



The Economics  
of Ecosystems  
and Biodiversity  
on Saba

# The recreational and cultural value of nature on Saba

**TEEB**

CARIBBEAN  
NETHERLANDS

## The Economics of Ecosystems and Biodiversity on Saba

# The recreational and cultural value of Saba's nature

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

Local people call Saba 'The Unspoiled Queen', showing how proud Saban residents are of their history and the 'unspoiled' nature of the Caribbean island. However, many human induced pressures such as construction, solid waste and invasive species threaten the resilience of the ecosystems of the island. It is important to understand how the people of Saba benefit from nature in order to support decision-makers in sustainable development.

## The Approach

By researching the Willingness-To-Pay (WTP) for nature conservation by Saban residents, the benefit that local people derive from their natural resources is quantified. A survey was conducted to determine the value households attribute to the protection of nature on their island. Around 300 households on Saba participated in this valuation survey, and respondents reflected on various issues such as the main threats to nature, the benefits that the natural environment brings, and their usage of the local ecosystems.

## Results & Recommendations

The WTP of the total population of 900 households to maintain the quality of marine and terrestrial ecosystems is estimated at around US\$150,000 per year. Residents identified oil spills, solid waste and erosion as the most severe threats facing the natural environment on Saba. Results of the WTP analysis demonstrate that nature plays a crucial role for the residents; threats are seen as a communal problem, signalling the solidarity of the Saban community and its culture. People are willing to pay for improved management of the roaming goats for example. They have requested more communication on nature management policies. The study shows that improvement in nature management will benefit the community by contributing to the island's economy and its cultural identity.





## The Challenge

Worldwide concern is growing about the degradation and destruction of the environment, its ecosystems and biodiversity. Ecosystems and biodiversity contribute to a wide range of products and services that enhance human wellbeing. Societies have developed in close interaction with the surrounding natural environment, which has had a significant influence on cultural and economic development. Degradation of these services would significantly affect human wellbeing. The challenge is to find methods to accurately measure and value these ecosystem services, such as public spaces, access to waters, and fish.

Most ecosystems are either public or quasi-public goods: there are no specific property rights assigned and/or people cannot be excluded from using them. Such situations are often referred to as 'a tragedy of the

commons,' because they often lead to overexploitation and degradation.

By assigning a value to these systems, environmental economists create an insight about the benefits for different stakeholders. This enables local governments to intervene when the free market fails to coordinate the supply of ecosystem services efficiently and equitably by designing appropriate mechanisms (e.g. taxes, payment schemes, property rights etc.). One way to define the value of nature is by estimating the "Willingness-to-Pay" (WTP) of communities to maintain their public spaces.

For example: how much would a person be willing to pay to preserve the natural environment around his or her home? How much would someone be willing to pay to improve the coral reefs on his island, even if he does not go fishing or swimming near them?

*Research demonstrates that nature contributes to the wellbeing of Saban people.*

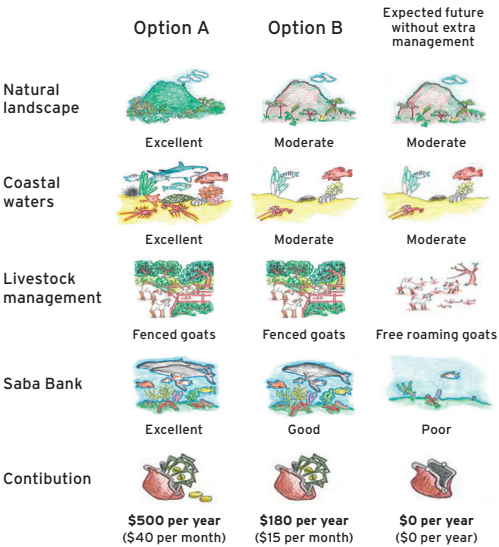
Figure 1:  
Example of a  
choice card

The Approach

‘Ecosystem services’ is a fairly new term, and is defined as “the benefits that people obtain from ecosystems” (MEA, 2005). The goal of this study is to put a comprehensive indicator (i.e. a monetary unit) on the value of ecosystem services.

This study applies a recent innovation in stated preference methodology, the Choice Modelling (CM) method, for assessing the WTP of Saban residents for the protection and conservation of their natural environment. In CM respondents are asked to choose between different scenarios which have a specific set of attributes. The attributes reflect different aspects of the living environment and can vary in quality. By having a payment vehicle, like a fee as one of these attributes, the monetary values of each attribute can be indirectly derived. Respondents’ choices between the scenarios reflect the trade-offs they are willing to make between different levels of these attributes, and ultimately lead to the values they assign to the ecosystems. CM is based on the theory that the characteristics of goods and services drive consumer behaviour. It also gives insight into trade-offs that individuals are willing to make between different aspects of the natural environment.

Figure 1



This research created a choice model that reflects both the marine and terrestrial ecosystems. The attributes were chosen based on a stakeholder consultation approach and the most important ones were concluded to be the quality of natural landscape, coastal waters, whether goats are able to roam freely around the island and the quality of the Saba Bank. Nine interviewers conducted surveys among 300 households, applying not only the choice experiment, but supporting qualitative questionnaires as well. Figure 1 illustrates one of the choice cards used in the experiment.







