POSITIVE IMPACTS IN THE BIODIVERSITY FOOTPRINT FINANCIAL INSTITUTIONS

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Ministry of Agriculture, Nature and Food Quality

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CREM
Venetiëhof 123
1019 NC Amsterdam
The Netherlands
T +31 (0)6 310 05 813
w.broer@crem.nl
www.crem.nl

PRé Sustainability
Stationsplein 121
3818 LE Amersfoort
The Netherlands
T +31 (0)33 455 50 22
consultancy@pre-sustainability.com
www.pre-sustainability.com

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EXECUTIVE SUMMARY

Introduction

A biodiversity footprint is about positive impacts and negative impacts. The Biodiversity Footprint Financial Institutions (BFFI), used by ASN Bank in the Netherlands, can calculate both positive and negative impacts when the data are available. At the same time, the discussion regarding the methodological approach towards positive impacts is still relatively new. For example, how are positive impacts defined? Do avoided greenhouse gas emissions resulting from investments in green energy count as a positive impact? Climate change is an important driver of biodiversity loss so avoided greenhouse gas emissions will prevent the loss of biodiversity. Or should the biodiversity actually increase (instead of not decrease) compared to a reference situation, e.g. through nature restoration? And what is this 'reference situation': positive compared to what? The biodiversity situation at the start of the investment or the future situation without the investment?

Moreover, financial institutions (FIs) striving for a no-net-loss of a net-positive-gain on biodiversity may decide to treat different types of positive impacts differently when looking for ways to compensate for residual negative impacts on the level of an investment portfolio or to create a positive impact.

In this project, the ways to define and integrate biodiversity-positive investments in a biodiversity footprint have been explored, taking the BFFI as a methodological reference to determine how positive impacts can find their way into a biodiversity footprint.

Existing approaches to impact measurement

A brief analysis is presented of existing initiatives and approaches towards investments and positive impacts. This analysis is not restricted to positive impacts on biodiversity, but also looks at positive impacts on CO_2 and other sustainability issues that might offer an insight in potential footprinting approaches. The initiatives analysed include (amongst others) the 'Principles for positive impact finance' (UNEP FI, 2018), the Platform Carbon Accounting Financials (ASN Bank, 2017), the 'Green Bond Principles' (ICMA, 2018), the 'Business and Biodiversity Offsets Program' (BBOP, 2012), the 'Coalition for Private Investment in Conservation' (CPIC) and the IRIS+ methodology of the Global Impact Investing Network (GIIN).

The initiatives show that there is a strong and growing focus on impact measurement in the financial sector, resulting in guidelines and frameworks for impact measurement. Moreover, the Business and Biodiversity Offsets Program provides a valuable basis for a definition of biodiversity positive impacts, including the ways in which a positive impact can be realised. At the same time, the initiatives analysed do not yet provide a uniform, clear guidance on impact measurement regarding biodiversity (what to measure, what metrics to use?) and how to use positive impacts in a biodiversity footprint for FIs.

Definition

For the purpose of this project, biodiversity positive investments are defined as follows (building on the work by the Business and Biodiversity Offsets Program):

Biodiversity positive investments are investments in interventions resulting in net biodiversity conservation gain, either through averted loss and/or degradation of biodiversity and improving

protection status, or through positive management actions (restoration, enhancement) that improve biodiversity condition.

Categories of biodiversity-positive investments

A distinction can be made between the following positive contributions of FIs to the conservation and sustainable use of biodiversity:

Investments with the aim to contribute to ('impact investing'):

1. Investments in the enhancement of existing biodiversity.
2. Investments in the restoration of biodiversity to a specific prior state.
3. Reduced negative impacts on biodiversity resulting from investments that address one or more of the drivers of biodiversity loss of existing economic activities.
4. Avoided negative impacts on biodiversity resulting from investments in the production of energy or resources that replace energy or resources with a higher impact on biodiversity.
5. Avoided negative impacts on biodiversity resulting from investments in alternative livelihoods preventing unsustainable resource extraction leading to biodiversity loss.
6. Avoided negative impacts on biodiversity resulting from investments in interventions designed to avert known future risks to biodiversity.

Investments complying with investment criteria contributing to:

7. Reduced negative impacts on biodiversity resulting from investment criteria addressing one or more of the drivers of biodiversity loss of existing economic activities.

Investments under engagement contributing to:

8. Reduced negative impacts on biodiversity by addressing one or more of the drivers of biodiversity loss of existing economic activities.

In case of investments 1-6 it is more or less certain that the FI will make a positive difference (compared to the situation where the investment is not made), provided that the investment delivers as planned. In the case of investment criteria (7) and engagement (8), the FI may have a positive impact on biodiversity if this leads to positive changes in the practices of the investees; e.g. an investee becomes FSC certified because this is required by the investor.

Net impact

The definition of biodiversity positive investments speaks of 'net biodiversity gain'. This refers to the fact the impact of the investment is positive compared to a *reference situation* and is based on the sum of *positive and negative* impacts resulting from the investment. The focus on net impact is in line with the approach of existing impact-finance initiatives, including the 'Principles for positive impact finance', the 'Platform Carbon Accounting Financials' and the IRIS+ methodology of the 'Global Impact Investing Network' (GIIN).

Reference situation

To assess the positive impact on biodiversity of an investment in an 'intervention' (an action that is expected to lead to a positive impact on biodiversity, like good agricultural practices or the production of green energy), a 'reference' needs to be defined: a positive impact compared to what? The choice of this reference will directly influence the calculation of the positive impact. Please note that the reference situation is not the same as the (biodiversity) situation that you want to achieve with an action or investment. In case of impact investing focusing on a positive contribution to biodiversity, the reference situation should reflect the level of biodiversity or the impact on biodiversity without the investment taking place.

In case of the BFFI methodology the impact of the investment is calculated. The actual level of biodiversity before and after the intervention is not measured, but the impact is based on environmental data of the intervention and pressure-impact modelling (translating environmental impacts into an impact on biodiversity).

Data

Different types of data can be used in a biodiversity footprint to calculate the positive and negative impact on biodiversity of an economic activity, including data on the actual changes in biodiversity before and after an investment takes place, environmental data from the businesses/organisations involved in the activity invested in (direct data), data from literature on (for example) different types of land use and related impacts on biodiversity and data from databases like Exiobase and ecoinvent (indirect data).

In general one could say that a measurement of actual changes in biodiversity will be more accurate than the calculation of potential impacts and the use of direct data is more accurate than the use of indirect data. However, in the case of a biodiversity footprint at the level of an investment portfolio, the use of direct data may be too time consuming and the use of indirect data is preferred. The BFFI can use direct and indirect data to calculate a biodiversity footprint.

Biodiversity impact of investment criteria and engagement

The biodiversity impact of biodiversity related investment criteria and engagement should be taken into account in a biodiversity footprint for FIs as much as possible in order to reward an FI for its efforts. Integration in the biodiversity footprint will depend on the availability of direct data from the investees involved.

If the use of direct data is not an option, the use of biodiversity-relevant sustainability standards (e.g. an investment in a paper company is only made when the wood used is FSC certified) might also be rewarded by using an impact correction factor for the certified resource (e.g. 20% impact reduction for FSC certified wood) until more accurate data are available. A precondition for such an approach could be that the standards involved are independent, multi-stakeholder standards and explicitly address biodiversity impacts. Rewarding the inclusion of such standards in investment criteria will stimulate their uptake and will trigger discussion and research on the biodiversity impact of standards. In the BFFI, the decision to reward a standard/certification with an impact correction factor and will be made on a case-by-case basis.

Reporting on the footprint, a no-net-loss or net-positive-gain

In order to be transparent on the biodiversity footprint of an investment portfolio, a financial institution may decide to differentiate between investments according to their impact on biodiversity. Including investments with the explicit aim to have a positive impact (impact investing) and negative impacts of the investment portfolio. Moreover, within the positive impacts a distinction should be made between an actual increase in biodiversity, a reduction of negative impact and the avoidance of negative impact (see the table on the next page).

To reach a no-net-loss on a portfolio level, financial institutions can use each of the different types of biodiversity-positive investments. To reach a net-positive-gain on biodiversity, a financial institution needs to invest in the *actual increase* of biodiversity. The strategy of reaching a no-net-loss or a net-positive-gain should always be based on the '*mitigation hierarchy*': ways to avoid, minimize or restore a negative impact need to be explored first before compensation of residual impacts is considered.

