



South Asian Network for Development  
and Environmental Economics

# POLICY Brief

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## Valuing the Land of Tigers – What Indian Visitors are Willing to Pay

**The Sundarban in India is one of the country's most important nature conservation areas. It is famous for being home to the Royal Bengal tiger and is designated as a world heritage site. The conservation of the Sundarban is therefore a key environmental priority, but, as population and development pressures rise, the challenge of protecting the area will get harder. Now a new SANDEE study has looked at the value of the region to tourists – to help justify its conservation and to assess what level of entrance fees would provide the most income to fund its protection.**

The study was carried out by Indrila Guha from the Vidyasagar College for Women, Kolkata and Santadas Ghosh from Visva-Bharati, Santiniketan. It uses an assessment of visitors' travel costs to estimate the annual recreational value of the Sundarban. It calculates this to be at least INR 15 million (US\$ 377,000) for domestic visitors alone. The study shows that to maximise revenue collection, the current entry fee of INR 15 could be raised to INR 154. If this is done, then the total amount of revenue to park authorities would increase by over INR 3.5 million (US\$ 0.09 million). The study recommends that, as future tourism growth is likely to put significant developmental pressure on the area, the Forest Authority should use these findings to help devise long-term plans that will ensure the sustainable management of the Sundarban area.

### THE HOME OF THE TIGER

The Sundarban lies in the southeast corner of the Indian state of West Bengal. It is part of the largest riverine delta region in the world and is well known for its mangroves - it is the largest single tract of mangrove forest in the world. It is also famous for being the home of the Royal Bengal Tiger which is part of the Indian conservation programme Project Tiger. The Sundarban has long been acknowledged as a key natural resource and was declared a reserved forest in 1926. The same forest continues and is protected in Bangladesh to the east. The current conservation approach in the region is aimed at protecting the tiger habitat from human intervention and disturbance. Entry into the protected area's buffer zone is restricted through

the issue of priced permits and the Department of Forests monitors all human movement in the forest. Despite these measures, threats to the Sundarban eco-system remain - over the last century, the region has experienced a rapid depletion of forest cover and loss of animal diversity due to human encroachment.

The Sundarban's unique mangrove forest landscapes and its importance as a major tiger habitat make it a first-class tourist attraction. This is evident by the growth in tourism in recent years (see the side bar). During 2005-06, an estimated 64,000 tourists visited the Sundarban National Park. In the following year, there was a 17% increase in visitor numbers. Tourism has grown despite poor transport facilities and little or no electricity. Given recent growth of India's economy and the



Courtesy: Tiger Mountain



rise of the country's middle class, tourism numbers in the Sundarban are expected to rise further in the future. This will place additional pressures on the area and make its conservation an even more challenging job.

### PUTTING A VALUE ON THE SUNDARBAN

The aim of Guha and Ghosh's study is to help address the conservation challenges facing the Sundarban. They provide a baseline estimate of the recreational value of the protected area. Other studies in the region have estimated the value of the forest's extractable products and looked at its ecological value in terms of increased fish farm productivity. However, 'recreational services' represent a major part of the Sundarban's non-use value – it is therefore vital to get a measure of the value of these services if the full value of the forest is to be evaluated.

To estimate recreational value, the researchers use the Zonal Travel Cost approach. This method is based on the assumption that the travel costs a visitor pays can be used to calculate the value they place on the site they are visiting.

The study also assesses the current entry fee that park visitors have to pay. Using an analysis of how much people are willing to pay to visit the area, Guha and Ghosh look at the impact that raising the entry fee would have on visitor numbers and revenue collection. This allows them to calculate a fee structure that would produce the maximum level of revenue collection for the park authority.

### SURVEYING VISITORS, ASSESSING TOURISM

To get the information they needed Guha and Ghosh use a visitor survey. This was carried out on a sample of visitors between November 2005 and March 2006. The survey recorded the places from which visitors had travelled. This information was recorded for more than 73% of the people who visited Sundarban during the 2005-2006 season.

Information on travel costs was also gathered for almost two thousand visitors or approximately 3% of all the annual visitors to the area. As visitors' socio-economic status may have an effect on their decisions to travel, information was gathered on issues such as per-capita income, occupations and educational qualifications. To get more details about the tourism market in the region, details were taken on the tours that visitors chose. These tours range from self-organised tours to custom-made commercial packages.



"Visitors on a river cruise"

Source: Santadas Ghosh

Guha and Ghosh's findings show that the tourism market in the Sundarban can broadly be divided into 'high-cost' and 'low-cost' segments depending on the type of tour taken and the duration of a person's visit. Tourism in the Sundarban is highly seasonal and domestic. There are very few tourists who make the Sundarban visit a part of travel to multiple destinations and foreign visitors are limited. More than half of the area's visitors originate from the nearest metropolitan city, Kolkata, with 28% coming from the neighbouring district of North 24 Parganas. Of the other visitors, most travel from elsewhere in the state of West Bengal. Only a very few come from the rest of India and abroad. Indeed foreign tourists only represent 1% of all visitors.

