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Economic Perspectives on Nature Tourism, Conservation and Development

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Economic Perspectives on Nature Tourism, Conservation and Development

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Summary

Nature tourism is particularly important in the context of sustainable development because it offers the potential of mobilizing resources through the private sector which can contribute to local and national economic development while providing an incentive for conservation land uses and helping to finance biodiversity conservation. But analysts have argued that there is a significant gap between nature tourism's actual and potential contribution to sustainable development.

While nature tourism only accounts for a small fraction of the overall global tourist industry, it is reported to be one of the fastest-growing tourism markets. Nature tourism's continued expansion offers opportunities to generate increased income and employment, both nationally and in remote rural areas, and to provide increased incentives for biodiversity conservation in state protected areas and on private lands. These must be balanced with the risks of continued environmental degradation and greater pressure on protected areas, many of which lack the resources for effective management and are unprepared for significant growth in visitor numbers.

Most of the economic benefits linked to tourist expenditures have so far been captured by commercial tourism operators in the richer countries (where most tourists originate) and in the larger cities of the host countries. This does little to support social and economic development in the remote rural areas where nature tourism destinations are located. Nature tourism has catalyzed local or regional economic development in a few cases, but these have often been

accompanied by negative environmental impacts from uncontrolled construction, as well as the abuse and overuse of destinations by inadequately regulated tour operators.

Relatively few local communities have realized significant benefits from nature tourism on their own lands or in nearby protected areas. Local communities' participation in nature tourism has been constrained by a lack of relevant knowledge and experience, lack of access to capital for investment, inability to compete with well-established commercial operations and simple lack of ownership rights over the tourism destinations. Nature tourism on privately-owned lands has in some cases been penalized by landowners' or residents' lack of effective tenure over wildlife and other natural attractions, or by policy distortions favoring land use alternatives such as agriculture, livestock or mining. Of course, these reservations are at least as applicable to many other private sector activities competing with tourism for land or other resources.

From a conservation perspective, protected areas charging relatively low entry and use fees often supply the most valuable part of the nature tourism experience but capture little of the economic value of tourism in return. While many governments have successfully increased tourist numbers by marketing their country's nature tourism destinations, most have not invested sufficient attention or resources in managing the natural assets which attract tourists or in the infrastructure needed to support nature tourism. This has exposed sensitive sites of ecological or cultural value to the risk of

degradation by unregulated tourism development, too many visitors and the impact of rapid immigration linked to new jobs and business opportunities.

Despite these problems, the overall growth potential and some promising individual cases do suggest that nature tourism is an important sector where environmental conservation may effectively be combined with economic development in remote rural areas of developing countries on a meaningful scale. The policy-making priorities generally lie in four areas: (1) increasing and capturing more of the net economic benefits, (2) contributing more to local economic development, (3) mitigating environmental impacts, and (4) helping to finance biodiversity conservation (recognizing that only a small fraction of ecologically-important areas have the potential to attract significant tourism).

Efforts to develop effective national policies for nature tourism have been frustrated by the lack of economic analysis of the options as well as the need to appreciate and reconcile the diverse stakeholder perspectives. This indicates the need for applied economic research in selected case study countries which is not only targeted to provide usable insights but also sufficiently grounded in an appreciation of the perspectives of the various stakeholders to produce results which are usable in cross-sectoral governmental decisionmaking. In other words, stakeholder involvement needs to be combined with technical analysis for policy development. An overall menu of key research questions for evaluating options and strategies for optimizing the economic and ecological benefits associated with nature tourism is identified. Country-specific policy research could prioritize from such a menu.

1 Introduction

Tourism has expanded to such an extent that it is now claimed to be the world's largest industry and provider of jobs, although measurement is notoriously difficult and accurate statistics are scarce. The World Travel and Tourism Council (WTTC) has estimated that international tourism generated about 10% of global GDP in 1994, accounted for over 10% of all consumer spending, created more than 12 million new jobs and provided more than \$650 billion in tax revenues to governments (WTTC 1995). Even if these figures are little more than educated guesses, their sheer magnitude explains why tourism is, or should be, a priority concern of governments worldwide.

This paper is specifically concerned with economic perspectives on one sector of this vast industry - nature tourism in developing countries. All forms of tourism can make substantial contributions to national income, foreign exchange earnings, employment and government revenues. But nature tourism is particularly important in the context of sustainable development because it offers the potential of mobilizing resources through the private sector which can contribute to local and national economic development while providing an incentive for conservation land uses and helping to finance biodiversity conservation. This is a very appealing prospect, particularly in developing countries where economic development alternatives in remote rural areas are very limited, where biodiversity investments are invariably inadequate, and where public funds to support either are usually scarce.

Unfortunately there is no widely-agreed definition of nature tourism, ecotourism or other related forms of tourism (Goodwin 1996), although ecotourism is recognized as a subset of nature tourism (Brandon 1996). A largely prescriptive literature describes what nature tourism, ecotourism, and so on should consist of, often in terms of visitor motivation, philosophy and behavior. Another body of literature describes the negative results when such alternative forms of tourism fails to follow these ideals (e.g., Butler 1991; Hawkins & Roberts 1994; King & Stewart 1996; Pleumarom 1994). The tourism industry itself has opportunistically used very broad interpretations of nature tourism and ecotourism to exploit these terms' suggestion of responsible consumerism.

Nature tourism is defined here as those forms of tourism where natural attractions of ecological significance are the destination, leading to a principal focus on tourism in state-run protected areas and land which is privately owned or under communal tenure. Although there are considerable overlaps between nature tourism destinations and protected areas, it is important to recognize that the terms are far from synonymous. Protected areas are only rarely established because of their tourism potential and by no means all - or even most - protected areas are viable nature tourism destinations. Conversely, nature tourism often takes place outside protected areas.

A focus on tourist destinations of ecological significance is not particularly restrictive, since this embraces activities as diverse as wildlife

viewing, mountain trekking, exploring rainforests, diving on coral reefs and watching whales. It includes small groups of independent and environmentally-sensitive travelers to remote and little-known areas as well as the thousands of perhaps less environmentally-concerned visitors to such acclaimed destinations as Kenya's Maasai Mara National Reserve, South Africa's Kruger National Park, Egypt's Red Sea coast, Ecuador's Galápagos National Park, Caribbean marine reserves or Nepal's Royal Chitwan National Park.

Reliable data on nature tourism are very elusive, partly because of the lack of consensus on defining the term. However, the few reliable estimates of the scale of the economic impact of nature tourism are impressive. Five World Heritage Areas in Australia are estimated to generate an annual gross economic impact of more than \$1,000 million, excluding travel costs (Driml 1994). Annual expenditures of park visitors in British Columbia, Canada have been estimated at \$310 million (Coopers & Lybrand 1995). In developing countries, Kenya's wildlife tourism industry generates about \$400 million in gross revenues annually (Norton-Griffiths & Southey 1995). In Ecuador, \$54 million of annual tourist expenditures have been attributed to Galápagos National Park (De Miras 1994, cited in Southgate 1996). Nature tourism in Costa Rica generated over \$600 million in foreign exchange in 1994, while the Monteverde Cloud Forest Biological Preserve alone has been estimated to generate \$10 million in gross tourist receipts each year (Aylward et al. 1996). Caution does need to be exercised in interpreting these figures due to some important limitations and variations in the methodologies used to estimate them.

While nature tourism only accounts for only a small fraction of the overall global tourist industry, it is reported to be one of the fastest-growing tourism markets. A study for the Economist Intelligence Unit has forecast a doubling of expenditure on environmentally-sensitive tourism and ecotourism between 1995 and 2000 (Jenner & Smith 1992). Long-term

trends of higher personal disposable incomes, more leisure time, greater interest in nature and outdoor activities as well as falling transportation costs all tend to support such positive growth forecasts.

Given the credible and optimistic projections for nature tourism's future growth, it is not surprisingly that high levels of interest have been aroused among government finance and economic planning ministries and conservation agencies, commercial tourism operators, private landowners, local governments, NGOs and local communities. But nature tourism's continued expansion will inevitably expose more ecologically-important areas to the opportunities and risks associated with greater numbers of visitors. The opportunities are to generate increased income and employment, both nationally and in remote rural areas, and to provide increased incentives for biodiversity conservation in state protected areas and on private lands. The risks are continued environmental degradation and greater pressure on protected areas, most of which lack the resources for effective management and are unprepared for significant growth in visitor numbers.

Analysts have argued that there is a significant gap between nature tourism's actual and potential contribution to sustainable development (e.g., Boo 1990; Brandon 1996; Hunter & Green 1995; Lindberg 1991; Ziffer 1989). While nature tourism in developing countries does seem to be generating substantial opportunities for the private sector, there is considerable doubt as to whether it is stimulating genuine social and economic development among rural communities or providing stronger incentives for biodiversity conservation. It is also not clear whether, or under what circumstances, nature tourism in less-visited areas has more or less environmental impact than conventional or "mass" tourism which is concentrated in areas where environmental damage from uncontrolled development has already taken place.

The objectives of this review are to explore the use of economic analysis to help develop policies which can enhance nature tourism's contribution to sustainable development, and to inquire into the conditions under which nature tourism is financially and economically viable as well as environmentally sustainable. After a general discussion of the economic analysis of nature tourism in the next section, the paper proceeds by addressing two methodological and measurement questions: (1) What has nature tourism's economic impact or contribution been? (2) What are the net economic benefits of nature tourism? The next three sections explore three principal policy issues: (1) What are the options for capturing more of the net benefits of nature

tourism? (2) How can nature tourism contribute more to local economic development? (3) How can economic policies and instruments contribute to mitigating nature tourism's environmental impact? The final section highlights gaps in the literature and identifies priority areas for further research.

Readers are referred to Hoagland et al. (1995) for a methodological review of the net economic benefits associated specifically with the creation and operation of marine reserves, to Brandon (1996) for a more general review of the ecotourism literature, and to Goudberg et al. (1991) for a review of site-specific ecotourism planning issues.

2 Economic Analysis of Nature Tourism

Tourism's contribution to the economy can be very difficult to estimate. This is mainly because the diverse types of businesses selling goods and services to tourists do not constitute an easily separable economic sector and, as a result, very few countries treat tourism as a separate category in the national income accounts. It is also difficult to isolate the economic impact of nature tourism from other types of tourism. As a result of these complications, many economic studies of nature tourism are based on uncertain data and use a variety of methodologies to produce results which are not easily comparable.

Many so-called "economic" studies examine the contribution of nature tourism to the economy based on the amount of money which tourists spend on various aspects of their recreational experience (travel, accommodation, food, souvenirs, and so on). This is equivalent to measuring the proportion of transactions in the economy which are dependent on nature tourism. Such studies of the financial values of specific nature tourism destinations are an important but incomplete step towards more complete economic analysis. Appropriately described as "economic impact assessments" (CNPPA 1996), such studies are described in Section 3.

In contrast, an economic welfare analysis measures the value which society places on nature tourism destinations, i.e., the economic benefits less costs over time. Welfare analysis requires not only market benefits (such as tourism) but also non-market benefits (such as watershed protection and existence values) to be

measured (Dixon & Sherman 1990; McNeely 1988; Pearce & Moran 1994). Such studies are described in Section 4.

Key studies of nature tourism's economic impacts as well as its economic value are summarized in Table 2.1. Whether an economic impact and/or a economic valuation study is appropriate or feasible depends on the priority issues under consideration, the availability of adequate data and the cost-effectiveness of generating new data. Economic impact assessments of tourism have been much more influential with government policymakers due to their emphasis on money flows in the economy as well as job creation and foreign exchange earnings - all politically sensitive considerations. Welfare analyses, although analytically more comprehensive, have received much less attention from decision makers who tend to be less interested in economic benefits which they are unable to capture or use in practical terms.

