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POLICY BRIEF

Valuation of ecosystem services: A tool for decision- making in Nature-based Solutions projects



Introduction

Nature-based Solutions (NbS) focus on the importance of ecosystems, and the services they provide people, to offer sustainable solutions to social, economic and environmental challenges. NbS have become increasingly important and are recognized as crucial actions to address the challenges associated with climate change and the loss of biodiversity.¹

The principal role of NbS is the conservation, restoration and/or sustainable management of ecosystems so that the provision of their services can also be maintained, providing solutions to different socioeconomic challenges.

In order to make decisions with respect to the implementation and financing of NbS, it may be useful for decision-makers to have information in hand on the costs and benefits associated with the implementation of these projects, as well as the allocation of resources. This implies not only understanding the costs involved in the different phases of an NbS project, but also the social and economic benefits associated with the provision of ecosystem services. Describing the value of ecosystem services with precision can be a useful tool for decision-making in the framework of NbS projects.


1 To learn more about the conceptual framework of the Nature-based Solutions approach, consult the IUCN Global Standard for Nature-based Solutions (IUCN, 2020a). Some examples of NbS can be found at: <https://casestudies.naturebasedsolutionsinitiative.org/>.

NbS and ecosystem services

Ecosystem services are all the direct and indirect benefits that people obtain from ecosystems. The Millennium Ecosystem Assessment uses four categories for ecosystem services² (Alcamo et al., 2003):

- **Provision:** material benefits obtained from ecosystems, such as food, quality and quantity of water, natural fibers etc.
- **Regulation:** benefits resulting from the regulation of ecosystem processes, such as water filtration, pollination, climate regulation, erosion control, protection against coastal disasters etc.
- **Cultural:** non-material benefits obtained from ecosystems, such as recreation, aesthetic beauty, a sense of belonging, inspiration for art and design etc.
- **Support:** services necessary for the provision of other ecosystem services, such as nutrient cycling, habitat, soil formation etc.

NbS support the provision of ecosystem services, while offering solutions to social challenges. For example, the implementation of agroforestry systems contributes to climate change mitigation and adaptation, while also supporting other ecosystem services such as soil fertility through the addition of organic matter and nutrient cycling, the conservation of water quality and availability through filtration and habitat conservation.



Implementation of NbS in the EUROCLIMA+ programme: the Cuyamel-Omoa Punta de Manabique Sustainable Biological Corridor (SBC) in Guatemala and Honduras.

The «[Forests, Biodiversity and Community Development](#)» project, developed between 2019 and 2021 under the framework of the «Forests, Biodiversity and Ecosystems» sector of the EUROCLIMA+ programme, and implemented by the Comitato Internazionale per lo Sviluppo dei Popoli (CISP), contributed to the implementation of the SBC, aimed at increasing the resilience of ecosystems and local communities in both countries. The conservation and sustainable management of the ecosystems in the SBC is crucial for preserving the provision of ecosystem services that contribute to climate change mitigation and adaptation, as well as sustaining the economic activities and well-being of the people in the area. Among the most important ecosystem services provided by the SBC are the provision of food, water filtration and protection against extreme climate events.

² More details on the different ecosystem services and categorization used by the Millennium Ecosystem Assessment can be found on the ValuES initiative page at: http://aboutvalues.net/es/ecosystem_services/.



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NbS and valuation of ecosystem services

Valuation is a process that makes it possible to determine and express the value that ecosystem services have for different beneficiaries, with the aim of including them in decision-making processes.

There are different methodologies that can be used to guide the design and implementation of an ecosystem services valuation. In this document, we discuss the general methodological steps of a valuation process, exemplified using a process of economic valuation of ecosystem services. We recommend consulting the publications in the references section for a broader view of the valuation process.³

How to design and implement a valuation of ecosystem services within the framework of Nature-based Solutions

In the following section, we discuss the fundamental steps of a valuation process in general terms, as well as key questions (Contreras et al., 2021, based on Renner et al. 2018). Each of the steps is exemplified using the economic valuation process of the SBC in Guatemala and Honduras (Ríos and Revollo, 2021).

³ The valuation of ecosystem services can provide qualitative, quantitative and/or monetary information. In general, there is an interest in carrying out valuations that assess the value of ecosystem services in monetary units, which establishes a “common language” on the value of these services and facilitates financial analysis. However, valuations do not always provide comprehensive data. This is because it is not always possible to quantitatively estimate, in monetary units, the value of ecosystem services, and the valuations might exclude important values and benefits for some beneficiaries, such as a sense of identity or inspiration for art. For well-informed decision-making, it is important to consider the different perspectives of the value of ecosystem services, and to use a variety of methods to demonstrate and communicate the multiple values perceived by different beneficiaries. There are two publications that provide guidance on the comprehensive valuation of ecosystem services, taking into account different perceptions of value: “valoración integral de la biodiversidad y los servicios ecosistémicos” [comprehensive valuation of biodiversity and ecosystem services] (Rincón-Ruiz et al., 2014) and “evaluación metodológica de los valores diversos y valoración de la naturaleza” [evaluation methodology of different values and valuation of nature] (IPBES, 2022).

Step 1

Definition of the objective, scope and stakeholders involved

1. What is the decision-makers you want to investigate?
2. Who are the target decision-makers ? What data do they need?
3. What is the geographic and administrative scope?
4. Who are the relevant stakeholders and how will they be involved in the process?

