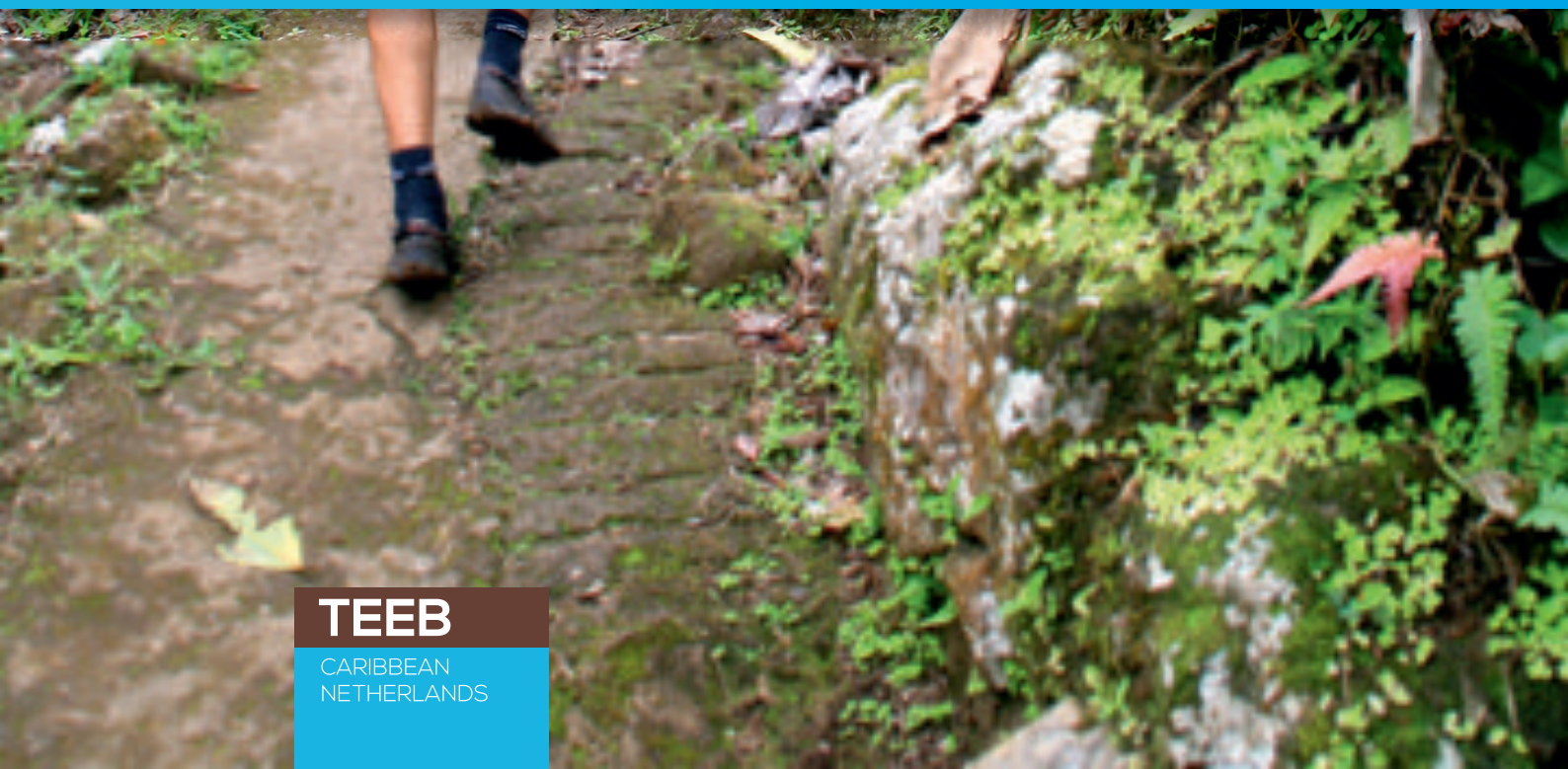




The Economics
of Ecosystems
and Biodiversity
on Saba

The tourism value of nature on Saba



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This study is part of "The Economics of Ecosystems and Biodiversity Netherlands" (TEEB NL) study. It is being conducted for the Caribbean Netherlands on behalf of the Dutch Ministry of Economic Affairs.

The Challenge

The tourism industry is the most important source of income for Saba, which is marketed as "the Unspoiled Queen" of the Caribbean, referring to the pristine natural beauty and tranquillity on the island. The island offers a range of touristic activities that depend on the quality of the natural environment, such as diving and snorkelling and participating in land activities, especially hiking. The Saban Government published the Tourism Strategic Plan in 2011, in which the desire to double the tourism sector before 2020 is expressed. However, the economic value of the contribution of nature to tourism on Saba has not been quantified sufficiently. It is essential that the economic value of the ecosystem services to tourism as well as the impact of tourism on ecosystems is determined. This information creates understanding creates an understanding of the crucial interconnectivity of the economy and the environment and supports sustainable economic development on Saba.