	Report on	Integration in footprint?	Use to reach a no-net-loss?	Use to reach a net-positive-gain?
Impact investing				
Increase of biodiversity				
Enhancement of biodiversity	Net positive impact	✓	✓	✓
Nature restoration	Net positive impact	✓	✓	✓
Reduction of negative impacts				
Interventions addressing drivers of biodiversity loss	Net positive impact	✓	✓	
Avoided negative impacts				
Green energy and resources	Net positive impact	✓	✓	
Alternative livelihoods	Net positive impact	✓	✓	
Interventions averting future risks	Net positive impact	✓	✓	
All investments				
Negative impacts on biodiversity	Net negative impact, adjusted for: • Investment criteria • Engagement resulting in positive change	✓	n.a.	n.a.
The mitigation hierarchy	Application of the mitigation hierarchy		✓	✓

For many stakeholders, a no-net-loss implies a strategy which meets the requirements of initiatives like BBOP, including (for example) like-for-like compensation: the biodiversity gains should be comparable - in ecological terms, from a conservation-priority perspective, and to local stakeholders - to the losses occurred. Since this is not realistic on a portfolio level due to a lack of detailed and location specific footprint data, a financial institution with a no-net-loss or net-gain objective needs to explain how this objective should be interpreted.

1 INTRODUCTION

1.1 Background

A biodiversity footprint is about positive impacts and negative impacts. Both the Biodiversity Footprint Financial Institutions (BFFI), used by ASN Bank (the Netherlands), and the Global Biodiversity Score (GBS), used by CDC Biodiversité (France), can calculate positive impacts when the data are available. At the same time, the discussion regarding the methodological approach towards positive impacts is still relatively new. For example, how are positive impacts defined? Do avoided greenhouse gas emissions resulting from investments in green energy count as a positive impact or should the biodiversity actually increase compared to the reference situation, e.g. through nature restoration? And what is this reference situation: positive compared to what? The biodiversity situation at the start of the investment or the future situation without the investment?

Moreover, financial institutions striving for a no-net-loss of net-positive-gain on biodiversity may decide to treat different positive impacts differently when looking for ways to compensate for residual negative impacts on the level of an investment portfolio.

In this report, the ways to define and integrate positive impacts in a biodiversity footprint are explored, taking the BFFI as a methodological reference to determine how positive impacts can find their way into a biodiversity footprint.

The report is based on:

- An analysis of existing initiatives focusing in biodiversity impact assessment and impact assessment tools already available to financial institutions.
- Assessment of the footprint of a small number of impact investment case studies.
- A discussion on the biodiversity gain from certified better management practices.
- The results of the workshop ‘Integrating biodiversity-positive investments in biodiversity footprinting’, organised on 12 June 2019 at ASN Bank. A summary of the workshop results is included in annex 2.
- An online consultation using the Kialo platform. A summary of this consultation is included in annex 3.

1.2 Reader

In chapter 2, existing practices with regard to positive impacts by financial institutions are analysed, looking at different approaches towards investments and positive impacts. The results are used in chapter 3 to define positive impacts in relation to a biodiversity footprint and to describe the way in which positive impacts can be taken into account in footprint calculations. The resulting approach is tested in chapter 4 in a number of case studies, focusing on the Biodiversity Footprint Financial Institutions (BFFI) methodology.

2 APPROACHES TOWARDS INVESTMENTS AND POSITIVE IMPACTS

2.1 Introduction

In this chapter, an analysis is presented of existing initiatives and approaches towards investments and positive impacts. The analysis is not restricted to positive impacts on biodiversity, but also looks at positive impacts on CO_2 and other sustainability issues that might offer an insight in potential footprinting approaches.

The following initiatives are briefly discussed, including the relevance to the integration of positive impacts in a biodiversity footprint:

- Principles for positive impact finance (UNEP FI, 2018).
- Platform Carbon Accounting Financials; PCAF (ASN Bank, 2017).
- Green Bond Principles (ICMA, 2018)
- Business and Biodiversity Offsets Program (BBOP, 2012)
- Biodiversity Return on Investment Metric, BRIM (IUCN, 2018)
- Coalition for Private Investment in Conservation (CPIC)
- Positive Impact Finance for Business & Biodiversity (CoP F@B)
- IRIS+, Global Impact Investing Network (GIIN)

Apart from these impact related initiatives, the following initiative are briefly discussed:

- EU Business & Biodiversity Platform / CoP F@B
- ENCORE: Exploring Natural Capital Opportunities, Risks and Exposure (UNEP WCMC, ENEP FI, Global Canopy)
- Guidelines for integrated Ecosystem Services Assessment

The main findings are presented in paragraph 2.2, followed by a brief description of each separate initiative and the relevance to integrating biodiversity positive investments in a biodiversity footprint in paragraph 2.3.

2.2 Main findings existing initiatives and approaches

The initiatives analysed show that there is no common standard yet for positive impact assessment and impact reporting on biodiversity for financial institutions. The PCAF initiative offers an important step towards standardisation of carbon related impact assessment by financial institutions and the GBP resources on ‘impact reporting metrics’ offer first steps towards standardised impact indicators for green bonds. BBOP provides a set of principles and a way of distinguishing between biodiversity positive interventions that is definitely of value to the integration of biodiversity positive impacts in a footprint for financial institutions. BRIM offers a way of assessing the potential (ex-ante) or real (ex-post) impact of an investment on the extinction risk of endangered species. If the BRIM score can also be interpreted as a reduction of the risk of loss of ecosystem quality, BRIM data might become relevant for the BFFI and GBS.

	Objective	Focus	Input to biodiversity positive impacts in footprinting
Principles for positive impact finance (UNEP-FI)	To provide a common framework to finance the sustainable development goals	The SDGs, so including social, economic and environmental impacts	• Be transparent on methodology and conclusions • Account for negative impacts / trade-offs • Assessments should be based on actual impacts achieved
PCAF Platform Carbon Accounting Financials	To develop a harmonised approach for carbon accounting by financial institutions	Carbon	• Avoided carbon emissions should be assessed and reported on separately from actual emissions • Baselines/references need to be defined in a conservative way to prevent overstating positive impacts • Use of direct data is preferred over indirect data from databases
Green Bond Principles **Position Paper on Green Bonds Impact Reporting**	To enhance transparency and disclosure and promote integrity in the development of the Green Bond market by clarifying the approach for issuance of a Green Bond	Positive environmental impacts	• Combine qualitative and quantitative impact indicators • Preferred use of the 'suggested impact reporting metrics' • Be transparent about the methodologies used • Preferred use of external reviews • The situation before and after a project are recommended as reference points to assess the (positive) impact of green projects.
BBOP Business and Biodiversity Offsets Program	To develop an international standard on biodiversity offsets agreed by an international multi-stakeholder group	Biodiversity offsets	• Input to the definition of biodiversity positive investments • Identification of different ways of achieving positive impacts: averted loss, improving protection, biodiversity restoration and enhancement. • Ways to approach a no-net loss or net gain: like-for-like and taking into account social and cultural values
STAR Species Threat Abatement and Recovery metric (IUCN)	To provide investors with a tool to assess the biodiversity return on investment (STAR was formerly known as BRIM)	Red list species	• Use of the presence of threatened species as an indicator for ecosystem quality. • Positive impact is based on the reduced extinction risk by addressing key drivers of species loss.
CPIC Coalition for Private Investment in Conservation	To create the enabling conditions that support a material increase in private, return-seeking investment in conservation	Biodiversity, nature conservation	• No direct input for biodiversity positive impact assessment. • Platform could play an important role in discussing and testing different ways of integrating positive impacts in biodiversity footprints
IRIS Global Impact Investing Network (GIIN)	To support the practice of impact investing and promote transparency, credibility, and accountability in the use of impact data for decision making	A wide set if impact areas and impact metrics, including 'Biodiversity & Ecosystem Conservation'	• Introduction of the 'Risk' concept as part of an assessment of expected impact (the risk that the investment will not deliver as expected). • The concept of 'Contribution' looks at what might have happened without the investment: use of a future reference situation.

	across the impact investment industry		• The topic Biodiversity & Ecosystem Conservation will be further developed. This might offer an opportunity for cooperation.
Other initiatives			
CoP F@B Community of Practice Finance and Biodiversity	To explore opportunities and challenges on scaling projects and innovations for biodiversity by the financial sector	Biodiversity	• Underlines the need for standardisation of measuring biodiversity (gain) or at least the development of a common ground around methods of measuring positive impacts on biodiversity. • Provides insights in different types of positive impact finance
ENCORE Exploring Natural Capital Opportunities, Risks and Exposure	Enables users to visualise how the economy depends on nature and how environmental change creates risks for businesses	Ecosystem services and natural capital assets	• No direct input. ENCORE shows the significance of biodiversity for economic sectors.
ESP Guidelines Guidelines for integrated Ecosystem Services Assessment	To quantify and, if possible, monetise all the benefits of ecosystem (or landscape) restoration in a credible and verified way, to demonstrate that the investment pays back through multiple returns	Ecosystem services	• No direct input. In the ESP Guidelines, the loss or gain of biodiversity is only an interim result to assess the impact on ecosystem services and the value of the services affected. • The impact on biodiversity of an intervention (e.g. landscape restoration) is assessed through location specific data and monitoring. An overview is provided of different (non-LCA) tools which can be used in the impact assessment step. The results of this impact assessment step could feed into the BFFI.