The critical distinction between nature tourism's economic impact and its economic value is illustrated in Figure 2.1. AD is the tourism demand function showing how many visits will be made at each price and reflecting declining marginal benefits from additional visits to a destination. Tourists' direct expenditures at price B are equivalent to the area OBCE. Consumer surplus, the amount which tourists would have been prepared to pay over and above the prevailing price B, is equivalent to ABC. This is foregone income to the owners of the destination. The gross economic value of

TABLE 2.1: FINANCIAL AND ECONOMIC STUDIES OF NATURE TOURISM

STUDY & SCOPE	FINANCIAL & ECONOMIC IMPACTS			ECONOMIC VALUATION				COMMENTS
	Direct Expenditures	Multipliers & Leakages	Value Added	BENEFITS		COSTS		
				Tourists' Consumer Surplus	Other Values (Market & Non-Market)	Direct Management Costs	Indirect & Opportunity Costs	
Aylward et al. 1996 Monteverde PR, Costa Rica						x		Examines reserve sustainability Reviews national tourism & PA data
Barnes 1992 Botswana	x					x	x	Develops financial and economic models for wildlife tourism.
Barnes 1996 PAs in Botswana				x				Visitor survey. Developed demand function
Barnes & de Jager 1996 Private lands, Namibia	x		x			x		Develops financial and economic models for private & community wildlife tourism operations.
Brown et al. 1994 All PAs in Kenya				x				Airport survey.
Brown et al. 1995 2 NPs in Zimbabwe	x	x		x				Airport survey. Estimated leakages using industry survey.
Chase et al. 1996 3 NPs in Costa Rica				x				Considered impact of a PA's pricing policies on other PAs
Clark et al 1995 Tarangire NP, Tanzania				x		x		Informal community surveys of revenue-sharing programs
Creemers et al 1995 St. Lucia Wetland, South Africa	x							Estimated possible impact of tourism due to mining operations
Dixon & Sherman 1990 Khao Yai NP, Thailand	x				x	x	x	BCA approach
Dixon et al. 1995 Bonaire Marine Park	x			x		x		Considered sustainability of diving tourism
Driml 1994 Great Barrier Reef WHA	x				x	x		Collated financial impacts on 8 PAs
Echeverria et al. 1995 Monteverde PR, Costa Rica	x				x	x	x	BCA approach

STUDY & SCOPE	FINANCIAL & ECONOMIC IMPACTS			ECONOMIC VALUATION				COMMENTS
	Direct Expenditures	Multipliers & Leakages	Value Added	BENEFITS		COSTS		
				Tourists' Consumer Surplus	Other Values (Market & Non-Market)	Direct Management Costs	Indirect & Opportunity Costs	
Engelbrecht & van der Walt 1993 Kruger NP, South Africa	X							BCA approach
Hodgson & Dixon 1988 Palawan	X				X	X	X	BCA approach to compare logging with tourism.
Hugo 1992 South Africa		X						Used input-output tables to analyze impacts of all S. Africa tourism
Kaosa-ard, M. et al. 1995 Khao Yai NP, Thailand	X			X		X	X	BCA approach
Kramer et al. 1995 Madagascar				X	X		X	CV included non-use values to non-residents.
Lindberg & Enriquez 1994 Belize: All tourism + 3PAs	X	X				X		Constructed input-output tables. Assessed damage from tourism.
Maille & Mendelsohn 1993 Beza Mahafaly SR, Madagascar								PA visitor survey
Mak & Moncur 1996 Hanauma Bay, Hawaii	X					X		Describes overuse and industry resistance to entry fee increases
Medio 1996 Ras Mohamed NP, Egypt	X			X	X	X		Case histories of unregulated and regulated marine diving tourism sites
Meis & Lapierre 1995 All tourism in Canada	X	X	X					Describes 'Satellite Account' for tourism in the National Accounts
Menkhaus & Lober 1996 Monteverde PR, Costa Rica				X				PA visitor survey
Moran 1994 All PAs in Kenya				X				Multiple PA visitor survey
Navrud & Mungatana 1994 Lake Nakuru NP, Kenya				X				PA visitor survey
Norton-Griffiths 1995 Mara Area, Kenya	X	X				X	X	Analyzes property rights regimes and returns from wildlife tourism
Norton-Griffith & Southey 1995 All Pas in Kenya	X	X	X		X		X	Analysis combining GIS results with financial and economic analysis.

STUDY & SCOPE	FINANCIAL & ECONOMIC IMPACTS			ECONOMIC VALUATION				COMMENTS
	Direct Expenditures	Multipliers & Leakages	Value Added	BENEFITS		COSTS		
				Tourists' Consumer Surplus	Other Values (Market & Non-Market)	Direct Management Costs	Indirect & Opportunity Costs	
Swanson et al. 1996 Southern African conservancies	x		x			x	x	Describes financial & economic models of privatized wildlife operations
Tobias & Mendelsohn 1991 Monteverde PR, Costa Rica				x				PA visitor survey
Vorhies & Vorhies 1993 Pilanesberg NP, S. Africa	x				x	x		BCA of lion introduction to a PA adjacent to a major tourist resort
Wagner 1996 Guaraquecaba BR, Brazil	x	x						Developed detailed Social Accounting Matrix
Wells 1993 All NPs in Nepal	x					x		Reviewed benefits/costs at 3 PA sites & nationally.
Wells 1996 All NPs in S. Africa	x	x			x	x		Analyzed B/C distribution. Adapted input-output tables.

KEY

BCA = BENEFIT-COST ANALYSIS

BR = BIOSPHERE RESERVE

CV = CONTINGENT VALUATION METHOD

NP = NATIONAL PARK

PA = PROTECTED AREA

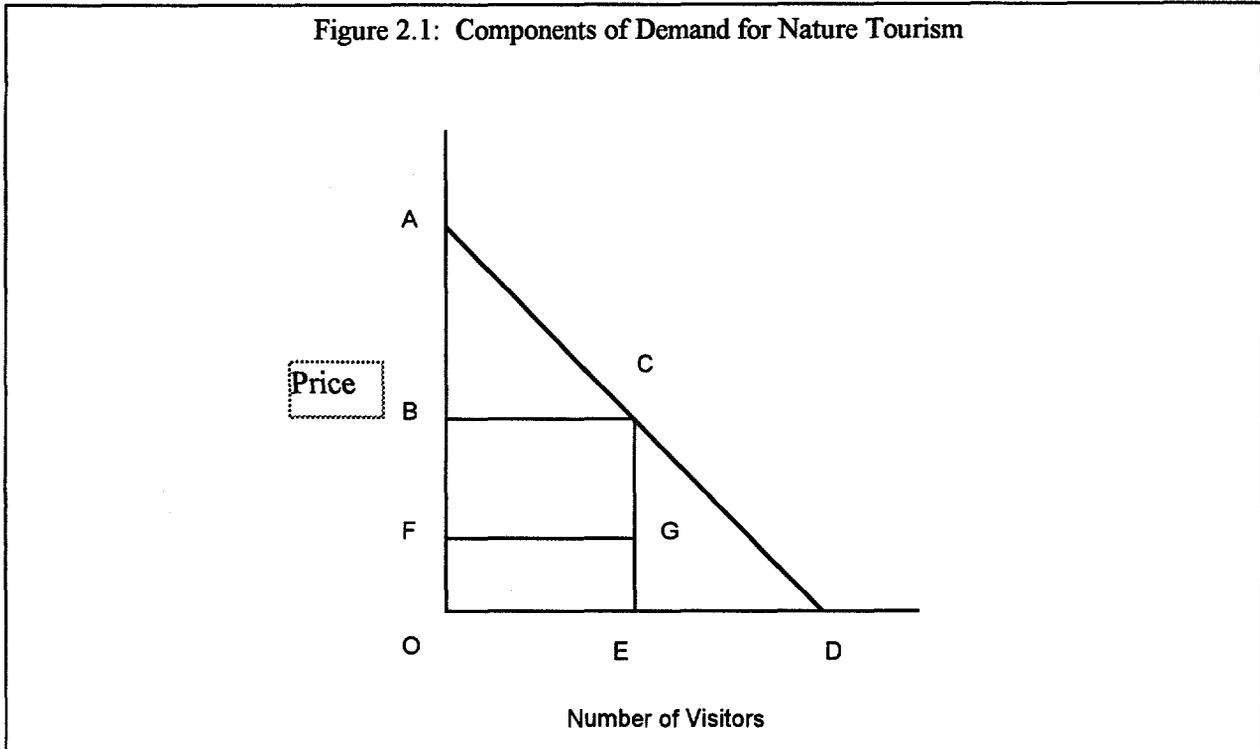
PR = PRIVATE RESERVRE

SR = SPECIAL RESERVE

TC = TRAVEL COST METHOD

WHA = WORLD HERITAGE AREA

Figure 2.1: Components of Demand for Nature Tourism



tourism is then $OACE$. If the proportion of tourist receipts from tourism that leak out of the economy (for example, by purchasing imported inputs) is OF/OB , the retained gross impact of direct tourist expenditures on the economy is $FBCG$ and leakages are $OFGE$ (multipliers are excluded).

While the model in Figure 2.1 illustrates the economic value of tourism, it is important to note

that it does not describe the broader economic benefits of conservation which can be associated with a nature tourism destination. Direct use by tourists is only one of the economic values which flow from nature tourism destinations. The other values, although often substantial, are very difficult to quantify. These are described in section 4.

3 What Has Nature Tourism's Economic Impact or Contribution Been?

The economic impact of tourism is usually measured in terms of tourists' overall spending on accommodation, food, travel, souvenirs and other expenditures. Assembling this data usually requires estimates of the total number of visitor-days as well as average tourist spending per day. Although surveys may be needed to generate this data, many countries gather such information routinely for at least some categories of visitors. While economic impact data is not strictly comparable with the costs of protected area management, the contrast between the two can sometimes be used to argue for higher management budgets. For example, the budgets for managing five Australian World Heritage Areas studied by Driml (1994) totaled less than 4% of the estimated tourist expenditures in 1991, while revenues raised through user fees were less than one third of one per cent of estimated tourist expenditures.

In Nepal, protected area tourism has expanded dramatically while the parks are becoming degraded and the financial resources provided for their management have been inadequate. The government collected less than \$1 million in user fees from protected area visitors in 1988, while reluctantly spending about \$5 million in managing these areas. This suggests a \$4 million net expense, a significant amount in one of the world's poorest countries. But tourism is Nepal's largest foreign exchange earner and it has been conservatively estimated that \$27 million of 1988 tourist expenditures can be attributed to the country's protected area network

(Wells 1993). These indicative figures suggest that Nepal's parks may represent an attractive public sector investment opportunity (higher user fees were subsequently collected, although park management budgets have remained modest).

Estimating the proportion of tourist expenditures attributable to nature tourism or to a particular nature tourism destination can be problematic, especially in countries which offer a range of conventional tourist attractions as well as nature tourist destinations. Wells (1996) found a range of credible estimates that attributed between 10% and 90% of all international arrivals in South Africa to wildlife tourism. Other attractions in a complex set of visitor motivations included climate, scenery, post-apartheid curiosity, visits to relatives and add-ons to business trips. Similar complications can be found in many of the major nature tourism destination countries.

Theoretically, the key question in estimating the economic impacts of tourism attributable to a destination such as a protected area is: How much would tourism spending (and its related impacts) decline if the protected area in question was no longer available as a tourist destination? The answer depends partly on the extent to which other destinations provide acceptable substitutes, and partly on the scale of the analysis. Creemers (1996) has pointed out that the economic impact of a nature tourism destination depends on the geographic scale to which tourism spending would be redirected if that destination was no longer available. A thorough analysis would

require information on where and how visitors would spend the money which they would no longer be able to spend if a certain destination became inaccessible, information which could be elicited through surveys.

The economic impact studies described above have measured tourist spending at existing destinations. In contrast, a recent South African study considered the potential loss of tourism revenues if the Greater St. Lucia Wetland Park was to allow mining instead of being developed for conservation and tourism (Creemers et al. 1995). Earlier estimates of the amounts of money which tourists were likely to spend in the Park were, unsurprisingly, orders of magnitude less than mining revenues projected for the private sector. But a broader analysis using reasonably conservative assumptions suggested that at least 20,000 fewer international tourists would visit South Africa each year if mining went ahead at St. Lucia, a unique and highly marketable attraction. At \$3,750 per visit, the foregone annual revenue to the national tourist industry would be about \$75 million, an amount comparable to the expected revenues from mining. Had the study had focused on local/provincial as well as national impacts, the potential deflection of domestic and international tourists to other destinations within South Africa would also have needed to be taken into account.

MULTIPLIERS & LEAKAGES

Estimating the aggregate or gross value of all transactions attributable to nature tourism at a specific site does not take multiplier effects or leakages into account. Economic multipliers result from the process by which tourist spending stimulates further spending and increased economic activity. There are three categories of multiplier effects: (1) Direct effects are economic impacts directly related to nature tourism; (2) Indirect effects are expenditures incurred by a business or other entity when it re-spends its gross income on wages, operating expenses or capital items; and (3) Induced effects arise from the re-spending of wages earned in businesses

that benefit from direct or indirect effects. The direct, indirect and induced effects are used to calculate economic multipliers which can then be used to estimate the impacts of tourism.

