Partnership for Biodiversity Accounting Financials

PBAF Q&A

Introduction to Impacts on Ecosystem services and their monetary value

Version July 2024

This Q&A and the publication 'Impact on Ecosystem Services – A Return on Investment' were made possible by the Netherlands Ministry of Agriculture, Fisheries, Food Security and Nature (LVVN).

Introduction

Nature and nature-related (financial) risks and opportunities are increasingly gaining attention in the financial sector. A rapidly growing variety of tools, like ENCORE[1], IBAT[2] and footprinting, are being used to assess the exposure of portfolios to impacts on biodiversity and dependencies on ecosystem services. Such analysis are key to better understand nature-related risks and opportunities, but do not yet provide the full picture.

The impacts from a loan or investment on *ecosystem services* and the *stakeholders* potentially affected by this impact are not covered by such analysis. Yet this information is key from a risks and opportunities perspective, and will provide important value to a due diligence process. What do the changes in nature resulting from an investment mean for the provision of ecosystem services, who is likely to be affected and how? Answering these questions is especially important for impact investors that aim to contribute to more than just the conservation and sustainable use of nature.

This Q&A provides answers to 10 questions regarding an assessment of impacts on ecosystem services (ES) and the value of these services. Explaining what it means, why it matters and how it works.

The questionnaire is based on insights from the BPAF working group on ecosystem services and was created by PBAF and the Foundation for Sustainable Development (FSD), who host the Ecosystem Services Valuation Database (ESVD)[3].

NB: to conduct an assessment of impacts on ecosystem services and their value, some characteristics of the impact location must be known. This means in practice that such an assessment will often be restricted to direct loans & investments and project finance.

Further reading

At the end of the Q&A, reference is made to a publication with more information on the topics discussed: 'PBAF, FSD, Impact on Ecosystem Services – A Return on Investment; Assessing impacts on ecosystem services and the value of these services in the financial sector, July 2024'. This document can be downloaded from the PBAF website.

1 https://encorenature.org/en
2 https://www.ibat-alliance.org/
3 https://www.esvd.info/

Q1. What are Ecosystem Services?

Ecosystem services are the benefits that humans derive from nature. The concept of ecosystem services and their economic value can be used to show the value of nature to society and business: nature as the life support system.

Ecosystem services are grouped into 4 categories (see figure).

- **Provisioning services:** The products obtained from ecosystems, such as timber, water or food from crops.
- **Regulating services:** The benefits obtained from the regulation of ecosystem processes such as carbon sequestration, protection against extreme events, pollination and pest control.
- **Cultural services**: The non-material benefits societies obtain from ecosystems, like recreation, intrinsic values and aesthetic values.
- **Supporting services** (also referred to as 'habitat services' or 'underpinning services'): The services that underpin the provision of all other ecosystem services, such as photosynthesis, soil formation and nutrient cycling.

Ecosystem services are **location-specific** since ecological processes take place on a local scale. A forest in Sweden is not comparable to a forest in Brazil and therefore provides different services, representing different values.

Furthermore, ecosystem services depend on the social and economic context. For example, city parks provide important recreational services because of the high population density in a city, while inaccessible areas will not provide many recreational services because they are difficult to reach. In other words, the provision and value of ecosystem services also depends on the presence of beneficiaries.

