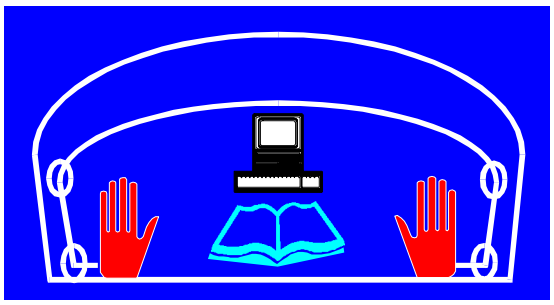

Policies For Maximizing Nature Tourism's Ecological And Economic Benefits

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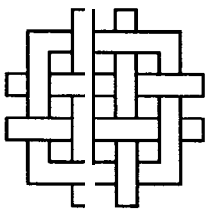
POLICIES FOR MAXIMIZING NATURE TOURISM'S ECOLOGICAL AND ECONOMIC BENEFITS

Kreg Lindberg

International Conservation Financing Project Working Paper



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Contents

Figures

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Kreg Lindberg

PREFACE

Nature tourism is booming, as more and more travelers set out in search of the unspoiled natural wonders and exotic cultural experiences the developing world has to offer. This boom can contribute to "sustainable development," defined by the 1987 **Brundtland** Commission as "development that meets the needs of the present without compromising the ability of future generations to meet theirs." Or its dark side can win out, and **ecotourism** can damage the natural assets on which it rests. The outcome depends on how it is managed.

The axiom that "good ecology is good economics" applies closely in this industry, which generates some $30 billion in revenues every year. Very little of the money tourists spend goes toward protecting the ecosystems they want to visit. Most governments charge far less for access to natural sites than tourists and tour organizers are willing to pay. Rarely are admission fees to popular destinations high enough to keep the number of visitors within an ecosystem's carrying capacity. Sprawling visitor complexes and hordes of tourists are spoiling natural attractions in many parts of the developing world. To compound the problem, governments siphon off most of the revenues they do collect for general purposes, rather than using them to manage and protect the natural resource.

Yet, nature tourism holds the promise of providing developing countries with both the funds and the incentives needed to boost conservation efforts. If governments raised fees in recognition that their natural attractions can't be treated as open-access resources, they could control the number of tourists while collecting enough **funds** to improve management of protected areas.

- *Policies for* ***Maximizing*** *Nature Tourism's Ecological and* ***Economic Benefits*** explores ways in which changing such economic instruments as fees and royalties can promote both objectives.

This report was initially prepared by Kreg Lindberg as a background paper for the World Resources Institute's International Conservation Financing Project, commissioned by the United Nations Development **Programme** and other sponsors. It extends the discussion of **ecotourism** and other public-private partnerships contained in **WRI's 1989** study, *Natural Endowments: Financing Resource Conservation for Development. The* message this report contains is so timely and important that **WRI** is now publishing it to make it available to a wider audience.

Robert **Repetto**
Director of Economic Research
World Resources Institute

INTRODUCTION

Nature tourism is burgeoning. Tired of mass beach and urban tourism, more and more people want to spend their vacations in pristine natural surroundings, often enhanced in appeal by a distinctive local culture. Nature tourism is a miracle agent for sustainable economic development, some tour operators assert and the media affirm. This argument seems logical to tourists who spend thousands of dollars visiting parks in developing countries. Tourists figure that money must go to the parks, guides, restauranteurs, and local residents they see, in a circular process that helps to preserve nature.

In reality, however, results have been mixed. Participants in workshops held for the World Resources Institute's International Conservation Financing Project as well as observers in the field voice caution about nature tourism's actual contribution to conservation and development in host countries. "Can nature tourism support sustainable development?" they ask.

This report focuses on two basic contributions of nature tourism:

1) funding for creation and maintenance of public and private natural areas through entrance fees, concessions, and royalties; and

2) economic opportunities that reduce the pressure to encroach on natural areas for food and fiber.

With this potential in mind, two questions arise "How much does tourism actually contribute to economic development?" and "Which economic policies increase nature tourism's contribution without degrading the natural resources on which it is based?"

II
DEFINING NATURE TOURISM

Despite the industry's recent growth, there is no standard definition of nature tourism. It can be defined in many ways, but the important distinction is between mass tourism and nature tourism. The beaches of **Phuket, Cancun,** and **Sousse** are indeed *natural resources* (in contrast to such *human* achievements as the Taj **Mahal** or Egypt's pyramids), but they are too crowded and highly developed to be considered nature tourism attractions.

One observer describes nature tourism **(ecotourism)** as:

> Tourism that involves traveling to relatively undisturbed or uncontaminated natural areas with the **specific** object of **studying,** admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural areas. [1]

Most nature tourism sites feature natural attractions and a solitude that the traveler lacks at home. Four basic types of tourists seek out these spots:[2]

Type 1 ***Hard-Core Nature Tourists.*** Scientific researchers or members of tours specifically designed for education, removal of litter, or similar purposes.

Type 2 *Dedicated Nature Tourists.* People, who take trips specifically to see protected areas and who want to understand local natural and cultural history.

Type **3** *Mainstream Nature Tourists.* People who visit the Amazon, the Rwandan gorilla park, or other destinations primarily to take an unusual trip.

Type 4 *Casual* ***Nature Tourists.*** People who partake of nature incidentally as part of a broader trip.

Of course, a single individual may fit into different categories at different times. But this simple typology does show the variety within the nature tourism "market," which is important for planners. For example, Type 1 and Type 2 tourists will likely be more tolerant of limited amenities than Type 4 tourists but will hope and expect to avoid crowds.

Besides these simplifying assumptions about tourist motivations, some others are made in this paper. First, the terms "parks" and "protected areas" are used to refer to **all** nature tourism **attractions,** even those that are not protected by law. Second, adventure and cultural tourism are incorporated into nature tourism. Third, the emphasis is on **visits** to developing-country parks by tourists from developed countries, since these tourists will in the near future contribute more revenue than will tourists from developing counties.

III.
THE CURRENT CONTRIBUTION OF NATURE TOURISM

Demonstrating nature tourism's profit-earning performance and potential is central to establishing it as a model of sustainable development. Unfortunately, because statistics typically do not differentiate between nature tourism and mass tourism, nature tourism's particular economic contributions are difficult to estimate. For example, how should one account for the revenues generated by a person who spends one afternoon of a two-week trip to the Philippines visiting an impressive waterfall? Nature is only an incidental reason for the trip to the country. Entrance fees paid at the waterfall are the direct revenues from this tourist, but what about indirect gains—the money spent on a Manila hotel?

Tourism of all sorts earned developing countries an impressive $55 billion in 1988.[3] Nature tourism's share of this figure ranges from an estimated $2 billion to $12 billion.[4] In some counties, the relative impact is much larger than these figures suggest. In pans of the Caribbean and in such countries as Kenya, Rwanda, Costa Rica, Ecuador, and Nepal, nature tourism is a leading foreign exchange earner. Caribbean marine areas receive close to $1 billion a year just from scuba divers.[5] Official 1988 Kenyan estimates put foreign exchange earnings at roughly $400 million from tourism of all sorts,[6] but informed unofficial sources say that the country's protected areas alone generate almost $500 million in direct and indirect revenues. Tourism generates 30 percent of Kenya's foreign exchange, more than either coffee or tea.' In Rwanda, "gorilla tourism" in the Pare National des Volcans brings in roughly $1 million a year in entrance fees and generates up to $9 million indirectly.[8] Nepal earned roughly $45 million in -1983 from visitors attracted primarily by Himalayan geography and culture.[9]

Whether these substantial revenues benefit conservation and help maintain the basic attractions on which success is based depends on how much they increase funding for establishing and managing parks and provide incentives for long-term conservation by management agencies, central and local governments, and local residents. Most protected areas around the world are maintained with allotments from national government budgets; related entrance fees, concessions, and taxes go into the general government treasury. (This paper focuses on public parks, but the impetus for conserving privately owned natural areas is similar.) If a government adequately supports conservation, this system works fine, but park budgets have often been reduced as a result of competition for public sector funding. Many conservationists have embraced nature tourism with the expectation that it will help increase desperately needed funding for protected areas, and to some extent these expectations have been met.

In both Kenya and Rwanda, tourism revenues have engendered the belief that "wildlife pays so wildlife stays." In Kenya, the success of tourism has led the government to establish and maintain large protected areas. The World Bank investment in tourism expansion at Kenya's Amboseli National Park in the 1970s is perhaps the classic example of conservation justified by nature tourism. Not environmental concern but the expectation of a 20 to 29 percent internal rate of return prompted this investment. Expected net total returns from park tourism were $40 per hectare, compared to $0.80 per hectare for agricultural uses.[10] The visitor-attraction worth of each lion has been estimated at $27,000 per year and each elephant herd at $610,000 per year, more than could be gained from hunting licenses.[11] In this country where expanding human needs often conflict with the needs of wildlife, the tangible benefits of tourism have generated greater support for conservation than would have been possible without them.

Rwanda's Pare National des Volcans is another example of tourism's contribution to conservation. For a number of years, the park's gorilla population had declined, partly because the government could not devote enough money and manpower to curb poaching. Despite skepticism in both the government and the conservation community, tourism has developed as a way to generate revenue to pay for antipoaching patrols and to give the populace employment alternatives to clearing the land for raising cattle. Now Rwanda spends $150,000 a year on salaries for 70 guards and 8 to 10 guides at the park, just a small fraction of its $1 million a year in revenues from entrance fees. The increased poaching patrols have helped prevent poaching deaths since 1983.[12]

However, economic downturn, severe pressures on the land from growing populations, and other elusive factors can cause fluctuations in financial and political dedication to conservation. To increase and stabilize funding levels, earmarking and other alternative funding mechanisms can often be put in place. Costa Rica, Ecuador, Thailand, Zambia, and Saba in the Netherlands Antilles already have some form of earmarked funds.

