

Valuing Environmental Services for Recreation in the Margalla Hills National Park, Islamabad



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In developing countries, many national parks are in dire need of investment. Given growing problems of soil erosion, deforestation, biodiversity depletion and loss of hydrological services, there is a growing call for financial mechanisms that contribute to better management of natural areas and the services they provide. Could valuation of the recreational benefits accruing from mountain ecosystems like that of Margalla Hills National Park (MHNP) in Pakistan, along with optimal pricing of these benefits, be the key to additional funds? This study assesses the economic value of recreational benefits from the MHNP and concludes that imposing entry fees can make a major contribution to park revenue. The real value of this study is in its pioneering assessment of the 'demand' for natural resource systems in recreational landscapes in developing countries, and the possible economic rewards from continued investment.

Natural areas and their pricing

Natural areas such as national parks benefit society in numerous ways. Not only do they perform ecological functions, they also provide recreational amenities to



The Margalla Hills National Park. Photo: Aftab Rana.

visitors. However, natural areas are often mismanaged because of inadequate financial support. Developing countries lag behind in designing effective natural resource pricing strategies, as evidenced, for example, by low or non-existent park entry fees. Fees can help capture the 'willingness to pay' of visitors who use the services provided by natural areas. It also enables the State to earn profits that might otherwise accrue to the private sector. Furthermore, entry fees can help regulate visits to areas that suffer from over-use and ecological damage. Multiple-tier pricing can be used to increase revenue generation without hurting users who are unable to pay. Developing countries have little experience in pricing the use of 'public goods' such as parks that cannot be bought and sold like private goods. Studies such as this present the possibility of using 'nonmarket valuation' techniques to price and possibly save many natural areas from neglect and lack of investments.

The study area

This study focuses on the Margalla Hills National Park (MHNP), which is located in the foothills of the Himalayan range. On the outskirts of the national capital, Islamabad, MHNP is one of the most accessible parks in Pakistan. Comprising of Margalla Hills (mountain wilderness), Rawal Lake (a lake environment) and Shakar Parian (an urban recreational and cultural park), the MHNP covers a scenic area of approximately 15,800 hectares. The Park consists of dry and semi-evergreen vegetation and is a habitat to numerous species of animals and birds. Because it combines three types of landscapes, MHNP offers outstanding recreational and educational opportunities to the people of Pakistan. Approximately 100,000 visitors visit the MHNP each year. Recreational activities at the park include sightseeing, bird watching, walking, relaxation, exercising, eating sea-food, swimming and water-sports such as boating and sailing. With only five percent of land area in Pakistan under forest cover and very few parks, MHNP is an exceptional natural asset. However, poor capture of revenues and limited budgetary allocations limit its potential and underscore the need for new strategies to help maintain the park.

Research and findings

The present study seeks to estimate the value of benefits to visitors who come to the MHNP to enjoy its various amenities. The author, Himayatullah Khan, is interested in valuing Park benefits so that he can identify options for financing and sustaining the Park. Keeping in mind that benefits from the MHNP are not allocated through any private market, the author uses what economists refer to as the Individual Travel Cost method to estimate benefits.¹ This method allows the author to infer recreational benefits by estimating the cost visitors are willing to bear to travel to recreational sites. Demand for the Park's amenities is viewed as determined by numerous factors such as travel cost, travel time, costs of visiting substitute sites, site quality, congestion, demographic characteristics of visitors and so on. By undertaking a tourism survey of 1000 random visitors to the Park, the author is able to obtain information on all of these factors. This information is then used to estimate the "demand" for recreation. The author uses the estimated demand curve to value recreational benefits and to identify Park user fees.

Table 1: General characteristics of sample visitors

Surveyed visitor characteristics	Average
Age (Years)	39
Household Size	7
Male Visitors	67%
Female Visitors	33%
With Primary Education	55%
Married	60%
Household Monthly Income	Rs.12,000/- (US \$143)
Urban Visitors	60%
Rural Visitors	40%
No. of Trips to MHNP per year	7
No. of Trips to Substitute Parks per year	1.61
Do you want improvement in quality in MHNP?	
Yes	62%
No	38%
How should the money be raised?	
a. Increase entry fee	38%
b. Govt. budget reallocation	40%
c. Donation	22%

The author's survey of a 1000 visitors to the MHNP provides an opportunity to assess the market for recreation in Pakistan. Table 1 shows that the average visitor who enjoys natural areas around Islamabad is approximately 39 years old, has at least a primary school education and is married with seven children. 60 percent of the visitors are from urban areas. Some 65 percent of the sample respondents earned between Rs.5000 to Rs.20,000 (US \$60 to \$240) in monthly income. The response from the sample respondents establishes that the majority of visitors are happy with the recreational quality of the park. However, 62 percent of visitors wanted improvements in the quality of the services available at the park. A significant 38 percent of visitors felt that park entry fees should be raised to finance improvements. Thus, this market survey suggests that the

MHNP is visited often by middle-class households who live in nearby Rawalpindi and Islamabad, and also by people from out of town. Visitors appear to truly appreciate the amenities of the MHNP and may even be willing to pay for improvements.

Recreational value of the MHNP

Table 2 presents per visitor consumer surplus as well as total recreational value of the the park under consideration. Total economic benefits alone are estimated to be a whopping Rs. 23 million or 8 percent of the total budget allocation for Pakistan's environment sector. Further, the improved park services would increase economic benefits by Rs. 9 million. This jump in surplus indicates that visitors are willing to pay for park improvements.

Table 2: Total consumer surplus and total recreational value from MHNP

Consumer Surplus (Rs./ Per Visitor)		Total Recreational Value (Rs. Million)	
Actual	With New Investments	Actual	With New Investments
231	319	23	32

Using an entry fee to raise park revenues

Another relevant outcome from the study is the estimation of an entry fee. A fee increase from the present charge of 0 to Rs. 50 (US \$0.60) would result in a decline in visitor numbers after an initial peak. Revenues are therefore maximised at an entry fee of Rs.20 (US \$0.25). This recommended entrance-charge results in a per capita consumer surplus of Rs. 210 (US \$2.50).

Policy outcomes

At a basic level the study underlines the importance of using nonmarket valuation techniques to estimate hitherto uncaptured and undercaptured economic benefits from environmental resources such as national parks. In the context of Pakistan, the study places the spotlight on three important issues.

- Increased budget outlays for MHNP maintenance are viable and justified, as an improved park would attract more visits and could in turn generate revenues. Clearly, the government should look at such allocation as an investment in itself.
- An entrance fee of Rs.20 for MHNP could be introduced, as consumers are willing to pay for benefits from the park. This charge would generate close to 11 million rupees for the exchequer.
- The implications of the valuation exercise for MHNP go beyond this park, and suggest the need for more careful valuation of natural resource systems both within and outside of Pakistan.

In all, the study covers an important distance in drawing attention to the 'demand' for natural resource systems and the likely benefits from investing in such systems.

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¹ The individual travel cost method (ITCM) was described by Brown and Nawas (1973). The objective is to estimate the social benefits from recreation, derived from demand function, in natural landscapes.