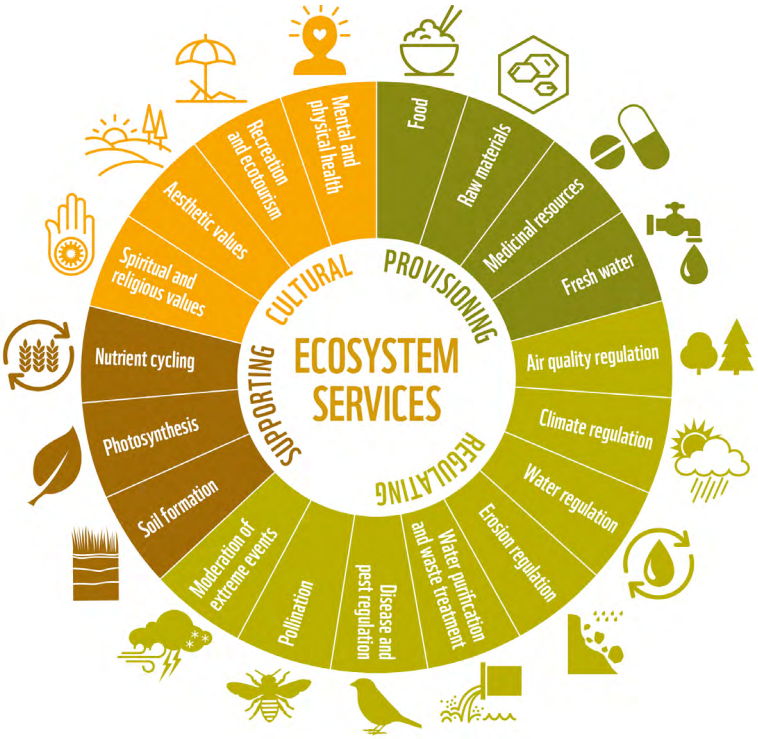


Figure: Ecosystem services overview based on the Millenium Ecosystem Assessment (WWF, Living Planet Report 2016)

BOX 1 CONNECTING BIODIVERSITY AND ECOSYSTEM SERVICES

The biodiversity of an area influences the ability of an ecosystem to provide ecosystem services. For example, the vegetation in an area may support the presence of pollinators providing pollination services. Similarly, a forest will offer carbon sequestration services, protection against heat stress, erosion control and water purification services.

Moreover, an ecosystem which is more biodiverse is more resilient (fit to handle stress) and generally in better health and is therefore likely to provide more ecosystem services than a system which is less biodiverse.

Q2. What is the (monetary) value of ecosystem services?

Although provisioning services like timber and fish are traded, priced and visible in markets, many regulating, cultural and supporting services are not visible in markets, cannot be priced and are therefore often taken for granted. As a result, nature is undervalued in economic decision-making: *"We use nature because it is valuable, we lose it because it is free"* (Pavan Sukhdev, leader of the international TEEB study, The Economics of Ecosystems and Biodiversity).

According to the World Economic Forum (WEF), $44 trillion of economic value generation – over half the world's total GDP – is moderately or highly dependent on nature and its services (WEF, 2020[4]).

Ecosystem services can be valued and they can be monetized. Monetary valuation of ecosystem services enables the inclusion of ecosystem services on balance sheets and in economic decision-making. Not only the services which can be directly priced in markets (like timber and fish), but all services. Monetization helps to translate our ecological impact and our dependency on ecosystem services into economic and policy-relatable terms: in euros, dollars, pesos or any other currency.

There are two broad types of values:

1. **Use value:** the value of ecosystem services that are actively used, including:
   - Direct use values: ecosystem services which can be extracted and consumed and are valued using market prices *(direct market valuation).* Such as provisioning services, like timber and water, and some cultural services, such as such as recreation. Private stake-holders, like companies, tend to benefit most from these services.
   - Indirect use values: values which is not directly reflected in market prices. Most regulating services have an indirect use value, such as pollination and storm protection. The economic impact usually only becomes evident once these services are lost. Their value is assessed through methods such as damage costs (e.g., costs of flooding when flood protection is lost) or replacement costs (e.g., pollination by hand instead of by pollinators). This is called *indirect market valuation.* Broader communities and society tend to benefit most from these services.

2. **Non-use value:** the value of ecosystem services not actively used but very valuable. The value of these services is not measured through market prices, but through other valuation methods, like the 'willingness to pay', donations, or subsidies (called *non-market valuation*). They include:
   - Cultural services, like spiritual and aesthetic appreciation, which have a so called ' existence value' and whose value can be measured by people's willingness to pay for their preservation.
   - Supporting/habitat services, like biodiversity and nutrient cycling, which have a so called 'bequest value', representing their importance for future generations. The value of these services is often assessed through surveys and studies on societal benefits, such as the value of preserving endangered species.