In Costa Rica, proprietary funds from entrance and other fees (including fiscal taxes) complement the general government allotment.[13] The Costa Rican case shows the importance of earmarking. Although the government is aware of the value of conservation, park budgets declined in real terms during an economic downturn. Proprietary funds also declined in real value, but the Costa Rican conservation community was able to mount enough support for the funds to resist government pressure to eradicate them altogether under an austerity program mandated by the International Monetary Fund. The funds were less susceptible to elimination because they were independent of the central government treasury.

In Ecuador, the Galapagos National Park earns direct tourism revenues of at least $560,000 a year and receives additional funds from conservation foundations. The park's surplus revenue is available to help maintain Ecuador's 14 other national parks and reserves, which together bring in only $40,000 a year.[14]

In Thailand, entrance and lodging fees stay within the National Parks Division, Even with low entrance fees, revenue from these sources at Khao Yai National Park roughly offset management costs.[15]

In Zambia's Luangwa Valley, a Wildlife Conservation Revolving Fund was established in 1983 to finance additional park personnel, as well as to fund community projects. The fund is financed in part by the harvest of hippos and in part by a portion (60 percent) from auctions of safari hunting rights. The increased funding derived from this program has allowed an increase in park personnel from 11 in 1985 to 26 in 1987. As a result, during that time elephant and rhino poaching decreased by 90 percent.[16]

Likewise, the Saba Marine Park will soon be financed primarily by entrance fees and royalties that are directly channeled into the park. Even with the low entrance fee of $1.00 per snorkeler and $1.00 per dive for scuba divers (most dive boats charge $40 to $80 per dive trip), the Saba park is expected to be financially self-sufficient by 1991.17 The Dutch government, a major donor, agreed to provide start-up funds on the condition that entrance fees and royalties be earmarked. Without earmarking, the park might never have been established, much less maintained.

In some cases, nature tourism has also provided both funding for development programs in communities near parks and economic alternatives to park encroachment. The importance of these contributions is straightforward. Residents who traditionally relied upon the area for food and fiber pay a steep price when the creation of a park suddenly cuts off their access to these resources. To forestall park encroachment and violence between residents and park personnel, efforts are being made to assist these people to meet their needs.

By considering local communities' needs and incorporating their expertise in conservation planning and by giving communities an economic and social interest in parks, managers can decrease or eliminate conflict between conservation and human survival. The need for such cooperation and its payoff have been stressed in forums such as the World Conservation Strategy of the International Union for the Conservation of Nature and Natural Resources (lUCN).

In many areas, controlled continuation of historical resource use is allowed. People living near the Royal Chitwan National Park in Nepal harvest thatch grass in the park for two weeks every year. This grass, the most important traditional roof-making material in the region, is worth some $1 million per year to the 59,000 local villagers, and it is virtually unavailable elsewhere in the region.[18]

Nature tourism can provide additional benefits to local residents. Occasionally, governments directly compensate people hurt when parks or reserves are set up. The Maasai of Kenya have received $30,000 per year, along with substantial indirect benefits, to cover "the losses they sustain in accommodating the park's wildlife."[19] The parastatal Kenya Wildlife Service is developing a new mechanism that is expected to channel 20 to 25 percent of tourism revenues back into local communities.[20]

In Zambia the Wildlife Conservation Revolving Fund channels 40 percent of the fees for hunting licenses to the local chiefs for community projects. This program has aided local residents and has encouraged tribal leaders to establish security committees to prevent poachers from entering their areas.[21]

Another community development program is located in the village of Ban Sap Tai, next to Thailand's Khao Yai National Park. The Population and Community Development Association, working with the private German organization Agro Action, established an Environmental Protection Society that provides low-interest loans, education programs, a imperative store, and other support to villagers.

Nature tourism also creates demand for goods and services that can give local individuals alternative sources of income. Residents of Ban Sap Tai and other villages in the region have traditionally harvested timber, wildlife, and other forest products and grown rice or cash crops on land now inside the park. According to a National Park Division survey, six out often villagers claimed that they could not support themselves without engaging in such activities, which became illegal with the establishment of the park.[22] A nature trekking program was recently established to employ villagers as porters and guides.

Although the number of treks is small, the monetary benefits, and the support of the community development program, have greatly decreased encroachment.[23]

Some villagers near nature tourism sites start their own businesses. At the Monteverde Cloud Forest Reserve in Costa Rica, eight women founded a souvenir and crafts shop in 1982 as a cooperative venture. Annual sales of the locally produced handicrafts have reached $50,000.[x] A survey by Guatemala's Institute of Tourism estimated that tourists arriving in Guatemala by air spent an average of $82 each on handicrafts.[25]

Most nature tourism enterprises are small, but some employ hundreds or thousands of people. The Tiger Mountain Group in Nepal employs 5,000 people during peak season.[26] According to a recent survey, 63 privately-owned nature reserves in Latin America and Africa employed 1,289 people permanently and 336 additional people during peak seasons.[27]

Private businesses also help to fund community-development activities. Because nature tourism cannot survive without the goodwill of residents and the integrity of natural attractions, organizations such as the Tiger Mountain Group support development and conservation programs as well as create jobs. The group has helped to establish the International Trust for Nature Conservation, which conducts conservation education and other activities in the villages surrounding Royal Chitwan National Park.[28] Similarly, a number of tour operators in the United States donate a portion of their sales to conservation projects in developing countries.[29]

Iv
MAINTAINING AND INCREASING NATURE TOURISM'S CONTRIBUTION

As the previous examples of increased funding for park management and opportunities for local residents demonstrate, nature tourism can support conservation and development. However, nature tourism has at least three broad shortcomings. First, many (if not most) areas of ecological importance are too inaccessible or unappealing to attract tourists or are ecologically incapable of weathering the negative by-product of tourism development. Certainly, nature tourism is no panacea for conservation financing, and other sources of funding will remain necessary to maintain natural areas adequately. Second, unrestricted use of natural attractions by tourists and the industry will lead to overuse at many destinations. Third, host countries have not tapped much of the potential revenue from nature tourism, and what they do capture rarely goes back into parks and surrounding communities.

Consequences of Open Access to Natural Attractions

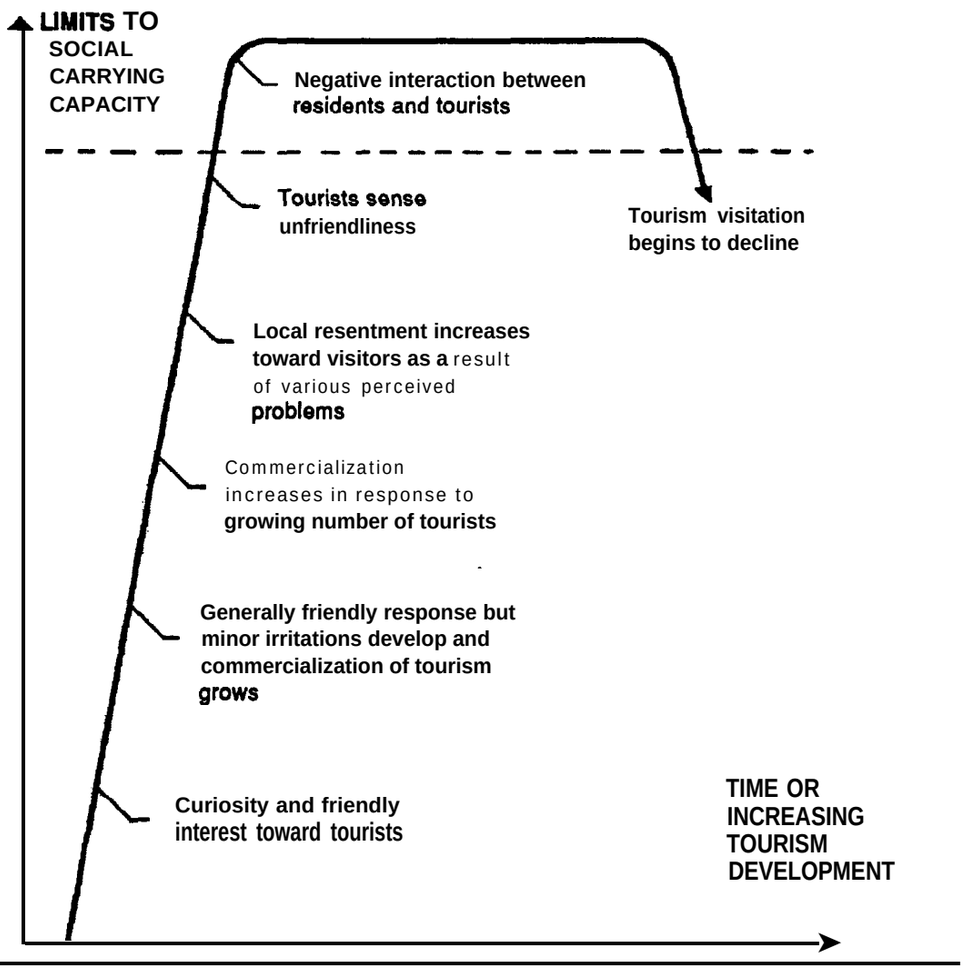
Most natural attractions are what economists call limited nonrival goods: up to a point, one visitor's enjoyment of the attraction does not impinge on another visitor's enjoyment. Heavy use of a popular site, however, can bring environmental damage, congestion, and cultural disruption. Environmental impacts are direct (from litter and the disruption of flora and fauna) and indirect (waste generated at lodges, for example). At the Thai beach resort of Pattaya, rapid growth of tourism infrastructure, without adequate pollution-control measures, has led to "serious water pollution and a shortage of fresh water for residents and tourists alike.[30]