The different initiatives share a number of recommendations/guidelines for (positive) impact assessment by financial institutions:

1. Financial institutions should be transparent about the methodologies and data used.
2. The selection of a baseline against which the biodiversity impact can be measured is a key decision. A conservative approach is needed to prevent overstating avoided and reduced impacts.
3. In case of project financing, the situation (impact) before project implementation is often taken as the baseline for positive impact.
4. An assessment of positive impacts should distinguish between the overall impact of an investment portfolio, the avoided impact and reduced impacts of investments.
5. An assessment of positive impacts should also take into account any negative impacts (assessment of the net positive impact).
6. Qualitative information is important to put quantitative information into perspective.
7. Attribution of positive impacts needs to be based on the financial share of the financial institution in the economic activity inducing this positive impact.
8. In case of using biodiversity positive impacts as a way to compensate for the (residual!) negative impacts of an investment portfolio, BBOP principles regarding a no-net loss and net gain should to be taken into account as much as possible.

2.3 Initiatives addressing investments and positive impacts

2.3.1 Principles for positive impact finance

The UNEP Finance Initiative (UNEP FI) has started work on a set of principles to account for positive impacts by financial institutions. The focus of this work is not on biodiversity, but on the sustainable development goals (SDGs). The Principles for Positive Impact Finance are a set of guidelines for ('Principles for positive impact finance; a common framework to finance the sustainable development goals', UNEP FI, 2018):

- financiers to identify, promote and communicate about Positive Impact Finance across their portfolios;
- investors and donors to holistically evaluate the impacts of their investments and orient their investment choices and engagements accordingly;
- auditors and raters to provide financiers, investors and their stakeholders with the verification, certification and rating services needed to promote the development of Positive Impact Finance.

The Principles are applicable to all forms of financial institutions and financial instruments and build on and complement valuable existing frameworks such as the Green Bond Principles (instrument-specific), the Principles for Responsible Investment (sector-specific) and the Equator Principles (risk focused).

The four principles are (text in italics is considered to be directly relevant to a positive impact approach):

1. Definition

Positive Impact Finance is that which serves to finance Positive Impact Business. It is that which serves to deliver *a positive contribution to one or more of the three pillars of sustainable development* (economic, environmental and social), once any *potential negative impacts to any of the pillars have been duly identified and mitigated*. By virtue of this holistic appraisal of sustainability issues, Positive Impact Finance constitutes a direct response to the challenge of financing the Sustainable Development Goals (SDGs).

An example is provided to illustrate the need to also identify and mitigate potential negative impacts: "For instance, a renewable energy project will have a high environmental positive impact in terms of CO2 emissions, and it may have positive social impacts (access to energy) and development impacts (jobs), but it can also carry negative impacts such as noise pollution for nearby communities, and threats to birdlife."

2. Frameworks

To promote the delivery of Positive Impact Finance, entities (financial or non-financial) need adequate processes, methodologies, and tools, to identify and monitor the positive impact of the activities, projects, programmes, and/or entities to be financed or invested in. The Principles do not prescribe which methodologies and KPIs to use to identify, analyse and verify positive impact, instead they require that there *be transparency and disclosure on both the assessment framework and its conclusions* (see Principle 3).

3. Transparency

Entities (financial or non-financial) providing Positive Impact Finance should provide *transparency and disclosure* on:

- The activities, projects, programs, and/or entities financed considered Positive Impact, the intended positive impacts thereof (as per Principle 1);
- The processes they have in place to determine eligibility, and to monitor and to verify impacts (as per Principle 2);
- The impacts achieved by the activities, projects, programs, and/or entities financed (as per Principle 4).

4. Assessment

The assessment of Positive Impact Finance delivered by entities (financial or non-financial), should be based on the *actual impacts achieved*.

In November 2018, UNEP FI published 'The Impact Radar; a tool for holistic impact analysis', implementation guidance for the Principles for Positive Impact Finance. This Impact radar is proposed to be "*an impact identification tool, to allow holistic impact analysis across SDGs*". The Impact radar proposes "*impact categories that derive from the core elements of sustainable development, and that financial institutions are invited to consider, to detect the impacts they might generate, positive and negative, through their products and services*". 'Biodiversity and ecosystems is one of the impact categories within the impact category 'Quality (physical and chemical composition and properties) and/or efficient use of our environment'. The Impact Radar provides definitions of each impact category, but no impact assessment methodology or metrics.

Relevance to the assessment of positive impacts in a biodiversity footprint

The principles provide some direction regarding the assessment of positive impacts, but they do not provide a detailed guidance on the way assessments should be conducted. The following guidelines can be considered relevant to biodiversity footprinting:

- There needs to be a positive contribution to one or more of the three pillars of sustainable development.
- Potential negative impacts to any of the pillars need to be duly identified and mitigated.
- There needs to be transparency and disclosure on both the assessment framework and its conclusions.
- Entities (financial or non-financial) providing Positive Impact Finance should provide transparency and disclosure on the activities, projects, programs generating the positive impacts, the processes to monitor and verify positive impacts and the actual impacts achieved.
- The assessment of positive impacts should be based on actual impacts achieved.

2.3.2 The Platform Carbon Accounting Financials (PCAF)

The Platform Carbon Accounting Financials, or PCAF, was created by a group of Dutch financial institutions which have joined forces to improve carbon accounting in the financial sector and to create a harmonised carbon accounting approach. The PCAF approach includes an approach on 'avoided emissions', which is also relevant to the assessment of positive impacts in biodiversity footprinting. PCAF defines avoided emissions as "investments in, for example, renewable energy projects or energy efficiency products leading to lower GHG emissions elsewhere in the economy. Reporting on avoided emissions is a way to quantify and demonstrate a positive contribution to preventing climate change."

Relevance to the assessment of positive impacts in a biodiversity footprint
Since avoided GHG emission will also contribute to a reduced impact on biodiversity, the PCAF approach is directly relevant to biodiversity footprinting. This is particularly true for the following rules in the PCAF approach:

- Avoided emissions should be quantified and reported separately from actual emissions to prevent a focus on positive impacts of a portfolio, while ignoring the negative impacts.
- In calculating these avoided emissions, the right baseline should be selected, representing emissions that would have occurred if the project had not been implemented. This baseline needs to be conservative to prevent overstating avoided emissions.
- Regarding the quality of data used, the following preference is suggested:
    - Emissions data as disclosed by the entity itself accompanied by some form of assurance on the disclosed data by a credible independent institution.
    - Emissions data calculated on the basis of verifiable non-GHG source data, using credible calculation tools.
    - Emissions data as disclosed by the entity itself without assurance, and/or emission estimates obtained from environmental input/output models or intensity-based models.

2.3.3 Green Bonds

The Green Bond Principles
The Green Bond Principles (GBP) are voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond market by clarifying the approach for issuance of a Green Bond. The GBP include Green Projects contributing to environmental objectives such as climate change mitigation, climate change adaptation, natural resource conservation, biodiversity conservation, and pollution prevention and control. Green projects mentioned by the GBP include projects focusing on (but not limited to):

- Renewable energy
- Energy efficiency
- Pollution prevention and control
- Environmentally sustainable management of living natural resources and land use
- Terrestrial and aquatic biodiversity conservation
- Clean transportation
- Sustainable water and wastewater management
- Climate change adaptation
- Eco-efficient and/or circular economy adapted products, production technologies and processes

The GBP have four core components:
1. Use of Proceeds
2. Process for Project Evaluation and Selection
3. Management of Proceeds
4. Reporting

Of these, the second and fourth component are directly relevant to the assessment of positive impacts. With regard to these components, the GBP mention, among others:

- Issuers are encouraged to disclose any *green standards or certifications* referenced in project selection.