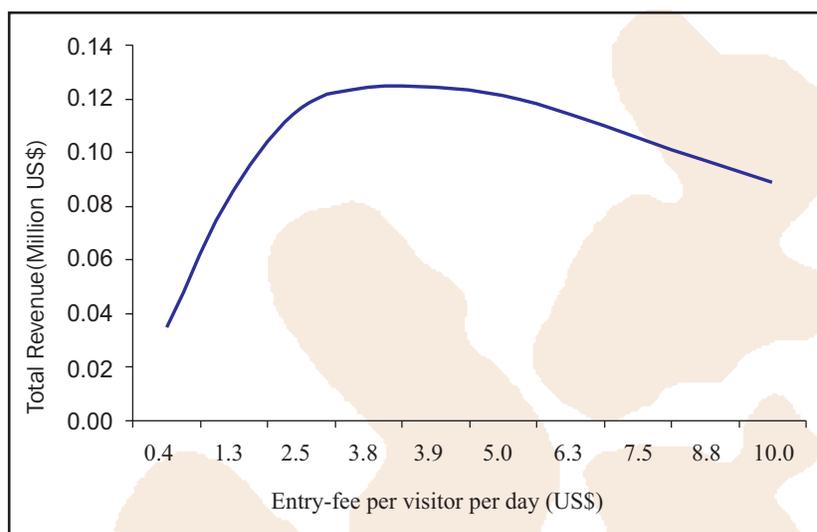
### TRAVEL COSTS AND ENTRANCE FEES

The research shows that demand for tourism in the Sundarban is determined by travel costs – demand falls away the further a person has



to travel and the more they have to pay. It is also clear that the occupation of visitors plays a role in demand. In particular, the percentage of people working in the service sector in a particular zone has a significant positive effect on the number of visitors from that zone. This is probably linked to the fact that such people normally belong to the urban middle class and have the resources and inclination to travel to look at wildlife.

### Projection of revenue collection with varying entry-fee rate



Overall the study estimates that the annual recreational value of the Indian Sundarban is INR 15 million (US\$ 377,000). This figure does not take into account foreign visitors and is therefore probably an underestimate. The study also finds that the current entry fee (INR 15 per visitor per day) is not set at an optimal level. An analysis of the trade-off between revenue and visitor numbers shows that an entry fee of INR 154 per visitor per day would maximise revenue. Total revenue collection from domestic visitors is presently estimated at INR 1.39 million (US\$ 0.03 million). The study shows that, if the optimal entry fee level were imposed, revenue would be raised by over three times to INR 4.96 million (US\$ 0.12 million).

### LOOKING TO THE FUTURE

Guha and Ghosh's assessment provides important information to help validate the conservation of the Sundarban. It also highlights how more money could be raised for this work. Many local people (particularly the poor) have lost potential income because they are barred from using the forest in the Sundarban's protected area. Showing that the forest has a significant value in its natural state in some ways, justifies this exclusion and gives a strong reason for continued investment in protection and conservation. It also underlines the importance of helping local people to benefit from tourism, so that they can become partners in the conservation process themselves.

As previously noted, the number of visitors to the Sunderban is expected to grow significantly in the future as new amenities for tourists are developed and as more people find out about the area. The continued transformation of the Indian economy will also mean that more people will have the money and the leisure time to visit. Going by the present dynamics of Indian economy, it is likely that this increase in tourist numbers will put significant pressure on the carrying capacity of the Sundarban. Guha and Ghosh therefore recommend that the Forest Authority in the region use their findings to help devise long-term plans to cope with an increase in tourist numbers. There is obviously scope for the Forest Authority to pay for any new conservation initiatives by increasing the park entry-fee. While this may cause adverse reactions from visitors and tour operators, this study shows that it will be a good way to control demand and maximize income.

### TOURISM IN THE SUNDARBAN

Organised tourism in the Indian Sundarban began in the mid-1980s, after the inception of the nationwide tiger conservation programme Project Tiger. Tourism in the delta still does not follow a master plan, but the forest can only be entered with a permit. The local Forest Authority's role in promoting tourism has so far been limited to building and manning five watch-towers inside the buffer zone of the forest. It also runs one Mangrove Interpretation Centre which describes the Sundarban's flora, fauna and ecology through models and photographs.



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“Visitors at a watch tower”

Source: Santadas Ghosh

Visitors can apply for their permits at any one of four different issuing offices, but these permits have to be shown and stamped at a single entry point, the village of Pakhiralay, where the Forest Range Office is located. There is no restriction on the number of permits issued to tourists. Thus, the tourism-carrying capacity of the forest is not yet considered a serious issue by the Forest Authority.

Although tourism in the Sundarban is being slowly organised, prospective visitors to the area still find it difficult to get useful information. The area is relatively inaccessible and this, combined with the minimal infrastructure in the region, makes it difficult for a visitor to tour independently. Tourism generally occurs in the following manner:

- Around 25-30 operators, all located in the site's nearest town and rail-link Canning, cater to visitors who are self-organized in large groups. They offer circular package in launches starting and ending at Canning. In a typically 2 or 3 day's trip, nights are spent in the launch. Nearly 83 per cent of all visitors to the Sundarban use one of these tour packages.
- The West Bengal Tourism Development Corporation and two other private operators offer Kolkata-to-Kolkata circular 'all inclusive' packages. The package costs are significantly higher targeting the high-income group.
- Some enterprising individuals, operating purely seasonally and banking on their contacts in Sundarban, offer negotiable 'packages' for small groups of visitors who may be able to organize themselves.

A Sundarban tour always consists of a cruise through the water channels within the buffer zone of the reserve forest, with halts at riverbank watch-towers. On-shore accommodation in tourist lodges is also available in and around Pakhiralay village.