Congestion also occurs as the number of visitors mounts and the nature of their activities changes. Eventually, enjoyment of the attraction fades. Although the impact on visitor enjoyment has rarely been quantified, a number of destinations in East Africa and elsewhere have come into disrepute for congestion.[31]

Tourist incursions into isolated regions can also overwhelm a local culture, its economy, and its ecological balance, as happened in Ladakh. Ladakh "exemplifies how a unique cultural Himalayan heritage can be ravaged by a sudden tourist invasion," in the words of one observer.[32] Simultaneously, residents at tourist destinations often tire of tourist attitudes and activities, which in turn leads to negative interaction. (See *Figure 1.*)

These effects of tourism on environment, congestion, and culture can decrease visitor

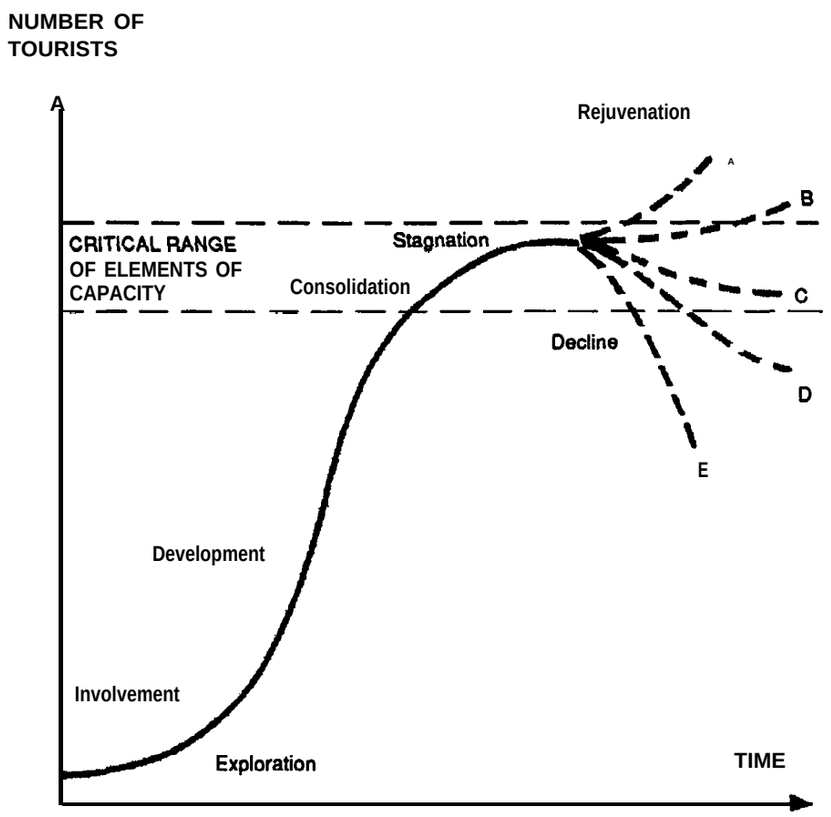
Figure 1.
Potential Cultural Impacts of Tourism



SOURCE: P. Murphy, cd., "Tourism in Canada: Selected Issues and Options," *Western Geographical Series, vol.* 21, 1983, p. 138, as displayed in Barry Sadler, "Sustaining Tomorrow and Endless Summer," Environmentally *Sound Tourism in the Caribbean,* p. xxii.

enjoyment or completely destroy an attraction's appeal, thereby reducing or eliminating future revenues.33 The tourism cycle, the potential for overexploitation and decline, is illustrated in *Figure* 2.[34] A particular region may initially attract a few "low impact" tourists who rely primarily on existing facilities. As word of the destination's appeal spreads and visitors flock to see it, however, residents begin to tailor facilities specifically for tourists. Heavily promoted facilities spring up, many of them foreign financed, and visitors become disenchanted. Major franchises dominate the supply of tourist attractions, eventually the region stagnates, and revenues fall unless a deliberate effort is made to rejuvenate the region.

Figure 2.
The Tourism Cycle



SOURCE: R.W. Butler, "The Concept of a Tourist Area Cycle of Evolution: Implications for Management of Resources," *Canadian Geographer, vol. 24,* no. 1, 1980, p. 7.

New as the tourism industry is in most countries, preliminary analysis supports the hypothesis that many currently popular destinations will eventually fall out of vogue.[35] This potential for "overshooting" has important implications for tourism managers. They need to be constantly aware that, although the industry is resilient and growing, tourism at each destination must be treated as a renewable resource that must be carefully cultivated to ensure future returns.

If the number of visitors remains low, stagnation is unlikely. However, most nature tourism attractions have an open access character; tourists and the tourism industry are allowed use of the resource without significant restriction by price or numerical limits. This structure leads to overuse at popular attractions (See *Figure 3).* As visitors proliferate, the marginal (additional) benefit of visitation decreases, and the total benefit curve (*TB*) levels off. Meanwhile, the

Figure 3.
Benefits and Costs of Visitation at a Nature Tourism Attraction

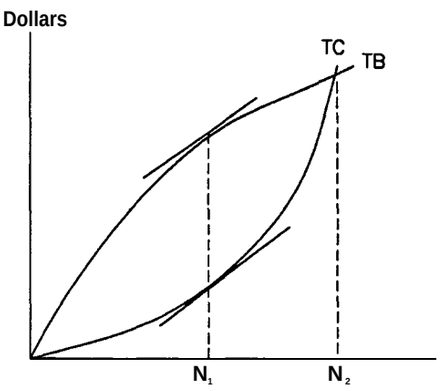
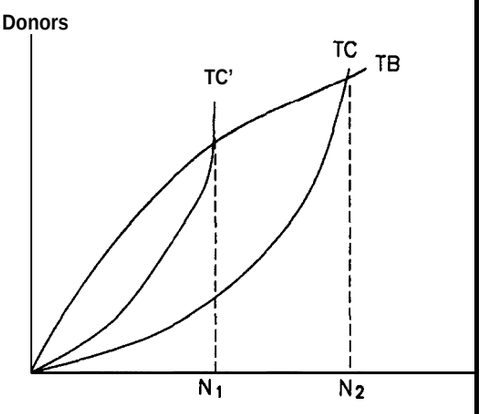


Figure 4.
Using a Tourist Levy to Reduce Visitation by Raising Cost



marginal cost of visitation increases, and the total cost curve (*TC*) rises. The net value to *society* is maximized at point N_1, where the distance between benefits and costs is greatest (not where the number of tourists is greatest). After this point the marginal benefit of each additional visit is less than the added cost of such a visit because of ecological, congestion, and cultural impacts. At N_1, continued use still generates profits for *individual* users (consumer surplus for tourists and financial profits for the industry) since *average* returns exceed *average costs. They* thus continue to use the resource until N_2, where the resource becomes overexploited from the viewpoint of *society's* total welfare. This is similar to the classic example of fish stock depletion through open access to fisheries.

If the attraction is managed to maximize social welfare, visitation will be limited to point N_1. Limits also make good financial sense, giving private reserves an incentive to restrict visitation. A single manager is most likely to set numerical ceilings, but multiple users can also cooperatively manage their use to avoid overexploitation, and to sustain the attraction value of the common property resource. Without cooperation, the attraction becomes an open access resource in danger of overexploitation as individual users try to profit at the expense of the group as a whole. Some nature tourism destinations do function under a common property regime. In Cozumel, Mexico, for example, dive operators coordinate and limit dive tourism to prevent damage to the coral reefs and to prevent "free riders" from exploiting the resource.[36] Not surprisingly, however, most tourists, and the managers of the industry serving them, come from regions far away from the attraction. As a result, cooperation to avoid overexploitation is often inadequate. In addition, most natural attractions are owned by governments, which generally permit open access as a service to the public. There is thus a tendency to overuse popular attractions to the point where their value is reduced or eliminated.[37]

To avoid overuse, managers of many areas will need to limit visitation through mechanisms such as quotas or prices, tools that can also be used in conjunction with cooperative management. Because additional funding is usually needed for protected area management or establishment, the use of a levy to both limit visitation and generate funding is particularly appealing.

Managers can use the price mechanism to limit the number of visitors to the socially optimal level (N_1). Figure 4 illustrates how a levy imposed directly on tourists reduces visitation. The levy increases the financial costs of the visit, shifting the total cost curve to TC', so that the total costs equal the total benefits at N_1 (the desired level) instead of at **N2. The size of the levy is** $(TC'_n - TC_n)/N_n$.

Setting prices to precisely achieve N_1 requires a level of flexibility uncommon in protected area management. A combination of price and numerical limits may therefore be necessary, especially in areas of well-defined carrying capacity, as in the case of Rwanda, where only four groups of gorillas maybe visited.

In theory, the most efficient mechanism to generate revenue and limit visitation would be to auction N_1 production quotas. However, this mechanism will be feasible only in the comparatively rare cases where markets are truly competitive and adequate information on demand can be obtained.