- The GBP encourage a high level of *transparency* and recommend that an issuer's process for project evaluation and selection be supplemented by an *external review* (see External Review section).
- Transparency is of particular value in communicating the expected impact of projects. The GBP recommend the use of *qualitative performance indicators* and, where feasible, *quantitative performance measures* (e.g. energy capacity, electricity generation, greenhouse gas emissions reduced/avoided, number of people provided with access to clean power, decrease in water use, reduction in the number of cars required, etc.), and disclosure of the key underlying methodology and/or assumptions used in the quantitative determination. Issuers with the ability to monitor achieved impacts are encouraged to include those in their regular reporting.
- Voluntary guidelines aiming at a *harmonized framework for impact reporting* exist for energy efficiency, renewable energy, water and wastewater projects, and waste management projects.
- The GBP *encourage further initiatives*, to help establish additional references for impact reporting that others can adopt and/or adapt to their needs.

The publications
- 'Green Bonds; Working Towards a Harmonized Framework for Impact Reporting' (December 2015)
- 'The GBP Impact Reporting Working Group – Suggested Impact Reporting Metrics for Sustainable Water and Wastewater Management Projects' (June 2017)
- 'The GBP Impact Reporting Working Group – Suggested Impact Reporting Metrics for Waste Management and Resource-Efficiency Projects' (February 2018)

The indicators proposed in these publications aim "to capture and illustrate the environmental and sustainability benefits" of projects relating to the respective topics, recognised by the GBP for Green Projects.

The 'Position Paper on Green Bonds Impact Reporting'
In October 2017, the 'Nordic Public Sector Issuers' issued a position paper on green bonds impact reporting. Two main principles the actors involved agree on are:

Expected impact, with actual impact as an ambition
- Report on expected impact, and strive to report on actual impact
- Reporting should include the estimated reduction in greenhouse gases, as well as other green indicators appropriate to describe environmental impact and performance
- Distinguish between reduced and avoided CO2 emissions.
- Target net benefits
- Highlight methodologies used and the uncertainty of environmental data to readers

Quantitative and qualitative reporting
- Recognising the wishes of the investor community for relevant quantitative information, issuers are encouraged to provide quantitative reporting as far as possible. However, both qualitative and quantitative perspectives may be appropriate and should be reported upon depending on the type of project financed and the availability of information.

On baselines

- Deciding upon a baseline against which the environmental impact can be measured is important, since the chosen baseline will determine the calculated environmental benefits.

Sustainable land use/ environmental management

- Projects in this category are primarily intended to focus on environmental management in areas other than climate change. They may include nature conservation, biodiversity measures, sustainable agriculture, improving eco-systems, converting land from industrial/business use to wild life reserves/recreational areas etc.
- For these types of projects issuers are recommended to seek to identify both qualitative and quantitative measures, where qualitative measures may be of particular relevance. These may include surface area of the land converted (measured in square meters or square kilometres), biological diversity and air quality. If annual energy savings and/or reduction in greenhouse gas emissions or other emissions are relevant for the projects, issuers are encouraged to report on such measures also.

Relevance to the assessment of positive impacts in a biodiversity footprint

The GBP, the publications on impact reporting metrics and the Nordic Position paper show that there is no common standard yet for impact assessment and impact reporting. Combining qualitative and quantitative impact indicators, using 'suggested impact reporting metrics', transparency of methodologies used and the use external reviews are presented as best practices with regard to impact assessment and reporting in green bonds. The suggested impact reporting metrics for (waste) water management and waste management show that the situation before and after a project are recommended as reference points to assess the (positive) impact of green projects.

2.3.4 The Business & Biodiversity Offsets Program (BBOP)

The BBOP defines biodiversity offsets as (from BBOP, 'Resource paper: No Net Loss and Loss-Gain Calculations in Biodiversity Offsets', 2012):
"*Measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no-net loss, and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity*".

This definition includes several offsetting principles, including the 'residual loss' principle (offsets should only focus on residual impacts after avoidance, minimisation and restoration) and the 'like-for-like' concept, which is based on the fact that different components of biodiversity cannot be viewed as substitutes (i.e., traded) for each other when seeking to secure no net loss. Moreover, offsets should take into account social and cultural values of biodiversity. This implies that biodiversity offsets require a location specific approach, involving different stakeholder groups. Regarding the 'like-for-like', BBOP also states:

"*The only exception to the like-for-like condition is where development activities can be shown to impact low conservation priority (i.e., common and non-declining, and/or well-conserved) components of biodiversity and where areas of high conservation priority (i.e., containing rare and/or declining species populations or habitats) can be improved through an offset (e.g., through enhanced protection or restoration activities). This kind of exchange is termed 'out-of-*

kind' to reflect the change in type of biodiversity that is being offset and is only viable when clear improvements (often termed 'trading-up') in conservation outcomes are possible."

For a financial institution aiming for a no-net loss or net gain at the portfolio level, a location specific approach may not be feasible, which would mean that it is not possible to take into account the 'like-for-like' principle and location specific social and cultural values. The concept of 'out-of kind' offsets might be used as a way to (partly) deal with the like-for-like concept. A financial institution could focus its biodiversity positive investments, used to balance out negative impacts on a portfolio level, on clear improvements in conservation outcome in areas of high conservation priority.

BBOP also states that "Gains in biodiversity from conservation activities at offset sites need to be additional to those that would occur if no offset investment was made by the developer". Moreover, activities at offset sites should not displace harmful activities elsewhere (guard against leakage). This principle is directly relevant to the definition of positive impacts. BBOP distinguishes two different categories of interventions resulting in biodiversity conservation gains:

1. Averted loss and/or degradation of biodiversity and improving protection status
    - *Preventing further harm to biodiversity by tackling the drivers of background losses*, e.g. activities that will slow or stop known and ongoing environmental degradation, such as implementing environmentally responsible natural resource management practices, and/or strengthening or creating protected areas. It can also include the provision of alternative livelihoods for people who undertake unsustainable levels of resource extraction. It is essential that any investment results in *measurable conservation outcomes* resulting directly from the offset activities.
    - *Guarding against future threat*. This refers to interventions designed to avert known future risks to biodiversity, for example where a landowner has the legal right to cut down a forest on his land at any time in the future.
2. Positive management actions (restoration, enhancement) that improve biodiversity condition
    - *Restoration* refers to activities that specifically aim to return an area to its original (pre-disturbance) ecological condition prior to some anthropogenic impact.
    - *Enhancement* may include similar activities, but it differs from restoration in that the goal is not necessarily to return a system to a specific 'prior' state.

Relevance to the assessment of positive impacts in a biodiversity footprint
The BBOP principles on biodiversity offsets provide valuable insights in the way positive impacts can be achieved (averted loss, improving protection, biodiversity restoration and enhancement) and the way businesses should approach a no-net loss or net gain (like-for-like and taking into account social and cultural values). While it may be a challenge for a financial institution to bring the BBOP principles into practice at a portfolio level, the principles provide a valuable reference for understanding the value and limitations of a no-net loss or net gain at a portfolio level.

2.3.5 Species Threat Abatement and Recovery metric (STAR)

The STAR metric (formerly known as the 'Biodiversity Return on Investment Metric', BRIM), developed by IUCN, The Biodiversity Consultancy, Newcastle University, Birdlife and Vulcan, measures *the contribution that investments can make to reducing species extinction risk*. STAR is based on the relative contribution of threats (pressures) to each threatened species' extinction risk. For a particular site, land management unit, or administrative region (country or

province), STAR shows the potential for reducing extinction risk before investment activities start (ex-ante measure), or can measure the achieved impact of conservation interventions on extinction risk over time (ex-post measure). STAR shows how interventions deliver reductions in pressure that can result in changes to the Red List Index (RLI). This is used as the biodiversity indicator for the Sustainable Development Goals, the Aichi Targets and the United Nations System for Environmental-Economic Accounting. One of the uses of STAR is the analysis and comparison of potential and achieved return on investment across a portfolio. The current phase of analysis is global and focuses on amphibians, birds and mammals due to good data availability. The possibility of including plant groups and other animal taxa (e.g. reptiles) in order to expand the taxonomic scope is being explored.

