person:</u> Irazú Volcano NP: \$21.7 Poás Volcano NP: \$21.6 M. Antonio NP: \$24.9 <u>Daily CS/person:</u> Irazú Volcano NP: \$9.5 Poás Volcano NP: \$11.8 M. Antonio NP: \$15.3 <u>Revenue maximising. fees:</u> Irazú Volcano NP: \$7.0 Poás Volcano NP: \$9.3 M. Antonio NP: \$13.6	CS estimates reflect uncaptured international benefits
Clark <i>et al.</i> , 1995	Tanzania 1994/95	CVM and TCM survey among mainly foreign tourists in Tarangire NP (only 10% national residents) Separate results for non-residents (NR) and non-national residents (NNR)	WTP for a daily entrance fee for viewing and preserving wildlife in Tarangire NP (direct use values and non-use values) Extrapolated across all NP in Tanzania	<u>Total WTP per year:</u> - NR: \$0.55 m (\$36.6/person/day) - NNR: \$0.25 m (\$16.4/person/day) <u>Total CS per year:</u> - NR: \$0.25 m - NNR: \$0.1 m <u>Total WTP for parks in Tanzania:</u> - NR: \$4.4 million - NNR: \$1.9 million	NR consumer surplus reflects uncaptured international benefits
Dixon, Scura & Bonire van't Hof, 1995	(Netherlands Antilles) 1991	CV survey among foreign scuba diving tourists in Bonaire Marine Park (BMP)	WTP for scuba diving and preserving BMP (direct use values and non-use values)	- WTP/person and visit: \$27 - CS/person and visit: \$17 Aggregate CS per year: \$0.32 m	- CS estimates reflect uncaptured international benefits - CS more than doubles the annual recurring costs
Echeverria <i>et al.</i> , 1995	Costa Rica 1991/92	CV survey among tourists in Monteverde Cloud Forest Reserve (MCFR); residents and non-residents were interviewed	WTP for visiting and preserving MCFR (direct use values and non-use values)	Consumer surplus of \$121 per trip Aggregate value/year: \$2.38 million	Most consumer surplus reflects uncaptured international benefits

Study	Country/ base year	Valuation methods	Type of values estimated	Economic values (\$US)**	Significance of uncaptured international benefits (CS)
Flatley & Bennett, 1996	Vanuatu 1994	CV survey among Australian visitors to Vanuatu	WTP for the preservation of two tropical rainforest areas on the islands of Erromango and Malakula (direct use values and non-use values)	WTP per person as a one-time contribution: \$14 - Aggregate value per year: \$0.28 m - Value per ha: \$48	Estimates reflect uncaptured international benefits
Hadker <i>et al.</i> , 1997	India 1995	CV survey among residents of Bombay (park users, potential users and non-users)	WTP for preserving Borivli National Park (use and non use values)	WTP per household of Rs 7.5 Aggregate value of Rs 248 million	Most of aggregate WTP can be interpreted as uncaptured consumer surplus (even park users are not charged)
Maille Mendelsohn 1993	& Madagascar 1990/91	TCM survey among foreign tourists in Beza Mahafaly Special Reserve (BMSR)	Foreign tourists consumer surplus for nature tourism in Madagascar; Estimates are based on tourists visiting BMSR (the TCM measures direct use values only)	Consumer surplus of \$265-\$349 per person for a trip to Madagascar	Estimates reflect uncaptured international benefits
Mercer, Kramer & Sharma, 1995	Madagascar 1991	CVM and TCM survey to estimate foreign tourists' WTP for including a new rain forest park in their current trip	WTP for viewing and preserving wildlife in a new national park (Mantadia NP). TCM estimates direct use values; CVM can estimate use and non-use values	<u>TCM</u> : CS of \$46 - \$268/person and trip depending on different assumptions on trip quality increase. Aggregate value/year: \$0.18-\$1.05 m <u>CVM</u> : CS of \$61/person and trip Aggregate CS/year: \$0.24 m	Estimates reflect uncaptured international benefits
Moran, 1994	Kenya 1993	CVM survey among foreign tourists visiting parks in Kenya	WTP for viewing and preserving wildlife in Kenyan parks as a percentage of total trip cost (direct use values and non-use values)	Daily WTP/person: \$71 Aggregate CS/year: \$46-450 million, depending on visitation rates	Estimates reflect uncaptured international benefits
Navrud Mungatana, 1994	& Kenya 1991	CVM and TCM survey among tourists in Lake Nakuru National Park 70% non-residents (NR) 30% residents (R)	WTP for viewing and preserving wildlife in Lake Nakuru NP as a percentage of total trip cost (direct use values and non-use values)	<u>TCM</u> CS: \$13.7 - \$15.1 million per year <u>CVM</u> - NR consumer surplus: \$73/trip - R consumer surplus: \$20/trip Aggregate CS/year: \$7.5 million	Most consumer surplus reflects uncaptured international benefits

Study	Country/ base year	Valuation methods	Type of values estimated	Economic values (\$US)**	Significance of uncaptured international benefits (CS)
Shultz, Pinazzo & Cifuentes, 1997	Costa Rica 1995	CVM survey among local and foreign tourists in Poas Volcano NP and Manuel Antonio NP	WTP for a daily entry fees under the assumption of improved infrastructure and services in the park (direct use values and to some extent also non-use values)	<u>WTP/day for Poas Volcano NP</u> R: \$11; NR: \$23 <u>WTP/day for Manuel Antonio NP</u> R: \$13; NR: \$14 <u>Consumer surplus/visitor and day¹⁾</u> - Poas Volcano NP: R \$10; NR \$17 - Manuel Antonio NP: R \$12; NR \$8	Most consumer surplus reflects uncaptured international benefits
Swanson <i>et al</i> , 1999	China 1998	CVM survey among tourists for Wolong Reserve.	WTP for visiting and preserving Wolong Reserve through maximising revenues from entry fees.	<u>WTP for entry/day for Wolong Reserve</u> <u>CS = \$18</u> <u>Aggregate CS/year = \$1.21m–1.56m.</u>	Most consumer surplus reflects uncaptured international benefits
Tobias Mendelsohn 1991	& Costa Rica 1988	TCM survey among Costa Rican residents in Monteverde Cloud Forest Reserve (MCFR)	Costa Rican residents consumer surplus for visiting MCFR (TCM measures direct use values only). Estimates for foreign tourists are based on the assumption of equal CS for domestic and foreign tourists.	- Consumer surplus of \$35 per visit for domestic tourists. - Aggregate domestic CS: \$0.1 - \$0.12 m per year - Aggregate foreign CS: \$0.4 - \$0.5 m per year	Consumer surplus ratio (local/international): 1/4

* Surveys eliciting tourists' WTP for nature trips or park entry fees estimate mainly use values. However, depending on the question format, the estimates also reflect non-use values to some extent.

** Contingent valuation estimates if not stated otherwise.

1) Calculations are based on current entry fees in Costa Rica.

KEY:

CS = consumer surplus

CBM = contingent behaviour methodology

CVM = contingent valuation method

NP = national park

TCM = travel cost method

WTP = willingness to pay

NR = non-residents

NNR = non-national residents

R = residents

Source: Krug, 2002

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