Increasing Revenues Through a Levy

In making decisions on price levels, resource managers consider both equity (fairness) and efficiency (whether the price will maximize benefits). At many destinations, there has been considerable debate about the fairness of allocating use by price through charging visitors high fees. The debate usually centers around the "free good" nature of parks and protected areas. If such attractions are seen as part of the society's natural heritage, this argument goes, they should not be denied to people who cannot pay high fees. After all, citizens as a group pay for the protected areas indirectly through taxes.

A multitier fee structure, however, allows more revenue to be generated without denying citizens access to their natural heritage; assuming low fees for nationals, this structure would allocate use by price only for foreigners. Costa Rica, Ecuador, Mexico, and other countries have already instituted such systems. In such systems, the fees could stay the same for residents but rise for foreigners. In some cases, a two-tier system will be satisfactory, whereas in others a multitier system will be appropriate to differentiate between foreigners, researchers, local residents, and other groups.

Charging foreigners higher fees is equitable insofar as they receive far greater benefit than they are currently being asked to pay for. They receive substantial enjoyment from the experience, yet pay low (if any) entrance fees, they do not pay taxes to support the park, and they do not bear the opportunity costs of not using the resource for agriculture, logging, or other activities. Indeed, a multitiered structure is more equitable than the single-fee structure that is common today. After all, the individuals who receive the benefits from the park should pay the cost of maintaining it.

Whether a given fee level is efficient depends on the character of the supply and demand in the nature tourism market. Many policymakers opposed to raising fees point to the tight competition for visitors between beach tourism destinations. Since there is little product differentiation in the beach tourism market, destinations must often compete fiercely, using low prices to attract visitors. (In economic jargon, demand is highly elastic because product substitutability is high.) As a result, many of these destinations not only fail to generate revenue for the government through user fees, but also lose

Figure 5.
Tourism Investment Subsidies in Selected Countries

INCENTIVE	Antigua	Aruba	The Bahamas	Barbados	Dominica	Dominican Republic	Grenada	Jamaica	Montserrat	St. Kitts-Nevis	St. Lucia	St. Vincent	Trinidad & Tobago
Assistance with project financing													
Equity participation													
Loan guarantees													
Underwriting issues													
Tax holiday											###		
Investment/ other tax credits													
Accelerated depredation													
Double tax relief													
Infrastructure aid													
Leasing of property													
Marketing support													
Amenities aid													
Training													
Special institutions													

INCENTIVE	Mauritius	Mexico	Portugal	Seychelles	Spain	Tahiti	Turkey	Yugoslavia
Cash grants			1		2		2	
Low-interest loans								
Loan guarantees								
Equity participation								
Debt-equity swaps								
Import duty exemptions								
Tax reductions								
Subsidized utilities								
Investor assistance organization								

KEY:		
		= Incentive currently exists
	###	= Incentive in process of being enacted
	1	. Incentive up to SO% of Investment
	2	= Incentive up to 20% of project costs

SOURCE: Chart for Caribbean countries from the Caribbean Tourism Organization. Both charts based on Arthur Young, *A Study of the Impact of Tourism Investment Incentives in the Caribbean Region,* Barbados, August 1988,

money through subsidies. (See *Figure 5.) The* financial losses are considered appropriate to ensure benefits such as employment opportunities, although ironically such incentives in the Caribbean may play only a minor role in investment decisions.[38]

Despite the rush to develop new nature tourism destinations of increasingly generic appeal, nature tourism destinations remain more differentiated than beach destinations. Indeed, many are unique or almost unique. Their owners thus have the opportunity to make profits by exploiting the "scarcity rent" of their particular resources. Take, for example, Rwanda's Pare National des Volcans, whose gorillas are an almost unique and very popular attraction. Because of this popularity, Rwanda has been able to charge visitor fees high enough to generate substantial profits. Normally, these profits would attract competing businesses into the market, but the scarcity of gorillas stands in the way in this case so profits are not eroded.

The existence of scarcity rent is not limited to extraordinary attractions like the gorillas. Rwanda is also developing tourism at the Nyungwe Forest Reserve. The Colobus monkeys and various birds of Nyungwe may not be as scarce or as popular as the gorillas, but they still attract tourists and will likely also generate (smaller) profits.

The uniqueness of nature tourism destinations (the product) allows countries (the seller) to act as partial monopolists in their pricing and output decisions (fees and number of visits). Because monopolists can limit output and raise prices without fear of competition, park managers can limit use and raise significant revenue at the same time. The extent of their monopoly power naturally depends on how differentiated their product (nature) is from those of competitors. Because their attractions are both more appealing and more unique, managers of resources such as Ecuador's Galapagos National Park and Rwanda's Pare National des Volcans can earn higher profits than can managers of resources such as Thailand's Khao Yai National Park. However, Khao Yai still has an unexploited profit-earning potential.

In addition, the uniqueness of the attraction is only one of the factors contributing to differentiation. Destinations can also be differentiated, at least temporarily, by complementary offers such as higher quality experiences, appealing "add-on" tours, and other services. Furthermore, destinations that offer similar attractions can retain monopoly power if they explicitly or implicitly cooperate on price. The International Gorilla Conservation Program will follow such a pricing strategy as it expands the profitable gorilla tourism to Uganda and Zaire. Finally, because demand for nature tourism is strong, even relatively undifferentiated attractions can usually charge much higher fees than those currently asked.

In Figure 6, for example, the Pare National des Volcans has set an annual limit of roughly 6,000 gorilla visits (supply curve) at the price of $170 a visit. If the cost of providing this product is the area *abed* (cost per visitor *times* the number of visitors) and the revenue from this product is *abef* (price per visitor *times* the number of visitors), then the profit is *cdef*.

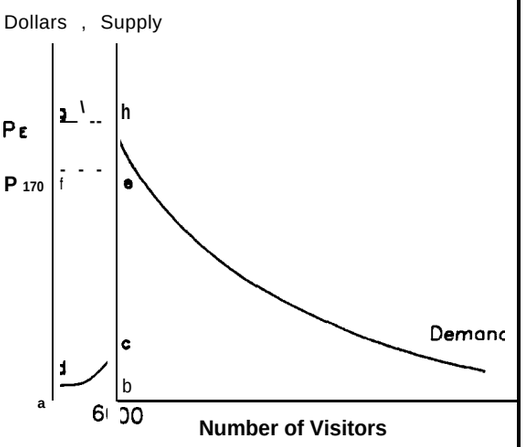
Since the visits are booked well into the future, demand exceeds supply at the current price of $170. Thus the price theoretically could be raised to P_E, the equilibrium price, to capture the additional benefit *efgh* that currently accrues to tourists in the form of consumer surplus (enjoyment for which they do not pay). However, opening gorilla parks in Zaire and Uganda will probably eliminate this opportunity and bring the price per visitor down to less than $170.

The park is currently "losing" the potential profit of *efgh*, in addition to the surplus above PE. Revenues might be further increased by reducing visitation further and charging yet higher prices, depending on the shape of the demand curve,

which is unknown (revenue will be maximized where demand is unitary elastic). B y raising the price to $170, however, park managers have at least captured a significant portion of the park's scarcity value-just imagine the lost value if the price were only $5! By raising fees and setting a limit, park managers have increased revenues while avoiding overuse (See *Figure 7).*

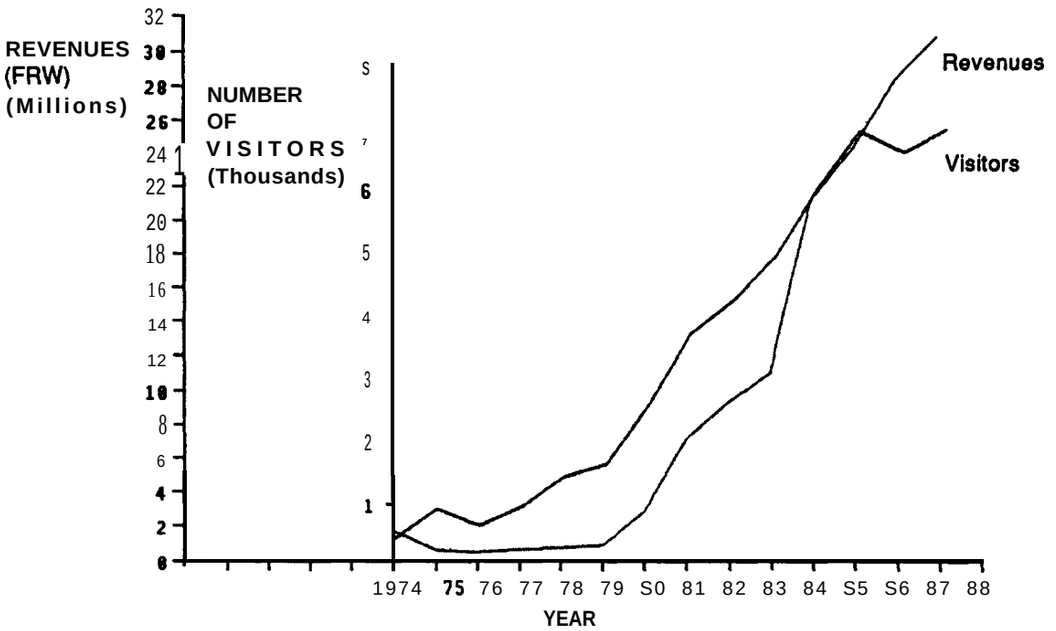
Likewise, the Galapagos National Park generates profits, part of which helps finance the country's remaining parks. By one estimate, these profits could be increased greatly by raising the levy on visitors from the current fee of $40 per visitor to $770. This would theoretically increase park revenues from $700,000 to $26,700,000 while the total number of visitor days remained the same.[39]

Figure 6.
Pricing at Rwanda's Pare National Des Volcans



NOTE: The supply and demand curves are used for illustration only and are not meant to be authoritative.