The STAR score depends on:

- The number and Red List category of threatened species present at a site or administrative region, and the proportion of their ranges occupied by the site. The larger the number of species and/or the greater the proportion of their ranges occupied by the site, and the more threatened they are (Red List category weighting), the larger the potential return on investment.
- The effect of different pressures on those species. The greater the potential reduction in a pressure, the greater the potential return.

Figure 1 provides an example of the steps one needs to take to calculate a STAR score. In this example: 23.1% of species 4 is present at the site; the species has a Red List weighting of 3; the pressure 'Biological Resource Use (e.g. hunting) is responsible for 45% of the total pressure on species 4 at the site. This leads to a ROI of 0.3174. This score can be compared to other pressures for this species and to other species/pressures combinations. This information can be used to decide on the investment with the highest ROI.

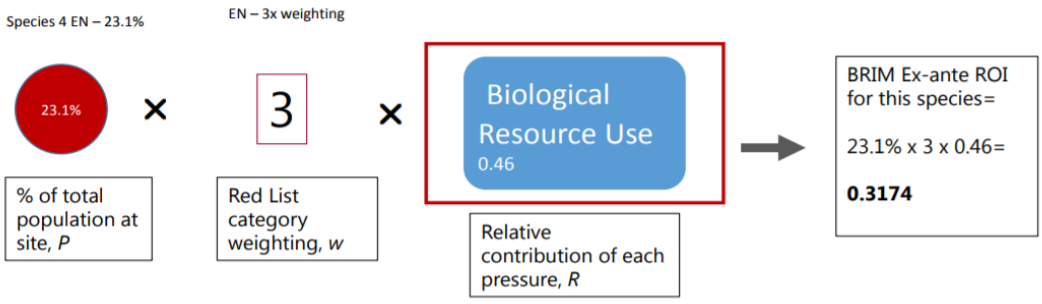


Figure 1 Calculation of a STAR score (still called 'BRIM' in this figure)

The fact that STAR looks at pressures affecting biodiversity/species is comparable with the BFFI footprint approach. An important difference is that STAR only looks at the effect on threatened (Red List) species, while the BFFI (and the GBS) look at biodiversity as a whole.

Relevance to the assessment of positive impacts in a biodiversity footprint

Since STAR also focuses on the impact of investments on drivers of biodiversity loss and the resulting impact on biodiversity, STAR results could potentially be of value to BFFI footprint calculations. In those situations/ecosystems where threatened species are considered a good indicator of ecosystem quality, STAR and the BFFI point in the same direction. In this case, a STAR score for a site could maybe be used as an input where the BFFI lacks data on the loss or gain of biodiversity. Whether this is really an option would need to be investigated further with the STAR developers. Moreover, STAR could potentially play a valuable role in the allocation of

biodiversity-positive investments, enabling financial institutions to also include a focus on threatened species in their investment decisions.

2.3.6 CPIC

The Coalition for Private Investment in Conservation (CPIC) is global multi-stakeholder initiative focused on enabling conditions that support a material increase in private, return-seeking investment in conservation. CPIC consists of a group of leading civil society organizations, private and public sector financial institutions and academia. CPIC aims to facilitate the scaling of conservation investment by creating models ("blueprints") for the successful delivery of investable priority conservation projects, connect pipeline providers of such projects with deal structuring support, and convene conservation project delivery parties with investors to execute investable deals. Initially, the Coalition is focused on several priority investment sectors:

- Coastal Resilience
- Forest Landscape Conservation and Restoration
- Green Infrastructure for Watershed Management
- Sustainable Agriculture Intensification
- Sustainable Coastal Fisheries

CPIC working groups have developed tools like the Sustainable Fisheries Risk Assessment Tool to support decision making in conservation finance in specific areas. These tools, however, do not provide any guidance on the assessment of positive impacts. CPIC has also compiled a list of conservation-focused 'accelerators', conservation initiatives that provide opportunities for conservation finance.

Reports mentioned by CPIC

CPIC provides an overview of publications relevant to private sector conservation finance. Although these publications provide valuable information in the area of conservation finance and some of the publications (briefly) discuss the topic of impact assessment, they do not provide insights that can directly be linked to a quantitative biodiversity footprint like the BFFI and GBS. Some of the examples of reporting on impacts mentioned in the publication 'Investing in Conservation; a landscape assessment of an emerging market' (EKO Asset Management Partners and TNC, 2014) are reporting on:

- The status of the investment's FSC certification.
- The number of endangered species protected.
- The amount of clean water treated or conserved.
- The amount of land on which primary tree species are planted and the number of such species.
- The amount of land permanently conserved or the amount of working landscapes protected.
- Metric tons of carbon sequestered.

These examples show that the impact metrics used tend to focus on indicators or measures linked to the conservation of biodiversity, rather than on the level of biodiversity itself. The report also mentions impact assessment as an area for future research:

"*This topic is critical to the maturation of the conservation impact investment sector and is the subject of ongoing work by multiple organizations, including IRIS, GIIN, the Carbon Disclosure Project, and others. A key question is how to develop assessment approaches that can be usefully applied across a range of conservation projects but still generate real and meaningful measurements of impact.*"

Relevance to the assessment of positive impacts in a biodiversity footprint
The Coalition for Private Investment in Conservation provides a valuable platform for strengthening the enabling conditions for conservation finance. It could therefore play an important role in discussing and testing different ways of integrating positive impacts in biodiversity footprints.

2.3.7 IRIS+ of the Global Impact Investing Network (GIIN)

The Global Impact Investing Network (GIIN) offers the IRIS+ system to support the practice of impact investing and promote transparency, credibility, and accountability in the use of impact data for decision making across the impact investment industry. IRIS+ focuses on an increased clarity and comparability of impact data, and provides streamlined how-to guidance for impact investors in one easy-to-navigate system, a free, publicly available resource.

IRIS+ provides guidance on impact assessment on specific themes, including 'Biodiversity & Ecosystem Conservation'. The Impact Management Project (IMP) is a forum for building global consensus on how to measure and manage impact. The IMP found that understanding impact performance requires collecting data across *five dimensions of impact*.

1. WHAT: Identifying the level of outcome(s) one aims to deliver, contribute to, or both, based on how important stakeholders perceive the outcome to be.
2. WHO: Understanding the baseline characteristics of stakeholders (people or planet) with respect to the outcome.
3. HOW MUCH: Understanding the degree of change experienced by those affected and identifying how many are affected.
4. CONTRIBUTION: Comparing performance towards market benchmarks as a proxy to understand—in the absence of the resources or possibility to establish a control group—what would have otherwise happened.
5. RISK: Understanding impact risks. Typically described by 10 risk factors: evidence risk, external risk, execution risk, stakeholder participation risk, drop-off risk, unexpected impact risk, efficiency risk, contribution risk, alignment risk, and endurance risk.

Backed by evidence and based on best practices, *IRIS+ Core Metrics Sets* may be used to assess the effects of any investment or enterprise across the five dimensions of impact. Core Metrics Sets standardize impact performance data, helping to aggregate that data across investments with similar goals. The *IRIS Catalogue of Metrics* contains the generally accepted social and environmental performance metrics. Individual IRIS metrics may be relevant to more than one dimension of impact or, by contrast, may be useful only in very specific contexts.

The IRIS+ system mentions that "the 'Strategic Goals' and 'Core Metrics Sets' under the Biodiversity & Ecosystem Conservation theme are planned for future development." The current metrics related to Biodiversity & Ecosystem Conservation include metrics like:
Area of adjacent protected land, Area of freshwater bodies present, Area of land deforested / reforested, Area of trees planted: Native species and Total, Biodiversity assessment, Conservation priority characteristics, Ecosystem services provided, Forest management plan, Land directly controlled: cultivated / sustainably managed / treated with pesticides / total, Length of coastline restored, Threatened species policy.
Each metric is explained, a reporting format (e.g. yes/no or a metric) and usage guidance is provided and related SDG goals & targets are stated.

Resource: the information presented on IRIS+ is a selection of information provided by the IRIS+ website and IRIS+ documents.

Relevance to the assessment of positive impacts in a biodiversity footprint

The five dimensions of impact approach of the Impact Management Project shows that impact measurement requires data collection on the What, Who, How much, Contribution and Risk dimensions. For biodiversity footprinting these five dimensions would translate into:

- What: the biodiversity outcome an investment is aiming for
- Who: the target habitat, species or population, geography and/or conservation status
- How much:
    - Scale: number of species or hectares experiencing the effect
    - Depth: degree of the change, comparing the effect to a baseline
    - Duration: time dimension of the impact
- Contribution: comparison of the change in biodiversity to what would have happened anyway (autonomous change).
- Risk: risks related to the pro-biodiversity investment which may influence the pro-biodiversity outcome.

