



## The Economic Value of Marine and Coastal Biodiversity to the Maldives Economy

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**Short title:** Tourism more valuable than fisheries, Maldives

**Key Message:** The seventh largest coral reefs in the world, based in the Maldives, provide an immense economic value to the nation's economy highlighting the need for the tourism and fisheries sectors to make marine and coastal conservation a priority.

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### 1. What is the problem?

The Maldives enjoys some of the richest marine biodiversity in the world. The country's coral reefs are the seventh largest in the world, representing 5% of the global reef area (Emerton et al. 2009). The country is heavily dependent on marine and coastal resources for economic wellbeing and development. Given that a major part of the Maldivian economy depends on biological resources and natural ecosystems, the failure to integrate biodiversity into economic policies, strategies and budgets may undermine the very basis for sustained and equitable economic growth in the future. Current investment in biodiversity does not adequately reflect its immense value to the national economy and future development. As a result, this vital asset, the "natural capital" of the Maldives, is being eroded with declines of several harvested marine species (i.e. sharks, lobsters, sea cucumbers, reef fish), pollution and damage to reefs from construction (ibid). This loss of biodiversity can be a significant problem for the economy of Maldives. Thus, there is a strong imperative to recognise and demonstrate that there is an economic – in addition to a biological and ecological – rationale to biodiversity conservation.

### 2. Which approach was taken?

The Atoll Ecosystem Conservation project was implemented by the Ministry of Housing, Transport and Environment, with support from the GEF and UNDP, and aimed to highlight the economic value of coastal and marine diversity. The study analysed two of the economic sectors in the Maldives that depend heavily on coastal and marine biodiversity: fisheries and tourism. This involved tracing all benefits that biodiversity provides to the economy through sectors such as income, employment, government earnings, foreign exchange and exports.

### 3. What ecosystem services are considered, and how?

Conservation of coastal and marine biodiversity is the ecosystem considered here. The Maldives is a globally significant and rich biodiversity habitat. It contains the largest group of coral reefs in the Indian Ocean, with an area in excess of 21,000 km square and a total reef area of more than 3,500 km square. Over 1,100 species of reef fishes and over 250 species of corals can be found here (Emerton et al. 2009). Threatened species such as the Green

(*Chelonia mydas*) and Hawksbill (*Eretmochelys imbricata*) turtles, are also found in the Maldives (Emerton et al. 2009). In addition, Maldivian atoll ecosystems are comprised of a variety of other habitats including extensive shallow and deep lagoons, deep slopes, sandy beaches, and limited mangrove and seagrass areas. The study shows that the direct, indirect and existence value of conserving biodiversity is substantial, and residents as well as overseas tourists are willing to pay for conserving it, thus making conservation a logical and feasible undertaking.

#### **4. What input was required?**

Primary data was collected through four surveys: private sector tourist operators on Baa Atoll, households in Baa Atoll, Maldivians residents in Baa Atoll and Maldivians residents in Male.

##### *Direct values:*

Direct benefits from fisheries and the tourism sector were evaluated using the market price method. The tourism sector employs 64,000 people or 58% of the workforce. Taking into account both direct and indirect production, consumption and earnings, the current upstream contribution of tourism to GDP is estimated to be USD 764 million (Rf 9,741 million) or 67% of GDP. Official records show that the fisheries sector contributes Rf 855 million, or 8.5% of GDP (Emerton et al. 2009).

##### *Indirect and existence values:*

The shoreline protection benefits of coral reefs were evaluated by using the replacement cost method, as well as willingness to pay for biodiversity conservation. Spiritual, cultural, and aesthetic values were evaluated using willingness to pay of both locals and tourists. The calculations undertaken as part of this study show that the cost of the artificial replacement of coral reefs ranges between Rf 20 billion – 34 billion, depending on the type of replacement measure. Most people showed willingness to finance biodiversity conservation through either a conservation fee or a user fee. Overall, 80% of the respondents were willing to pay annually towards a biodiversity conservation fund. Based on the proportion of respondents' preferences, the indirect and existence values can be broadly estimated and extrapolated to the whole country at Rf. 2 million per year (indirect values including regulating and supporting services); and Rf. 1.8 million per year respectively. In addition, with respect to the existence value, overseas willingness to pay was estimated to be Rf. 230 million (Emerton et al. 2009).

#### **5. What was the policy uptake and what were the conditions for this effort to influence public management?**

The study suggested that policy recommendations such as fiscal control measures for biodiversity conservation, which place an emphasis on positive incentives, taxes, import tariffs, quotas, price controls and other charges for products and economic activities should be reviewed properly and user based fees should be introduced. Furthermore, the project positively impacted other conservation projects globally. For example, in the implementation of coastal and marine biodiversity conservation project in Vietnam, atoll communities in Maldives were consulted to develop a range of alternative livelihood support projects and to address the issue of unsustainable levels of shark fishing for overseas shark fin soup markets (Phan et al. 2009).

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and instructed the tourism and fisheries sectors in the Maldives to refer to this study for all projects and also to make conservation a chief priority.

Finally, the study was launched by the President of the Maldives in February 2009. The President emphasised the importance of the immense economic value that biodiversity has for the Maldivian economy and instructed the tourism and fisheries sectors in the Maldives to refer to the study for all projects and to make conservation a major priority. According to Ibrahim Didi, the fisheries and agriculture minister of the Maldives, beginning July 1, 2010 there will be a total ban on exports of shark fishing (<http://earthdive.com/site/news/newsdetail.asp?id=3257>). The ban represents economic logic. Researchers from James Cook University in Australia last year estimated that a single gray reef shark was worth \$3,300 a year to the Maldivian tourism industry, compared with the one-off value of \$32 that a fisherman would get from the same shark. They found a similar dynamic with regard to sharks on the Great Barrier Reef (<http://www.fnqindependent.com.au/previous/15.pdf>).

## References

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