Figure 7.
Increasing Revenues Despite Leveling of Visitation at Rwanda's Pare National Des Volcans



NOTES: $1.00 roughly equals FRW 82. The data used in this graph are official. Unofficial sources estimate 1989 revenues of roughly $1 million (FRW 82 million). SOURCE: Ministere du Plan, Republique Rwandaise, *Strategie Nations/e de L'Environment au Rwanda,* Version provisoire, October 30, 1989.

Figure 8.
increasing Revenues While Limiting Visitation

DESTINATION	YEAR	FOREIGN VISITOR FEE (US$)	NUMBER OF TOTAL VISITORS	TOTAL REVENUE (US$)
Country of Bhutan[a]	1388	13Wday	2,133	2.9 million
	1389	260/day	2,000	5.2 million
Rwanda's Pare National des Volcans[b]	1980	14	2,593	36,500
	1984	43	6,010	261,200
	1987	54	5,935	378,800
	1988	170	8,000	1,020,000
Ecuador's Galapagos National Park[c]	13s8	40	125,000	.7 million
	1386 (A)	770	125,000	28.7 million
Costa Rica's Pose, Manual Antonio and Cahuita Parks[d]	1988	0.30	230,000	87,000
	1988 (A)	1.20	144,000	112,200
	1388 (B)	1.20	290,000	234,000

NOTES:

• SOURCE: UNDP, *World Development,* November 1989, vol. 2, no. 6, p. 18. The fee Is all inclusive (hotel, food, guide, etc.). The number of visitors for 1989 is estimated. The total revenue Is calculated using average stay of ten days (based on estimate from Bhutan Mission to the UN).

[b] SOURCE: 1980-1987 data from Ministere du Plan, Republique Rwandaise, *Strategie Nationale de L'Environnement au Rwanda,* Version provisoire, October 30,1989, pp. 184,186. Converted using FRW 82 = $1. Visitor fee for 1380,1984, and 1987 calculated by dividing total revenue by number of visitors (by 1387 the actual fee was $85). Data from 1988 based on unofficial estimates.

[c] SOURCE: Steven Edwards, "The Demand for Galapagos Vacations: Estimation and Application to Conservation," Working Paper, 1990. The figures *for* number of visitors are for visitor-days. The figures for 1988 (A) are projected potential.

[d] SOURCE: Manuel J. Baldares and Jan G. Laarman, "User Fees at Protected Areas in Costa Rica," Draft, processed, 1930. The fee is converted at 25 colones = $0.30. The figures for 1388 (A) are estimated potential if fees were increased and visitors behaved according to the implicit price elasticities. The figures for 1988 (B) are estimated potential if fees were increased while demand remained perfectly inelastic. Since the completion of this survey, entrance fees have been raised to $1.00 for foreigners end $0.50 for nationals.

Data from both cases as well as those of Bhutan and Costa Rica are presented in Figure 8. In Bhutan and Rwanda, revenues have increased while visitation levels have stabilized. In Costa Rica and Ecuador, it is projected, parks could achieve the same goal if fees were raised.

These examples demonstrate the gains in efficiency made by charging high fees. Given such results, one questions whether low fees for nationals cart be efficient. Yes they can, because there are different levels of demand for the destination. The average foreigner will be wealthier than the average resident. This affluence, combined with strong motivation, will cause a higher willingness to pay by foreigners than by residents.[40]

As Figure 9 illustrates, the line D_r traces the demand for visitation on the part of residents. At a low price (P_l), a large number of residents ($N_{l(r)}$) will visit the park, but no residents will pay a high price (P_h) for the privilege. Under this scenario, the demand for visitation on the part of residents is relatively price elastic; a price increase causes a sharp drop in visits.

On the other hand, the line D_f traces foreign demand for visitation. At a price of P_l, $N_{l(f)}$ foreigners will visit the park, while at a price of

Figure 9.
Demand for Visitation by Residents and Foreigners

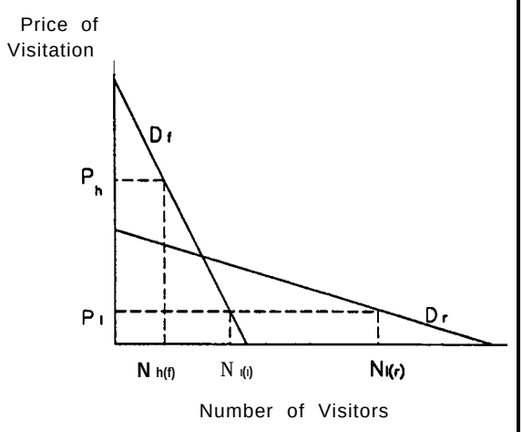
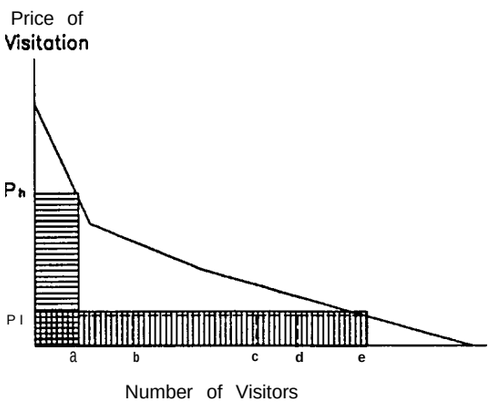


Figure 10.
ho-tiered Pricing to Maximize Revenues



NOTES: a = $N_{h(f)}$; *b* = $N_{l(f)}$; c = $N_{l(r)}$; *d* = $(N_{l(r)} + N_{l(f)}) - (N_{l(f)} - N_{h(f)})$ sines the foreigners between $N_{l(f)}$ end $N_{h(f)}$ would visit with a price of N_l but will not visit with a pries for foreigners of N_h. e = $N_{l(r)} + N_{l(f)}$

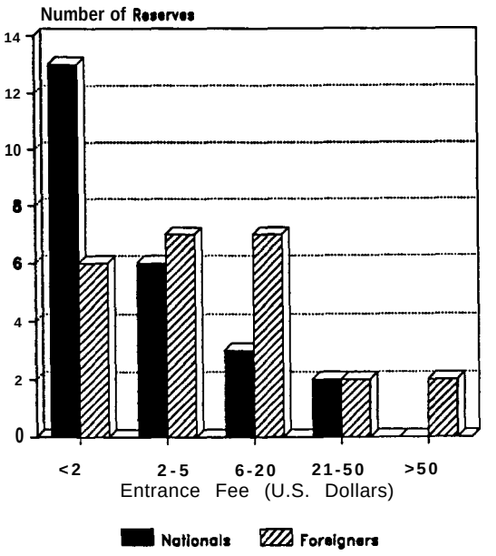
P_h, $N_{h(f)}$ foreigners will still visit. The demand for visitation on the part of foreigners is comparatively price inelastic since a price increase causes less of a drop in visitation.

Figure 10 shows the demand for visitation when foreigners and residents are combined (the number of visitors from each group was added at each price). If the price for all visitors was set at P_h, the total revenue (price multiplied by number of visitors) would be the horizontally hatched area. If the price was set at P_l, the total revenue would be the vertically hatched area. However, if foreigners were charged P_h and residents were charged P_l, the total revenue would be the combined area, less the portion between *d* and e.

Protected areas owned by private individuals or groups, rather than governments, have more flexibility in setting prices and many of them have adopted **multitiered** fee structures. Fewer than half of the private reserves that responded to a recent survey charge entrance fees, and instead collect all revenues from grants, **accommodation** charges, and other sources. However, reserves that do charge fees usually charge residents less than foreigners. (See *Figure 11.*) *The* average (mean) fee for residents is $5.67 while the average fee for foreigners is $14.58 (the median figures are, respectively, $1 and $5).

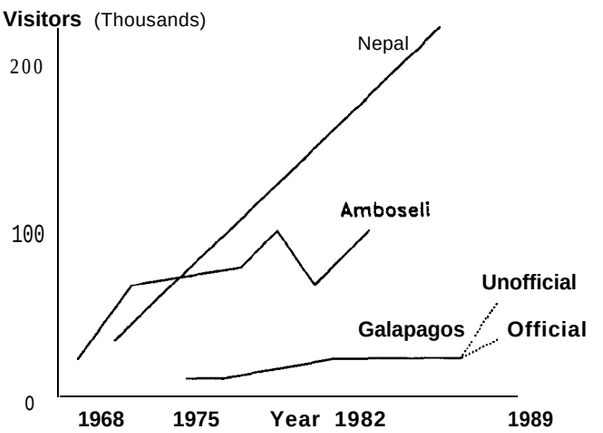
Multitiered pricing can thus satisfy both equity and efficiency. However, where the ecosystem's carrying capacity keeps visitation below the level of demand, a dilemma may remain for policymakers (depending on the various elasticities of demand), Should a park set profit-maximizing prices which would effectively exclude many of its own citizens but provide maximum financial benefits for the country, or should low resident prices and limits on foreign visitation be enacted? This would allow residents

Figure 11.
Two-tiered Pricing at Private Nature Reserves



SOURCE: Raw data from a survey by Claudia Alderman of the Yale School of Foresby, in conjunction with Conservation international, 1990.