This approach seems to fit quite well with the BFFI footprinting methodology, apart from the Risk dimension, which is not yet part of the BFFI approach. The Risk dimension could potentially be added by adjusting the expected/calculated biodiversity-positive impact based on the level of risk related to the action(s) invested in. The Contribution dimension supports the use of a *future* reference situation: the future situation without the investment, not the situation at the start of the investment (see section 3.3.3 for a discussion of the reference situation).

The current metrics on 'Biodiversity & Ecosystem Conservation" in the IRIS+ 'Catalogue of Metrics' will be developed further in the future and currently seem to focus on factors that might influence the impact on biodiversity rather than on the impact itself (e.g. the area of land treated with pesticides and the availability of a biodiversity assessment and a forest management plan).

The fact that further development of the IRIS+ metrics on Biodiversity & Ecosystem Conservation is foreseen may offer an opportunity for cooperation.

2.4 Other initiatives relevant to investments and impacts on biodiversity

2.4.1 EU Business & Biodiversity Platform / CoP F@B

The EU Business@Biodiversity Platform is a forum for dialogue and policy interface to discuss the links between business and biodiversity at EU level. It was set up by the European Commission with the aim to work with and help businesses integrate natural capital and biodiversity considerations into business practices. The work of the platform focuses on three thematic workstreams: Natural Capital Accounting, Innovation and Finance.

In 2018, the paper 'Positive Impact Finance for Business & Biodiversity' was published, developed in close collaboration with the Community of Practice Finance@Biodiversity (CoP F@B) members EIB, Finance in Motion, GLS Bank and Piraeus Bank. The paper provides an overview of opportunities and challenges on scaling projects and innovations for biodiversity by the financial sector.

One of the investor challenges identified is the "evolving nature of methods and standards for measuring and valuing nature and the absence of widely accepted methods and standards".

The paper also provides a number of examples of pro biodiversity investments:

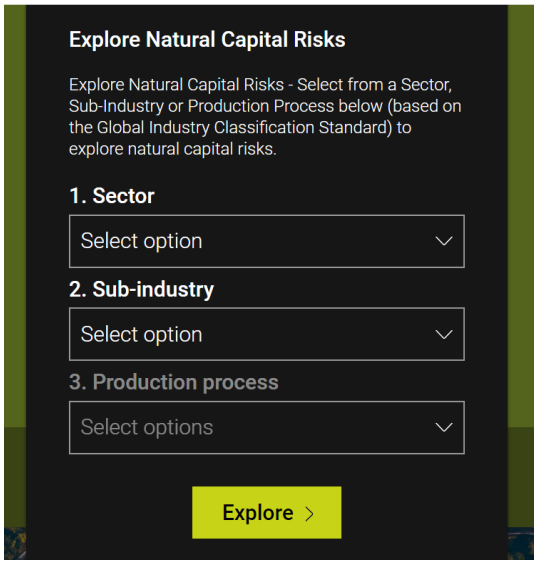
- The pilot ‘Rich North Sea’ by the NGO Nature and Environment (Natuur & Milieu) and the Foundation The Northsea (Stichting de Noordzee) in collaboration with ASN Bank. In this pilot, the characteristics of wind parks at sea (the absence of fishing on the bottom of the sea) are used to develop new habitat for marine life. An example of investment in the enhancement of biodiversity.
- Shade-grown coffee production by Tejemet, an end-borrower of the eco.business Fund in El Salvador. An example of investing in the reduction of pressures on biodiversity resulting from an economic activity.
- The ‘Green Deal on Green Roofs’, building a multiple business case with nature roofs. Another example of investing in the reduction of pressures on biodiversity resulting from an economic activity.
- Eco-tourism as part of the Rewilding Europe project, financed by an NCFF loan to Rewilding Europe Capital. An example of investing in nature restoration.
- Sustainable management and financing of wetland biodiversity at Lake Stymphalia. Another example of investing in nature restoration.

Relevance to the assessment of positive impacts in a biodiversity footprint
The ‘Positive Impact Finance for Business & Biodiversity’ paper underlines the need for standardisation of measuring biodiversity (gain) or at least the development of a common ground around methods of measuring positive impacts on biodiversity. Moreover, the paper provides some insights in different types of positive impact finance.

2.4.2 Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)

ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) enables users to visualise how the economy depends on nature and how environmental change creates risks for businesses (www.encore.naturalcapital.finance). Starting from a business sector, ecosystem service, or natural capital asset, ENCORE can be used to start exploring natural capital risks.

ENCORE offers the user a way to identify sector specific dependencies on ecosystem services, the natural capital assets supporting the provision of these services and environmental changes affecting these services. For each asset and environmental driver spatial data are provided to enable the exploration of location-specific risks. ENCORE does not provide an overview of the status of the ecosystem service itself (e.g. no pollination maps). For example, ENCORE shows:



- That the production of ‘agricultural products’ depends on a number of enabling ecosystem services, like ‘soil quality’, ‘water quality’ and ‘pollination’.
- That the ecosystem service ‘pollination’ depends on the natural capital assets ‘atmosphere’, ‘species’ and ‘water’, including a subdivision of these assets. For example, ‘atmosphere’ is divided in ‘Change in Precipitation Seasonality’, ‘Change in Temperature Seasonality’ and ‘Change in Wind Speed’.

- The drivers of environmental change potentially affecting the service, like ‘droughts’, ‘flooding’ and ‘habitat modification’.
- Spatial data (maps) on these natural capital assets and drivers.

Financial institutions can use this information to identify natural capital related risks. Looking at the type of information currently provided by the ENCORE database, this will require expert support.

Relevance to the assessment of positive impacts in a biodiversity footprint
ENCORE does not provide any information on measuring the impact of biodiversity positive investments, but does provide insight in the business case of a focus on biodiversity. Ecosystems with a higher level of biodiversity tend to be more resilient and tend to offer a wider range of ecosystem services potentially relevant to the economic activities financial institutions invest in. Moreover, the use of life cycle assessment (LCA) in biodiversity footprinting approaches could potentially be linked to the knowledge of ENCORE. For example, the BFFI footprint methodology will show what economic activities and sectors are linked to a specific investment. This knowledge, combined with ENCORE, could be used to identify dependencies of investments on ecosystem services and natural capital assets.

2.4.3 Guidelines for integrated Ecosystem Services Assessment

An important purpose of the Guidelines for “Integrated Ecosystem Services Assessment to analyse and capture the benefits of landscape restoration, nature conservation and sustainable land management” (‘ESP Guidelines’) is to quantify and, if possible, monetise all the benefits of ecosystem (or landscape) restoration in a credible and verified way, to demonstrate that the investment pays back through multiple returns.

The ESP Guidelines aim to condense the already existing information into a practical guide supported by an interactive website that is easy-to-use for on the ground quantification, valuation, economic analysis and capturing of the benefits. The ESP Guidelines include a logical sequence of 9 steps:
1. Scoping of the assessment
2. Impact assessment
3. Ecosystem services analysis
4. Benefit analysis
5. Monetary valuation
6. Economic analysis
7. Capturing the value
8. Communicating the value (and benefits)
9. Capacity building and institutional change

The second step (impact assessment) is directly relevant to the study on biodiversity positive investments. This step involves “assessing the direct impacts (positive and negative) of restoration, or other intervention in the landscape, on ecosystem structure & processes (vegetation, runoff) as well as the secundary effects in terms of changes in the functioning of the landscape (i.e. the (carrying) capacity of the landscape to provide services) compared to the baseline (e.g. loss of vegetation leading to erosion and loss of productive capacity).” Three sub-steps are part of this second step:
1. The first sub-step is to map and assess the existing biophysical condition of the site (e.g. land use/land cover (LULC), soil, water and biodiversity.

2. The second sub-step is the selection of indicators that are useful to quantify the expected impacts of the land use or restoration activities.
3. The third sub-step is to measure and quantify the (changes in) selected indicators and store data periodically.