By definition, there can only be multiplier effects if there are unemployed or under-employed resources in an area (Ulph & Reynolds 1981). If there is full employment the resources purchased for the tourism sector must either have come from another sector or been attracted from elsewhere in the same economy. This is rarely an issue in most economies, where unemployment levels are so high as to place a considerable premium on job creation.

Positive multiplier effects are limited by leakages, which reduce the positive economic impacts of tourism. At a national level, tourism leakages are the proportion of the receipts derived from incoming foreigners which leave the country. Indicative values are shown in Table 3.1. Leakage is often higher during start-up or rapid growth phases of tourism, when the local economy is generally unable to provide many of the goods and services demanded by visitors. High leakage rates for nature tourism are likely to persist in relatively undeveloped locations and at those sites providing more luxurious and expensive facilities.

Brown et al. (1995) analyzed the expenditures of international visitors to Hwange and Mana Pools National Parks in Zimbabwe. As expected, the largest component of visitor expenditures was international air fares, whose external component (excluding Air Zimbabwe) averaged 40% of total spending. Commissions paid to agents and to ground operators in foreign currencies accounted for a further 7.4% and 5.8%, respectively. This meant that \$53 out of every \$100 spent by visitors did not enter Zimbabwe and primarily benefited the visitors' home countries (this might be referred to as pre-leakage). Of the \$47 out of every \$100 which was spent in Zimbabwe, further foreign exchange leakages from agents' commissions and ground operator costs averaged

Table 3.1. Leakage of Gross Tourism Expenditure by Country

Country	Year	Leakage as a % of Gross Tourism Receipts
Seychelles	1973	60
Fiji	1979	56
Cook Islands	1979	50
St Lucia	1978	45
Aruba	1980	41
Jamaica	1991	40
US Virgin Islands	1979	36
Sri Lanka	1979	27
Antigua	1978	25
Cyprus	1991	25
Korea	1978	20
New Zealand	1977	12
Philippines	1978	11

Source: Compiled by Smith & Jenner (1992). The figures come from a variety of studies and may not be strictly comparable with one another.

\$12. This left \$35 in Zimbabwe out of every \$100 spent by visitors on their entire trip, equivalent to 65% leakage. Indirect and induced multiplier effects were estimated to expand the impact of this \$35 by 56% to about \$55.

The items commonly included in analyses of leakages are the import of materials and capital goods for the tourism industry, the import of consumables (food, drink, film, etc.), the employment of foreigners and the repatriation of profits by foreign companies involved in the industry. But Smith & Jenner (1992) have argued that leakages should also include interest charges on foreign debt incurred for tourism development, overseas promotion by the national tourism organization and by individual tourism companies, the depreciation of infrastructure (roads, airports and sewerage systems) due to international tourism, as well as damage to the built and natural environment.

Value Added

Estimating multiplier effects and leakages with a reasonable degree of accuracy is difficult.

Multiplier models vary greatly in their sophistication and rigor, inadequate data are often a major drawback, and multiplier analysis in general appears to have fairly low credibility (Mathiesen & Wall 1982). Even when adjusted for multipliers and leakages, estimates of total tourist expenditures do not take into account the costs of the inputs to the tourism industry, and thereby overstate tourism benefits. Gross tourism expenditures are not comparable to gross domestic product (GDP), which is calculated on a value-added basis. Relatively few studies have attempted to directly estimate value-added for the nature tourism sector, although Norton-Griffith & Southey (1995) estimated the value-added of Kenya's wildlife tourism sector, an essential step in comparing nature tourism to alternative land use options (Table 3.2).

In the mainstream tourism literature, the most popular method of estimating indirect and induced effects has been input-output analysis. Input-output tables usually require an extensive amount of work, which may not be justified by the practical applicability of

Table 3.2. Gross Revenues and Net Return to the Kenya Wildlife Tourism Sector in 1989

Gross revenues from tourism	\$ 419.0 million
Attributed to the wildlife sector (50%)	209.5
Foreign exchange retention (82.4%)	173.0
Operating surplus (30% of retained foreign exchange)	51.9
Gross capital charges	58.2
Net return (loss) to the wildlife sector	(6.3)
Foreign exchange premium (FEP - 20%)	34.6
Net returns to wildlife sector with FEP	\$ 27.2 million

Source: Norton-Griffiths & Southey (1995)

Notes:

1. The average foreign visitor came to Kenya for about 14 days, spent 6.1 nights in a coastal hotel, 1.9 nights in a Nairobi hotel, 1.1 nights in a game park and 4.5 nights elsewhere. The authors question the presumption that game parks drive the tourist trade in Kenya, estimating that tourism might decrease as little as 29% if there were no parks and by as much as 67% if there were no coast. But they use a relatively high estimate of 50% as the proportion of tourist revenues attributable to the wildlife parks and reserves. The rate of foreign exchange retention (i.e., net of leakages), the percentage operating surplus and the gross capital charges (reflecting the opportunity cost of capital) were based on estimates by a 1977 Economist Intelligence Unit study.

2. If no allowance is made for persistent over-valuation of the Kenyan shilling, the net loss to the Kenyan economy from wildlife tourism is \$6.3 million. But using a 20% premium on net foreign exchange earnings gives a net gain of \$27.2 million, or 6.4% of the gross revenues from all tourism. Using 1977 data in 1989 requires some qualification, as the authors' point out. Largely due to devaluation of the Kenyan shilling, the constant dollar cost of foreign visits in 1990 was only 42% of what it was in 1977, while the real cost of resources provided in Kenya for each visitor have risen by 54%. Such dramatic shifts reinforce the tentative nature of these calculations.

the results. Another possibility is to build a model of the economy around input-output methodology, but this is likely to be a highly demanding exercise and only worthwhile under unusual circumstances (Briassoulis 1991; CNPPA 1996). An input-output model traditionally only accounts for production when determining economic impacts, while a Social Accounting Matrix accounts for production, demand and income distribution when determining economic impacts. Very little work has been done on the multiplier and leakage effects of nature tourism specifically, although Lindberg & Enriquez (1994) constructed input-

output tables for Belize, where nature tourism predominates, and Wagner (1996) used a Social Accounting Matrix to examine the regional economic effects of ecotourism in a conservation area in Brazil. Canada has developed a Tourism Satellite Account (TSA) as an extension of the System of National Accounts (SNA). Using the SNA's input-output framework, the satellite account allows the demand and supply sides of tourism to be examined within a balanced accounting system which describes the production and demand functions of the whole economy. The first prototype Canadian TSA was completed in 1994 but related to 1988, the

latest year for which needed data were available. Inputs included tourism expenditure surveys, a national family expenditure survey, surveys of travel agencies, tour operators and tour wholesalers, as well as the consumer price index and national input-output tables. The TSA indicated that total 1988 tourist expenditures in Canada were \$24.2 billion, 22% of which was spent by foreign tourists (Meis & Lapierre 1995). These expenditures generated an estimated \$10.7 billion of direct value-added in

the Canadian economy, equivalent to 3% of GDP, and supported 467,000 full-time jobs, equivalent to 5% of all business sector employment. These results indicated a much greater tourism impact than earlier estimates. Filion et al. (1994) report estimates that as much as one quarter of tourist expenditures in Canada can be attributed to wildlife tourism, suggesting very substantial impacts on the national economy.

4 What are the Net Economic Benefits of Nature Tourism?

The total economic benefit from tourism is represented by visitors' aggregate willingness to pay for their experience. Willingness to pay includes tourist expenditures, as discussed in the previous section. But tourist expenditures are an incomplete measure of the economic value of nature tourism. This is because many visitors to nature tourism destinations pay a total amount for travel, accommodation, park entry, and so on, which is less than the maximum amount that individual would have been prepared to pay (Dixon & Sherman 1990; Lindberg 1991). This difference between what an individual actually pays and the maximum amount they would be prepared to pay is known as consumer surplus. Willingness to pay, or total economic value, therefore includes both actual expenditures and consumer surplus. Methods have been developed to estimate willingness to pay and consumer surplus, and these have been applied in several developing country studies since 1990.

WILLINGNESS TO PAY

There are two broad approaches to valuing willingness to pay (WTP). Direct approaches attempt to elicit preferences by the use of survey techniques. People are asked directly to state their strength of preference for a proposed change, such as protecting a natural area, increasing an entry fee, or using a park for mining. The contingent valuation method (CVM) asks people how much they are willing to pay. The aggregate measure of consumer surplus, as elicited from a CVM study, represents the amount that tourists would have been prepared to

pay but did not have to. In the context of nature tourism, it is vital to distinguish between visitors' willingness to pay to visit a destination and their willingness to pay to conserve the destination. The latter value can be expected to be much higher.

The design, analysis and interpretation of CVM surveys has improved greatly in recent years, although the method is still controversial and needs to be used cautiously (Brown 1996). The basic problem with CVM is that it does not use people's actions to discover how much they value something, and the replies people are prepared to give to a survey questionnaire may be different from how they behave in practice. People's answers are likely to vary depending on how questions are framed and even when they are asked.

Indirect approaches try to elicit preferences from actual, observed market-based information. The travel cost method has often been used to value consumer surplus in relation to parks, using expenditures incurred on travel to develop a demand curve for a recreational experience. The approach typically uses information on time and money spent by people in getting to a site as a basis for estimating WTP for a site visit (Pearce & Moran 1994). This method only applies to use values. Multi-purpose trips and the need to estimate the cost of visitors' time both present challenges to use of the travel cost method which have yet to be solved. As with CVM, the travel cost method can measure the total value of tourism as well as consumer surplus.

Table 4.1 summarizes the results of recent WTP studies for protected area tourism. These studies used CVM and/or travel cost methods to estimate annual consumer surplus. The studies are not easy to compare because of differences in sampling procedures and questionnaire design, as well as the characteristics of the sites themselves. Most of the studies focused on one or a few protected areas, although Moran (1994) estimated consumer surplus for wildlife tourism in Kenya at \$450 million. This seems broadly compatible with Navrud & Mungatana's (1994) estimate of \$15 million for Lake Nakuru National Park. Extrapolation of results in neighboring Tanzania by Clark et al. (1995) yielded an estimate of foregone revenues of \$6 million annually for the entire park system, although the focus here seems to have been on park entry fees rather than total tourist expenditures. Kaosa-ard et al. (1995) estimated consumer surplus for Khao Yai National Park in Thailand at over \$20 million, virtually all of which is attributed to Thai, rather than international, visitors. Only Brown et al. (1995) estimated tourist expenditures (\$42 million) as well as consumer surplus (\$8 million), enabling them to sum the two for a \$50 million estimate of tourism's total economic benefit at two protected areas in Zimbabwe. This study also used a combination of travel cost and contingent value surveys to estimate consumer surplus at \$68-101 per visitor day. Chase et al (1996) showed with econometric analysis the possibility of using price variations to direct tourists away from heavily-used sites in Costa Rica.

Three independent WTP studies have been carried out at Monteverde Cloud Forest Biological Preserve in Costa Rica. Using the travel cost method, annual consumer surplus was estimated at \$35 for each Costa Rican visitor (Tobias & Mendelsohn 1991) and \$1,150 for each US visitor (Menkhaus & Lober 1996). Echeverria et al. (1995) used CVM to estimate annual consumer surplus for all visitor categories at \$121. The results from such studies do require very careful analysis before even limited conclusions can be drawn. For example, Echeverria et al. (1995) measured visitors' willingness to pay to *conserve* Monteverde while

Chase and colleague's (1996) consumer surplus estimate of \$21-25 per visitor only considered WTP to *enter* three other parks in Costa Rica. The sophisticated entry fee policies at Monteverde are discussed further in Section 5.

Despite the recent popularity of willingness-to-pay surveys of park tourism, their practical value remains questionable. In theory, such studies enable a tourism demand function to be estimated. But the variety and complexity of the methods used, combined with the volatility of tourist preferences, do not make single willingness-to-pay surveys a reliable basis for setting park entry fees. The most valuable function of these studies has undoubtedly been to alert policymakers and park managers that they could charge higher, sometimes much higher, prices for park entry, thereby capturing a greater proportion of tourism's economic value. The results of some of the efforts to increase tourist user fees for park entry are discussed in Section 5.