The Approach

To determine the value of the ecosystems for the tourism industry, a survey among visitors was conducted on Saba. This study reveals the average expenditures of these visitors, as well as their Willingness-To-Pay (WTP) for protection of ecosystems and historical heritage. The result of this survey also elucidates tourists' perceived value of different aspects of nature on Saba. The socio-economic value of the ecosystem services is combined with spatial data to determine the parts of the ecosystems that are most valuable with regards to tourism.

Results

The annual expenditures by tourists on Saba are found to be approximately \$30 million. Around 70% of these spendings can be attributed to the natural environment. Marine ecosystems are found to be slightly more economically significant than terrestrial ecosystems on the island. A high WTP for nature management indicates that there is an opportunity to increase the nature fees on Saba. Tourists are also willing to pay for additional management of the island's historical heritage.

The Challenge

In the current era of financial insecurity and environmental degradation it becomes clear that classical investments are not always contributing to a strong economy. In reaction, a growing minority is working to show that the prosperity of the economy and a resilient environment are very interlinked. In fact, that a healthy environment is critical to human as well as financial wellbeing, especially in the long run. This is very much the case for small islands like Saba, where economic and social wellbeing are strongly dependent on healthy nature. The challenge is to find methods to accurately measure and value these ecosystem services subject to a 'tragedy of the commons' scenario: public spaces, access to waters and parks, healthy ecosystems, etc. The insight can be used to design mechanisms that prevent these ecosystem services from being overexploited.

The study deals with the socio-economic value of tourism as a service of ecosystems on Saba. Ecosystems provide many touristic attractions that depend on the quality of the natural marine and terrestrial environment, including diving, snorkelling, and participating in land activities, like island tours, hiking and bird

watching. It is therefore very likely that the natural environment of Saba is an important attraction to its visitors.

The tourism industry is the largest economic sector on the island and the local government has expressed the interest to double the amount of visitors by 2020. The island is home to approximately 2,000 residents, and roughly about 22,500 visitors arrive on the island per year. Around 12,250 people arrive on the island by airplane, while the rest of the tourists arrive by boat from St Maarten.

Paradox

Development of the tourism industry requires that investments are made to create a proper infrastructure and sufficient facilities for visitors. On the other hand, considering the scarcity of available land on Saba, developing these facilities is likely to increase the pressure on the very same ecosystems that attract these visitors. It is essential that the economic value of the tourism industry and its dependence on the ecosystems of Saba are determined to assist policy-makers in understanding this paradoxical relationship and to achieve economic development that can be maintained in the long run.

The tourism industry and its dependence and impact on the ecosystems of Saba is a crucial paradoxical relationship.



The Approach

'Ecosystem services' are defined as "the benefits that people obtain from ecosystems" (MEA, 2005). The goal of this study is to put an economic value to the contribution of nature to the tourism industry and to put a comprehensive indicator (i.e. a monetary unit) by tourists on their value of protecting the ecosystems of Saba.

A tourist exit survey has been conducted to estimate the benefits of ecosystems to suppliers and consumers in the tourism industry. The study identifies the activities in which tourists participate while visiting the island, and quantifies the benefits that are created through these activities for the tourism industry. By estimating the dependence of the activities on the ecosystems of Saba the importance of nature for the tourism industry is estimated. The study then uses spatial data to determine which ecosystems have the highest economic value with regards to tourism.

Methodology

The tourist exit survey is used to investigate the expenditures of tourists that visit Saba, as well as their willingness to pay (WTP) for additional nature conservation on the island. This clarifies tourists' perceived value of different aspects of the natural environment. To gain more insight into the development and composition of the tourism industry on the island, three distinct types of visitors have been interviewed: stay-over tourists that visit the island for a several days, and excursionists that leave the same day they arrived.

Using a choice experiment as a valuation tool, the study estimates the impact of changes of nature on Saba to the Consumer Surplus (CS) of the tourist industry. Revenue is estimated through the responses about tourist expenses that were collected in the survey. In the study, the annual value of nature for the tourism industry is calculated. Moreover, a wide range of qualitative insights is generated.