Result of step 2 is an overview of the direct effects of changes in ecosystem/landscape structure and function resulting from a given intervention. Spatial data, GIS software and biophysical models are used as an input in these sub-steps. Fieldwork, expert interviews and stakeholder consultation are considered typical data collection methods to gather the location specific data needed to enable the identification of ecosystem services affected (step 3) and the value of these services to stakeholders (step 4 and 5) and the economy (step 6). The ESP Guidelines do not prescribe one methodology or tool to use in the impact assessment step, but provides an overview of different tools that could be used, ranging from Environmental & Social Impact Assessment to the Ecosystem Services Review. No LCA tools are included in this overview.

Relevance to the assessment of positive impacts in a biodiversity footprint

The BFFI uses the impact on biodiversity as an indicator or proxy for the impact on ecosystem services (biodiversity as a key factor of the life support system). However, the impact on ecosystem services is (not yet) assessed. An important reason for this is the input of data and time needed to conduct such an assessment, which is not feasible on the level of an investment portfolio.

In case of the ESP Guidelines, the loss or gain of biodiversity is only an interim result to assess the impact on ecosystem services and the value of the services affected. However, the results of the impact assessment step could probably feed into a biodiversity footprint, depending on the assessment results and the footprinting methodology. For example, in case of the BFFI, the results of the impact assessment would need to be translated into changes in the potentially disappeared fraction of species (PDF) or the m^2 of biodiversity gain compared to the reference situation (no intervention/investment). Considering the level of detail of the impact assessment step, one would expect that enough data will be generated to enable this translation. In order to play a role in the decisions of a financial institution whether or not to invest in land restoration or other invention, the ESP Guidelines need to deliver ex-ante results, i.e. a prediction of the biodiversity gain per Euro invested.

3 POSITIVE IMPACTS IN BIODIVERSITY FOOTPRINTING

3.1 Introduction

In this chapter, a definition and characterisation is provided of biodiversity positive investments and points of departure are identified for integrating biodiversity positive investments in a biodiversity footprint for financial institutions. The result is used in chapter 4 to explore how biodiversity positive impacts can be integrated in the BFFI methodology. It is expected that the definition and points of departure will also be of value to other footprinting methodologies, like the GBS, as long as these methodologies share enough 'common ground' in their approaches.

The objective of integrating positive impacts in the BFFI is not just to improve the quality of the footprint result, but also *to reward investments in positive impacts by means of a reduced footprint score*. This will allow FIs to show (also internally) that they can make a positive difference through their investment policy. This is not just important for positive impacts resulting from impact investing, but also for reduced or avoided impacts resulting from biodiversity related investment criteria of FIs. For this reason, this chapter is not limited to positive impacts in the sense of nature conservation/restoration/creation, but also includes positive impacts in the sense of reducing negative impacts, either through impact investing or through investment criteria.

An important point of departure is that biodiversity footprinting and the integration of biodiversity-positive investments in the biodiversity footprint should contribute to the overall objective of the conservation and sustainable use of biodiversity (both objectives of the Convention on Biological Diversity). Decisions regarding the footprinting methodology should be taken against the background of this objective.

In the next few paragraphs, the following issues are addressed:

- Definition and characterisation of biodiversity positive investments (3.2)
- Positive impacts in the biodiversity footprint: Points of departure (3.3)
    - Net impact, functional unit, reference situation, data and permanence of the biodiversity gain
- Biodiversity positive investments and a no-net-loss or net-gain (3.4)
    - The mitigation hierarchy, like-for-like/stakeholder value and uncertainty in biodiversity gain

3.2 Definition and characterisation of biodiversity positive investments

'Biodiversity positive investment', conservation finance' or 'conservation impact investment' can be defined in different ways. In the report 'Investing in Conservation; a landscape assessment of an emerging market' (EKO Asset Management Partners and TNC, 2014), 'conservation impact investments' are defined (for the purpose of the report) as:

"*Investments intended to return principal or generate profit while also driving a positive impact on natural resources and ecosystems – specifically, decreased pressure on a critical ecological resource and/or the preservation or enhancement of critical habitat. In addition, conservation*

impact must be an important motivation for making the investment. Conservation impact cannot be simply a by-product of an investment made solely for financial return."

Although this definition is clear, the definition of biodiversity positive impacts in relation to a biodiversity footprint should probably be more inclusive, since conservation impacts that are just a by-product of an investment made for financial return should also find their way into a biodiversity footprint.

For the purpose of this report, biodiversity positive investments are defined as follows (building on the work by the Business and Biodiversity Offsets Program):

Biodiversity positive investments are investments in interventions resulting in net biodiversity conservation gain, either through averted loss and/or degradation of biodiversity and improving protection status, or through positive management actions (restoration, enhancement) that improve biodiversity condition.

Also building on the work by BBOP, a distinction can be made between the following positive contributions of FIs to the conservation and sustainable use of biodiversity:

Investments with the aim to contribute to ('impact investing'):

9. Investments in the enhancement of existing biodiversity
10. Investments in the restoration of biodiversity to a specific prior state.
11. Reduced negative impacts on biodiversity resulting from investments that address one or more of the drivers of biodiversity loss of existing economic activities.
12. Avoided negative impacts on biodiversity resulting from investments in the production of energy or resources that replace energy or resources with a higher impact on biodiversity.
13. Avoided negative impacts on biodiversity resulting from investments in alternative livelihoods preventing unsustainable resource extraction leading to biodiversity loss.
14. Avoided negative impacts on biodiversity resulting from investments in interventions designed to avert known future risks to biodiversity.

Investments complying with investment criteria contributing to:

15. Reduced negative impacts on biodiversity resulting from investment criteria addressing one or more of the drivers of biodiversity loss of existing economic activities.

Investments under engagement contributing to:

16. Reduced negative impacts on biodiversity by addressing one or more of the drivers of biodiversity loss of existing economic activities.

In case of investments 1-6 it is more or less certain that the FI will make a positive difference (compared to the situation where the investment is not made), provided that the investment delivers as planned. In the case of investment criteria (7) and engagement (8), the FI may have a positive impact on biodiversity if this leads to positive changes in the practices of the investees; e.g. an investee becomes FSC certified because this is required by the investor. If investment criteria do not lead to a positive change (the investee already complies), the investment cannot be counted as a biodiversity-positive investment. The fact that the investee already complies with certain biodiversity criteria, should of course still be reflected in the calculation of the footprint (if possible). Either by using direct data (impact data of the investee) or by adjusting indirect data (like sector averages from a database).

How these different types of biodiversity-positive investments can be integrated in the BFFI footprint methodology will be discussed in chapter 4. In the following paragraph points of departure of integrating biodiversity positive investments in biodiversity footprinting are discussed and the use of biodiversity positive investments in a no-net-loss or net-gain strategy.

3.3 Positive impacts in the biodiversity footprint: Points of departure

3.3.1 Net impact

The definition of biodiversity positive investments speaks of 'net biodiversity gain'. This refers to the fact the impact of the investment is positive compared to a *reference situation* and is based on the sum of *positive and negative* impacts resulting from the investment. For example, an investment in wind energy may result in the replacement of fossil-based energy (addressing climate change as a driver of biodiversity loss), but will also require the production of wind mills. Moreover, depending on their location, the wind mills may have a negative impact on birds and bats. These negative impact need to be part of the assessment of the net impact. The focus on *net impact* is in line with the approach of existing 'impact-finance' initiatives, including the 'Principles for positive impact finance', the 'Platform Carbon Accounting Financials' and the IRIS+ methodology of the Global Impact Investing Network (GIIN).

3.3.2 A fair basis for comparison of impacts: the functional unit

In case of a comparison of impacts between a reference situation and a new situation, the impact will need to be calculated using a 'functional unit' or basis for comparison. By defining a functional unit, the calculation becomes a fair comparison, e.g. by taking into account potential differences in yield or quality of the materials produced in the reference situation and the new situation. For example, in the case of a comparison of the biodiversity impact of the production of traditionally grown cocoa and shade-grown cocoa, the functional unit could be 'the production of 1 ton of cocoa'. If shade-grown cocoa needs more land or has a higher yield, this will show up in the calculations by using this functional unit.

3.3.3 The reference situation

To assess the positive impact of an investment in an action or 'intervention', a 'reference' needs to be defined: a positive impact compared to what? The choice of this reference will directly influence the calculation of the positive impact. Please note that the reference situation is not the same as the (biodiversity) situation that you want to achieve with an action or investment.