OTHER ECONOMIC BENEFITS FROM NATURE TOURISM

While tourism itself will often provide the most obvious and readily-measurable economic benefits, a range of other benefits are also likely to be present. Dixon et al. (1995) refer to these as 'joint products' of nature tourism attractions. The Total Economic Value (TEV) approach is a useful way to classify these values (Table 4.2). Conceptually, the TEV of a protected area consists of its use value (UV) and non-use value (NUV). A use value, as the name suggests, arises from the actual use made of a given resource. Use values are further divided into direct use values (DUV), such as subsistence or trophy hunting, livestock grazing and collection of medicinal plants, and indirect use values (IUV), which refer to the benefits deriving from ecosystem functions such as nutrient cycling, watershed protection, waste assimilation, climate regulation, store of genetic materials (Pearce & Moran 1994).

Non-use values (NUV) are more difficult to define, and there are at least two types. Option

TABLE 4.1: RESULTS OF NATURE TOURISM WILLINGNESS-TO-PAY STUDIES

STUDY & SCOPE	YEAR STUDIED	NUMBER OF VISITORS	ELEMENTS OF ECONOMIC VALUE (US\$)				AREA OF SITE (ha)	COMMENTS
			CONSUMER SURPLUS		ANNUAL PA BUDGET (US\$)	COLLECTED IN ENTRY FEES		
			PER VISITOR	IN AGGREGATE				
Barnes 1996 PAs in Botswana	1992	64,000.00	\$307 (CV) Total \$437 (CV) Foreigners	\$20 million	\$7-15 per visitor	na	na	All visitors surveyed (mainly international)
Brown et al. 1994 All PAs in Kenya	1993	na	\$499-858 (TC) \$332-550 (CV)	na	na	na	na	International visitors surveyed
Brown et al. 1995 2 NPs in Zimbabwe	1993	20,000.00	\$326-485 (TC + CV)	\$6.5-9.7 million	\$250,000	na	na	International visitors surveyed
Chase et al. 1996 3 NPs in Costa Rica	1995	na	\$21-25 (CV)	na	na	na	na	International visitors surveyed
Clark et al 1995 Tarangire NP, Tanzania	1993	14,911 NR 15,409 NNR	\$16.63 NR (CV) \$6.37 NNR (CV)	\$243,944 NR \$98,155 NNR	\$298,220 NR \$154,090 NNR	na	260,000.00	Deducted use fees from authors' CS estimates NR = Nonresident NNR = Non-national
Extrapolated across all NPs in Tanzania	1993	na	na	\$2.0 million NR	\$2.4 million NR	\$2.6 million	na	resident
Dixon et al. 1995 Bonaire Marine Park	1991	18,700.00	\$17.40 (CV)	\$325,000	\$187,000 (\$10/visitor)	\$668,000	na	International visitors surveyed
Echeverria et al. 1995 Monteverde PR, Costa Rica	1991/92	32,213.00	\$121 (CV)	\$2,380,000 (39% had CS of zero)	na	\$3-600,000 (Aylward 1996)	10,000.00	Costa Rican and intl visitors surveyed
Kaosa-ard, M. et al. 1995 Khao Yai NP, Thailand	1997	600,000.00	\$34.80 (TC) \$0.68 (CV) (diff. unexplained)	\$20,880,000 \$408,000	\$120,000 (\$0.20/visitor)	na (see full study)	217,000.00	Thais surveyed. Option (\$7/non-visitor) & existence (\$29/visitor) values estimated.
Kramer et al. 1995 Mantadia NP, Madagascar	1990	3,900.00	\$24 (RD) \$65 (CV)	\$93,600 \$253,500	na	na	9,875.00	Intl visitors. Non-use values est. at \$24-31 per US household
Maille & Mendelsohn 1993 Besa Mahafaly SR, Madagascar	1991	na	\$276-360 (TC)	na	\$11/visitor	na	640	International visitors surveyed

STUDY & SCOPE	YEAR STUDIED	NUMBER OF VISITORS	ELEMENTS OF ECONOMIC VALUE (US\$)				ANNUAL PA BUDGET (US\$)	AREA OF SITE (ha)	COMMENTS
			CONSUMER SURPLUS		COLLECTED IN ENTRY FEES	ANNUAL PA BUDGET (US\$)			
			PER VISITOR	IN AGGREGATE					
Medio 1996 Ras Mohamed NP, Egypt	1994/95	500,000.00	\$15.45 (MW estimates from study report)	\$7,725,000	\$590,000	na	na	Egyptian and intl visitors surveyed	
Moran 1994 All PAs in Kenya	1992	na	na	\$450 million (CV)	na	na	na	Intl visitors surveyed at PAs and airport	
Navrud & Mungatana 1994 Lake Nakuru NP, Kenya	1991	141,332.00	\$53 (CV)	\$7.5 million	\$720,000	na	18,800.00		
		52,803 (KR)	\$68-85 (TC)	\$3.6 -4.5 million				KR = Kenya residents	
		88,529 (NR)	\$114-120 (TC)	\$10.1-10.6 million				NR = Non-Kenya residents	
				\$13.7-15.1 million					
Tobias & Mendelsohn 1991 Monteverde PR, Costa Rica	1988	3,000/15,000 from C. Rica	\$35 (TC)	\$97,500-116,200	na	\$75,000 (Aylward 1996)	10,000.00	Costa Ricans surveyed. Foreign visitors' CS estimated at \$400,000- 500,000..	

KEY

BCA = Benefit-Cost Analysis

BR = Biosphere Reserve

CS = Consumers' Surplus

CV = Contingent Valuation Method

NP = National Park

PA = Protected Area

RD = Recreation Demand (an adaptation of the travel cost method)

TC = Travel Cost Method

value (OV) is like an insurance value, the amount that individuals would pay to safeguard an asset for the option of using it at a future date. Existence value (EV) is unrelated either to current use or to the possibility of future use. Its intuitive basis is easy to understand because a great many people reveal their willingness to pay for the existence of natural assets through wildlife and other environmental charities, even without experiencing wildlife directly (Pearce & Moran 1994). Assembling these components, TEV can then be expressed as follows:

$$TEV = UV + NUV$$

$$TEV = DUV + IUV + OV + EV$$

Many of these benefits are extremely difficult to quantify with any degree of reliability. But TEV does at least give a framework for thinking about different protected area benefits, how to increase

these benefits, and how to share them more equitably.

Cost of Nature Tourism

Three different types of costs are involved in establishing and maintaining nature tourism destinations: direct, indirect and opportunity costs (Sherman & Dixon 1991).

Direct costs

These include the purchase of land, preparation of management plans, capital expenditures, development and maintenance of roads and facilities, and all recurrent management and administration costs. Some of the most-visited protected areas include significant tourist operations. In such cases, it is important to distinguish the costs of biodiversity conservation from the costs of operating tourism facilities and

Table 4.2. Components of the total economic value of nature tourism destinations

<u>USE VALUES</u>	
<u>Direct Use Values</u>	
Recreation/tourism	
Sustainable use of plant and animal products	
Education	
Research	
<u>Indirect Use Values</u>	
Diverse ecosystems, species and genetic resources	
Maintenance of ecological processes	
Essential life support systems of the biosphere	
Fixing and cycling nutrients	
Watershed protection (forest function, erosion and sedimentation control)	
Evolutionary processes	
<u>NON-USE VALUES</u>	
<u>Option Values</u>	
Future use values	
<u>Existence Values</u>	
Aesthetic, spiritual, cultural and bequest values	

Sources: Adapted from Dixon & Sherman (1990); Pearce & Moran (1994).

managing tourism's environmental impacts. For example, South Africa's National Parks Board runs sophisticated tourism operations inside its parks. The National Parks Board's 1994/95 budget anticipated net tourism earnings of \$8.8 million on gross revenues of \$32.8 million, providing 54% of the direct park management costs of \$16.3 million. Government grants, which are being reduced in real terms each year, are needed to finance the remainder (Wells 1996). Relatively few park agencies in other developing countries are able to contemplate financing such a large proportion of their own direct management costs through tourism.

In developing countries, the amounts being spent on park management usually understate direct costs because there is an almost-universal underinvestment in nature protection. Nature tourism can also require substantial public investments in infrastructure. For example, Southgate (1996) argues that nature tourism's continued success and rapid growth in Costa Rica will require major improvements - i.e., expensive investments, in the rural road network. In such cases, actual expenditures understate the true costs of nature tourism.

Indirect costs

These measure the value of adverse impacts attributable to protected areas, including property damage or personal injuries caused by wildlife. These local costs have not been estimated but they are widely agreed to be substantial throughout many parts of Africa, Asia and Latin America, particularly where large mammals are present.

Opportunity Costs

These are the value of benefits foregone as a result of the decision to protect an area and its resources. There are two categories of opportunity costs. First, the net economic benefits which could be achieved from converting a park to an alternative use - such as forestry, mining or intensive livestock ranching; second, the benefits foregone from potential harvesting of

plants and animals, including hunting and livestock grazing by local communities (Sherman & Dixon 1991). These two categories arise from different land uses and are not additive.

Agricultural development is likely to be the most economically-attractive alternative to nature tourism in rural areas of developing countries. Most alternative uses will not be complementary with nature tourism, although wildlife tourism, trophy hunting and extensive livestock grazing do have the potential to co-exist in some arid parts of Africa.

COMPARING COST AND BENEFITS

The Total Economic Value framework can be used to illustrate how policy makers can evaluate nature tourism as a land use option. Net benefits (NB) are equal to benefits less direct and indirect costs, and opportunity costs (OC) are equal to the benefits less costs of the most attractive development alternative:

$$NB_{\text{Conservation}} = NB_{\text{Tourism}} + NB_{\text{Other Direct Uses}} + NB_{\text{Indirect Use \& Non Use}} - OC_{\text{Conservation}}$$

The net benefits of indirect use and nonuse will usually be very difficult to estimate. Decisions will therefore tend to be based on a comparison of the net benefits of conservation (of which tourism is often the easiest to measure) with opportunity costs - the net benefits of foregone development opportunities. In this case, nature tourism will be considered preferable when:

$$NB_{\text{Tourism}} + NB_{\text{Other Direct Uses}} > OC_{\text{Conservation}}$$

Very few studies have attempted to measure nature tourism's opportunity costs for comparison with the value of tourism and conservation. Engelbrecht & van der Walt (1993) concluded that the economic value of wildlife tourism at Kruger National Park in South Africa substantially exceeded the net benefits from converting the park to livestock and maize production. In Kenya, Norton-Griffiths & Southey (1995) used geographic information

systems to integrate information on land use potential, land use surveys and farm budgets to estimate that Kenya could be foregoing \$161 million each year from potential agricultural development in its parks and forests, equivalent to 2.2% of GDP (some observers argue that this estimate of agricultural potential is unreasonably high). This does not look very promising for conservation when compared to the wildlife tourism sector's estimated value added of only \$27 million (Table 3.2). But Moran (1994) estimated the economic value of wildlife tourism in Kenya to be \$450 million per annum. As Pearce (1996) points out, the two assessments are quite consistent: financial returns can be less than opportunity cost while economic value can be greater than opportunity cost. The pessimism of the former conclusion is offset by the latter finding, but only if ways can be found to capture the broader economic value. Of course, most markets function by dividing net benefits among producers and consumers and it would be unreasonable to expect suppliers of tourism to capture all of the consumer surplus (Aylward, personal communication).

In one of the most comprehensive studies of its type, Norton-Griffiths (1995) examined the financial and economic costs and benefits of tourism vs. agricultural development on Maasai-owned grazing lands adjacent to the Maasai Mara National Reserve, part of the Serengeti ecosystem (Box 4.1). He calculated the areas which would need to be protected from development in order to maximize both national and global net economic benefits. For an equitable solution, the former case would require compensation for foregone development profits to the Maasai landowners of \$2.5 million annually - equivalent to \$80 per tourist per day. The latter case would require an additional \$12 million in annual compensation payments to secure global benefits estimated at \$17 million. This \$12 million approximates the concept of incremental

costs which is used as a benchmark by the Global Environment Facility.

Comparisons of partial costs and benefits can also yield useful results. An interesting benefit-cost study evaluated the economic impact of introducing lions into Pilanesberg National Park, South Africa (Vorhies and Vorhies 1993). The presence of lions in the park was considered critical if more foreign visitors were to be attracted to the nearby Sun City Resort Complex. The study examined the annualized net returns to the park (a financial analysis) and to the region (an economic impact analysis). It was projected that the park would incur additional direct costs of \$250,000 a year from introducing lions, including extra fencing and security, plus the value of the animals which the lions were expected to eat (which otherwise could have been sold). At the regional level, additional net revenues of \$4-9 million to the resort complex were anticipated each year, showing how a public investment in wildlife can be repaid by generating higher private sector income.