4 World Economic Forum, Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy, New Nature Economy series, January 2020.

BOX 2 THE RETURN ON INVESTMENT IN NATURE

Research indicates that every euro invested in restoring degraded forests can yield economic benefits ranging from €7 to €30[5]. It is important to recognize that some of the economic benefits do not translate into direct marketable assets. The ecosystem services provided by restored ecosystems, such as enhanced water purification, storm protection or improved soil fertility, may not have readily and direct effects on prices within traditional financial frameworks and may not immediately generate a financial return on investment.

One solution to this lack of return on investment is the use of 'Payments for Ecosystem Services' (PES), systems where service beneficiaries pay for the continued provision of these services (see example question 9). With the growing awareness of business dependencies on ecosystem services, triggered by voluntary disclosure frameworks (TNFD), regulation (CSRD) and tools (ENCORE), the valuation of and payment for ecosystem services are likely to gain much more attention in the next few years.

Q3. How do loans and investments lead to changes in ecosystem services?

Loans and investments can impact ecosystem services both positively and negatively. A change in biodiversity or the condition of an ecosystem (e.g., through land use change or pollution) can change the ability of an ecosystem to provide services.

For example, an investment changing a conventional coffee plantation into a shade-grown coffee plantation will affect the ecosystem and the ecosystem services the ecosystem can provide:

- A **conventional coffee plantation** typically involves clearing large areas of land, which can lead to soil erosion and loss of habitat, resulting in a reduced level of biodiversity. Moreover, the use of pesticides and fertilizers can pollute water sources, affecting freshwater ecosystems.
  This can lead to the loss of ecosystem services, such as regulation of air quality by the forest that was cleared and the loss of pollination services by pollinators affected by the use of pesticides.
- On the **shade-grown coffee plantation**, trees and other vegetation are maintained, preserving habitats and strengthening biodiversity. The trees provide shade, they capture water, improve soil quality and reduce the need for chemical inputs.
  This results in an ecosystem that can provide a variety of ecosystem services, such as carbon sequestration, water regulation, pest control, and pollination.

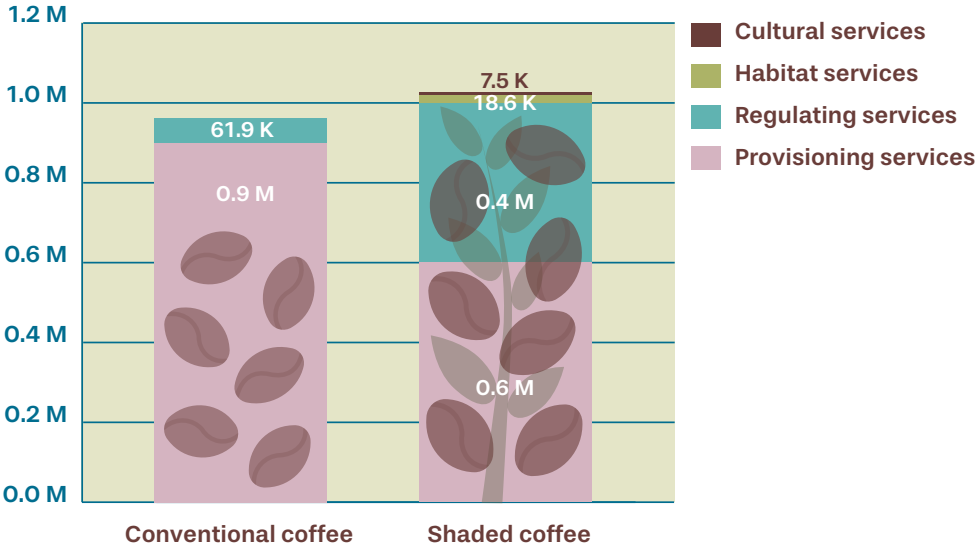
In other words, by investing in the development of a shade-grown coffee plantation, you support an ecosystem that remains more resilient and capable of providing essential services. Not only benefiting nature, but also the sustainability of coffee production, thereby securing the long-term financial value of the asset.