Figure 12.
Visitation Levels at the Galapagos National Park (Ecuador), the Amboseli National Park (Kenya), and for Nepal



NOTES: Figures far Nepal are total tourist visitation and are based on only two data points (actual growth was nat necessarily linear). SOURCE: His Majesty's Government Nepal/IUCN, *Building on Success: The National Conservation Strategy for Nepal,* Kathmandu, 1968, p.66. Figures for Amboseli—SOURCE: David Western, "Tourist Capacity in East African Parks, *Industry end Environment,* Jan/Feb/Mar 1986, vol. 9, no.1, p. 16. Figures for Galapagos—SOURCE: Elizabeth Boo, *Ecotourism: 77re Potential and Pitfalls,* World Wildlife Fund, Washington, DC 1990, vol. 2, p. 98.

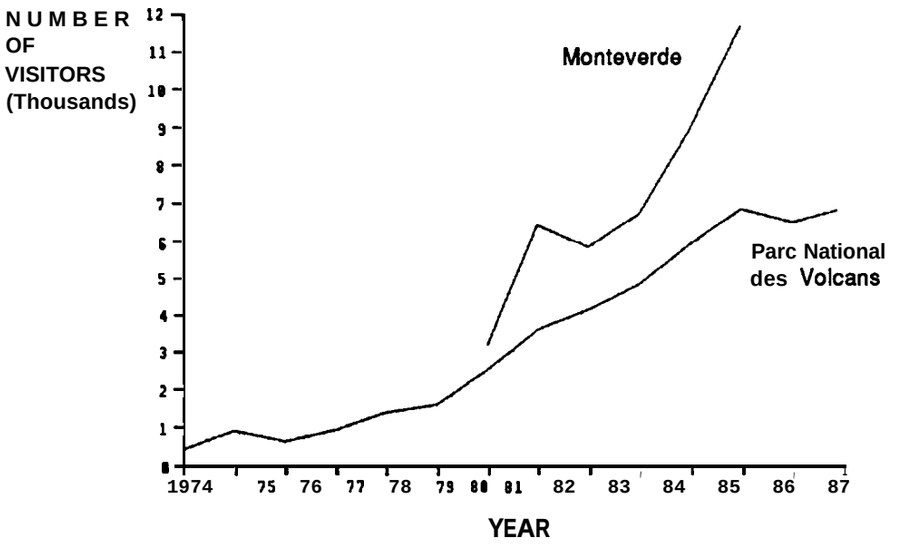
to enjoy their natural heritage but would decrease the financial benefits.

Of course, fees can be raised to increase revenues only if demand for the attraction is sufficient, but it does seem to be strong enough at many destinations. As an extreme example, a group of adventurers recently paid $60,000 each to ski to the South Pole from a nearby dropoff point another group paid $35,000 each to spend three hours at the pole.[41]

Demand for more typical natural attractions is strong and increasing, despite fee increases. (See *Figures 12 and 13.*) The Galapagos, the Pare National des Volcans, and several other destinations have already translated this demand into higher revenues. Surveys in Nepal, Costa Rica, and elsewhere suggest that tourists in other natural areas would also be willing to pay higher fees.

Industry experts expect tourist demand to remain solid for a number of reasons. General tourism, currently growing 4 percent annually, will continue to expand as population, leisure time, and discretionary income levels increase while the (real) cost of travel decreases.[42] Nature tourism, and other forms of specialized tourism, are expected to grow faster than general tourism as people tire of mundane and crowded beaches and urban destinations; one observer estimates that specialized tourism, including nature tourism, will grow 10 to 15 percent per year over the next five years.[43]

Figure 13.
Visitation at Monteverde Cloud Forest Reserve (Costa Rica) and the Pare National Des Volcans (Rwanda)



NOTES: Figures for Monteverde are visitor-days. SOURCE: Elizabeth Boo, *Ecotourism: the Potential and Pitfalls*, World Wildlife Fund, Washington, DC 1990, vol. 2, p. 44. Visitor levels for the PNV leveled off due to limits imposed by management (not decline in demand). SOURCE: Ministere du Plan, Republique Rwandaise, *Strategie Nationale de L'Environnement au Rwanda,* Version pmvisoire, October 30, 1989.

A breakdown of trip costs was recently provided by Mountain Travel for one of its African treks. Of the $4,105 price tag, the funds were distributed as follows:[50]

AMOUNT	PERCENT OF TOTAL	ITEM
$2130	52%	Field costs (e.g., Inbound operator and entrance fees)
$350	9%	Hotels
$350	9%	Trip Leader
$1125	27%	Administration and commissions
$150	4%	Profit

Still other factors suggest that higher fees could be sustained. Current fees are such a small part of total tourist expenditures that even large increases in fees have little effect on the overall cost of travel.[44] In addition, many fees are never "seen" by tourists since they are part of large tour packages. Each decision on fee levels must be evaluated case by case, but substantial evidence indicates that tourists would willingly pay higher fees at many nature tourism destinations.

Although the burden of higher fees will largely be borne by the tourists themselves, there are indications that the tourism industry could absorb part of the increase. Growth has been rapid in the numbers and size of both outbound operators (packagers who sell trips to tourists in developed countries) and inbound operators (the organizers of trips at the destination). Large outbound operators claim that their nature tourism business is growing at 25 to 30 percent per year.[45] Costa Rica's largest nature tour operator grew 46 percent in 1986.[46] Data are scarce on the growth in numbers of operators, partly because definitions of nature tourism vary. The increase in advertisers in the *Specialty Travel Index* from 110 in 1979 to 539 in 1990 is, however, one indicator of growth.[47]

Glamour and adventure may lend appeal to tourism ventures, but recent growth in the industry stems largely from the attraction of profits. This growth, in turn, can lead to overuse of "open access" nature tourism destinations. Because most operators are small, private companies in a competitive market, detailed financial information is difficult to obtain. The consensus is, however, that the industry earns a net profit of 3 to 6 percent on sales,[48] margins which are more impressive considering the low capital investment necessary to enter the industry. One large nature tourism company, for example, paid off its original debt in five years and still had 5 percent net profit on sales of nearly $10 million (1989) for future expansion.[49]

Indeed, many of these operators recognize the need for higher fees because of the dangers of overexploitation and the lack of funds for park management. Fee increases will probably also reduce the industry's size or rate of growth, forcing out the least efficient firms.

Inbound operators earn much higher sales profits than do outbound operators. Their relatively high profits may be appropriate, especially in regions where the work is highly seasonal. Nonetheless, licensing and other restraints and the dearth of linguistically, scientifically, and entrepreneurially qualified personnel often limit the number of operators, leaving room for opportunistic pricing. To the extent that these operators use their monopoly power to sustain high profits, they capture the scarcity rents that might otherwise support conservation. Managers of the attractions thus have an interest in recovering these rents through levies and concessions that reflect the true value of resource use.

Size and Nature of Levy

Fees should thus be raised, but which fees, how much, and by what criteria?

A park can raise user fees until excess demand disappears, Unfortunately, optimal user fees cannot be precisely estimated in advance for lack of equivalent historical markets. In most areas, however, demand is so strong that fees can be significantly raised without any danger of collapse. In any case, even quick and simple surveys can provide managers with sufficiently reliable information to set user fees that more accurately capture the attraction's value.

Methods have been developed for estimating the demand curve using surveys of tourist willingness-to-pay (WTP). The two primary methods for estimating WTP for recreation have been the travel cost method (TCM) and the contingent valuation method (CVM).[51] The travel cost method is best suited when

1) visitors originate from points in concentric circles around the recreation site, and

2) visitors are visiting only one site.

Because these conditions rarely obtain in international nature tourism, the CVM is a preferable measure despite its limitations, A CVM study was the basis for the Costa Rican estimates in Figure 8. Other methods can be used, such as the hedonic price analysis in the study of Ecuador presented in Figure 8, but their complexity may hinder widespread application.

Setting fee levels is difficult, and managerial judgment is crucial since the optimal fee for any attraction will be highly site-specific. Two of the many factors that managers can consider are historical demand and competition. If visitation levels at the park have been increasing, fees can probably be raised; the more rapid the growth in visitation, the less likely higher fees will reduce visitation. Likewise, an attraction can usually charge fees equivalent to those charged at attractions with similar appeal, quality, and accessibility.

Once the current demand for the attraction is known, managers can investigate opportunities for raising future demand. Among factors contributing to willingness-to-pay are

1) Strength of desire to see an attraction and contribute to its continued existence. Popular attractions like Rwanda's gorillas will generate high WTP.

2) General trip quality. Friendly and responsive service, clean lodging, good food, and similar amenities are important to many tourists.

3) Fulfillment of expectations of exercise and solitude.

4) Income. Wealthier tourists will usually pay more than poorer ones.

5) Existence of substitutes. The WTP for an attraction depends on the availability of similar attractions at lower prices.

Managers cannot usually control such factors as the uniqueness of the attraction, but they can enhance the quality of a visitor's experience and access to exercise and solitude. A site's exclusivity can also be promoted to wealthier tourists.

In addition, many tourists will pay more if they know that the extra money helps conserve the special area they have come so far to see. In Nepal, for example, six out often of trekkers in the Annapurna area said they would pay $5 to $10 more than current government fees if they knew the money would be used in programs to conserve the area.[52] Nature tourists would also like more educational material than is currently available at most attractions, according to surveys by the World Wildlife Fund (WWF).[53] Complimentary distribution of a natural and cultural history guide to the area could accompany fee increases, which

would more than cover the cost of producing the guide.

The most traditional form of user levy is the entrance fee, directly correlated with use and easily collected in parks with staffed entrances, but alternative methods for charging fees can also be considered. In countries like Costa Rica or Kenya, where many tourists visit more than one park, a system-wide fee could be paid atone point and would be valid for all parks. A "park airport tax," charged to all international passengers, has also been suggested. These methods would facilitate fee collection, but might be resented by tourists who visit only one park (or none in the case of the airport tax).

