Tourists' perceptions and their willingness to pay for park fees: A case study of self-drive tourists and clients for mobile tour operators in Moremi Game Reserve, Botswana

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Abstract

Moremi game reserve (MGR) in northern Botswana is one of southern Africa's most popular destination because of its impressive wildlife and wilderness areas. To maintain the wilderness nature of the park and game reserve, the Government has pursued a policy of high cost-low volume which is not necessarily based on demand and supply characteristics of the tourist market. The present study determines the perceptions of self-drive tourists and clients of mobile tour operators on the prevailing park fees in MGR and uses the contingent valuation method to determine their willingness to pay (WTP) for park fees under a management scenario in which the management of the game reserve would be improved by a hypothetical international conservation organization. Data collection involved a self-fill of a questionnaire by these tourists in the game reserve. In the first scenario the mean entrance and camping suggested by non-residents was higher than the prevailing fee. Residents suggested a lower entrance fee. In the hypothetical scenario, the mean maximum WTP for entrance and camping fee for South African and overseas tourists were higher than in the first scenario. There was a significant difference in the WTP for entrance fee between overseas tourists and South African tourists ($p<0.05$). Overall expenditure was significantly related to the WTP for increased park fees. The paper concludes by suggesting improvement in the MGR's facilities for better satisfaction of tourists.

Keywords: Entrance fee; Camping fee; Willingness to pay; Tourists

1. Introduction and background

Moremi game reserve (MGR) (4871 km^2) is situated in the eastern section of the Okavango Delta, Botswana. The game reserve was established and approved by the Batawana tribe in 1963, and was officially designated as a game reserve in April 1965 when it was managed by the Fauna Conservation Society of Ngamiland (Kalahari Conservation Society, 1991). It was extended to include Chief's Island in 1976 and then taken over by the Department of Wildlife and National Parks (DWNP) in August 1979. In 1992, the game reserve was further extended to include 20% of the Okavango Delta within its boundaries (Kalahari Conservation Society, 1991).

MGR provides access to the Okavango Delta's wide variety of attractions, which range from wilderness experience, wildlife viewing, birdlife, game drives to mekoro trips. It is one of southern Africa's most popular safari destinations as it is hugely populated with impressive wildlife and wilderness areas (Barnes, 1998). The reserve has traditionally been perceived as one of the "most unspoiled" (least developed and least regulated) reserves in southern Africa. Because of its variety, wildlife viewing is an important aspect of the tourism sector. Tourism is Botswana's second largest contributor to the Gross Domestic Product (5% contribution to GDP) after the diamond-mining sub-sector (Department of Tourism, 2002).

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According to DWNP (2004), the total number of tourists who visited MGR during 2004 was estimated at 38,422. The reserve contributed the second largest share of 36% of the total revenue generated by the main parks and reserves in Northern Botswana. The main sources of revenue include fees for entrance, camping, use of vehicles, use of boats, viewing wildlife with aircraft, and filming and research.

Notwithstanding the significant revenue contribution of MGR to the overall tourism sector, recent research on the 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 the management of protected areas (Krug, Suich, & Haimbodi, 2002). The setting of park fees in many African countries is not necessarily based on a thorough understanding of the characteristics of supply and demand of goods and services in the tourism sector. The lack of information on supply and demand, therefore, 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 pricing policies are (Krug et al., 2002). It has also been asserted that entrance fees in many African parks, which are not set by the market, are too low to capture the economic value that tourist visitors place on protected areas (e.g. Walpole, Goodwin, & Ward, 2001). The low entry fees fail to justify conservation of biodiversity or pursuance of a policy of cost recovery. Some African countries, such as Zimbabwe and Kenya, have consequently adjusted their park entry fees by charging comparatively high entrance fees to meet the policy objectives of revenue maximization and cost recovery (Walpole et al., 2001).

Botswana's tourism policy emphasizes the protection and conservation of biodiversity, especially from environmental impacts anticipated from the high number of tourists. The policy promotes high cost-low volume tourism (Government of Botswana, 1990) because high prices (fees) are expected to lead to a low demand for tourists, thereby reducing environmental degradation (Beeton & Benfield, 2002). Through this policy, the Government aims to protect the fragile and attractive ecosystems of the Okavango Delta and Makgadikgadi Pans (Rozemeijer, Gujadhur, Motshubi, van den Berg, & Flyman, 2000). Mbaiwa (2005), however, argues that high cost-low volume tourism policy has discouraged local investors from doing business in the tourist sector because infrastructure such as accommodation facilities needed in the Okavango Delta are costly to construct.

The aim of this article is to determine perceptions of tourists on entrance and camping fees in MGR and their willingness to pay (WTP) for increased park fees under an alternative management using the contingent valuation method (CVM). The focus of the study is on self-drive tourists and clients of mobile tour operators. The specific research objectives of the paper are: (1) to determine the perceptions of tourists on entrance and camping fees in MGR, (2) to determine the willingness of tourists to pay for increased entry and camping fees if the management of MGR was to be taken over by a hypothetical body known as international conservation organization (ICO) with the aim of promoting sustainable development in the Okavango Delta, and (3) to make suggestions for policy.

2. Economic valuation approach in parks using the CVM

The CVM is a direct valuation method in which a sample of the relevant population is asked questions about their WTP or willingness to accept (WTA) (Carson, 2000; Emerton & Bos, 2004; Hanley & Splash, 1993; Pearce & Turner, 1990; Perman, Ma, McGilvray, & Common, 2003; Turpie, 2003; Venkatachalam, 2004; Whittington, 2004). The principal assumption underlying this method is that people have true, but hidden, economic values for environmental goods, which can be revealed through the creation of hypothetical markets (Hoevenagel, 1994). Accordingly, the value of any good depends on its utility to individuals, and individuals behave rationally by maximizing their utility (Hoevenagel, 1994).

The maximum WTP and minimum WTA can be measured using the two economic concepts of compensating variation and equivalent variation (Venkatachalam, 2004). If the policy brings welfare gain to consumers, the compensation variation (WTP) represents the amount of money income that has to be given up by the consumer to attain an increased level of utility (Venkatachalam, 2004). Equivalent variation (WTA) represents the amount of compensation required to be provided to the individual so that she/he could attain an improved utility level in case the provision of the public good does not take place (Venkatachalam, 2004). If the policy brings a welfare loss, compensating variation (WTA) represents the minimum amount of money income needed to compensate an individual to forego a benefit or to incur a loss, and this compensation reflects the value of such a benefit or a loss, while equivalent variation (WTP) represents the amount of money that an individual or consumer would sacrifice from preventing the loss from occurring in the future.