5 World Resources Institute, Helen Ding et al, Roots of prosperity, The economics and finance of restoring land, 2017.

Q4. What does the result of an assessment of impacts on ecosystem services and their value look like?

To show what an assessment of impacts on ecosystem services and the value of these services looks like, the conventional coffee plantation and the shade-grown coffee plantation from the previous question are taken as an example:

1. A conventional coffee plantation: 190 hectares of conventional plantations, using pesticides and fertilizers, resulting in habitat loss and reduced biodiversity.
2. A shade-grown coffee plantation: 190 hectares of coffee plantations mixed with tropical rainforest. Trees and vegetation are maintained, biodiversity is supported. Soil quality and water quantity and quality benefit. There is a reduced need for pesticides because habitat for pollinators and insects assisting in pest control is supported.



The figure shows the **Total Economic Value (TEV)** for both situations (scenarios): the total bundle of ecosystem services provided by the ecosystem, expressed in value (in this case in million dollars) per hectare per year. The figure illustrates the changes in ecosystem services and the value of these services when investing in the conversion of a conventional coffee plantation into a shade grown coffee plantation: Regulating services (often benefiting communities and society at large) increase, while provision services (often benefiting a company) are reduced. Moreover, in the shade-grown coffee situation, the economic value of habitat and cultural services also increase.

It both provides a *direction of change* for different stakeholders (which ecosystem services increase and decrease?) and *order of magnitude* (what is the monetized value the changes?). This is important information in the due diligence step of an investment (what SDGs could be affected by the investment?) and it can be used to inform a nature-related financial risk and opportunity assessment: A loss of regulating services can result in a transition risk, like a reputational risk when local communities are affected, but also in a physical risk when regulating services the company depends on (like pollination) are affected.

Another result of such an assessment is an overview of the change in the monetary value of ecosystem services over time, considering factors like inflation and growth rates using the **Net Present Value (NPV)**. It shows the financial implications of an investment over time and informs decision-making regarding contract conditions and investment terms. An example of this can be found in the background report to this Q&A.

Q5. How and when can you use information on the impacts on ecosystem services and their value?

Information on the (expected) impact of a loan or investment on ecosystem services and their value can be used to inform:

A. The *due diligence process*, zooming in on (see the other bullet points for further explanation) physical and transition risks that might be triggered, the linkages with the Sustainable Development Goals (SDGs), stakeholders affected and potential opportunities for nature-based solution and synergies with climate.

B. Impact investments aimed at achieving the *Sustainable Development Goals (SDGs)*. Changes in ecosystem services can have a direct effect on sustainability issues like food production, water quality and quantity, air quality, etc. Knowing what changes in ecosystem services can be expected (direction and magnitude), allows you to take this into account in the loan and investment conditions.

C. *Stakeholder mapping:* changes in ecosystem services and their value constitute the link between impacts on biodiversity/nature and stakeholders affected. When it is clear what changes in ecosystem service provision can be expected, the beneficiaries of these ecosystem services can be identified. By mapping the stakeholders involved, they can be consulted to identify options for risk mitigation and optimizing opportunities.

D. *Compliance* with regulations such as the Corporate Sustainability Reporting Directive (CSRD). The CSRD emphasizes the significance of understanding and disclosing the impacts on ecosystem services and their value as part of corporate reporting obligations. For example, conducting a materiality assessment under ESRS E4 (focusing on biodiversity and ecosystems) includes *"the undertaking's impacts and dependencies on ecosystem services"*.

E. An assessment of *nature-related financial risks and opportunities*. As the example showed, the changes in ecosystem services and their value can trigger transition risks (e.g., when regulating services are lost, affecting local communities) and physical risks (e.g., when provisioning or regulating services are affected that the company depends on).