Country Overview

Saba is a small Caribbean island located in the Leeward region covering an area of 13 km² and is home to approximately 2,000 permanent inhabitants. Since 2010, Saba is part of the Netherlands as a 'public entity'. The island consists mainly of a non-active volcano called 'Mount Scenery', the highest point in the Netherlands at 877 metres. Because of the local microclimate a rare 'Elfin forest' is found on top of Mount Scenery. Saba's natural environment contains unique biodiversity including some endemic species, e.g. the Saba Anole and the Saba Least Gecko. The tourism industry is largely focused on recreational activities in the natural environment such as diving, snorkelling and hiking. The Saba Conservation Foundation (SCF) established in 1987 and is responsible for the management of the Saba National Marine Park and the various hiking trails around the island.

The Saba Bank, one of the largest atolls in the world with an area of 2,000 km², is located approximately 3 till 5 km southwest of Saba. It contains rare and unique species such as turtles, sharks, lobsters, whales and different types of coral. Fish and lobster stocks on the Saba Bank are targeted by Saba fishermen.



Results & Recommendation

The study estimates that the 22,500 visitors spend approximately US\$30 million annually on Saba. It is estimated that around 70% of these revenues depend on ecosystem services. Important indicators for the prosperity of the tourism industry are whether people enjoyed their stay and are planning to come back. Around 20% of the

tourists that come purely for leisure have visited Saba before and over 60% of the tourists would like to return. This desire to return is very dependent on the state of the local ecosystems as is indicated in Figure 1.

The figure shows that maintenance of the cultural landscape is important. A decrease in its quality will lead to a lower amount of visitors.

*Figure 1:
Result of the question
whether a tourist
would return to a
Saba that: has a
degraded cultural
landscape; a more
crowded Saba
(50% more people)
and a Saba with
degraded coral reefs.*

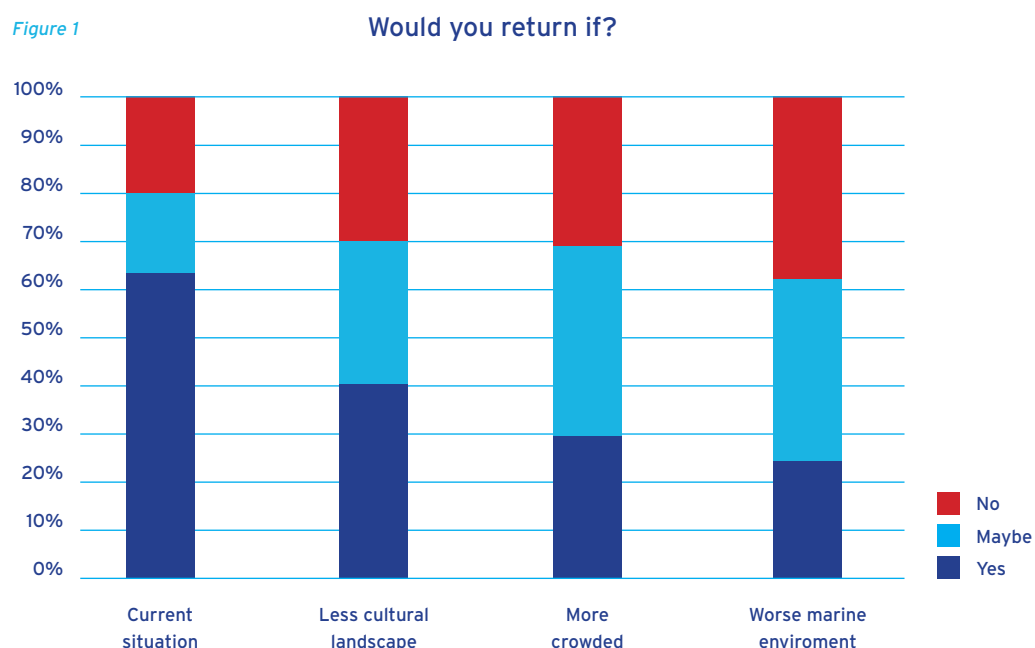


Figure 2:
The spatial
distribution of the
tourism value.

This map
demonstrates the
total economic value
(TEV) of all natural
habitats of Saba.
It is a result of the
the sum of the values
of tourism carbon
sequestration and
Local cultural and
recreational value.

Terrestrial layer:
de Freitas 2012
Marine layer IMARES 2014
Wolfs Company 2014.

When the marine environment severely degrades, only 25% of the leisure tourists is still planning to return, while a total of 35% absolutely does not. The significantly lower percentage can be explained by the large share of divers that visit Saba.

An increase in tourism has a similar effect on returning tourists as the degradation of the marine environment. A little under 30% of the visitors is still planning to return in a situation with 50% more visitors and the complementary development (figure 1). This indicates that substantial growth in the tourism industry carries the inherent risk lowering the return rate off the current visitors.