A major strength of the CVM is that it can be applied to many valuation situations since it does not rely on actual markets or observed behaviour (Emerton & Bos, 2004; Pearce & Moran, 1994). Because it has a wide scope of applications, the CVM can measure a category of value called non-use value, which comprise existence and bequest values (Hoevenagel, 1994; Perman et al., 2003). In spite of these strengths, the CVM is subject to a number of biases that affect the validity and reliability of its results (Arrow et al., 1993; Pearce, 1993; Pearce & Barbier, 2000; Venkatachalam, 2004). According to Venkatachalam (2004), these biases include the following: (1) embedding effects, where the WTP of goods and services does not vary according to their scope; (2) sequencing effects, where the WTP of goods and services varies when the order of their

valuation changes; (3) information effect, which occurs when the WTP of goods and services is affected by information provided in valuation scenarios; (4) elicitation effects, which means that the WTP is affected by the kind of elicitation technique used to estimate the WTP; (5) hypothetical bias, where the hypothetical market suggested is significantly different from the real market; and finally (6) strategic bias, where the true WTP is not revealed because there is free riding.

Responses on the WTP surveys can be obtained using face-to-face interviews, self-completion of questionnaires, mail and telephone surveys (Garrod & Willis, 2001). Face-to-face interviews offer a high response rate but are expensive; mail surveys and telephone interviews are cheaper but the former gets lower response rates whilst the latter restricts the information that can be provided (Garrod & Willis, 2001; Perman et al., 2003).

In the CVM surveys, dichotomous choice questions, open-ended questions, bidding games or the payment card method, are used (Emerton & Bos, 2004). Dichotomous choice questions present an upper and lower estimate between which respondents have to choose, while open-ended questions make it is easier for respondents to reveal the economic value they attach to an environmental good without specifying any value to the respondent. Bidding game encourages respondents to consider their preferences carefully and helps respondents arrive more accurately at their economic value (Hoevenagel, 1994). In the payment card method, respondents are shown a range of values to choose from (Hoevenagel, 1994).

The CVM has been applied to park management in some developing countries. In Thailand, Israngkura (1997) used the CVM to measure environmental benefits of three recreational areas of Doi Inthanon National Park, Doi Suthep and Mae Sa Waterfall. The aim of the study was to investigate the possibility of improving the entrance fee system in order to finance the conservation of the parks. The contingent ranking method was used, whereby respondents were asked to order five hypothetical recreational trips (which varied over five attributes) according to their perceived importance. It is stated that the method makes contingent valuation easier because it is not necessary to mention the exact amount of hypothetical values as in the case with open-ended WTP method (Isangkura, 1997, p. 6). By deducting the trip expenses from the values of contingent ranking, the recreational values were estimated. These values were used to determine the entrance fees for the three recreational areas as there was no relationship between park entrance fees and recreational benefits. It was recommended that the entrance fees for Mae Sa Waterfall should be increased from 5 baht (USA 12 cents) to 20 baht (USA 50 cents) per person, while those of Doe Inthanon should be increased from 5 baht (USA 12 cents) to 40 baht (USA 1$) per person. The entrance fees for Doi Suthep were to remain the same as the spiritual value of the site could not be determined.

In Namibia, Barnes, Schier, and van Rooy (1997) used the CVM to determine tourists' WTP for wildlife viewing trips, park entry fees, wildlife conservation and community-based tourism initiatives. A total of 752 visitors who came to view wildlife throughout the country in Namibia were sampled for interviewing using a detailed questionnaire. The payment card and open-ended questions were used to obtain information about the WTP as these methods do not require sophisticated methods of statistical analysis, according the authors. The results indicated that Namibian tourists had a WTP of N$362[1] per tourist for admission to parks as compared to foreign tourists who had a WTP of N$627 per tourist. The average tourist was willing to pay N$104 into a wildlife conservation fund and N$26 into a community trust fund for furthering the community welfare of rural communities in Namibia. The WTP values for overseas visitors were significantly higher than those for Namibians, a reflection of the differences in their incomes. The study concluded that there was need for the development of mechanisms for tapping the consumer's surplus from tourists such as by raising accommodation prices to market levels, introducing park admission fees, and establishing conservation and community funds.

In Kenya, Navrud and Mungatana (1994) used the CVM to determine the recreational value of wildlife viewing in Lake Nakuru National Park (LNNP) in 1991. A total of 185 adults who visited the LNNP were interviewed. The methods of payment card and open-ended questions were used to determine recreational value of LNNP. The WTP and WTA values were derived using two valuation exercises. In the first exercise, non-residents were asked about their total costs (accommodation and travel costs) to LNNP and also about the maximum increase in their total costs they would have accepted before deciding to travel to LNNP. The last question directly estimated the consumer's surplus of visiting the LNNP to view the flamingos. The information was used to estimate an independent value of the WTP, which was estimated by multiplying the consumers surplus by the proportion of the time spent in viewing flamingos as given by respondents. In the second exercise, the WTA values were elicited by asking the respondents to state the minimum reduction in their total trip costs they were willing to accept as compensation if there were no flamingos in the LNNP.

Visitors were also asked to select the maximum amount (from the payment card) they were willing to pay to ensure that flamingos did not disappear from the LNNP as they were threatened by pollution. The study revealed that the two methods used to value the WTP of viewing the flamingos gave similar values of USA $20 and 23 USA, suggesting that the assumption that the method measured the true economic value was plausible. The WTA values obtained were 4–4.5 times higher than the WTP values. The divergence between the WTA and WTP figures is consistent with the theoretical and empirical CV literature.

[1] 1N$ = US$0.2170 (1997).

According to Hannemman (1991, cited in Venkatachalam, 2004), the WTP may be five times smaller than the WTA. Venkatachalam (2004) also cites other studies which reveal that the disparities could even be larger. The disparities are attributed to a number of factors such as income and substitution effects. For instance, while the WTP may be constrained by income, the WTA may not be, and also people have an incentive to give higher values for the WTA (Navrud & Mungatana, 1994).

In the Komodo National Park (KNP), Indonesia, Walpole et al. (2001) used the CVM to assess the effect of hypothetical fee increases on park revenues, visitation patterns and local economies. Each independent visitor was asked to fill a WTP questionnaire of upper and lower bounded dichotomous-choice form of questions. An enquiry was made as to how a suggested increase in park fees was likely to affect their decision to visit KNP (Walpole et al, 2001). There was then a follow-up question on how they would be affected by lower or higher increases in fees, depending on how they answered the first question. The visitors were willing to pay over 10 times the current entrance fee, indicating a substantial potential for increased revenue. The authors argued, however that, the negative effect of an increase in entrance fee would also reduce the numbers of tourist visitations, implying that this would reduce the extent to which the financial returns from the park would be realized (Walpole et al., 2001). The authors concluded that a moderate increase in entrance fees, combined with dual pricing and partial retention of revenues in the park would be the most appropriate pricing strategy for this park.