Fees for the tourism industry, with or without fees levied directly on tourists, could also be enacted. These can range from per-visitor licensing fees for tour guides to hotel taxes. In Belize, for example, a 5 percent hotel tax and a $10 international flight tax, respectively, generated $295,800 and $611,000 in 1988.[54] Likewise, hotels near the Tobago Cays Marine National Park in St. Vincent and The Grenadines pay a levy to help maintain the park.[55] Though often difficult to administer effectively, a hotel tax can be "hidden" from tourists. Aa a result, it may be more amenable for tourists from industrial countries who are used to paying high hotel bills, but low entrance fees.

To get the highest possible flow of revenue from any fee structure, flexibility must be maintained in setting prices. Fees need to be adjusted for changes in inflation and demand for the attraction within the tourist market. In Costa Rica, for example, fiscal stamp fees, which help finance the park system, can be increased only by an act of the national legislature. In deference to resistance to tax increases, these fees have not been increased in the 11 years of their existence, despite substantial inflation. Entrance fees, on the other hand, have been increased by executive decree, but too slowly for the fees to retain their real value.[56]

To ease the transition, fee increases maybe phased in overtime. The Monteverde Cloud Forest Reserve plans to raise its basic entrance fee to $10 (from $2.75) after a one-year grace period while tour operators incorporate the change into their tour package prices.57 Flexibility may also encourage charging high and low seasonal fees, as many hotels do, to spread out use.

Increasing Revenue from Indirect Expenditures

Developing new tourist facilities provides another opportunity to generate revenue. Put simply, tourists need more opportunities to spend money. Visitor centers selling interpretive materials, basic foods, lodgings, and souvenirs are often considered unaffordable expenses by park managers instead of profit centers. These facilities do not have to be managed directly; concessions are likely to be more efficient and less burdensome to park management.

At Thailand's Khao Yai National Park, for example, accommodations alone generated $57,700 in 1987 for the National Parks Division (NPD), which oversees them. This figure equaled revenue from entrance fees that year. Although the revenue did not go to the NPD, the Tourism Authority of Thailand earned a profit of more than $257,700 in 1987 on its operation of lodging, restaurants, and other facilities in the region.[58]

Improved infrastructure gives tourists a chance to spend more money and encourages them to return, thus increasing entrance fee revenues. Half of all the foreign tourists at Khao Yai and three-quarters of all the Thai visitors surveyed said they would come more often if amenities were improved.[59]

Minimizing Loss of Revenue Through Leakage

The economy in many regions containing natural attractions is too undeveloped and undiversified to offer the necessary goods and services for tourism. Importing these goods and services leads to a leakage of tourist revenues so that little money stays in the host country, let alone in the local community. Fifty-five cents of every tourism dollar spent in developing countries leaks back to developed countries, according to World Bank estimates.[60] Only 10 percent of every nature tourist dollar remains in Zimbabwe, according to participants at the ICFP workshop there. Less than 10 percent of every tourist dollar spent in the Annapuma region of Nepal stays there, and little of the rest stays in Nepal.[61] Countries thus capture little of the scarcity rent offered by their resources and quickly lose much of what they do capture.

Some leakage is inevitable-the costs of air travel and marketing, for example.[62] Still, the amount remaining in the economy can be increased in two ways. First, parks and businesses can use local goods and services whenever possible. In the Lower Casamance region of Senegal, for example, tourism development was based on local supplies and manpower. Accommodations were built of local materials, meals were based on traditional cuisine, and the project was managed by local villagers.[63] In the long term, the ability to provide goods and services essential to attract tourists, but not immediately available, should be developed wherever feasible. Such development will range from expanding the variety of locally grown foodstuffs to training local residents for both managerial and support jobs. This venture will entail additional costs in the short run but will produce rewards later. An example of commitment to this ideal comes from the Philippines, where a fee levied on local hotels funds a training school in Quezon City, Manila.[M]

Second, when goods, and particularly services, have to be imported, the conditions governing importation can be established so as to maximize local benefit. Working within limits acceptable to both parties, a host country can, for example, expect a multinational lodging chain to train and employ local residents in staff positions in return for the opportunity of opening a safari lodge or other facility.

increasing Efficiency Through Decentralization and Public-Private Partnership

Parks and protected areas are generally seen as the responsibility of governmental parks departments, which consider their primary task as preserving nature and are often suspicious of private market motives. Nonetheless, in nature tourism, conservation and the private market can work together. Private organizations, whether business or nongovernmental organizations (NGOs), maybe able to play important roles in park-related tourism management. Such decentralization also encourages responsible use of the attraction by the tourism industry (this is the basis for common property management).

Indeed, since most attractions compete with others in the world tourist market, they must respond flexibly and efficiently to consumer tastes (within the limits of sound ecology). To the extent that many parks are overseen by inefficient bureaucracies, decentralization may foster sound management of nature tourism, and thus conservation.[65] The central government nevertheless has the important role of setting policies and regulatory conditions to ensure that nature tourism operators and others support national resource-conservation goals.

The public-private parmership can take many forms, with varying degrees of government involvement. Tourism facilities in parks maybe managed by private groups, like the for-profit

concessionaire TW Services in Yellowstone National Park, or the nonprofit Monarca A.C. in Mexico's Monarch butterfly area. Or public parks may be implicitly managed by a group of companies, as in the marine protected area of Cozumel, Mexico, where dive tour operators are responsible for coordinating and limiting their activities to prevent damage to the coral reefs. Alternatively, private reserves, such as the Monteverde Cloud Forest Reserve, maybe established independently of the government by for-profit or nonprofit groups.

The recent establishment of the parastatal Kenya Wildlife Service is a heartening example of decentralization. The Service is 90 percent private, has its own board of directors, and is no longer under the control of the central government treasury. The resultant flexibility is expected to increase efficient park management and distribution of tourism proceeds.[66]

Many variations of such partnerships maybe envisioned, based on the premise that the companies either manage the area themselves or are taxed by the government to pay for their use of the resource. Such public-private relationships are most likely to maximize economic and managerial efficiency while protecting the country's long-term resource conservation interests.

Ensuring That Revenues Lead to Sustainable Development

Tourism will provide little support to sustainable development if the benefits it generates remain in the hands of the tourists, the tourism industry, or the government treasury instead of being channeled back into the park and surrounding communities. Developing an efficient, equitable, and sustainable channeling mechanism is difficult and very site-specific. Policymakers can learn from the successes and failures of other destinations, but some trial and error will likely be necessary.

One way of ensuring channeling is by earmarking revenues for park maintenance and community development.[67] The nature of the earmarking system will vary between countries, but logic dictates that most revenues from entrance fees, concession fees, donations, and other related sources should remain within the park system. Because fees and donations will not cover all expenses of every protected area within a country, at least some funds from traditional sources will also be necessary. Since earmarking is intended to increase funding in countries with high current or expected levels of tourism demand, park ministries in countries with little actual or potential nature tourism will think twice before suggesting such a mechanism. Furthermore, although each park would deposit most of its revenue into the central fund, a park could retain part of its revenue to improve its own facilities, pay higher wages, finance research, and undertake other activities.

Earmarking can both increase the efficient use of existing funds and increase future revenue. As noted, many tourists will pay higher fees if they know that the money will be used to conserve the special area they have come to enjoy. A system-wide park fund, or supplementary funds for individual parks, would fulfill this condition. Donations could also be channeled through either type of fund. The importance of donations should not be underestimated, the expansion of Costa Rica's Monteverde Cloud Forest Reserve from 2,000 hectares to 10,000 hectares was made possible largely by donations to the Monteverde Conservation League.[68] Likewise, The Nature Conservancy raised $150,000 for the Darwin Research Station just by a direct-mail fund-raising appeal to tourists who signed the station's guest log in the Galapagos.[69]

Earmarking can also be used to fund community development programs, as in Zambia's Luangwa Valley. If nature tourism is to serve development as well as conservation, local residents have to be involved in the benefits of

tourism, through activities ranging from developing guide programs to providing loans for small infrastructure such as lodges.

Figure 14.
Responses to Surveys Near Rwanda's Pare National Des Volcans

SUBJECT		PERCENTAGE OF RESPONDENTS 1979	1s64
National Benefits	Yes	65	65
	No	11	5
	Don't know	24	10
Regional Benefits	Yes	39	81
	No	50	11
	Don't know	11	6
Personal Benefits	Yes	26	49
	No	72	50
	Don't know	2	1
Forest Values"	No value	17	22
	Rain/climate	19	21
	Erosion control	7	11
	Wildlife refuge	19	28
	Tourism	0	6
	Research	o	2
	Don't know	36	11
Wildlife Values*	No value	14	24
	Tourism	39	52
	Research	1	1
	Aesthetic	1	1
	Species preservation	0	1
	Don't know	44	18
Open Park to Exploitation	Yes	51	29
	No	49	71

'Non-consumptive values: multiple responses permitted.

SOURCE: RRAM, "Ruhengeri and Its Resources: An Environmental Profile of the Ruhengeri Prefecture,' Kagali, 1987, following p. 61.

The Importance of Education

Informing tourists about a region's natural and cultural history can pay off directly and indirectly. It encourages them to donate money to continue educational programs, heightens their enjoyment of the trip, and increases the chance of return visits and good recommendations to others.