Full or partial benefit-cost comparisons of nature tourism can yield important and useful information. But a variety of different approaches have been used, and relatively little of this information has been estimated in ways which facilitate comparisons between different case studies, whether these are site-specific or at a national scale. From a policymaking perspective, the most useful analyses are usually those which carry out both financial analysis (of the private returns to the entrepreneur or landowner) and economic analysis (of the returns to society as a whole). For a discussion of the differences between a financial analysis and an economic welfare analysis, see Sherman & Dixon (1991).

Box 4.1 Property Rights and Opportunity Costs of the Mara Area, Kenya

The Mara Area forms part of the Serengeti ecosystem. At its core are the 1,368 km² Maasai Mara National Reserve (MMNR), owned and operated by the Kenyan Government, surrounded by 4,566 km² of Group Ranches which are owned by pastoral Maasai people. The Maasai are denied traditional access to the MMNR, where tourism is the only permitted use. The Mara Area has become Kenya's premier tourist destination, with the MMNR attracting 10% of all tourist bednights and generating \$20 million in gross revenues (Douglas-Hamilton 1988, cited in Norton-Griffiths 1995). Wildlife tourism, agriculture and livestock on the Group Ranches generate gross annual revenues of \$10 million, \$3.8 million and \$2.4 million, respectively. The Mara Area's principal conservation value is to provide critical seasonal grazing for the Serengeti migratory wildebeest population, currently about 1.5 million animals, which spill out in huge numbers over the grazing lands of the Group Ranches during the dry season. The Maasai are increasingly developing their land and converting from traditional pastoralism, which is generally compatible with wildlife conservation and tourism, to agriculture and ranching, which are not. Loss of dry season grazing lands will also lower the wildebeest population and reduce biodiversity in the Mara Area.

Tourism's net opportunity costs to the Maasai landowners was estimated at \$26.8 million annually, split between the Inner Ranches (\$2.5 m) and the Outer Ranches (\$24.3 m). This is a significant sum, equivalent to \$80/tourist/day. Separate benefit-cost analyses of the MMNR and the Inner and Outer Ranches were carried out. While the national benefits from tourism and conservation exceeded costs for the MMNR and Inner Ranches, the Outer Ranches only provided net benefits if global values were taken into account. The global values were estimated at \$120/ha on the basis of tourist consumer surplus, existence values evidenced by debt-for-nature swaps and carbon sequestration values. On this basis, it would not be socially profitable for Kenya acting alone to prevent development of the high potential land of the Outer Group Ranches, and halting development of the Inner Ranches would require a \$2.5 million annual transfer to the landowners to compensate them for foregone development opportunities. Conserving the 1,419 km² of the Outer Ranches considered optimal for conservation would require \$12 million in annual compensation payments to secure global benefits estimated at \$17 million. Justification for the Kenyan Government to finance this amount is currently lacking.

Source: Norton-Griffith (1995)

5 What are the Options for Capturing More of the Net Benefits of Nature Tourism?

The previous section described how various studies have attempted to estimate the net economic value of nature tourism. But it is a further challenge for nature tourism destinations to capture a substantial proportion of these values. If the economic benefits associated with nature tourism are to provide an increased incentive for conservation, then realizable benefits will need to outweigh costs at national as well as local levels. One way to increase benefit capture is by increasing prices, either for protected area entry or for goods and services supplied by the private sector (transport, accommodation, food and drink, guides, and so on). Other ways to increase benefit capture are through developing new tourist facilities, offering complementary services and minimizing leakages (Lindberg 1991).

HIGHER USER FEES FOR NATURE TOURISM DESTINATIONS

Entry fees for protected areas in developing countries have traditionally been very low, with a few exceptions. Recommending higher entry fees has become a standard recommendation for economists studying protected areas (Dixon & Sherman 1990; Lindberg & Huber 1993). This recommendation is critical where gate entry fees are the most significant source of revenue for parks and reserves. For example, as much of 90% of the income of the Kenya Wildlife Service (KWS) comes from gate receipts, which in 1991 amounted to about \$8 million from 22 national

parks and reserves (Moran 1994). Overall, KWS estimates that it collects as little as 3% of all tourist expenditures. Since most wildlife conservation agencies face steady or declining budgets, setting an appropriate park entry fee to maximizing their fee income is critical. In fact, for park management agencies in many countries, charging higher entry fees to visitors is the only way they can capture a larger share of the economic value of protected area tourism.

Lindberg (1991) has shown how the societal net benefits for a nature tourism destination are not maximized where the number of tourists is greatest, but where net benefits (total benefits less total costs) are maximized, a point which can only be achieved either by charging higher prices to the point where some visitors are deterred or by imposing a physical limit on visitor numbers. Raising entry fees usually offers the dual advantage of increasing net revenues while reducing the numbers of visitors, thereby also reducing visitors' total environmental impact.

The managers of truly unique and appealing locations with a clearly-differentiated product should be able to charge much higher prices than their competitors. Rwanda's Parc National des Volcans and Ecuador's Galápagos National Park are often cited as examples. By the late 1980s, the Parc National des Volcans was charging \$170 per visit to see its celebrated gorillas, with the maximum number of visitors per year set at 6,000 (Lindberg 1991). Even somewhat less

unique locations can often increase their fees dramatically without discouraging visitors.

Efforts to capture a greater share of Galápagos National Park tourism's economic value have only intensified recently, as described by Southgate (1996). A 1986 study suggested the prospect of dramatically increasing total revenues while significantly reducing visitors' environmental impacts if the prevailing entry fee of \$40 per visit was increased to \$214 per day for foreigners (Edwards 1991, cited in Southgate 1996). The entry fee for foreigners was eventually increased from \$40 to \$80 per visit in 1993. Many visitors to the Galápagos take cruises, and the fees assessed on boat operators have been very low. A ship carrying 90 guests in 1992 paid a total fee of about \$600, while generating as much as \$4 million in operator gross revenues. Ship fees were increased in 1993, however. Following the 1993 fee increases, park revenues of \$3.7 million were collected in 1995, compared to \$2.2 million in 1992. The Galápagos National Park kept a part of these funds (30% in 1991) while the rest were used to cross-subsidize mainland parks.

This sounds like a success story for Ecuadorian parks. But by 1996 the Ministry of Finance was prepared to allow a totally inadequate budget of only \$1.2 million for the entire park system, while planning to use the remaining funds generated by Galápagos National Park for other national priorities. This suggests that local governments, local businesses, and the mainland parks in Ecuador now face a new and powerful competitor for scarce financial resources (Southgate 1996).

Revenues from tourism are not re-invested in conservation in many developing countries where park entry and other tourism user fees are passed directly to the central government for pooling with other public sector revenue sources. While governments are fully entitled to decide on national priorities for public sector spending, this does have the effect of destroying the incentive

for managers to develop parks as viable nature tourism destinations and collect higher revenues.

While economists and others may point out the gains in economic and environmental efficiency associated with higher user fees, persuading the private sector to accept fee increases through a political process can be problematic, particularly when private operators have become accustomed to fees which are very low. Mak & Moncur (1996) describe an example from the USA. Hanauma Bay in Hawaii, a 10-acre coral reef park, received about half a million visitors in 1975. By the late 1980s it was attracting 2.8 million visitors annually, averaging over 7,500 per day, an increase entirely due to non-resident tourists. This huge increase threatened both the natural environment, with ample evidence of damage to the reef, and the quality of the visitor experience, particularly since the public funds made available for management were minimal. As a response to overcrowding, non-price rationing was first introduced: limiting hours of access, restricting tour vehicles and closing the park for half a day each week. Admission was on a first-come, first-serve basis. Then a \$5 admission fee was added for non-residents and in six months generated \$2 million, more than enough to finance park management. But the tourist industry (principally the taxi and bus operators bringing tourists to the park) mounted a powerful, sophisticated and largely successful political campaign opposing any form of restriction or user fee. As a result, the use restrictions were relaxed and the fee was rescinded, only to be reinstated later at a lower level which had virtually no effect on visitor numbers, although it did at least provide funds for management. This experience highlights the difficulty for natural resource managers in balancing efficiency criteria with political feasibility, and illustrates the capacity of tourism industry interest groups to rally opposition against use restrictions, price or otherwise.

One of the specters commonly raised by the private sector in response to proposed increased entry fees is that tourists will be discouraged

from visiting or a country or a specific region within a country. This fear may have received insufficient attention from environmental economists. The financial benefit to an attraction from increasing its fees may be outweighed by the cost of reduced visitor spending in the broader economy. This has been one of the dilemmas encountered in setting fee levels for national park entry in Costa Rica, where park entry fees issues have probably received more attention than in any other country.

Several studies show that visitors' willingness-to-pay for access to Costa Rica's protected areas exceeds the nominal admission fees charged as recently as late 1994 (e.g., Balderas & Laarman 1990, cited in Southgate 1996; Tobias & Mendelsohn 1991; Echeverria et al. 1995). But fee increases introduced in 1994 aroused the anger of tourism operators and many of their clients, who not only had grown accustomed to paltry charges but doubted that the additional revenues would be reinvested in trail maintenance and visitor facilities. It was also feared that the new higher prices might discourage foreigners from visiting Costa Rica and/or exceed the levels required to maximize revenues (Southgate 1996).

Park fees for both Costa Ricans and foreigners were \$1.25 per day until September 1994. Fees for foreigners were then adjusted to \$10 per day payable at least one day in advance or \$15 per day payable on entry. Travel agents were sold tickets for \$5 each. A brisk trade in discounted tickets emerged quickly. Some park administrators resented the new fees and did not enforce their collection (Chase et al. 1996). But the policy change still appeared to have a major impact on park use, cutting the number of foreign visitors by 43% during the following tourist season. For a four- to twelve-fold increase in admission fees to cause visits to decline by less than half suggests that international demand for admission to Costa Rica's parks is price-inelastic, and that the park service's financial position - if not that of the private sector - would be strengthened by the increases (Southgate 1996). But Chase et al. (1996) cautions that demand might be more elastic over a longer

period. Most 1994/95 visitors to Costa Rica would already have committed to their travel plans before the price increase became known, while visitors in later years might choose a different type of travel experience (in contrast, Barnes (1996) reported exactly the opposite following a sharp entry fee increase in Botswana: the growth in visitor numbers initially slowed and then recovered). Concern that higher park entrance fees might be deterring visitors to Costa Rica led to another revision in fee structure in July 1995, when advance purchase tickets for foreign visitors to the less-popular parks were reduced to \$5 or \$7 (Southgate 1996).

Multiple pricing policies have been implemented in several countries, usually charging relatively-affluent foreigners a higher fee than locals and thereby meeting the twin objectives of raising revenues from those with the ability to pay more, without denying citizens access to their natural heritage (Lindberg 1991; Lindberg & Huber 1993). Such price discrimination is practiced with great precision at the Monteverde Cloud Forest Biological Preserve in Costa Rica, where a variable entrance fee policy is followed, designed to charge higher fees to those tourists most willing and able to pay more (and vice versa). Fees were as follows in 1995: a token fee of <\$1 for Costa Rican students; \$1.50 for Costa Rican nationals and residents; \$4 for foreign students; \$8 for foreigners (not on package tours); and \$16 for foreigners on tours. Foreigners have recently accounted for 80% of the visits and 97% of the revenues. The fee policy thus effectively raises revenues for management while keeping the reserve accessible to some (if not all) local and other Costa Rican residents (Aylward et al 1996).

HIGHER ECONOMIC RENTS FOR THE TOURISM PRIVATE SECTOR

The ability of private sector tourism operators to earn higher economic rents (i.e., long-term profits) through increased prices will largely depend on whether access to the market for a particular nature tourism destination is limited.

As natural resources, nature tourism destinations have scarcity or rental value. But if a popular attraction permits open access to unlimited numbers of tourists and tour operators, this can not only result in environmental degradation and overcrowding but is economically inefficient. Unlimited competition forces prices down to a point where the scarcity value of the site is lost to the tourists as consumer surplus and competition between local suppliers' dissipates the profits. This is because the prospect of any remaining profits will tend to attract new market entrants charging lower and lower prices until average revenues are driven down to the value of average costs, and profits are thereby eliminated due to price competition and excess capacity (like an open-access fishery). This is in contrast to a situation with regulated entry, where access is limited to a fixed number of operators which can act as partial monopolists and charge prices above marginal cost to earn positive profits (Steele 1995). Unfortunately many nature tourism destinations, and especially protected areas, are controlled by one or a few monopolists, often including the government. These tend to be no more successful than other nationalized industries.