The present study uses the contingent valuation method to determine the WTP of tourists for increased park entry and camping fees under a hypothetical management scenario where the main aim will be improvement in park management and service provision within Moremi game reserve.

3. Study area and methodology

3.1. Study site

As already stated, the focus of the study is on self-drive tourists and clients of mobile tour operators who camp in Government public camping sites, namely Maqwee (South Gate), Third Bridge, Xakanaxa and Khwai (North Gate) in the game reserve (Fig. 1). A considerable number of self-drive and clients of mobile tour operators spend time in these four camps. These are popular destinations in MGR.

The Okavango Delta has a unique ecosystem due to the floods that originate in the highlands of central Angola. The extent and duration of the flood depends on the characteristics of the incoming flood. Seasonal flooding, which sustains most of the grassland vegetation, attracts abundant populations of wildlife which are the main tourist attraction (Hasler, 2002). Local rainfall, which contributes only a small amount, occurs in summer during the months of December to February (Ellery & McCarthy, 1994; McCarthy & Bloem, 1998; Scudder, Manley, Coley, Davis, & Green et al., 1993). The average rainfall is about 513 mm. The vegetation in the area can be described broadly as (i) wetland vegetation characterised by perennial swamps, seasonal swamps, flooded grasslands and freshwater pans vegetation, (ii) dryland plant vegetation characterised by riverine woodland vegetation, *Colophospermum mopane* woodland vegetation, *Acacia erioloba* woodland vegetation, (iii) savannah vegetation characterised by *C. mopane* and shrub vegetation, stands of *A erioloba*, mixed *Acacia sp* and (iv) grassland vegetation characterised by island grasslands with forbs, halophytic plants (Kalahari Conservation Society, 1991).

Park fees in MGR and other parks are based on differential pricing such that different park fees are paid by different categories of visitors such as citizen, non-citizen and resident tourists. The current entry fees for non-resident adults (18 years and above) are BWP120[2] per person per day, BWP60 for children who are between the ages of 8 and 17. All children under the age of 8 years are admitted free of charge, irrespective of the country of origin. The entry prices for resident adults are BWP30 per person per day, and BWP15 per person per day for children aged between 8 and 17 years. Adult citizens pay only BWP10 per person per day, while children aged between 8 and 17 years pay BWP5 per child per day (Department of Wildlife and National Parks, 2005).

Camping fees for non-residents, residents and citizen adults for protected areas are BWP30, BWP20 and BWP5 per person per day, respectively. Children of non-residents, residents and citizens aged between 8 and 17 years pay camping fees of BWP15, BWP10 and BWP2.50 per person per day, respectively. Children under the age of 8 years, camp for free, irrespective of their country of origin. Reservations for camping are made at both entry gates and in the offices of the Department of Wildlife and National Parks within the game reserve (Department of Wildlife and National Parks, 2005). Self-drive tourists and clients of mobile tour operators camp at various camping sites that are provided with ablution facilities and bins for litter.

4. Methodology

The primary data collection method was a semi-structured questionnaire that was developed at the Harry Oppenheimer Okavango Research Centre of the University of Botswana. The questionnaire was pre-tested among tourists in local hotels and lodges who had an opportunity to visit MGR. The purpose of pre-testing the questionnaire was to help determine the plausibility and understandability of the contents of the questionnaire, including the formulated scenarios in the contingent valuation method. The questionnaire was then modified accordingly before it was administered in the actual survey in the game reserve.

[2] 1BWP = 0.1859 USD (12/09/2005).

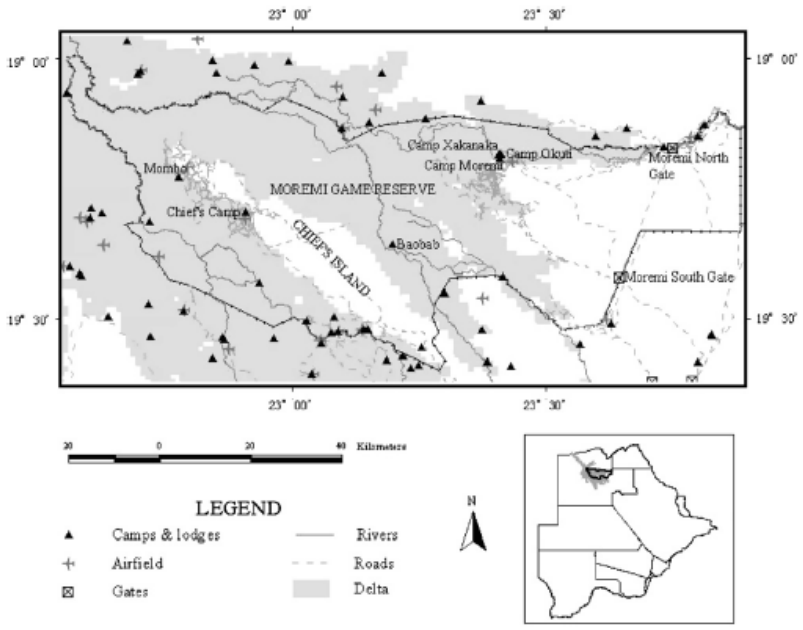

Fig. 1.

The pre-testing was also done to improve the validity of the CVM results, especially in light of the fact that the results from CVM can be affected by a number of biases. According to Perman et al. (2003), a properly designed CVM survey, backed up by pre-testing of the questionnaire, is likely to reduce some biases associated with CVM.

In the actual survey, no random sampling of self-drive tourists and clients of mobile tour operators was undertaken, but the study aimed at interviewing as many of these tourists as possible. Information on different categories of tourists such as citizen, non-resident and resident tourists was obtained with the assumption that the tourists' perceptions of entrance and camping fees and magnitude of WTP were likely to vary. The types of visitors to MGR include private visitors, mobile tour operators' clients, fixed camp or lodges visitors (Magole & Gojamang, 2005).