## Country Overview

Saba is a small Caribbean island located in the Leeward region covering an area of 13 km<sup>2</sup> and is home to approximately 2,000 permanent inhabitants. Since 2010, Saba has been part of the Netherlands as a 'public entity'. The island consists mainly of a non-active volcano called 'Mount Scenery', which is 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 Saban Anole and the Saba Least Gecko. The tourism industry is largely focused on recreational activities in the natural environment: diving, snorkelling and hiking. The Saba Conservation Foundation (SCF), established in 1987, is responsible for the management of the Saban 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 2000 km<sup>2</sup>, is located approximately 3 to 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 fishermen.

Figure 2:  
The monthly  
Willingness-To-Pay  
(WTP) per month  
per household

## Results

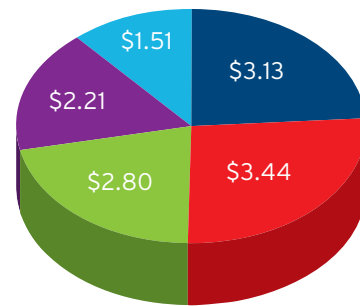
Analysis of the survey shows that the annual willingness to pay to improve the overall natural environments by all households on Saba is approximately \$150,000.

Several trends emerged, the most important being that 60% of respondents indicated that they are in principle willing to pay for protection of the natural environment. For households that opted out, the most common reasons were that they were not able to afford the fees and a lack of confidence that any money collected for ecosystem conservation will be used effectively. The most popular recreational ecosystem services are “hiking”, “swimming” and going to the “beach”. Culturally, residents also make use of the natural environment by using local plants for medicinal and cooking purposes. The greatest perceived and identified threats by residents are: 1) oil spills, 2) solid waste and 3) erosion.

The highest WTP is related to the quality of coastal waters, which might reflect the much-valued identity of being the ‘Unspoiled Queen of the Caribbean’ and the understanding of its importance to the largest economic sector on the island: tourism and in particular because Saba is focusing on the island being tourism. This is particular important because Saba is focusing on ecotourism as a selling point. This attribute includes the quality of the coral reef and water clarity, which are essential aspects for snorkeling and diving. Additionally, Saba has a history of fishermen and sailors.

The Saba Bank is important for Saba, although it might have a lower perceived value than coastal waters to residents because most residents will never visit this area due to its remoteness. The attribute ‘Free roaming goat management’ also provides a positive utility to respondents, meaning that the population of Saba prefers fencing of free-grazing animals. The alternative specific constant (ASC) seen

Figure 2



Total WTP: \$13



within figure 2 and forming part of the WTP calculation represents the preference of respondents to avoid the “expected future without extra management” scenario and opt for one of the alternative management scenarios. Basically a positive ASC explains that people value and thus have a preference for the management of nature that is not explained by the limiting set of attributes included in the choice experiment.

## Recommendations

The results of the survey demonstrate that the natural environment plays a crucial role for families on Saba. Threats are seen as a communal problem, signalling the solidarity of the Saban community. Efforts should be made to create a combination of economic development and the capacity of natural resources to support social and economic development. Improvement of nature management will be beneficial for the Saban population as it contributes to the island economy as well as other aspects of wellbeing.

The residents of Saba prefer to see management of free-grazing animals rather than a gradual degradation of the landscape due to overgrazing. From a policy perspective





it was important to find out whether people perceived roaming goats as an important part of the island or as a source of nuisance and a threat to the environment. The study clearly shows support from the local population for goat management.

The link between the Saba Bank area and the fishing sector is quite common knowledge among residents. The Saba Bank is seen as important for the island's identity and economy due to its rich fish stocks. Current efforts to protect the Saba Bank should be upheld. Monitoring the health of the ecosystem and increasing the understanding about the underlying ecological processes of

natural resources is important. Communication on nature management policy is desired by the residents on Saba and is key to creating awareness. Even though people are willing to pay for nature management, a proportion of the respondents were concerned about effectiveness of current nature management policies.

#### Further Information

For further information about valuing Ecosystem Services on the island of Saba, contact Esther Wolfs at [esther@wkics.com](mailto:esther@wkics.com) or Pieter van Beukering at IVM [pieter.van.beukering@vu.nl](mailto:pieter.van.beukering@vu.nl) and the webpage [www.wolfscompany.com](http://www.wolfscompany.com)

#### References

Dekker, B, Lacle, FA, Schep, S, Van Beukering, P, Brander, L, (2014), The local recreational and cultural value of nature on Saba, in assignment of the Ministry of Economic Affairs the Netherlands.

# Residents want to contribute to improve nature on Saba

The Economics  
of Ecosystems  
and Biodiversity  
on Saba



Ministry of Economic Affairs

TEEB

CARIBBEAN  
NETHERLANDS

Photo credits

Stijn Schep and Pieter van Beukering (cover, page 4 and 5), iStock (page 3 and 7)