The environmental and economic gains from limiting and regulating access to nature tourism destinations is clearly illustrated in a study by Medio (1996) of Hurghada and Sharm el Sheikh, two Red Sea diving resorts in Egypt. Hurghada has allowed unlimited reef use for tourism and fishing, as well as unrestricted coastline development. In contrast, Sharm has carefully managed coral reef use, has restricted coastal development and uses an effective compliance monitoring program. The contrast in results at these Red Sea diving resorts has been dramatic (Figure 5.1). With Hurghada's "mass" tourism, development density is nearly three times greater and the reef suffers from overuse (three times as many visitors and twice as many boats), reckless exploitation (unnecessary damage from hotel construction and unmanaged diving) and pollution (leading to poor visibility). With Sharm's "specialized" tourism, the restricted number of operators have recognized their

common interest by investing in conservation. Sharm hoteliers have provided more mooring sites and diver briefings to spread impacts and reduce unnecessary damage. They have also invested in sewage control and underwater visibility is far greater. As a result, Sharm hotels are able to charge almost double those at Hurghada. Government restriction of resource use (and monitoring to ensure compliance with the restriction) has allowed economic rents to be created and established incentives for operators to invest in protecting the reef. Further growth at Sharm will have to be counterbalanced by maintaining current incentives to protect the reef at the tour operator level. This will depend on the enforcement capacity of the management authority as well as the continued existence of positive rents to be gained from conservation investments.

Private reserves and privately-owned nature tourism destinations have received only moderate attention in the literature. Most of the information on privately-owned reserves comes from two comparable surveys carried out in 1989 (Alderman 1994) and 1993 (Langholz 1996). In 1993, questionnaires were sent to 97 private reserves in Latin America and sub-Saharan Africa. Of the 32 reserve managers who responded, more than half reported making a profit, with average profits having risen 21% since 1989. Tourism provided 67% of operating income and private grants another 19%. The reserves varied in size from 6 ha to 80,000 ha, with an average of about 8,000 ha. About 70% of the respondents had recovered their initial investment by 1993, compared with 25% by 1989, and 72% believed they could generate more income through tourism than alternative land uses. Many reserves did not expect to be profitable, being motivated more by conservation than personal or economic goals. The managers attributed most of their successes to the presence of 'interesting ecological features' and considered government involvement the least important factor. Local employment and community relations were repeatedly emphasized as important concerns.

Figure 5.1. Key indicators at Sharm el Sheikh and Hurghada coral reef resorts, Egypt

	<u>Sharm</u>	<u>Hurghada</u>
<u>Government Intervention</u>		
Urban Planning	yes	no
Monitoring Program	yes	no
Public Awareness Program	yes	no
Fishing Regulations	yes	no
<u>Development Density Indicators</u>		
Hotels	40	127
Dive Centers	27	85
Boats	220	400
<u>Investment for Conservation</u>		
Dive Sites	37	30
Fixed Moorings	108	65
% of Divers Briefed	65	4
<u>Conservation Benefits</u>		
Sewage Pollution	no	yes
Infilling	1/40	64/75
Underwater Visibility (m)	15-30	1-2
Anchor Damage	negligible	significant
<u>Rents from Conservation</u>		
Average Price of Tour Package	US\$45	US\$27

Source: Medio (1996)

The Monteverde Cloud Forest Biological Preserve, one of Costa Rica's most popular tourist destinations, is one of the most successful and well-known private reserves. Originating from a 500 ha plot set aside by a group of American Quakers in the 1950s, the reserve reached its current size of 10,000 ha in 1991 after a lengthy and complex series of land acquisitions made possible through voluntary efforts, fundraising and litigation against illegal users (Tosi 1991, cited in Aylward et al. 1996). The Tropical Science Center (TSC), a non-profit NGO, has owned and managed the reserve since it was established in 1972, when there were 471 visitors. Visitation grew slowly at first, then accelerated rapidly during the 1980s as Costa Rica became a popular tourist destination. The reserve received almost 50,000 visitors in 1994.

Aylward et al. (1996) report that entrance fees raised \$376,000 (45%) of the Monteverde Preserve's \$841,000 total revenues in 1993. Other revenue sources included a natural history program, a gift store and a snack bar. Total 1993 costs were \$772,000, leaving net revenues of \$69,000. The Preserve has generated a surplus each year since 1988. Tourism has supported management of the reserve, financed substantial capital improvements, met the costs of a sophisticated environmental education program and provided annual contributions to an endowment fund. The Preserve thus appears to be financially sustainable (the Preserve's efforts to ensure ecological sustainability and contribution to local development are discussed in later sections).

In South Africa there are about 9,000 privately-owned game reserves and game farms covering 8 million ha. Many of these private reserves have been proclaimed as protected areas through provincial legislation, usually at the initiative of private landowners. Covering as much as 20,000 ha, many of these operations provide hunting and/or tourism facilities. Even though they consist mostly of a myriad of small operations, these private reserves and ranches are so large in aggregate that they make up an important component of wildlife conservation in South Africa. There is a concentration of private game reserves in the Eastern Transvaal both near and bordering Kruger National Park, including well-known examples such as Londolozi, Phinda and Sabi Sabi. Many of these reserves provide luxury accommodation and charge relatively high prices. The profitability of such operations is difficult to estimate, partly because these are private businesses under no obligation to disclose financial information, and partly because no serious effort has yet been made to study them from a financial or economic perspective. Discussions with industry experts suggest that the tourist operations in these reserves are only profitable if recent land acquisition costs are ignored. This probably means that escalating land values are the major financial incentive for at least some newly-established ventures. Although many of these private reserves have now established international recognition in their own right, most have at some point benefited substantially from their proximity to Kruger National Park (Wells 1996).

Some countries give concessions to private sector operations to operate facilities inside or linked to government-owned protected areas. This is common practice in Kenya, Tanzania and Uganda. Among other countries, the Tiger Tops Hotel in Nepal's Royal Chitwan National Park is one of the earliest and best-known examples. In South Africa, both the National Parks Board and the Natal Parks Board have cautiously experimented with restaurant concessions, but not with accommodation. South Africa's North West Environmental Conservation Agency (formerly Bophuthatswana Parks Board) has

pioneered the involvement of the private sector in developing and managing lodges in Pilanesberg National Park and Madikwe Game Reserve. Unlike most other parks, the objectives of Madikwe are primarily social and economic, to diversify the economy and to provide jobs and other economic benefits for the impoverished communities in this sparsely-populated area. The conservation agency fenced a 70,000 ha semi-arid area formerly providing a marginal income for livestock owner and stocked it with wildlife. The private sector will develop and manage luxury safari camps and lodges while the public sector conservation agency manages the land and the animals (Wells & Davies in prep).

There is understandable concern that allowing private firms to bring profit-maximizing operations into the parks will have a negative impact on wildlife conservation. But this may be an unduly cautious position to take. Legally-enforceable regulations and contracts can be used to ensure that private sector operators cannot introduce practices which threaten the environment. Concession arrangements are certainly open to abuse, and there are many examples of concessionaires getting "sweetheart" deals with few restrictions and little supervision. Experience from the USA suggests that too-large concessions should not be granted to single firms, which can then establish a near-monopoly and become difficult to control or dislodge, as in Yosemite National Park in the United States. But with adequate attention to compliance, private sector tourism operations could offer lower costs, greater efficiencies and a broader range of market-responsive tourism services.

It is often difficult to extract sufficient relevant data from the private sector to analyze the financial or economic performance of nature tourism operations. An exception is the work of Barnes and colleagues in Southern Africa. In Botswana, Barnes (1992) constructed a financial/economic model of an up-market 30-bed wildlife tourism game lodge in northern Botswana which was assumed to require 21,000 ha of land stocked with high value wildlife

species. Recurring annual net cash income after start-up was \$173,400 based on 33% occupancy, yielding a financial rate of return (FRR) of 17.5% and an attractive economic rate of return of 27.5%. Sensitivity analysis showed the lodge would become financially unattractive (FRR<12%) at occupancies below 28%.

In Namibia, the establishment of private property rights in game species has led to the establishment of wildlife ranches and conservancies. Here, 10-20 private landowners with 10,000-15,000 ha ranches have joined together to establish a common outer boundary to their combined properties, and drawn up contracts for the joint management and use of their wildlife. Four conservancies of 100,000-150,000 ha had been established by early 1996. Barnes & de Jager (1996) compared these conservancies' rates of return with individual private ranches (Table 5.1). The results show a positive return to game ranching in Namibia at the individual landowner level, although the financial rates of return (3.9-5.8%) are lower than the economic rates of return (8.5-13.6%). The economies of scale achievable when landowners work together through conservancies give much more attractive commercial returns

(7.3-10.0%). Even more importantly, when the real social costs of the factors used in these operations are evaluated (rather than the prices actually paid) the rates of return to a conservancy reach impressive levels (12.9-19.5%). The privatization of wildlife within Namibia contributed to a significant increase in wildlife numbers (70%) and biomass (85%) between 1972 and 1992, and a 44% increase in species diversity. This appears to provide solid evidence for the effectiveness of the incentives created by wildlife privatization.

In a review of several African studies, Pearce (1996) has pointed out some of the implications of the results of economic, as opposed to financial, appraisal of land use options involving wildlife tourism. Adjusting revenues and costs for their shadow prices tends to increase the rate of return of wildlife investments. Such investments at least include modifications for overvalued exchange rates and for the true cost of labor, which tends to be significantly less than the market cost in a high unemployment context. This suggests that wildlife tourism should be better treated by national governments, for example, with favorable tax regimes.

Table 5.1. Rates of return on different land uses at different scales in Namibia

	FRR	ERR
<u>Individual Farm Scale (9,000-14,000 ha)</u>		
Southern mixes sheep/game	5.8%	10.8%
Northern mixed cattle/game	3.9%	8.5%
Northern game lodge	4.2%	13.6%
<u>Conservancy Scale (90,000-101,000 ha)</u>		
Northern mixed cattle/game viewing	7.3%	12.9%
Northern game lodge	10.0%	19.5%

Source: Barnes and de Jager (1996)

6 How Can Nature Tourism Contribute More to Local Economic Development?

Comparing the overall benefits and costs of protected areas and nature tourism enterprises can provide useful information. But there is growing acknowledgment that many of the benefits of conserving wildlife go to the world as a whole, while the costs are usually borne at national and local levels (McNeely 1988; Wells 1992). These costs usually result from loss of access to protected lands and damage caused by wildlife. The heaviest burden tends to be borne by poorer countries and especially by impoverished people living in rural areas of these countries in the proximity of protected areas. This often proves a powerful disincentive to local support for conservation, and many parks and reserves are unlikely to be able to secure their future without finding a significant role to play in supporting local social and economic development (McNeely & Miller 1984; Wells 1992).

Improving relations between protected areas and neighboring communities has therefore become one of the highest priorities on the international conservation agenda. This has led to increasing efforts by protected area managers and conservation organizations to obtain local cooperation, and to the introduction of what Wells & Brandon (1992) have referred to as integrated conservation-development projects (ICDPs). In principle there are a variety of tangible ways in which local communities could receive greater benefits from protected area tourism (Table 6.1).

The Annapurna Conservation Area in Nepal is one of the few examples where there are signs of

effective integration between tourism, local economic development and protected area management. About 40,000 people of diverse ethnic backgrounds inhabit this rugged, mountainous region, mostly poor rural farmers. Tourism has grown rapidly and 45,000 foreign trekkers now visit the area each year, virtually all of them traveling along one of two trails, and there has been a proliferation of small tea shops and lodges in villages along these trails. Management of the Annapurna Conservation Area Project (ACAP) has been delegated to the King Mahendra Trust for Nature Conservation, Nepal's pre-eminent NGO. ACAP has encouraged local participation in natural resource management. Discussions with local people had revealed that establishment of a national park would meet hostility based on the fear of substantial local costs as well as skepticism towards the prospect of local economic benefits (a reaction amply justified by the history of many of Nepal's other protected areas), and an alternative was needed. Special legislation established the multiple-use Conservation Area - permitting hunting, collection of forest products, and the delegation of management authority to the village level. High priority has been given to reducing the environmental impact of visiting trekkers and increasing the local economic benefits from tourism. ACAP has been authorized to collect - and retain - a visitor entry fee, helping the conservation project to become financially self-sufficient. The Government does not provide any staff or funds to manage this protected area (Wells 1993, 1994).