The actual data collection took a period of 3 months (June–August 2005) and involved a self completion of questionnaires by self-drive tourists and clients of mobile tour operators in Government public camping sites. Each tourist was given a questionnaire and asked to complete and leave it at the DWNP office or at their respective mobile tour operator's offices. In the covering letter of the questionnaire, respondents were informed that the study was carried out for academic purposes only. This was done to avoid possible strategic bias, which could occur if the respondents perceived that their answers would influence pricing policy of the park. It was also explained that the questionnaire should be completed by adult visitors as they are responsible for making decisions on expenditure. Data collected from campers included socio-economic characteristics of tourists (gender, age, income, profession and origin of tourists); the reasons for visiting MGR, their perceptions about entrance and camping fees. Of the 500 questionnaires distributed, a total of 222 tourists completed the questionnaires, accounting for 2% of the total number of tourists who visited MGR during the period of June–August in 2004. Based on the total number of tourists who visited MGR during 2004, we assume that this proportion was reasonably large and that the sample was representative.

The CVM was used to determine the willingness of self-drive tourists and clients of mobile tour operators to pay for increased entrance and camping fees. Open-ended questions were used as opposed to the dichotomous questions used to determine if there would be any consumer's surplus, the difference between what people are willing to pay and what they are currently or actually paying (Pearce & Turner, 1990).

According to Arrow et al. (1993), CV open-ended questions "lack realism since respondents are not usually asked to attach a monetary value to their goods". In our study, the situation is different because the tourists had paid park fees and would have given the payment some thought when planning the trip. The method of open-ended questions was also used in order to reduce starting point bias. While the method has been criticized for being associated with a high proportion of protest bids because respondents find it difficult to estimate the WTP, this

problem may not necessarily apply to this study because the current park prices provide a benchmark for the WTP.

In the questionnaire, tourists were presented with two scenarios with respect to entrance and camping fee. In the first scenario, tourists were asked to indicate if the current park fees were "too high", "too low", or "just right" in relation to whether the fees paid were worth the visit experience. In the second scenario, tourists were asked about their WTP for increased park fees under new management of the park. The scenarios were formulated as follows:

> *Scenario A:* Park management in Botswana is the responsibility of the Government, as the Government provides all the funding. The Government, therefore, sets the current entrance and camping fees. Entrance fees per person per day are BWP10 for citizens, BWP30 for residents and BWP120 for non-residents. Camping fees are BWP10 for citizens, BWP20 for residents and BWP30 for non-residents. Please indicate whether you think the current entrance and camping fee is too high, too low or just right in relation to your visit experience. If you think the entrance or camping fee or both are too high or too low, please indicate what you think would be the most appropriate level of fee under this management scenario.
>
> *Scenario B:* Park reserves are normally treated by central government as sources of general revenue rather than using the revenues for park maintenance and conservation of biodiversity. Assume that the management of Moremi Game Reserve was to be taken over by an International Conservation Organization with the objectives of improving the services within the game reserve, recovering costs and improving maintenance and conservation of biodiversity. Suppose the new organization wants to increase park entry and camping fees and seeks to get views from tourists before actually setting new entrance and camping fees. Would you be willing to pay the new entrance and camping fee? If so, and considering your budget constraint and visit experience, how much would you be willing to pay for the entrance and camping fees under the new management?

In most CVM studies, respondents have a tendency to over-estimate their true, actual or real WTP because of the hypothetical nature of the scenario (Hasler, Lundhede, Martinsen, & Schou, 2005). Thus, if asked to state what they would be willing and able to pay, they would state a figure smaller than that stated under the hypothetical situation because of the tendency to exhibit strategic bias. One way of avoiding a hypothetically biased response is to read a script that explicitly highlights the hypothetical bias problem before respondents make any decision (Samnaliev, Stevens, & More, 2003). This approach or survey design is called 'cheap talk' and induces respondents to provide valid and reliable responses (Hasler et al., 2005). However, 'cheap talk' cannot eliminate hypothetical bias, but does reduce it. One of the limitations of the study is that the 'cheap talk' design was not used, but respondents were reminded of their budget constraint. The other limitation of this study is that its CV scenario was not followed by debriefing and follow-up questions that are asked to check respondents' understanding and acceptance of the constructed scenario and to identify their motive for answering (Hasler et al., 2005).

The analysis of the data involved the use of a t-test to test for significant difference between the willingness of South African in contrast to overseas tourists to pay for increased entrance and camping fees. To test the theoretical validity of the results, regression analysis was used to explain the relationship between WTP for park entrance and camping fees and socio-economic variables of the respondents. The econometric model for WTP contains variables, which, according to economic theory, should influence the WTP. While income is one of the most important variables that influence the WTP, it could not be included in the model because most of the respondents did not fill in the information on their income. Given this situation, the overall expenditure of the trip was used as a proxy for income in the model for the WTP. The following linear regression model was used:

$$\mathrm{WTP} = \beta_0(\mathrm{CONSTANT}) + \beta_1(\mathrm{GENDER}) + \beta_2(\mathrm{AGE}) + \beta_3(\mathrm{VBEFORE}) + \beta_4(\mathrm{EXPEND}) + \varepsilon,$$

where WTP is willingness to pay; GENDER is the sex of the respondent (1 = male; 0 = female); AGE is the age of the respondent; VBEFORE is a dummy variable of whether the respondent' visit to MGR was the first (1 = first visit, 0 = otherwise); EXPEND is overall expenditure of the visit to MGR; β_0–β_4 are variable coefficients, ε is the error term.

5. Results and discussion

5.1. Tourist profiles

The tourists who completed the questionnaires came from South Africa, North America, Australasia (Australia and New Zealand), the Caribbean, Europe and other African countries. Most of the tourists originated from the Republic of South Africa (51%), while the least number of tourists (1.8%) came from other African countries. Fig. 2 shows the percentage number of the tourists from various regions of the world including Botswana residents.

Non-resident tourists, who comprised South Africans, other African tourists and tourist visitors from overseas, constituted 95% of the total number of tourists in the survey. The rest of the visitors were resident tourists (5%). During the 3-month period of the survey, we did not come across any citizen visitors. We can therefore, deduce from these results that non-resident or international tourists are the source of a larger portion of the revenue for national

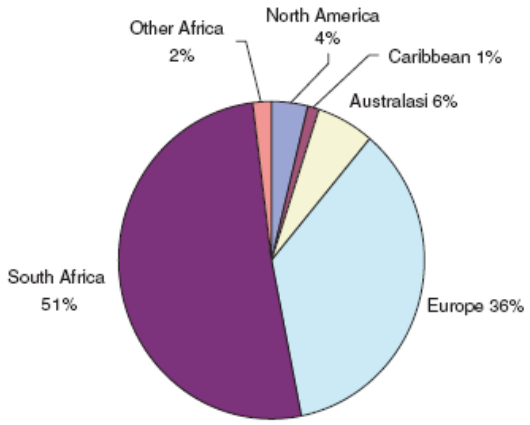

Fig. 2.

parks and game reserves. Mbaiwa (2005) also found that tourism in the Okavango Delta is primarily dependent on international tourists. Studies in other African countries also show a similar trend of lower number of citizen tourists visiting parks and reserves even when the surveys are conducted over a much longer period. For instance, Barnes et al. (1997) found that Namibian citizen tourists constituted the second largest number of respondents surveyed after non-citizens. In Kenya, Navrud and Mungatana (1994) found that visits to Lake Nakuru National Parks were given low priority by most Kenyans, except for a few more wealthy individuals and people living near the park.

