

## Can Tourism Pay for Conservation? A Study from the Maldives

**The Republic of the Maldives attracts thousands of tourists who are drawn by the country's beautiful coral atolls. Unfortunately, the country's environment faces a number of significant challenges and government expenditure on conservation activities is relatively low. In addition, more than half of the Maldivian government's annual environmental protection budget comes from unstable international aid. Thus, it is important that more stable and sustainable sources of conservation finance be identified.**

A new SANDEE study looks into whether money from tourism can help fund environmental conservation. The research shows that the annual benefits from tourism equal USD 695 million, while the average tourist's on-site expenditures per trip is USD 1699. If just 4% of the total annual recreational benefit from visitors is transferred to environmental conservation and protection, it would be enough to cover the country's current annual environmental budget. Thus, the challenge facing the government is to decide how to structure any fee or tax so that it is feasible and equitable.

This study was undertaken by a team that includes Mahadev Bhat, Florida International University, Miami, USA, Ramachandra Bhatta, Fisheries College, Mangalore, India, and Mohamed Shumais, the Environmental Protection Agency, Maldives.

### The Conservation Challenge

The coral reefs that make up the Maldives' atolls have been under attack since the 1970s from mining and other development pressures. Today, the country's rapidly growing tourism industry is also beginning to negatively affect the natural environment. Despite the government's commitment to conservation, effective implementation of marine protection legislation is often hindered by limited political will and budgetary constraints.

The political and economic justification for investment in environmental protection stems from the fact that the livelihoods of many people in the Maldives are largely dependent on the marine-related tourism industry. International tourists, and the travel-related businesses that serve them, also have a vested interest in the conservation of the environment of the Maldives. Given the strong link between a vibrant tourism industry and a pristine environment, a key economic sustainability question facing the government is whether conservation receives a fair share of the money that tourists bring into the country.

### Using Travel Costs to Estimate Tourism Value

To assess whether tourism can provide a feasible source of finance for conservation in the country, the researchers first estimated the economic benefits from marine-based recreation. A Travel Cost study was used to estimate the benefits of tourism. The Travel Cost method is a popular way of valuing recreational amenities. It assumes that the costs of travel to a site can be used to assess the price of recreation at that site. Using data on the cost of travel and the number of visits to a given site, this method allows an assessment of an average visitor's consumer surplus (i.e. the net benefit they get from recreation) and, secondly, the total surplus to the entire population of tourists.

In this study, the authors use two approaches to estimate travel costs: The first only takes into account exogenous travel costs: costs that tourists have no control over, such as international airfare and the opportunity cost of travel time. The second includes both exogenous and endogenous travel costs: costs chosen by tourists, such as the cost of hotels, boarding, etc. Since a large majority of tourists in the Maldives buy travel package deals, which combine exogenous costs with on-site endogenous costs, a separate regression model of package costs is

## Coral Reefs and Conservation in the Maldives

The Republic of the Maldives of the central Indian Ocean is one of the only eight countries, states and territories that are primarily composed of atoll islands - small, flat islands formed of coral reefs and embedded with an open lagoon at their center. Atolls are home to some of the world's most unique ecosystems and the Maldivian atolls are known for their beautiful coral structures, fish abundance, white sandy beaches, coastal vegetation and mangroves.

Until recently, corals served as a source of building materials for the construction industry in the Maldives. Consequently, the Maldivian coral reefs have been heavily quarried since the 1970's to meet the nation's construction needs. Threats to the coral reefs also come from other development activities such as near-shore reclamation, harbor construction, dredging and other island expansion activities. They are also threatened by nutrient enrichment from inland sewage discharges.

The Maldivian Government, as a policy response to both increasing tourism demand and the degrading coral reef fishery, has already declared 25 marine protected areas in order to protect diving spots from overuse. However, these areas do not strictly conform to the protected area management regime because they continue to be popular diving spots for tourists. Fourteen of these areas are used exclusively for shark watching and permit bait fishing by the local communities. Moreover, the demand for reef fish from both local tourist resorts and export companies continues to grow, forcing local fishermen to encroach into protected areas.



used to distinguish between the two types of cost.

### Data Collection

To gather data, the researchers conducted a visitor survey over a period of six months from January to June 2009 at two major resorts in the Addu atoll, the domestic airport on that island, and at Male International Airport. The data gathered included information on the number of times tourists had visited the Maldives in the past five years, the distance

they had travelled (mostly by air), the cost of their travel packages, the nature of their recreational activities and their demographic characteristics.

Secondary information on environmental conservation expenditure and the total number of visitors per year was gathered from published literature and government reports. The researchers also consulted representatives from the Environmental Protection Agency and the Ministry of Housing, Transport and Environment to discuss both the adequacy and reliability of government and external funding for environmental conservation.

### The Benefits of Tourism

During 2007, a total of 675,889 tourists visited the Maldives, with each tourist staying an average of 8.5 days per visit. Visitors made an average of 3.82 trips to the Maldives over five years for the purpose of recreation.

When only exogenous travel costs are taken into account, an average tourist obtains the economic recreational value (consumer surplus) of USD 5,913 from 3.82 trips. This is equivalent to a per person per trip use value of USD 1,549 and a per person per day value of USD 121. When both exogenous and endogenous trip costs are taken into account the per person recreational use value jumped to USD 13,004, the per person trip value to USD 3,328, and the per day value to USD 260 per person. Such a drastic increase suggests that the value of on-site tourism services in the Maldives is fairly high. Indeed, on-site expenditure is USD 1,666 per person per trip and the annual total expenditure by tourists is USD 1,126 million.