Step 1 in the economic valuation of the SBC in Guatemala and Honduras

In the case of the SBC, an economic valuation, in monetary units, was conducted on the most important ecosystem services associated with the SBC conservation solution. This was done with the goal of providing information for the relevant decision-makers to monitor the implementation of the activities associated with the SBC to ensure the conservation of ecosystems and their services. Decision-makers include the ministries of environment and finance and local authorities, in addition to the organizations that provide funding and technical support.

The geographical and administrative scope of the SBC includes Guatemala and Honduras, and the stakeholders involved include the project team and partners, the National Council of Protected Areas (CONAP), Cuerpos de Conservación Omoa (Conservation Corps of Omoa, CCO) and “Asociación Programas de Gestión Ambiental Local” (Association of Local Environmental Management Programmes, ASOPROGAL).

Step 2

Identification and prioritization of ecosystem services

1. What are the criteria for prioritizing ecosystem services?
2. What are the priority ecosystem services for the beneficiaries in the target area and in the surrounding areas?

Step 2 in the economic valuation of the SBC in Guatemala and Honduras

Since an economic valuation generally implies the application of limited resources, including time and financial resources, the prioritization process is important.

Ideally, the prioritization should be carried out in conjunction with stakeholder groups that represent the beneficiaries of ecosystem services in the target area and surrounding areas. However, due to Covid-19 limitations, participation in the necessary collaborative effort for the implementation of the economic valuation was also restricted.

In this case, the prioritization was conducted with the participation of four key stakeholders in the area who are part of the SBC management group. The criteria used to evaluate and prioritize ecosystem services consisted of the following: availability of primary and secondary data, time constraints to carry out the studies, and the importance of the ecosystem services for beneficiaries (in terms of population size).

The ecosystem services prioritized for the NbS conservation action in the area were: ensuring fishing activities for beneficiaries, provision of water for human consumption, conservation of mangrove ecosystems and reefs to protect coastal areas, and the provision of recreation in bird-watching areas. It is worth mentioning that, when prioritizing the ecosystem services, many others that also provide benefits were not taken into account. However, these were considered the most relevant to achieve the objectives of the economic valuation in this specific case.

Step 3

Assessment of ecosystem services and analysis of drivers of change

1. What is the status and state of the supply and demand of the prioritized ecosystem services?
2. What are the direct and indirect causes of change in ecosystem services? Who are the people involved in the causes of change?

Step 3 in the economic valuation of the SBC in Guatemala and Honduras

To better understand the state of ecosystem services, the data collected and generated by the project was used, as well as data compiled during the economic valuation process. For example, to assess the ecosystem service of provision of fishing activities, data was collected on the abundance and biomass of commercially important fish species. In the case of provision of water, the data collected on water sources along the SBC that supply communities in Honduras was used.

For this economic valuation process, an analysis of the direct and indirect causes was not performed, as the objective of the economic valuation was to demonstrate the importance of ecosystem services for the well-being and livelihoods of the SBC residents, aimed at promoting conservation measures by decision-makers in the area. However, an analysis of direct and indirect causes could provide relevant data for decision-makers to reverse these causes through associated incentives and mechanisms..



Step 4

Implementation of the economic valuation and elements for decision-making

1. What is the value of the priority ecosystem services for beneficiaries? What methods can be used to estimate the value?
2. How does the value change in different policy scenarios?⁴
3. What are the distributional effects of changes in ecosystem services?

Step 4 in the economic valuation of the SBC in Guatemala and Honduras

To calculate the value of ecosystem services, in the case of the SBC, different methods were used: for the provision of fishing activities, the market price method was employed; for the provision of water, the replacement cost method was used; for coastal protection with the conservation of mangroves and reefs, the benefit transfer method was used; and for the value of recreational bird watching, the contingent valuation method was used. Among the most important services are the provision of food (fishing), which is equivalent to 8.9% of the GDP of the department of Cortés, Honduras, and the provision of water, equivalent to 5.1% of the GDP in the department (Ríos and Revollo, 2021).

These numbers underscore the importance of the SBC ecosystems, especially for the provision of food (fishing) and water, without calculating the value of the many other services they provide for other beneficiaries, such as conserving habitat for commercial fishing species and water filtration, among others.

Estimating the value of ecosystem services allows us to understand the associated benefits they provide, and the costs associated with the loss of these services. This provides data for decision-making with respect to implementing NbS. For example, these values can help us to compare the long-term costs and benefits of implementing different measures. However, it is important to recognize that the economic valuation of ecosystem services is only a tool to provide subsidies for arguments in favor of the conservation of ecosystems and their services, which ensure the well-being of their beneficiaries, and that it is not always a useful tool in all cases. It must be designed and implemented with care, bearing in mind that ecosystems offer multiple benefits to different stakeholder groups, and that these benefits cannot always be quantified.

⁴ In this case, due to time constraints, an analysis of changes in the values of ecosystem services in different scenarios was not carried out. However, the annual absolute values of ecosystem services provide strong arguments for their importance. For the valuation focused on meeting specific policy objectives, we recommend estimating the changes in the values of ecosystem services in different scenarios. The scenarios, based on different policy interventions, make it possible to determine the policies that would generate the most desirable results; that is, those that favor the provision of priority ecosystem services in the long term. Additionally, in these cases, we recommend conducting a distributive analysis for each of the scenarios to understand the changes in the distribution of ecosystem services and their values for different beneficiaries.

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