Fifty-nine percent of the tourists were male visitors. More than half (63%) of the respondents were visiting MGR for the first time. Respondents who had been to MGR before had on average visited it for four times. The fact that there are repeat visits to MGR is an indication that the game reserve continues to provide a positive tourism experience.

5.2. *Purpose for participating in wildlife-related activities*

Half of the tourists named wildlife viewing and photography as the main reason for visiting the game reserve. When asked about the main attractions they liked during their visit to MGR, the majority of tourists (63%) cited uniqueness or unspoiled nature of the reserve. This suggests that maintaining the unspoiled nature of the game reserve is one of the important considerations for sustainable revenue generation. While the acceptable limits of change in the game reserve and the negative environmental impacts of tourism are currently unknown, it appears that the MGR still represents a relatively pristine environment that is central to its appeal. The view that MGR is not overcrowded with tourists was the perception of 60% of the tourists, while 33% thought that MGR was crowded. The rest of the tourists (17%) were indecisive.

5.3. *Perceptions of tourists on entrance and camping fees under current management*

Tourists were asked about their views on entrance and camping fees under the current management scenario where the DWNP sets the park fees. Specifically, they were asked to indicate whether the current entrance and camping fees are "too low", "just right" or "too high" in relation to whether the fees paid were worth their visit experience. Those that indicated that the fees were "too low" or "too high", were asked to indicate what they thought would be the most appropriate entrance and camping fee for their visit experience under this scenario.

Thirty-nine percent of the non-resident tourists thought that the entrance fee of BWP120 per day was "too high". Most of the tourists related the fees they paid to the quality of services provided in the game reserve as they were generally dissatisfied with poor conditions of ablutions, littering, poor roads, unmarked campsites and lack of detailed maps for roads existing roads. Fifty-eight percent (58%) of the non-resident tourists thought that the entrance fee was "just right", while only 3% thought that the entry fee was "too low" and needed to be increased. None of the resident tourists thought that the entrance fee of BWP30 per person per day was "too high", while five (83%) thought that the entrance fee was "just right".

Regarding the camping fee of BWP30 per day paid by non-resident tourists, 6% thought that the camping fee was "too high", while the majority (92%) of the non-resident tourists thought that the camping fee was "just right". A small percentage of 2% of the non-resident tourists thought that the camping fee was "too low", whereas 83% of the resident tourists thought that the camping fee of BWP20 per person per night was "just right".

Table 1 shows the suggested entrance and camping fees by categories of tourists. Overseas tourists suggested the highest entrance fee of BWP112 under the current scenario, while South African tourists suggested an entrance fee of BWP71. The independent *t*-test (5% level of significance) revealed that there was a significant difference in the entrance fees suggested by South African and overseas tourists. Tourists from other African countries suggested an entrance fee of BWP74. In terms of the perceptions of overseas tourists, the prevailing entrance fee should be reduced by about 7%, while the fees suggested by South

Table 1

Category of tourists	Entrance fee			Camping fee		
	Current	Mean	Median	Current	Mean	Median
South African	120	71	60	30	26	20
Overseas	120	112	80	30	25	20
Other Africa	120	78	60	30	30	0
All non-residents	120	82	60	30	25	20
Resident	30	50	50	20	25	25

African and other tourists from Africa implied a reduction of the fees by more than 7%.

Krug et al. (2002) found that the maximum WTP for park fees in Etosha National park (Namibia) by overseas tourists, Namibian tourists and tourists from other African countries were higher than the daily park fees in 1997 under Government management. Unlike the results from this study, visitors to Etosha National Park generated a consumers surplus which suggested that Etosha National Park was under-priced.

The camping fees suggested by South African and overseas tourists were both lower than the current camping fee of BWP30.00, while tourists from other African countries thought that the camping fee was "just right". The percentage reduction, as implied by WTP by South African tourists was 13%, while that for overseas tourists was 17%. There was no significant difference in the suggested camping fees between South African and overseas tourists (t-test, 5% level of significance). Residents suggested a 25% increase on the current camping fee that they pay.

5.4. *Willingness to pay for entrance and camping fees under alternative management*

In the second scenario, tourists were asked about their WTP for entrance and camping fees if MGR was to be managed by a hypothetical ICO. Tourists were reminded of their budget constraint as the failure to do so could have affected their WTP (Venkatachalam, 2004). The WTP was obtained from tourists who had a positive WTP. Only 12% of the non-resident tourists were willing to pay a fee above the current entrance fee of BWP120, while 23% were willing to pay an amount that is below the entrance fee. Twenty-seven percent of the non-resident tourists indicated that they would not be willing to pay anything because they did not want any change of management. Some of those who were not willing to pay indicated that parks fees under the new management are more likely to be significantly higher than under the current management because of the high cost of administrative activities. Others indicated that the fees that are currently being paid are already high enough to cover the costs of improving the management of the park. Thirty-eight percent of the non-resident tourists protested in that they did not indicate their WTP, nor give the reasons for not willing to pay.

Table 2 shows the WTP for entrance and camping fees for non-resident and resident tourists under the hypothetical scenario. Among all the non-resident tourists, overseas tourists had the highest WTP of BWP129, while tourists from other African countries had the smallest WTP of BWP80. There was a significant difference between the WTP for entrance fee by South African tourists and overseas tourists (t-test, 5% level of significance). The results suggest that overseas tourists prefer that MGR should be managed by an ICO.