   This also means that an assessment of impacts on ecosystem services and their value should be part of the LEAP process (Locate, Evaluate, Assess, Prepare) of the TNFD disclosure framework (the Taskforce on Nature Related Financial Disclosures). Especially of the 'Evaluate' step where impacts are measured and the 'Assess' step where the related risks are identified.

F. Assessing the impacts on ecosystem services and their value is instrumental in the development of *nature-based solutions*. See question 6. An assessment of the changes in ecosystem services and their value enables a comparison between the monetary value of nature-based solutions and business as usual (or 'grey') solutions, integrating the total value of nature (including the indirect use value) into the decision-making process.

Q6. How can information about the impacts on ecosystem services provide insights in opportunities for climate mitigation and adaptation?

Climate, nature and the ecosystem services provided are inextricably linked. Climate change can trigger the loss of ecosystem services, for example when droughts lead to the degradation of an ecosystem. At the same time, shifts in ecosystem services can affect climate-related risks, for example when the conversion of forest into farm land reduces the water holding capacity of the ecosystem, making the system more vulnerable to drought.

An ecosystem services impact assessment will show how climate mitigation and adaptation measures influence the provision of ecosystem services and how changes in ecosystem services affect climate mitigation and climate adaption. The insights from such an assessment are key in the development of 'nature-based solutions'. Nature-based solutions are interventions to address societal challenges through the protection, sustainable management and restoration of ecosystems, benefiting both biodiversity and human well-being. Nature-based solutions have significant, but currently underutilized, potential to help address global challenges such as climate change, human health, food and water security, natural disasters and biodiversity loss. The OECD estimates that the total global economic returns of restoring land and reducing degradation, greenhouse gas emissions, and biodiversity loss could be as high as $US 125-140 trillion every year[6]. The restoration of mangroves, for example, not only enhances carbon sequestration but also provides significant 'co-benefits' such as buffering against storms, reducing flood risks, and protecting coastal areas from erosion. These co-benefits add resilience to infrastructure and communities, reducing potential financial liabilities and enhancing long-term asset stability.

BOX 3 NATURE RELATED ACTIONS AND NET-ZERO COMMITMENTS

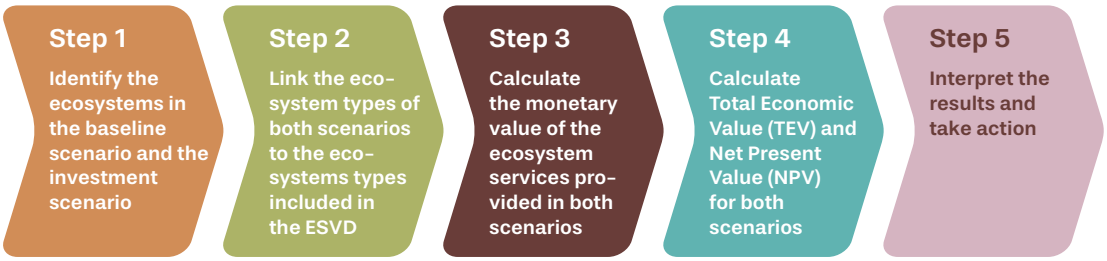
The Glasgow Financial Alliance for Net Zero (GFANZ), a global coalition of leading financial institutions committed to accelerating the decarbonization of the economy, is developing supplemental guidance to the 2022 GFANZ Net-zero Transition Plan framework to support financial institutions' use of nature-related actions to implement their net-zero commitments.

6 OECD (2019), Biodiversity: Finance and the Economic and Business Case for Action, OECD Publishing, Paris, https://doi.org/10.1787/a3147942-en.

Q7. How do you assess the impact on ecosystem services and their value?

There are several ways to assess the impact on ecosystem services. The figure below shows how the impact on ecosystem services resulting from of a change in land cover/ecosystem type (induced by a loan or investment) can be assessed, using the 'Ecosystem Services Valuation Database' (ESVD).