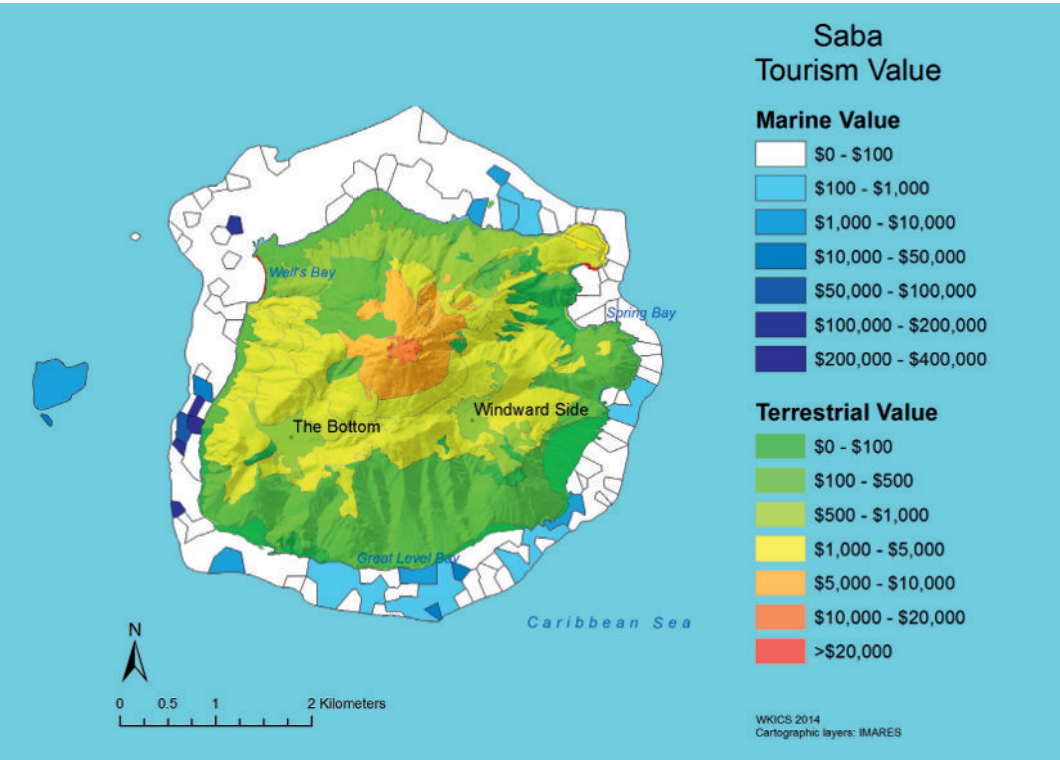
A total annual value of approximately \$7.5 million dollar is calculated for the marine and

terrestrial ecosystems. Of the estimated added value that is created in the tourism industry, almost \$6 million is attributable to the natural environment. The study estimates that visitors are willing to contribute almost \$1.6 million to maintain the natural beauty of the “Unspoiled Queen”. This supports the hypothesis that natural capital is crucial for the tourism industry on Saba. The tourists also have a positive willingness to pay for the management of archaeological heritage on the island.

Figure 2 demonstrates the important natural areas for the tourism sector. The area around Mount Scenery is most important, as well as the area around the trail on the northeastern side of the island. The southern and western parts of the island are the most relevant areas in the coastal waters.

Figure 2

(values in USD*ha⁻¹Year⁻¹)





Recommendations

The study discovered that the tourists' consumer surplus is not optimally exploited by Saba, since tourists are willing to pay much more than they currently do to preserve nature on the island. This is especially true for the terrestrial environment. Except for voluntary contributions to trail maintenance there are no financial mechanisms in place to exploit the WTP of visitors for the conservation of the natural landscape. An entrance fee would, for example, be justified on the basis of these results.

Furthermore, it has to be mentioned that a lack of tourism statistics on Saba limits the ability to make well-funded decisions regarding the development of the island.

It is also advised that monitoring of this main economic sector is increased to gain insight in the ecological trends that determine visitor arrivals. After all, the economic prosperity of "Unspoiled Queen" relies on its fragile natural environment. The results clearly show that investments in the natural capital of Saba are required for the current tourists to return.

Further Information

For further information about valuing Ecosystem Services on the island of Saba, contact Esther Wolfs at esther@wkics.com or Pieter van Beukering at IVM pieter.van.beukering@vu.nl and the webpage www.wolfscountry.com

References

Van de Kerkhof, S., Schep, S., Van Beukering, P., Brander, L., (2014), The tourism value of nature on Saba, in assignment of the Ministry of Economic Affairs the Netherlands.

Natural capital is crucial for the tourism industry on Saba

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