Table 2

Category of tourists	Entrance fee			Camping fee		
	Current	Mean WTP	Median WTP	Current	Mean WTP	Median WTP
South African	120	96	120	30	31	30
Overseas	120	129	120	30	39	30
Other Africa	120	80	80	30	30	30
All non-resident	120	110	120	30	35	30
Resident	30	42	50	20	37	25

Table 3
Willingness to pay for entry fees

Variable	Coefficient	t-stat	P value
CONSTANT	102.24	(2.56)	0.013
GENDER	1.4741	(0.071134)	0.944
AGE	−0.7533	(−0.7879)	0.435
VBEFORE	−34.648	(−1.573)	0.122
EXPEND	0.020518	(2.852)	0.006*

$R^2 = 22.64$.
* = Significant at 0.05.

In Namibia, Krug et al. (2002) also found that overseas tourists were willing to pay increased park fees under private management rather than under Government management for Etosha National Park because entry fees in Namibia were relatively low. In Ningaloo Marine Park in western Australia, Davis and Tisdel (1998) found that the WTP to participate in the whale-shark experience were slightly below the amount paid, and attributed this lower WTP to the strategic behaviour of the respondents as they thought that an indication of a WTP higher than the amount paid would result in higher prices being paid.

In our study, a regression analysis of the WTP of non-residents tourist for entrance fees and the socio economic variables of the respondent shows that the WTP for entry fees was not related to age, gender and visitor's experience of the respondents, but was significantly related to overall expenditure of the trip for the respondents ($P < 0.05$) (Table 3). The results, therefore, confirm construct validity claim of the instrument utilised, and are consistent with the predictions of economic theory if our assumption that expenditure is a good proxy for income is correct (Hoevenagel, 1994).

The rest of the non-resident tourists in the study did not have preference for new management as revealed by their WTP. The main reasons for not willing to pay were: (i) the poor status of park facilities, especially ablution; (ii) the high entrance and camping fees which were considered to be high enough to cover the management costs of the game reserve; (iii) the perception that the wilderness character of

the game reserve would be lost with the introduction of the ICO because the game reserve will be crowded. In Komodo National Park in Indonesia, where respondents were asked about their WTP for increased park fees, Walpole et al. (2002) obtained responses which are comparative to those in this study. The authors found that 37.5% of the respondents were willing to pay higher fees if revenues were used up for the upkeep of the National Park, while 28.6% of the respondents wanted to see improved visitor services, facilities and attractions associated with higher prices.

Resident tourists were willing to pay an entrance fee of BWP42, which is higher than the entrance fee under the current scenario. As with overseas tourists, these revealed their preference for management by an ICO by being willing to pay a higher entrance fee than the current entrance fee. Thus, the average consumer surplus was BWP22.

Considering the WTP for camping fees under this scenario, overseas tourists were willing to pay more for camping fees, again expressing their preference for new management. There was a significant difference between the WTP for camping fees by South African tourists and overseas tourists (t-test, 5% level of significance). This difference is explained by the fact that the average consumer surplus of BWP9 generated by overseas tourists was much higher than that generated by South African tourist (BWP1). The average WTP for camping fees by tourists from other African countries was not different from the prevailing fee, suggesting that these tourists did not prefer to have MGR to be managed by an ICO. A regression analysis of the WTP of non-resident tourist for increased camping fees and their socio economic variables was performed. Table 4 shows that the WTP for increased camping fees by non-residents tourists was significantly related to overall expenditure of the trip and the age of the respondents. The results support economic theory which claims that income is an important determinant for WTP if our assumption of using expenditure as a proxy for income is correct. The results indicated that there was a negative relationship between the WTP for increased camping fees and age of the respondents, which implies that generally, younger visitors had a higher WTP than their older counterparts.

Table 4
WTP for camping fees

Variable	Coefficient	t-sta	P value
CONSTANT	27.804	(0.9949)	0.336
GENDER	18.784	(1.249)	0.222
AGE	−0.3014	(−2.127)	0.040*
VBEFORE	32.755	(1.985)	0.055
EXPEND	0.03724	(7.628)	0.000*

$R^2 = 65.30\%$.
* = Significant at 0.05.

Resident tourists were willing to pay increased camping fees if MGR was to be managed by an ICO, and have an average consumer surplus of BWP7.

6. Policy implications and conclusions

We now discuss the policy implications of our findings and conclusions under the three main headings of access to services, differential pricing and high cost-low volume tourism.

6.1. Access to services

Botswana has endeavoured to achieve the policy objectives of social equity and access to resources through the setting of low park fees for its citizens. In this respect, the objective of revenue maximization should not precede those of social equity and access to national parks resources. The main source of revenue for national parks is international tourists. According to Walpole et al. (2001), revenue from internationally based tourism is very unstable as international tourism is prone to factors such as political instability. In Hong Kong, for instance, Zhang and Yim Tan (2004) found that safety is the most important dimension for those selecting leisure travel destination. Our study supports the wider CV literature which reveals that there is a significant relationship between the WTP values and income. This implies that high income tourists may continue to choose Moremi game reserve as one of their best travel destinations. In spite of this result, the Government should not simply maximise revenues from high income visitors, but should also ensure high quality tourism products (including service provision) so that the high level of the satisfaction is maintained.

The fact that the suggested entrance fees by overseas tourists under Government management were lower than the prevailing fees is an indication of possible dissatisfaction on the part of the tourists because their expectation is not only to experience nature and its wildness, but also to enjoy the services that should accompany this experience. Beerli and Maertin (2004) found that the image of the destination of tourists is very important in influencing their satisfaction and the possibility of repeat visits in the future. In this study, a number of tourists indicated that they would be willing to pay increased entrance fees if the services were improved or if funds were invested in conservation. Thus, the Government of Botswana needs to improve services and facilities at the camping sites as well as to consider setting aside a portion of revenue collected from park fees for maintenance and conservation of biodiversity. Experience elsewhere (e.g. Krug et al., 2002; Walpole et al., 2001) shows that return visits to parks and reserves are to a large extent determined by whether the money paid by tourists is invested back for maintenance and biodiversity conservation. In Ningaloo National Park in western Australia where tourists are levied A$15 per passenger per day, the funds are used for

research, management and education about the whale shucks (Davis & Tisdel, 1998).

While the Government may be seen by self-drive tourists and clients of mobile tour operators as failing to provide good service facilities in public camping sites in this study, it should also be noted that the high cost-low volume tourism policy acknowledges the importance of shifting the mix of tourists from those who are camp tourists (low-paying) towards those who occupy permanent accommodation (high-paying tourists) (Government of Botswana, 1990). In line with this tourism development policy, the results may be suggestive of the fact that provision of services at the public camping sites should be shifted to permanent accommodation such as lodges.