The assessment includes five steps[7]:



Step 1: Identify the ecosystems in the baseline scenario and the investment scenario

In the first step, data is collected on the project/activity (potentially) financed. This includes data on the type, extent (size) and condition of the ecosystem at the project location, and the expected changes in ecosystem or land cover (e.g., from agricultural land to forest). Based on this data, the 'baseline' or 'business as usual' scenario is established, as well as an 'investment' or 'future' scenario. The business as usual scenario assumes no change in ecosystems. The investment scenario describes the expected changes in ecosystem or land cover. Multiple scenarios can be used, reflecting different investment decisions. To understand what stakeholders could be affected in the different scenarios, a stakeholder mapping can complement this step.

> **The result of this step is an overview of the ecosystems in both scenarios, including type, size and (if available) condition, and an overview of local stakeholders (if a stakeholders mapping was conducted).**

Step 2: Link the ecosystem types of both scenarios to the ecosystem type classification of the ESVD

In the second step, the information on ecosystem types is linked to the ecosystems classification used in the Ecosystem Services Valuation Database (ESVD). This alignment is based on two related criteria: (1) Most closely resembling biome/ecosystem type in the ESVD and (2) the availability of monetary values in the ESVD. If only a limited number of monetary values are available for the ecosystem that matches best, monetary values from closely related ecosystems in the ESVD can be added to assist with the calculation.

> **The result of this step is a link between the ecosystem identified in step 1 and the ecosystems used in the ESVD, an overview of the ecosystem services provided in these ecosystems according to the ESVD and the number of monetary values available per ecosystem service.**

Step 3: Calculate the monetary value of the ecosystem services in both scenarios

In step 3, the monetary value of the ecosystem services provided in both scenarios is calculated. To do this within a project context, the average per hectare value per ecosystem type and ecosystem service is calculated based on the available monetary values in the ESVD. Outlier values

7 Based on based on an ESVD pilot project in collaboration with ASN Bank: https://www.esvd.info/asnbank-make-nature-count-2

(extreme high or low values) which do not fit the context of the project are removed by means of expert judgement or based on identified outlier exclusion rules. This also means that this step is often taken in cooperation with experts form the ESVD database.

> **The result of this step is an overview of the per hectare values of the ecosystem services provided by the relevant ecosystems in both scenarios. It forms the basis for step 4.**

Step 4: Calculate the Total Economic Value (TEV) and Net Present Value (NPV) for both scenarios

Finally, in step 4, the monetary value of the total bundle of ecosystem services is calculated for both scenarios (baseline and investment). The difference in value shows the expected impact of an investment in terms of monetary gains and losses of the ecosystem services affected.

The TEV reflects the total bundle of ecosystem services provided by a particular ecosystem, for a specific area, per year. Usually, the TEV is expressed for a specific ecosystem in value/ha/year. To compare the different scenarios, the TEV/ha/year is multiplied by the total area of the specific ecosystems in the two scenarios. The TEV is a static value, which does not incorporate fluctuations in changes in ecosystem services flow over time (e.g., a forest will take time to fully grow and provide all the ecosystem services it is expected to provide). Ideally, the TEV would be calculated for each intermediate step (e.g., per year) between the start and the end of the project/activity financed.

Using this TEV-data, the Net Present Value (NPV) can be calculated. The NPV takes the time horizon of the investment into account. It is calculated by using projections of the flow of the total bundle of ecosystem services from a given ecosystem, over a given time period, at a certain discount rate. The discount rate expresses the preference between the value of money today and in the future. In conventional discount rate thinking, the value of nature depreciates over time. However, this may be incorrect. Nature is resilient, natural processes take time to develop and nature may mitigate (financial) risk over time. For example, in times of global warming, storms and hurricanes will become more intense and more frequent. Mangroves can play a vital role in the protection of a city, communities and businesses from floods. The ecosystem service value of this protection against floods is likely to increase instead of decrease over time.