Table 6.1. Ways for communities to receive greater benefits from protected area tourism.

1. Compensation or restitution for park-caused problems
 - Land claims by the dispossessed
 - Damage and injuries caused by wild animals
2. Direct financial benefits for local individuals and organization
 - Revenue sharing (from hunting, culling or other plant/animal product sales)
 - Employment
 - Purchasing more goods and contracting more services locally
3. Use of natural resources in parks or in buffer zones
 - Hunting
 - Livestock grazing
 - Collection of natural products (medicinal plants, wood, construction materials, etc.)
4. Direct participation in tourism enterprises
 - Employment
 - Revenue sharing and joint ventures
 - Selling goods and services directly to tourists - see Healey (1994)
 - New market niches emphasizing traditional cultures
 - Providing affordable services to low-income visitors
5. Institutional support for community projects (schools, clinics, roads, etc.)
 - Fund raising
 - Direct financial support
 - Facilitation (enlisting other government agencies and NGOs for support)
 - Technical expertise
6. Capacity building
 - Training individuals with the skills needed for employment and small businesses
 - Supporting local institutional development

Source: Adapted from Wells (1996)

In another positive example, tourism at Costa Rica's Monteverde Cloud Forest Biological Preserve has had a substantial positive economic influence on the local community. The two neighboring towns contain over 30 well-established hotels. Over 90% of visitors stay in these local hotels, for an average of two nights, and patronize local shops and restaurants. In addition, tourists use local tour agencies, gas stations, outfitters and souvenir shops, and visit the local cheese factory, sugar mill, art gallery and butterfly farm. Virtually all of these enterprises are locally owned, and a community-

wide planning process helps to maintain balance between local development and management of the Preserve (Aylward et al. 1996).

But other cases are less positive. In Ecuador, many residents of the Galápagos Islands have found it difficult to benefit from ecotourism. Recent trends suggest the Galápagos are becoming a premium nature tourism destination, visited mainly by well-off people. Fewer Ecuadorians and fewer foreign backpackers seem to be visiting the islands, possibly in response to affluent residents of more wealthy nations seems

to be price-inelastic. The earnings of many hotels, shops and restaurants are diminishing as the Ecuadorian and foreign backpacking visitors who tended to patronize on-shore facilities are being displaced by the gentrification of tourism. Power and water services are superior to other Ecuadorian coastal towns but prices are high, especially for food and consumer goods which must come from the mainland. Less than 15% of foreigners' expenditures are estimated to reach the islands. Most affluent visitors prefer to cruise on a ship, requiring few local inputs. Higher minimum wages and restrictive work rules for Galápagos residents means that few are employed on these ships (Southgate 1996).

In practice, local benefits from nature tourism have often been limited to employment on a very modest scale, with most tourism benefits leaking out to the national or international level. Some of the most important constraints facing increased local involvement in tourism, including community-based tourism enterprises, are the lack of required skills and experience, lack of access to markets, lack of capital for investment, lack of legal tenure or ownership rights over tourism attractions, inability to compete with larger enterprises, lack of official recognition or support for the informal sector and simple lack of financial viability (Ashley 1995). Few countries have systematically attempted to address or overcome these constraints.

One of the most significant barriers to community involvement in tourism is the lack of affordable financing. Without low-interest financing through direct and workable mechanisms, rural communities' opportunities to participate in tourism ventures are likely to remain very limited. Community participation in nature tourism may best be achievable through joint ventures with the private sector or park management authorities. This will often require capacity building in the communities, a potential role for NGOs.

Communities are generally in a very different situation from tourism industry entrepreneurs in deciding what kind of tourism product they wish

to offer. In a demand- or industry-driven framework, commercial operators choose a particular tourism product based on an assessment of the potential market demand for such services in a given region. But in the supply- or capacity-driven model most relevant to communities, potential tourism enterprises must identify those services they are able to offer tourists based on local resources and then attempt to market these products. The former, demand-driven, approach is important for minimizing the risk of financial failure and for exploiting untapped market potential; the latter, supply-driven approach helps ensure an enterprise is feasible, fits the local physical, ecological and cultural context, and develops the local and national comparative advantage. But limited access to information, skills and capital can make it difficult for aspiring community-level providers of tourism services to meet the demands of the established industry (Ashley & Garland 1994). Communities can also suffer from a lack of information about tourist markets and other local suppliers, leading to examples of over-production of local handicrafts in different communities within a region which are targeting the same groups of tourists (A. Kiss, personal communications).

Ashley & Garland (1994) recently compared the potential benefits from four types of wildlife tourism enterprise in communal areas in Namibia (Box 6.1): (1) a privately-owned lodge; (2) a privately-owned lodge voluntarily sharing revenue with the community; (3) a joint venture lodge, usually where the community owns the land and is entitled to lease payments or profit-sharing in a privately-run lodge on their land; and (4) a community owned and managed tourism enterprise (e.g., campsites, craft sales or cultural attractions). This study concluded that an up-market lodge will usually make a larger contribution to the regional or national economy simply because of its scale, although the community enterprise's contribution can also be substantial if the social benefits of skill acquisition, institutional development, and equity of benefit distribution are valued in economic terms. But if the four different enterprises are

Box 6.1. Factors influencing the feasibility of community involvement in nature tourism

The financial viability of any tourism lodge in a communal area depends on the tourism product, prices, occupancy rates, and the balance between government taxes and government services (roads, water, power, airports).

The scale of communities' benefits and costs from private lodges depends on the number of local jobs and wage levels, and the local resources used by the lodge.

The feasibility of revenue-sharing from a private lodge depends on:

- * Overall lodge profitability
- * The extent to which revenue-sharing costs can be passed on to customers, perhaps by attracting specialized tourists with an ethical/ecological focus.
- * The value of reciprocal benefits to the tourism enterprise from the community (goodwill, resource conservation, land-use agreements).
- * Awareness among entrepreneurs and communities of potential mechanisms and benefits of revenue-sharing.
- * Government incentives (taxes, subsidies, promotion, publicity).

The feasibility of establishing joint ventures between communities and entrepreneurs depends on:

- * The extent to which above-average prices can be charged to compensate entrepreneurs for giving up a share of profit and achieving a lower return on their investment.
- * The value of community rights over tourism resources (wildlife and land)
- * Transaction costs of negotiating and establishing joint ventures, and the extent to which NGOs and government can help reduce these (e.g., by providing expertise).
- * Awareness, interest and objectives of entrepreneurs and communities.

The feasibility of community enterprises depends on:

- * Prices and occupancy/usage rates (which depend on competitors as well as promotion and marketing).
- * Secure access to a valuable site
- * Skills in business, languages, marketing, management, and so on.
- * Changes in local land use and tourism development which are beyond the community's ability to influence
- * Availability of capital

Source: Adapted from Ashley & Garland (1994)

ranked according to the revenue which they generate for a community, then a joint venture lodge is preferable, followed by community enterprises, then revenue-sharing private lodges. But even a private lodge which does not share revenues can inject income into the community through employee wages (Ashley & Garland 1994). Joint venture lodges appear to offer the best chance of strengthening the critical linkage between community development and wildlife conservation. Only a joint venture lodge seems

likely to generate benefits which are sufficiently large and widely dispersed to be perceived as depending on wildlife conservation. A community enterprise could have similar effects but the financial benefits would be smaller. Opportunities for active community participation and empowerment are greatest in community enterprises and joint ventures, while the community's role in revenue sharing tends to be passive. A private lodge without revenue sharing generally does little to encourage

community participation (Ashley 1995; Ashley & Garland 1994). Even when significant revenues for the community are generated by tourism,

deciding how to distribute these revenues within a community presents a further challenge.

7 What are the Options for Mitigating Nature Tourism's Environmental Impacts

An economic approach to the management of protected areas and other nature tourism destinations can help to identify ways of maximizing net financial or economic benefits. But one of the most important challenges in managing tourism is to reach a balance between the benefits from visitor use and the maintenance of the natural environmental features of the area. When the use of a nature tourism destination is uncontrolled, maximizing net economic benefits may result in irreversible damage to the environment. The market system would be likely to deliver too many tangible benefits at the expense of intangibles, such as non-use benefits (Driml & Common 1995).

So the economic solution poses a dilemma for destination managers. The dilemma arises because the economic approach sets values based on the summed preferences of individuals' willingness to pay, and these are unlikely to coincide with the social and political values which generally underlie the establishment of conservation priorities. The optimal economic solution will probably only coincide with the conservation objectives of a protected area when constraints are added to maintain a defined standard of environmental quality (Driml & Common 1995).

Limitation of visitor numbers is perhaps the most obvious method for managing negative impacts and this has led to a focus on ecological carrying capacity within the tourism literature (Lindberg

et al. 1996). (Ecological carrying capacity can be contrasted with economic carrying capacity where net economic value is maximized, as discussed in section 5.) Unfortunately, the many definitions offered for a destination's ecological carrying capacity provide little useful guidance for practical implementation. For example, carrying capacity has been defined as "the level of visitor use an area can accommodate with high levels of satisfaction for visitors and few impacts on resources" (WTO/UNEP 1992, cited in Lindberg et al. 1996). It is unclear what constitutes either "high levels" or "few impacts".

Carrying capacity might be a more useful concept if the negative environmental impact of visitors was a linear or other simple function of some easily-measured variable, such as the number of visitors. Then carrying capacity could be defined reliably in terms of that variable. But, as Aylward and colleagues (1996) have argued, in reality environmental deterioration due to tourism overuse often occurs in mysterious increments so that predicting or assessing the point at which irreversible damage begins is a difficult task. Given the problem of determining environmental thresholds, calculating the exact carrying capacity of a nature tourism attraction is often not feasible (Aylward et al. 1996; Dixon et al. 1995; Driml & Common in press; Lindberg et al. 1996).

Recognition that effective application of the carrying capacity concept is difficult, if not

impossible, has led to a shift in focus from the "how many is too many?" question to one of "what are the desired (social and environmental) conditions?" (Lindberg et al. 1996). This shift in emphasis has led to the development of alternative planning and management frameworks, including the Limits of Acceptable Change system, Visitor Impact Management and Visitor Experience Resource Protection. Lindberg et al. (1996) cite references which give details of these iterative frameworks, which allow for the identification of use-impact relationships.

In the Monteverde Cloud Forest Biological Preserve, Costa Rica, visitor numbers are limited during the two annual peak visitation periods, to 100 people at a time on the 20 km of visitor trails which cover a small fraction of the reserve, and these trails are periodically moved. Visitors are not permitted to step off the designated paths and, if acute deterioration is noted, trails are closed for restoration. This approach combines careful monitoring with adaptive management. The non-profit Preserve was originally intended to protect nature and provide a site for biological research. It remains to be seen what action will be taken if the 100-person limit becomes a binding constraint on visitor numbers and revenue generation. A commercially-operated reserve would presumably solve this constraint by extending the trail network. One alternative would be to simply cap development and let other private reserves take the overflow (Aylward et al. 1996).

But tourism impacts can be very diverse and difficult to monitor. For example, the types of impact identified for the Great Barrier Reef World Heritage Area in Australia include: site impacts from structures, mooring and anchorings; coral damage from diving and reef walking; removal of coral and shells; garbage disposal and littering; sediment disturbance and dredging; water pollution from nutrients, heavy metals and oil; sewage discharge from vessels and from island resorts; fishing impacts; fish feeding impacts; and impacts of research and monitoring activities (Driml & Common in

press). Monitoring such a wide range of variables and adjusting visitor numbers and activities in response to the results of such monitoring is obviously a massive and expensive management undertaking.

Damage done is not just as a result of the volume of tourists (taking into account both numbers and length of visit), but also as a result of the damage done per tourist (Steele 1995). This means that carrying capacity (however defined) can be increased by investing in more effective management to mitigate damage (Swanson 1992, cited in Steele 1995). Improved management might, for example, include increasing spatial and temporal dispersion of tourists (or even concentration of visitors in resilient or even already damaged areas). For example, Medio (1996) showed how educating divers in advance on the fragility of coral reefs led to significant reductions in damage per diver at a Egyptian diving resort. Dixon et al. (1995) reported similar findings from the Bonaire Marine Park, suggesting that it may be possible to double the estimated present usage level of 200,000 dives per year with improved management and more effective diver education.