6.2. *Differential pricing*

Botswana's policy on differential pricing is based on whether a visitor is a citizen, resident or non-resident. The policy does not differentiate among non-citizens themselves. It is common knowledge that overseas tourists come from high income countries and, would, as a result, generally be willing to pay higher park fees than tourists coming from low income countries. In South Africa, for instance, citizens and non-citizens pay the same park fees (Krug et al., 2002) and as result, South Africa loses consumer surplus as some visitors would pay higher fees. In this study, self-drive tourists and clients of mobile tour operators from South Africa, which form the largest proportion of all the tourists, had a lower WTP for entrance fees than tourists from overseas. Any consideration to lower park fees has direct implications on overcrowding and consequent loss of biodiversity (e.g. Spenceley, 2005).

6.3. *High cost-low volume without acceptable limits of change*

The Government of Botswana pursues a policy of high cost-low volume, though the policy is not based on detailed knowledge of supply and environmental costs. While the cost of supplying tourism product (management costs) may be quantified, environmental costs are difficult to quantify, and therefore unknown. Related to this aspect is the lack of information on whether MGR receives enough tourists' revenue to cover costs. There is need to undertake research that aims at determining the visitation level or acceptable limits of change beyond which environmental damage to the ecosystem will occur. Reporting on a pilot study on the limits of acceptable change for tourism in the Okavango Delta, Mbaiwa, Bernard, and Orford (2002) revealed that both tourists and non-tourists held the view that the growth of tourism in the Okavango Delta will lead to negative impacts in a wide range of environmental and social variables and that this growth would also lead to an increase in employment opportunities. According to Simon, Naragajavana, and Maques (2004), determination of acceptable limits of change depends on a number of factors which include location, type of tourist activity, speed of tourism growth, and the interaction between visitors and the biological ecosystem which comprises several organisms. This information will be very valuable in assessing whether Botswana national parks and game reserves are overpriced or underpriced.

Questionnaire

1.0 Demographic and Socio-economic information

(a) Gender
- (i) Male [ ]
- (ii) Female [ ]

(b) Age ___

(c) Nationality ___

(d) Country of origin ___

(e) Residential status in Botswana
- (i) Citizen [ ]
- (ii) Resident [ ]
- (iii) Non-resident [ ]

(f) Occupation status
- (i) Employed [ ]
- (ii) Self-employed [ ]
- (iii) Other [ ]

(g) Profession: ___

(h) Please approximate your household income per year in US$
- (i) Less than 10,000 [ ]
- (ii) Between 10,000 and 50,000 [ ]
- (iv) More than 50,000 [ ]

2.0 Visit to moremi game reserve (MGR)

(a) Is this your first visit to MGR?
- (i) Yes [ ]
- (ii) No [ ]

(b) If no, state the number of times you have been here before ___

(c) Which of the following categories best describe the nature of your visit to MGR?
- (i) Private visitor [ ]
- (ii) Client of mobile tour operators [ ]
- (iii) Fixed tourist [ ]
- (iv) Other___

(d) What mode of transport did you use?
- (i) Car [ ]
- (ii) Truck [ ]
- (iii) Air [ ]

(e) For this typical trip, please indicate your best estimate of the expenditures of the overall return trip? ___

(f) What other wildlife resort will you be visiting in Botswana? ___

(g) Which place did you visit before coming to MGR? ___

(h) What prompted you to visit MGR?

(i) Naturalness [ ]
(ii) Quietness [ ]
(iii) Landscape [ ]
(iv) To see Botswana [ ]
(v) To see wildlife [ ]
(vi) Vegetation [ ]

(i) What did you like most about Moremi game reserve?

(i) Naturalness [ ]
(ii) Quietness [ ]
(iii) Landscape [ ]
(iv) To see Botswana [ ]
(v) To see wildlife [ ]
(vi) Vegetation [ ]

(j) What did you dislike most about Moremi game reserve?

(i) Poor services [ ]
(ii) Littering [ ]
(iii) Roads [ ]
(iv) Ablution [ ]
(v) Other (please specify) ___

(k) If you are participating in wildlife-related activities, what is your main purpose?

(i) Wildlife viewing [ ]
(ii) Hunting [ ]
(iii) Photography [ ]
(iv) Other: ___

(l) How many days in total will you be spending in MGR?

3.0 Perceptions about Moremi game reserve

For the next statements please indicate your opinion about MGR

(a) I find the time spent in travelling to and from the park to be enjoyable

(i) Strongly agree [ ]
(ii) Mildly agree [ ]
(iii) Indecisive [ ]
(iv) Mildly disagree [ ]
(v) Strongly disagree [ ]

(b) There are definitely too many people visiting the park. The park is too congested

(i) Strongly agree [ ]
(ii) Mildly agree [ ]
(iii) Indecisive [ ]
(iv) Mildly disagree [ ]
(v) Strongly disagree [ ]

(c) The park is too over-regulated

(i) Strongly agree [ ]
(ii) Mildly agree [ ]
(iii) Indecisive [ ]
(iv) Mildly disagree [ ]
(v) Strongly disagree [ ]

(d) There are areas that I would visit instead of Moremi game reserve

(i) Strongly agree [ ]
(ii) Mildly agree [ ]
(iii) Indecisive [ ]
(iv) Mildly disagree [ ]
(v) Strongly disagree [ ]

(e) Do you think your experience in Moremi game reserve is worth the money you spent?

(i) Yes [ ]
(ii) No [ ]

(f) Please explain ___

4.0 Perceptions about the fees

Scenario A: Park management in Botswana is the responsibility of the government and as such all funding comes from the government. The Government therefore sets the current entry and camping fees.

Entry fees per person per day are BWP10 for citizens, BWP30 residents and BWP120 for non-residents.

(a) Please indicate the entry fee you paid: BWP___

(b) Please indicate your perceptions on the entry fee.

(i) Too high [ ]
(ii) Just okay [ ]
(iii) Too low [ ]

(c) If you think that the entry fee is too high, please suggest a figure by which the entry fee should be reduced to enable you to return on the same visit: BWP___

(d) If you think that the entry fee is too low, please suggest a figure by which the entry fee should be increased to a level that you would think it would be too expensive for you to return on the same visit: BWP___

Camping fees per person per night are BWP10 for citizen, BWP20 residents and BWP30 for non-residents.

(e) Please indicate the camping fee you paid: BWP___

(f) Please indicate your perceptions about the camping fee.