The NPV shows the value of the scenarios over time, taking into account additional temporal dynamics and projections which can impact ecosystem services provision and value. Like population changes, growth rates of ecosystems and possible changes in climate and land cover.

> **The result of this step is twofold:**
> **The Total Economic Value of the bundle of ecosystem services provided by the ecosystems in the two scenarios, allowing a comparison of the total value of the two scenarios showing the order of magnitude per scenario. Additionally, the TEV allows to compare which ecosystem services increase and which decrease as a result of the scenario.**
> **The Net Present Value of the two scenarios, showing how the value of the two scenarios changes over a given time period, at a certain discount rate.**

Step 5: Interpret the results and take action

In the final step of the assessment, the results are interpreted and decisions are made on follow-up actions. The information on the expected changes in the provision of ecosystem services and their value can be used to consult and involve local stakeholders potentially affected, to identify financial risks and opportunities, to tailor loan and investment conditions to the SDGs, and to report on nature-related (financial) risks and opportunities (CSRD, TNFD).

Q8. What data and expertise is needed to conduct such an assessment?

Conducting an ecosystem services impact assessment requires expertise regarding the type and condition of the ecosystem(s) in the baseline and investment scenario, and expertise regarding the use of the ESVD database (e.g., to decide on matching ecosystem s and outliers in the data). This means that, besides the investee/project owner, local ecologists and experts from the ESVD database will need to be consulted.

Other data sources that can be used include:

- Online sources, like maps of ecosystem types
- Questionnaires, e.g., to gather location data and data on the expected changes in ecosystems
- Field research, e.g., interviews with local experts regarding stakeholders affected
- Data from data providers, e.g. on asset locations

Data collection can be combined with existing data collection in the due diligence phase. Some the data, like location data, may already be collected.

Q9. Are there any examples of financial institutions or companies that use information on the impact on ecosystem services to inform their investment/ business decisions?

The impact on ecosystem services and affected communities already plays an important role in IFC's Performance Standard 6 on 'Biodiversity Conservation and Sustainable Management of Living Natural Resources'. For example, the Guidance note for this performance standard[8] mentions that *"The risks and impacts identification process should include scoping of potential issues relating to biodiversity and ecosystem services."* Development financial institutions (DFIs) that have adopted the IFC Performance Standards as their operating standard will assess impacts on ecosystem services as part of their impact identification process. A few other examples are presented below:

In 2021, ASN Impact Investors developed the 'ASN Biodiversity Fund', focusing on investments in 'biodiversity positive' projects. Besides the fund's aim to contribute to the conservation and restoration of biodiversity (SDG 14, Life below water, and SDG 15, Life on land), the fund also aims to contribute to SDG 13, Climate action, and SDG 8, Decent work and economic growth. In 2023, the fund piloted the use of ecosystem services valuation to identify the changes in ecosystem services and their value resulting from a selection of the fund's investments. The result, published in the 'Make Nature Count' report[9], clearly shows how the investments affect the ecosystem services provided in the project locations: which ecosystem services benefit, and which ecosystem services lose. This information, along with other investment criteria, is used by ASN Impact Investors to decide on future investments.

The World Bank Group has initiated a project to enhance the management of mangroves and livelihoods of local communities called 'The Mangroves for Coastal Resilience Project'[10]. The value of ecosystem services from mangroves has been guiding the conservation and restoration project. Mangroves span about 3.4 million hectares in Indonesia and store 3.14 billion tons of CO_2 (commonly referred to as 'blue carbon') yearly. They are a key component of livelihoods in

8 IFC, International Finance Corporation's Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources, January 1, 2012, (updated June 27, 2019).