Private sector tourism operators will only have an incentive to support and invest in additional management to reduce environmental damage where market access is limited and regulated. If market access is unlimited or unregulated, free riders - operators who decline to incur the extra costs of additional management - will still be able to share in the benefits without regard for environmental damage, and the incentive to cooperate and reduce environmental damage for the common good will be lost. Kenya's Maasai Mara National reserve provides an example. Illegal, but virtually unregulated, off-road driving by tour operator vehicles anxious to provide their clients with close-up wildlife views have significantly scarred the landscape. Together with the failure to limit tourist or vehicle numbers, this has led to environmental damage, modified wildlife behavior and diminished the visitor experience.

So far the discussion has been limited to direct environmental damage to a nature tourism attraction. Indirect environmental damage is often more serious. Aylward et al. (1996) refer to an unplanned development "free for all" on the fringes of some popular nature tourism destinations in Costa Rica. And, of course, most forms of transport, even to the most environmentally-sensitive ecotourism destinations, impose substantial environmental costs through air pollution and carbon dioxide emissions.

In Ecuador's Galápagos National Park, controls on damage per tourist include careful zoning, regulations that tourists must be accommodated on boats, registration of naturalist guides and strict rules of shore visits (de Groot 1983, cited in Steele 1995). But there have been no controls on the number of tourists. The volume of visitors to this formerly-remote and isolated archipelago has increased dramatically, from about 5,000 in 1970 to more than 55,000 (40,000 foreigners) in 1995. As a result, thousands of unrestricted migrants have been attracted to the Galápagos by the prospect of working in a souvenir shop or on a cruise ship. The resident population increased from 2,400 in 1962 to almost 10,000 in 1990. The towns are now sources of pollution. Many

of the residents do not succeed in finding permanent work and take up fishing. This is unregulated, and several fish species have been severely depleted, with unknown effects on the local food chain (Southgate 1996).

Environmental damage to a nature tourism destination should ideally be monitored with reference to carefully-selected environmental indicators, which will usually be site-specific and will often be difficult to measure. 'Leading' indicators to identify impending environmental damage are most needed. Adaptive management of visitors in response to the signals from such careful and regular monitoring would ideally focus on infrastructure and other development as well as visitor numbers, duration of stay and activities. Unfortunately, few developing country nature tourist attractions have the financial or institutional capacity to manage tourism in such a sophisticated fashion. In the absence of such capabilities, local expert opinion backed up with the legal authority and institutional capacity to regulate may be the next-best option. Economic analysis and instruments become most useful in helping to work out how to extract the maximum net benefits from tourism once the acceptable environmental conditions have been defined.

8 Conclusions

Nature tourism has made important contributions to GDP, foreign exchange earnings and other traditional indicators of economic development in many developing countries - and these contributions show every sign of continuing to expand. But nature tourism's contribution to sustainable development is less clear.

Most of the economic benefits linked to tourist expenditures have been captured by commercial tourism operators in the richer countries (where most tourists originate) and in the larger cities of the host countries. This is largely a consequence of the high leakage rates which are inevitable when tourism expands rapidly in economies which lack the capacity to produce the goods and services which visitors are ready to spend their money on. But this concentration of economic benefits among international hotel groups, airlines and mainly foreign tour operators, as well as shops and restaurants in the host countries' capital cities, does little to support social and economic development in the remote rural areas where nature tourism destinations are located. Nature tourism has catalyzed local or regional economic development in a few cases, but these have often been accompanied by negative environmental impacts from uncontrolled construction, as well as the abuse and overuse of destinations by inadequately regulated tour operators.

Local communities' participation in nature tourism has been constrained by lack of relevant knowledge and experience, lack of access to

capital for investment, inability to compete with well-established commercial operations as well as simple lack of tenure or ownership rights over the tourism destinations. As a result, relatively few local communities have realized significant benefits from nature tourism on their own lands or in nearby protected areas. Lack of education and training often limits people from rural communities to the lowest-paying jobs in tourism enterprises. Even though such jobs can support large households in local rural economies, they usually do not involve local people in decisionmaking or taking control over their own future development. Nature tourism on privately-owned lands has in some cases been penalized by landowners' or residents' lack of effective tenure over wildlife and other natural attractions, or by policy distortions favoring land use alternatives such as agriculture, livestock or mining. Of course, these reservations are at least as applicable to many other private sector activities competing with tourism for land or other resources.

From a conservation perspective, protected areas charging relatively low entry and use fees often supply the most valuable part of the nature tourism experience but capture little of the economic value of tourism in return. While many governments have successfully increased tourist numbers by marketing their country's nature tourism destinations, most have not invested sufficient attention or resources to managing the natural assets which attract tourists or in the infrastructure needed to support nature tourism. This has exposed sensitive sites of

ecological or cultural value to the risk of degradation by unregulated tourism development and the impact of too many visitors. Indirect environmental impacts can also be substantial. Expectations of new jobs and business opportunities from rapidly-expanding nature tourism destinations have, in some cases, attracted rapid immigration and catalyzed the uncontrolled expansion of nearby settlements at rates beyond the absorptive capacity of the local environment.

Despite these problems, the overall growth potential and some promising individual cases do strongly suggest that nature tourism is one of the most important sectors where environmental conservation may effectively be combined with economic development in remote rural areas of developing countries on a meaningful scale. The policy-making priorities generally lie in four areas: (1) increasing and capturing more of the net economic benefits, (2) contributing more to local economic development, (3) mitigating environmental impacts, and (4) helping to finance biodiversity conservation (recognizing that only a small fraction of ecologically-important areas have the potential to attract significant tourism).

But very few countries have established functional policy or institutional frameworks to optimize the economic and environmental

contribution of nature tourism to sustainable development. Why is this?

There are two main reasons. First is that few countries have recognized nature tourism as a separate sector of their economy requiring distinct policies, often perceiving the separate labeling of nature tourism, ecotourism and other specialized forms of tourism as no more than a marketing tactic to increase overall visitor numbers. This situation is beginning to change as more countries recognize nature tourism's potential and the need to provide a constructive policy framework for this potential to be realized.

Second is the fact that nature tourism encompasses activities as diverse as viewing wildlife in semi-arid areas from vehicles, coral reef diving, mountain trekking and exploring rain forests on foot. These experiences can be packaged en masse by large and sophisticated tour operators or can result from the impulses of independent travelers. Access rights to destinations can be controlled by corporations, public agencies or local communities. Accommodation can vary from large luxury hotels to private homes in rural settlements. As a result of this variety, the economic, social, cultural and political processes and the environmental impacts involved are often so diverse that they resist simple characterization, analysis and generalization.

9 Future Research

Economic studies of nature tourism in developing countries were few and far between as recently as five years ago. But important progress has recently been made in demonstrating nature tourism's significant contribution to several countries' economies, and in showing that nature tourism can generate substantial economic benefits. One clear result has been the growing tendency for protected areas and some other nature tourism destinations to increase user fees, to try to capture a greater share of these economic benefits. Some progress has also been made in demonstrating that gains in economic and environmental efficiency can result from regulating development and use at nature tourism destinations, although unequivocal examples remain limited. Practical efforts to regulate private sector operators' access to nature tourism attractions, to avoid either unlimited entry or dominant and inefficient cartels, remain rare.

Nature tourism has complex and important linkages with a wide range of environmental and developmental processes across several different sectors. But a comprehensive analytical synthesis of the lessons from experience and their implications for government policymaking has yet to be carried out, even in a single country. So far even the most technically sophisticated and insightful studies of one or a few aspects of nature tourism have generally proven insufficient as a basis for helping developing country governments identify and evaluate their overall nature tourism policy options.

There appear to be two main reasons why nature tourism research studies have generally had only a modest influence on government policymaking. First, very little research has been policy-oriented. Financial resources for research have often been limited and these resources have often been mobilized by academic researchers who are more interested in testing a specific methodological approach rather than broad sets of policy questions. Even when supported by international development agencies, such research has tended to focus on theoretical aspects of single issues, such as destination entry fee policies, or on general thematic reviews unsupported by detailed analysis. Relatively few researchers have been able to access useful data on private sector tourism operations. As a result of these constraints, practical policy recommendations usable by government decisionmakers have typically not emerged, even in the most-studied countries such as Costa Rica and Kenya.

The second reason is related to the diverse priorities and expectations of the different stakeholder groups with an interest in nature tourism. Finance and economic planning ministries usually perceive the opportunities in terms of foreign exchange earnings, jobs and economic growth; conservation agencies in terms of increased park entry fees (offset by new management challenges); commercial tourism operators and private landowners in terms of financial profit; and local communities in terms of jobs and opportunities for local businesses. NGO expectations depend on their orientation

but often combine local community and conservation agency views. Understandably, these stakeholders have very diverse views on the most appropriate policy and institutional arrangements for achieving their own sets of goals. Very few financial or economic studies of nature tourism have seriously attempted to understand, let alone measure, the impacts of different policy options on more than one of these diverse stakeholder groups.

Efforts to develop effective national policies for nature tourism have thus been frustrated by the lack of prioritized economic analysis of the options as well as the need to appreciate and reconcile the diverse stakeholder perspectives. This indicates the need for applied economic research in selected case study countries which is not only targeted to provide usable insights but also sufficiently grounded in an appreciation of the perspectives of the various stakeholders to produce results which are usable in cross-sectoral governmental decisionmaking. In other words, finding more effective ways for stakeholder involvement to be combined with technical analysis for policy development.

The remainder of this section consists of sets of an overall menu of key research questions for evaluating options and strategies for optimizing the economic and ecological benefits associated with nature tourism. Country-specific policy research could prioritize from such a menu.

DEFINITION AND CHARACTERIZATION

- How can nature tourism best be defined or characterized as a subset of all domestic and international tourism?
- Who owns and determines access rights to nature tourism destinations?
- What is the structure of the nature tourism industry, who are the key actors and how has the industry developed?

- Which government departments or ministries have a significant direct or indirect impact (or potential impact) on nature tourism?

Definition and characterization of nature tourism in case study countries will be an important first step before a detailed research program is undertaken (B. Aylward, personal communication). Characterization is likely to involve several different aspects of nature tourism: the type of ecosystem (e.g., semi-arid areas, coral reefs, wetlands, tropical forests, mountain areas), the types of commercial operations comprising the industry (size, distribution, horizontal and vertical linkages, ownership, relationships with 'mainstream' tourism, and so on), the types of visitors (e.g., countries of origin, income levels, types of experiences sought), ownership and management arrangements of the nature tourism destinations (national conservation agencies, provincial conservation agencies, NGOs, private sector, indigenous communities, and so on), and the key government departments or ministries.

MEASUREMENT

- What have been the principal economic impacts of nature tourism, and how have these impacts been distributed geographically?
- What financial and economic benefits and costs (including opportunity costs) have been associated with nature tourism, both directly and indirectly, and how are these benefits distributed at local, national and international levels?

Estimates of the economic impacts of tourism have usually been considerably more influential over government decisionmaking than estimates of the economic benefits and costs. The former requires an estimate of the magnitude of financial transactions attributable to tourism destinations while the latter requires an economic welfare analysis.

Other important measurement questions include:

- What financial and economic rates of return have been earned by the major types of nature tourism enterprises?

- What government revenues have been generated by nature tourism?

- What have been the principal government policies and instruments for encouraging or regulating nature tourism, and what impact have these had?

- How have the financial and economic viability of nature tourism been affected by government intervention (e.g., taxes and subsidies) in sectors which are competing land use options, such as agriculture, forestry or mining?

POLICY ISSUES

Policy issues on which research is needed include:

- What are the options for increasing and capturing a greater proportion of the net economic benefits associated with nature tourism (including new tourism destinations, expansion of tourism facilities at existing destinations, higher access fees and/or multiple pricing policies, reduction of leakages from the local or national economy)?

- How can nature tourism contribute more to local economic development and what are realistic options for overcoming the often significant barriers to local participation in nature tourism?

- What are the options for mitigating nature tourism's environmental impacts and how can the environmental and social impacts of nature tourism be monitored and regulated in ways which are cost-effective and useful to protected area managers?

- What are the appropriate institutional arrangements for managing and regulating the use of nature tourism destinations (including limiting and regulating market access to destinations, privatizing state protected areas or tourism operations within these areas)?

- What are the benefits from expanding nature tourism on private lands, through incentives for landowners and other mechanisms, and to what extent is tourism compatible with alternative land uses?

- What types of nature tourism should be promoted by governments under various conditions (e.g., high cost/low volume vs. low cost/high volume) and what policy instruments should be used as incentives?

- What overall sets of ecological, socio-economic and institutional conditions are most likely to support nature tourism's contribution to biodiversity conservation and sustainable development?

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