(i) Too high [ ]
(ii) Just okay [ ]
(iii) Too low [ ]

(g) If you think that the camping fee is too high, please suggest a figure by which the camping fee should be reduced to enable you to return on the same visit: BWP___

(h) If you think that the camping fee is too low, please suggest a figure by which the camping fee should be

increased to a level that you think would be too expensive for you to return on the same visit: BWP___

Scenario B: Park reserves are normally treated by central government as sources of general revenue rather than using the revenues for park maintenance and conservation of biodiversity. Assume that the management of Moremi game reserve was to be taken over by an hypothetical International Conservation Organization with the objectives of improving the services within the game reserves, recovering costs and improving maintenance and conservation of biodiversity. Park fees may however not be sufficient to cover all these costs and the new organization may therefore have to increase entrance and camping fees. Suppose the new organization wants to increase park entrance and camping fees and seeks to get views from tourists before actually increasing the fees.

(i) Please indicate how much more you would be willingness to pay under the new management.
(ii) Entry fee: BWP___
(iii) Camping fee: BWP___

Please indicate why you would not be willing to pay

_____
_____
_____

Thank you very much for your participation in this study!

References

Arrow, K., Solow, R., Portney, Leamer, E.E., Radner, R., & Schuman, H. (1993). A report of the NOAA Panel on contingent valuation. Resources for the future, Washington.

Barnes, J.I. (1998). Wildlife economics: A study of direct use values in Botswana's wildlife sector. A Thesis submitted to the University of London in partial fulfilment of the degree of Doctor of Philosophy.

Barnes, J.I., Schier, C., & van Rooy, G. (1997). Tourists' willingness to pay for wildlife viewing and wildlife conservation in Namibia. DEA Research Discussion Paper No. 15.

Beerli, A., & Maertin, D. (2004). Tourists characteristics and the perceived image of tourists destination: a quantitative analysis of a case study of Lanzarote, Spain. *Tourism Management*, *25*(2), 623–636.

Beeton, S., & Benfield, R. (2002). Demand control: The case for demarketing as a visitor and environmental management tool. *Journal of Sustainable Tourism*, *10*(6), 497–513.

Carson, R. T. (2000). Contingent valuation: a user's guide. *Environment, Science and Technology*, *34*(8), 1413–1418.

Davis, D., & Tisdel, C. A. (1998). Tourist levies and willingness to pay for a whale shark experience. *Tourism Economics*, *5*(2), 161–174.

Department of Tourism. (2002). Tourism Master plan final report, Gaborone.

Department of Wildlife & National Parks. (2004). Visitor statistics bulletin No. 5. Maun, Botswana.

Department of Wildlife & National Parks. (2005). Parks and Reservations office, Maun, Botswana.

Ellery, W. N., & McCarthy, T. S. (1994). Principle for the sustainable utilization of the Okavango Delta ecosystem, Botswana. *Biological Conservation*, *70*, 159–168.

Emerton, L., & Bos, E. (2004). *Value. Counting ecosystems as an economic part of water*. Gland and Cambridge: The World Conservation Union.

Garrod, G., & Willis, K. G. (2001). *Economic valuation of the environment: Methods and case studies*. Cheltenham: Edward Elgar.

Government of Botswana (1990). Tourism policy. Government Printer, Gaborone.

Hanley, N., & Splash, C. L. (1993). *Cost benefit analysis and the environment*. Aldershot: Edward Elgar Publishing, Limited.

Hasler, B., Lundhede, T., Martinsen, L., & Schou, J.S. (2005). Valuation of groundwater protection vs. water treatment in Denmark by choice experiments and contingent valuation. National Environmental Research Institute Technical Report No. 543. Ministry of the Environment.

Hasler, R. (2002). The Okavango Delta and the 'end of progress': global transformation and community based wildlife management. *Botswana Notes and Records*, *31*, 93–100.

Hoevenagel, R. (1994). The contingent valuation method: scope and validity. Published PhD Thesis, University of Amsterdam: Amsterdam.

Israngkura, A. (1997). *Environmental valuation: an entrance fee system for national parks in Thailand*. Ottawa: International Development Research Centre (IDRC).

Kalahari Conservation Society and, Kalahari Game Services (1991). Moremi game reserve management plan volume 1 & 2. Department of Wildlife and National Parks, Gaborone.

Krug, W., Suich, H., & Haimbodi, N. (2002). Park pricing and economic efficiency in Namibia. DEA Research Discussion Paper No. 45.

Magole, L. I., & Gojamang, O. (2005). The dynamics of tourist visitation to national parks and game reserves. *Botswana Notes and Record*, *37*, 80–96.

Mbaiwa, J. (2005). Enclave tourism and its socio-economic impacts in the Okavango Delta, Botswana. *Tourism Management*, *25*(2), 157–192.

Mbaiwa, J.E., Bernard, F.E., & Orford, C.E. (2002). Limits of acceptable change for tourism in the Okavango Delta. Proceeding of a conference on environmental monitoring of tropical and subtropical wetlands held in Maun, December 4–8. Harry Oppeheimer Okavango Research Centre. Maun.

McCarthy, T. S., & Bloem, A. (1998). Observations on the hydrology and geohydrology of the Okavango Delta. *South African Journal of Geology*, *101*(2), 101–117.

Navrud, S., & Mungatana, E. D. (1994). Environmental valuation in developing countries: The recreational value of wildlife viewing. *Ecological economic*, *11*, 135–151.

Pearce, D., & Barbier, E. D. (2000). *Blue print for a sustainable economy*. London: Earthscan Publications Limited.

Pearce, D. (1993). *Economic Values and the Natural World*. London: Earthscan Publications Limited.

Pearce, D. W., & Turner, R. K. (1990). *Economics of Natural Resources and the Environment*. New York: Havester Wheatsheaf.

Pearce, D. W., & Moran, D. (1994). *The Economic Value of Biodiversity*. London: Earthscan Publications.

Perman, R., Ma, Y., McGilvray, J., & Common, M. (2003). *Natural Resource and Environmental Economics*. Harlow: Pearson Education Limited.

Rozemeijer, N., Gujadhur, T., Motshubi, C., van den Berg, E., & Flyman, M.V. (2000). Community based tourism in Botswana: SNV/Botswana, final draft.

Samnaliev, M., Stevens, T., & More, T. (2003). A comparison of cheap talk and alternative certainty calibration techniques in contingent valuation. Department of Resource Economics Working paper No. 2003-11. University of Massachusetts Amherst.

Scudder, T., Manley, R. E., Coley, R. W., Davis, R. K., Green, J., Howard, G. W., et al. (1993). *The IUCN review of the southern Okavango integrated water development project*. Gland: IUCN.

Simon, F. J. G., Naragajavana, Y., & Maques, D. P. (2004). Carrying capacity in the tourism industry: a case study. *Tourism Management*, *25*(2), 275–283.