9 ASN Bank, FSD, Make Nature Count, Integrating nature's values into decision-making, no date.

10 World Bank Group, New Project will Support Large-Scale Mangrove Conservation and Restoration in Indonesia, press release, 8 June 2022: https://www.worldbank.org/en/news/press-release/2022/06/07/new-project-will-support-large-scale-mangrove-conservation-and-restoration-in-indonesia

coastal communities, providing important sources of food and income. About fifty-five percent of the total fish catch biomass in Indonesia consists of mangrove-dependent species, the total annual production of which is valued at US$825 million. Mangroves also have a tourism value of almost US$30 million a year. Recent World Bank research suggests that mangroves have an annual value from US$15,000 to almost US$50,000 per hectare in Indonesia, partly thanks to the role of flood protection.

Vittel, a bottled water company pays farmers in its sourcing area to abandon intensive dairy farming, safeguarding drinking water quality and the company's existence. This profitable 'payment for ecosystem services' scheme has protected 92% of the subbasin and improved water quality. A study by the International Institute for Environment and Development (IIED) concludes that the Vittel experience is most likely to be replicable in places where land cannot be purchased and set aside for conservation, and where the risk to business is high while the link between ecosystem health and farming practices is well understood and expected benefits are sufficiently high to justify the investment[11].

Q10. What could be next steps to understand your impact on ecosystem services and their value?

Next steps to understand the value of assessing the impact on ecosystem services and their value include:

1. Have a closer look at the practical examples presented (see question 9), the information presented in the background document (see below) and the ESVD website[12].
2. Decide if the information from an ecosystem services impact assessment adds value to your due diligence process and to reaching your goals on nature, climate and the SDGs
3. Decide if an assessment of impacts on ecosystem services is needed for your compliance with regulation (like the CSRD), or for an assessment of nature-related financial risks and opportunities (e.g. using the TNFD disclosure framework[13])
4. If one of the answers to the previous two questions is 'yes', start with a focused case study, like a project investment, to gain experience with an ecosystem services impact assessment and the way the results can feed into your loan and investment process.
5. Stay updated and share experiences with peers by becoming a member of PBAF.

11 International Institute for Environment and Development (IIED), Danièle Perrot-Maître, The Vittel Payments for Ecosystem Services: A Perfect PES Case?, September 2006.
12 https://www.esvd.info/
13 https://tnfd.global/

FURTHER READING

More information about the topics discussed in this Q&A can be found in the publication 'Impact on Ecosystem Services – A Return on Investment; Assessing impacts on ecosystem services and the value of these services in the financial sector, July 2024', developed by PBAF and FSD.

The table below provides an overview of the linkages between the questions in the Q&A and the sections in the publication.

Q&A questions	Relevant sections in the background document
Q1. What are Ecosystem Services?	2.2 Ecosystem services
Q2. What is the (monetary) value of ecosystem services?	2.3 The monetary value of ecosystem services
Q3. How do loans and investments lead to changes in ecosystem services?	4.3 Analysis of impacts on ecosystem services and their value
Q4. What does the result of an assessment of impacts on ecosystem services and their value look like?	4.3 Analysis of impacts on ecosystem services and their value
Q5. How and when can you use this information?	5.2 When to conduct the assessment? 5.4 How can the results of the assessment be used?
Q5-D. Compliance with regulation	3.3 EU Regulation
Q5-E. Assessment of nature-related financial risks and opportunities	2.5 Nature related financial risks 2.7 The Taskforce on Nature-related Financial Disclosures (TNFD)
Q6. How can information about the impacts on ecosystem services provide insights in opportunities for climate mitigation and adaptation?	2.6 Nature-related financial opportunities
Q7. How do you assess the impact on ecosystem services and their value?	4.3 Analysis of impacts on ecosystem services and their value
Q8. What data and expertise is needed to conduct such an assessment?	5.3 What is needed to conduct the assessment?
Q9. Are there any examples of financial institutions or companies that use information on the impact on ecosystem services to inform their investment/business decisions?	4.3 Analysis of impacts on ecosystem services and their value
Q10. What could be next steps to understand your impact on ecosystem services and their value	5.2 When to conduct the assessment? 5.4 How can the results of the assessment be used?