Education is also important for residents of communities around nature sites.[70] This involves conveying the monetary benefits of conservation (such as nature tourism) as well as the nonmonetary values (such as watershed preservation). Surveys of local residents around the Pare National des Volcans show how educational programs-and economic success-have changed their attitudes.[71] (See *Figure 14.*) *The* benefits of tourism for the local populace, the region, and the nation have been recognized. In 1979, before tourism was developed, a small majority favored opening the park to agricultural exploitation, but by 1984 a clear majority rejected such an option.

The Need for Planning

The potential benefits of nature tourism described above will be captured and maintained only with adequate planning and coordination.[72] To make an informed decision about whether nature tourism is desirable and, if it is, to implement it carefully, countries can forma national nature tourism board, either as a separate entity or as part of an existing tourism ministry. The concept is not new; Kenya formed an interministenal planning committee (including the ministries of Tourism and Wildlife, Finance and Planning, Lands, Agriculture, Water, and outside consultants) to plan nature tourism development in the 1970s.[73] Likewise, Ecuador established the Fundacion Ecuatoriana de Promotion Turistica (FEPROTUR) to plan and promote general tourism in that country .74

A national nature tourism board will logically be comprised of representatives from the

ministries of planning, finance, and parks and tourism, or their equivalents. It will also include representatives of the private tourism industry, affected communities, the national airline, private conservation organizations and others. It will be responsible for elaborating the country's goals and abilities with regard to nature tourism. Based on research concerning the demand for attractions and the ability of the region to absorb the changes brought on by tourism, the board will determine the combination of visitation level and fee that generates the most profit without exceeding an area's carrying capacity.

The issue of carrying capacity merits further discussion here. Though a dynamic concept that is difficult to quantify, an area's carrying capacity can be qualitatively described as the level of visitation that can be sustained without causing unacceptable change (overexploitation).[75] Carrying capacity has been broken down into numerous types, but only three of them are important here.[76] The *ecologic carrying capacity* is the level of visitation beyond which unacceptable ecologic impacts will occur, either from the tourists or from the amenities they require. The *tourist social carrying capacity* is the level beyond which visitor satisfaction drops unacceptably from overcrowding. The *host social carrying capacity is the* level beyond which unacceptable change will be caused to local cultural stability and attitudes toward tourists.

The primary mechanism for managing change is by limiting the number of visitors, but planners can also use mitigation strategies. Any strategy will be highly site-specific, but some generalizations can be made.[77] Ecological damage caused by tourist infrastructure can be mitigated if facilities are carefully sited, appropriate treatment mechanisms are used, and care is taken in selecting food and other products used at the site. By diversifying the location of viewing trails, park management can reduce both congestion and disturbance of flora and fauna. Here education also plays a role, by informing tourists of proper behavior toward plants and animals and perhaps even by influencing their desire to see certain fauna *or* flora. For example, if told that human presence decreases the cheetah's hunting success some tourists may forgo cheetah viewing. Similarly, educating tourists on damage caused by litter will likely reduce it. The high fees recommended earlier may enhance tourists' respect for the value of an attraction and thus encourage thoughtful behavior. In any event, education should help eliminate the"1 paid for it so I'U do what I like" attitude.

Mitigation policies and other management practices can work. In 1973 the Amboseli National Park was expected to reach its carrying capacity at 70,000 to 80,000 visitors a year. However, under improved management practices, the park's annual capacity could exceed 250,000 visitors with no greater ecologic and social impacts than would have been caused by a smaller number of unregulated tourists.[78] Similarly, to combat the deforestation in Nepal, which has been aggravated by the fuel needs of trekkers, the Annapurna Conservation Area Project sets guidelines for fuel use. Fuel-efficient water heaters have been introduced, and trekking groups now cook with kerosene. The switch to kerosene alone is expected to save over 1,600 kg of wood per day.[79]

Planners must also avoid exceeding the tourist social carrying capacity through congestion, which will discourage future visits to a natural attraction. As demand falls, so too will tourism revenue. "Mature" tourism destinations in the Caribbean, for example, exhibit congestion characteristics and are therefore located at the top of the tourism cycle.[80]

Some of the factors on which congestion depends are:

1) The number of encounters with other visitors. This, in turn, is a function of the number of visitors.

2) The type of encounters. For example, five individuals seen separately quietly walking will produce a different reaction than a group of five people talking loudly with each other.

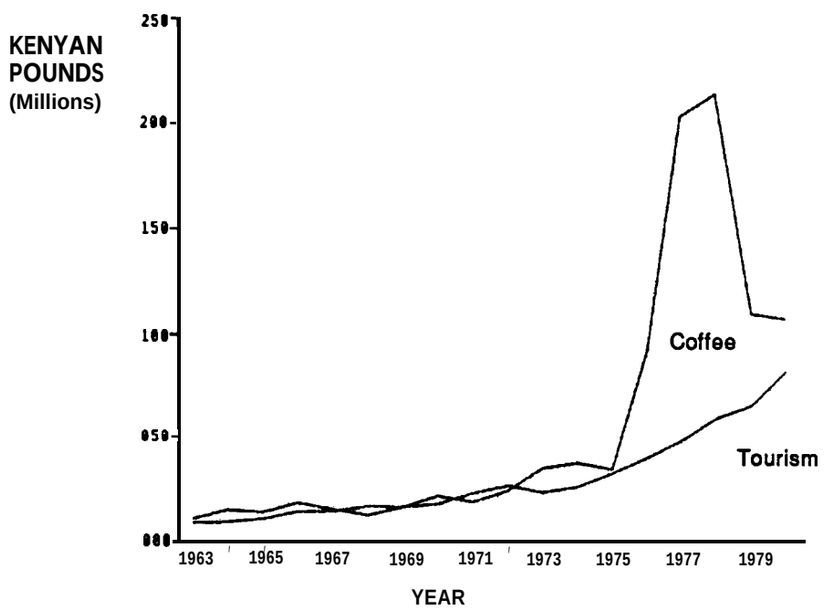
3) The encounter preference. Some visitors, to a point, prefer more rather than fewer encounters because of factors such as the comfort of being in a group and the knowledge that other people value the experience.

Considering the interplay of these variables, tourist social carrying capacity is hard to quantify. Nonetheless, a mere glance often suffices to determine that an area is "too crowded." Managers can reduce congestion by dispersing the visitors over time and space and by segregating particular types of activities.

By combining mitigation strategies, high fees, and visitor limitation, planners can keep a destination low on the "S" curve of the tourism cycle, thereby forestalling decline. High fees and limits will encourage tourism by more affluent visitors, thereby maximizing per-visitor revenues rather than *visitor-days.* Rwanda is pursuing this strategy, as are destinations as diverse as Bhutan, Cyprus, and the island of Anguilla.

Finally, when judging nature tourism's potential, planners should recognize possible threats to demand, some of which will be beyond their control. Although considered to be less prone than general tourism to fads, nature tourism

Figure 15.
The Value of Coffee and Tourism Exports in Kenya.



SOURCE: Rebecca M. Summary, "Tourism's Contribution to the Eoonomy of Kenya," *Annals of Tourism Research, vol. 14,* p. 532, 1987.

is susceptible to changes in demand due to real or perceived dangers to health and life. Ethnic violence halved tourism arrivals in Sri Lanka between 1982 and 1986.[81] Conflict in Guatemala caused a drop in tourism from 503,908 visitors in 1979 to 191,934 in 1984.[82] An impending trade embargo with India and the possibility of supply shortages kept many potential visitors away from Nepal in 1990. Nature tourists are likely to be a hardier lot than general tourists, but planners should be aware that unexpected events could cause shifts in demand.

Likewise, although nature tourism demand appears to be strong and relatively price inelastic, a serious recession or a significant rise in the price of oil or other industry inputs could reduce visitor levels. As far as possible, planners should compare these uncertainties with similar risks facing alternative industries.[83] In Kenya, for example, the value of coffee exports rose rapidly between 1975 and 1978, but crashed between 1978 and 1980. Tourism "exports" grew more slowly, but more steadily. (See *Figure 15.*)

V
SUMMARY AND CONCLUSIONS

This cursory review of recent developments in the nature tourism "industry" suggests that nature tourism has contributed to sustainable development in certain areas, However, many nature tourism areas are at risk of being overexploited, are earning only a fraction of their potential revenues, or are not funneling earnings back into sustainable development.

Because nature tourism at many destinations is monopolistic or quasi-monopolistic, price increases (possibly in conjunction with visitor limits) can help to prevent overexploitation and to raise revenues. Currently, low entrance fees mean that tourists and the tourism industry capture the value inherent in a nature tourism destination. Tourists receive a big consumer surplus because they pay for only a portion of the enjoyment they receive. Likewise, the tourism industry receives substantial monetary benefits in the form of higher profits than needed to keep it in business.

Most owners of nature tourism destinations are giving their products away, even though most of them sorely need funds to maintain protected areas. This only strengthens the argument for selling their products at fairer prices. If owners do not appropriate the scarcity rent, it will either accrue to the tourism industry or be lost to tourists in the form of consumer surplus. Occasionally both industry and tourists have turned these gains into support for programs that contribute to sustainable development, but governments are more likely to consistently pursue national conservation and development goals. Yet they will succeed only if they utilize the benefits of their ownership of nature tourism resources. Once captured, these benefits must be channeled back into parks and surrounding communities if they are to serve sustainable development.

Capturing nature tourism's potential will also "level the economic playing field" on which decisions between nature tourism and other options for development (such as mass tourism, agriculture, or logging) are made. Each decision will be site-specific, but recognizing nature tourism's real monetary value will strengthen the argument for conservation.

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