Overall, this means that (if the conservative estimated use value of USD 121 per day is used) the total annual surplus benefit of tourism is USD 695 million.

## Financing Environmental Expenditure through a Conservation Fee

In 2007 the annual environmental expenditure in the Maldives was USD 27 million (USD 11 million from the government and another USD 16 million from overseas donors). This amounts to only 4% of the estimated annual recreational benefit (of USD 695 million). Thus, if 4% of the total annual recreational benefit from visitors was transferred as a one-time fee towards environmental conservation and protection, it would provide USD 28 million – more than enough to cover the annual environmental budget.

The actual additional per tourist tax or user fee necessary to fund current conservation spending would be USD 41 per person per visit (=USD 27 million/675,889 visitors per year). This constitutes only a small percentage of the amount an average tourist spends on each trip (1.25%). Significantly, this amount is comparable with the value a previous study calculated for tourists' willingness to pay for conservation work on one of the Maldives' atolls (this was USD 35).

## Taxes as a Funding Mechanism

In this study, two options for a user-based funding mechanism are considered: (a) a one-time conservation fee levied when a tourist arrives in the Maldives as discussed above; and (b) taxes on expenditures incurred for various tourism services, for instance, lodging, food and tour boat operations.

The total tax revenue for the government in 2007 from the tourism sector was Rf 2,212 million (USD 172 million), which amounts to 15% of total tourist expenditure (of USD 1,126 million). If an additional tax is imposed on tourists to raise the required amount of USD 27 million, this would raise the tax burden on tourists to 18% of expenditures. This suggests that a taxation approach is feasible: the policy challenge for the Maldivian government is therefore to determine the sector or sectors on which to impose new tourism taxes.

To find an answer to this challenge the study divides the on-site expenditure of USD 1,666 per person per trip and the annual total expenditure of USD 1,126 million into different expenditure categories. According to this breakdown, tourists spend the most on hotels (35% of expenditure), followed by food and beverages (23%), recreational activities (19%), miscellaneous (18%) and retail shopping (5%).

## An Equitable Approach

Since visitors spend the most money on lodging and food and beverages, these two categories would make a sensible target for taxes. The tax increase they would have to bear would be lower than for the other sectors. This would be the case, even if the entire environmental budget were collected from these two sectors. Indeed, in order to raise the USD 27 million that is needed to meet roughly the current annual

## Tourism in the Maldives

There has been an impressive growth in the tourism sector in the Maldives in recent years. The total bed capacity, for instance, increased by 16 percent from 18,730 in 2000 to 21,741 in 2007. In the year 2007, the tourism and transportation sector together contributed about 46 percent of GDP. However, financing conservation remains an issue. In the same year, the entire environmental conservation program in the country received less than one percent of Gross Domestic Product. While the user groups who benefit most from the country's rich natural resources are foreigners, the responsibility for the sustainable use of the resource largely falls on the local population and the government. One way to overcome this disparity is to identify funding sources from the group which directly benefits and to design policies to ensure appropriate money transfer to those responsible for conservation and regulation.



## SANDEE

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environmental protection expenditure, the government would have to impose a new tax of 6.85% on hotel expenditure or 10.39 percent on food and beverages. In contrast, if the government were to tax direct recreational expenditures (such as diving and snorkeling) or miscellaneous activities the proportionate tax increases would be 12.73% and 13.59% respectively.

Not all of these taxes may however be feasible. Owners of resorts and related businesses, who already pay a little over 15% of their revenues in different kinds of taxes, may strongly oppose measures that would further eat into their profit margins. Also, tourists spend an estimated amount of USD 1,682 per person per each trip as part of the travel package cost (i.e., exogenous portion of the total trip cost). Therefore, the government must ensure that any new tax burden is equitably distributed across expenditure sectors, including the portion spent before the tourists enter the country.

### Comparison of Annual Recreational Benefits and Government Expenditure on Environmental Protection in the Maldives

Economic Indicators	Units	Amount	Additional Tax Burden (USD/visit)
A. Consumer surplus (CS) per day	USD/day	121	
B. Average number of days spent	Days/visitor	8.5	
C. Tourist population in 2007	# visitors	675,889	
D. Total annual economic benefit or annual CS of all tourists [ (A) * (B) * (C) ]	Million USD	695	
E. Annual revenue generated by taxing CS at			
2 percent	Million USD	14	20.57
4 percent	Million USD	28	41.14
5 percent	Million USD	35	51.43
F. Total annual government expenditure (2007)	Million USD	648	
G. Government expenditure on the environment	Million USD	11.06	
Ratio of environmental to total expenditure	Percent	1.71	
H. Overseas sources donation for environmental protection	Million USD	16.30	
I. Total environmental expenditure [(G)+(H)]	Million USD	27.36	
Ratio of environmental expenditure to annual CS	Percent	3.98	

### Conclusion

This study of tourism in the Maldives indicates that tourists value their experience in the Maldives tremendously. Further, given the significant net benefits to tourists, there ample scope for charging an additional user fee or tax on tourists to finance conservation. The challenge ahead is to design a fee that would be acceptable to different stakeholders and satisfy the government's revenue requirements.

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