The current reference in the BFFI and the GBS when calculating the impact on biodiversity of an economic activity is a 'pristine' situation: the level of biodiversity when no economic activities would take place[1]. This is based on the assumption that, through its investment, the financial institution for whom the footprint is conducted is party or fully responsible for the economic activity taking place and the impact on biodiversity resulting from this activity. This approach, however, will not work in the case of impact investing focusing on a positive contribution to biodiversity. For example, when an impact investor invests in better management practices on

[1] The 'pristine situation' should be clearly defined by the footprinting methodology, e.g. by including a reference year.

an existing plantation with the aim to preserve biodiversity, a comparison with a pristine situation would always result in a negative impact or a neutral impact at best. Looking at the overall objective of biodiversity footprinting (to contribute to the conservation and sustainable use of biodiversity), in this case the reference situation should reflect *the impact on biodiversity without the investment taking place*.

This means that the already existing negative impact of the economic activity invested in, is not attributed to the impact investor. Please note that this will only work if the impact investor invests in a positive biodiversity outcome. In cases where only part of the investment is used to achieve a positive biodiversity outcome, part of the negative impact of the activity will have to be attributed to the investor, using the attribution rules of the BFFI methodology. This will need to be decided on a case by case basis.

The reference situation when measuring impact on the ground
When the state of biodiversity is actually *measured*, this reference can either be (1) the level of biodiversity in the impact area just before the investment takes place, or (2) the future level of biodiversity in the impact area, without the investment taking place. The latter requires a benchmark/reference area, comparable to the impact area where the investment is made. Changes in biodiversity not related to the investment can be taken into account by looking at the benchmark/reference area. Such changes not related to the investment can be the result of an already existing downward or upward trend in biodiversity or external factors influencing the level of biodiversity, like other pro-biodiversity measures not related to the investment or changes in government policy. For integration in a biodiversity footprint, the second option is preferred (but may not always be feasible). This is also in line with the GIIN approach.

In both options the positive impact will only be known after the investment has led to its full impact, which may take several years, depending on the actions invested in. In practice, the *expected or potential impact* of a project/intervention will also need be estimated based on experiences in comparable projects/situations or on calculations looking at changes in the drivers of biodiversity loss or gain. This potential impact is used to attract investors looking for biodiversity-positive investment opportunities.

The reference situation when calculating the impact
Measurement of the actual impacts on biodiversity of all investments in an investment portfolio would not be feasible. Therefore, the BFFI methodology *calculates* the impact of each investment as the (expected) change in species in an area during a certain period. This calculation is based on environmental data of the activities invested in and pressure-impact modelling (translating environmental impacts into an impact on biodiversity). The actual level of biodiversity before and after the intervention does not need to be measured.

For example, when an FI invests in changing a traditional coffee plantation into a shade-grown coffee plantation, the net biodiversity impact of the traditional coffee plantation is calculated (e.g. an impact of ‘X loss of species’) and this is compared to the net biodiversity impact of the shade-grown coffee plantation (‘Y loss of species’). The net result of the investment being ‘Y-X loss in species’ (probably a positive result, see also the case study on shade grown coffee). In this case the reference situation is the economic activity without the investment (the traditional coffee plantation).

Other reference situations
The choice of a reference situation was also discussed during the workshop ‘Integrating biodiversity-positive investments in biodiversity footprinting’ (see annex 2), involving financial

institutions, nature conservation organisations and biodiversity/footprinting experts. During this workshop it was stressed that using a ‘pristine ecosystem’ as a reference situation may scare-off companies looking to improve their biodiversity performance. The choice of a reference situation could also be based on the carrying capacity of an ecosystem or the ‘planetary boundaries’: does a company operate within these boundaries or not? Although this may not be an option yet and brings on new challenges (the need for a landscape approach involving a multitude of stakeholders and impacts), it could become an option in the future. Another reference which may come in at some point when talking about biodiversity-positive investments and impacts is the ‘Living Planet Index’, a measure of the state of the world's biological diversity based on population trends of vertebrate species from terrestrial, freshwater and marine habitats.

Incorporating additional reference situations in a biodiversity footprint will creates more flexible communication opportunities. Regardless of what reference situation is selected, this should always be transparent and clearly defined.

3.3.4 Data in a biodiversity footprint

Different types of data can be used in a biodiversity footprint to calculate the positive and impact on biodiversity of an economic activity:

- Foreground data or direct data: Environmental data from the businesses/organisations involved in the activity/intervention invested in. These data can be used to calculate the impact on biodiversity.
  This requires monitoring and reporting of these data by these entities.
- Background data or indirect data: data from literature or databases like Exiobase and ecoinvent.
  These data are often based on the average data of a sector or the data from one or more companies. These data may or may not be specified for different (production) regions/countries.
- Estimates or proxys: data used if the proper data for an activity/material/product are lacking. For example data on ‘textiles’ instead of ‘cotton’ or data on ‘plastic A’ instead of ‘plastic B’.
- Data on the actual change in the level of biodiversity before and after an intervention takes place.
  This requires a baseline assessment of the level of biodiversity in an impact area before an economic activity takes place or is changed (e.g. through the introduction of better management practices).

In general one could say that the use of direct data is more accurate than the use of indirect data and the use of indirect data is preferred over estimates or proxies. However, in the case of a biodiversity footprint at the level of an *investment portfolio*, the use of direct data will often be too time consuming and complex and the use of indirect data is preferred. The BFFI can use direct and indirect data to calculate a biodiversity footprint. In current calculations for ASN Bank, indirect data are used to enable a footprint calculation on the level of the bank’s investment portfolio.

It should be realised that if indirect data, estimates or proxies are used, the footprint will not be sensitive to pro-biodiversity measures of the companies invested in (the data are not specific enough), nor will it reflect the investment criteria of the financial institution conducting the footprint.

Example footprint ASN bank
The sustainability criteria of ASN Bank contain a number of biodiversity specific investment criteria. These criteria explain what biodiversity requirements ASN Bank investees need to comply with before an investment is considered by the bank. The investment criteria refer to (for example) FSC and PEFC certification and meeting the criteria of RSPO and RTRS for companies which are linked (directly or indirectly) to deforestation and land use change.

However, the footprint of ASN Bank is calculated using sector average data from (mostly) Exiobase. These data also include the environmental data of companies which do not comply with the requirements of the bank. This means that the footprint calculated is probably more negative than it is in reality. The footprint is not yet adjusted for the bank's investment criteria.

Data on the actual change in the level of biodiversity
Measuring actual changes in biodiversity is definitely not common practice (with the exception of sectors where such monitoring is legally required), but will be more frequent when a project or action is implemented with the explicit intention to conserve biodiversity. If it is clear what change in biodiversity can be attributed to the project and this change can be expressed as a percentage of increase/decrease in biodiversity in an area, such data can be included in a biodiversity footprint using the BFFI methodology. *How* this can be done will depend on *what* has been monitored and how the result is reported. This needs to be assessed on a case-by-case basis.

3.3.5 Permanence of the biodiversity gain

One aspect which should also be considered in the integration of biodiversity-positive impacts in footprinting is the sustainability of the impact: what happens to the level of biodiversity after the project/investment has ended? Part of the long term viability of the biodiversity invested in will depend on the connectivity to other landscape elements and the regional context ('Resource Paper – No Net Loss and Loss-Gain Calculations in Biodiversity Offsets', BBOP, 2012). This should therefore be addressed in projects aiming for a biodiversity gain.

The World Bank Group publication 'Biodiversity offsets: A User Guide' (October 2016) discusses the following features of successful long-term conservation:
- Formal legal protection
- On the ground protection and management
- Financial sustainability

How biodiversity-positive investments can or should contribute to these features needs to be assessed on a case-by-case basis. The extent to which these features are incorporated in the project or fund aiming for a positive biodiversity outcome could be part of the investment criteria used by the financial institution.

3.4 Biodiversity positive investments and a no-net-loss or net-gain

Although the question how biodiversity positive investments can be used to reach a no-net-loss or net-gain of biodiversity is beyond the focus of this report, three concepts are briefly addressed since they play a key role in the discussions surrounding biodiversity offsets: the mitigation hierarchy, the like-for-like concept and stakeholder value and uncertainty in

biodiversity gains. An important reference for these topics is the work by the Business and Biodiversity Offsets Programme (BBOP).

3.4.1 The mitigation hierarchy

Biodiversity-positive investments may be used by financial institutions to compensate for negative impacts with the aim to realise a no-net-loss or net-gain at the level of an investment portfolio. Apart from the question whether this is a realistic objective, it is key that the mitigation hierarchy is adhered to: compensation of a negative impact on biodiversity should only be considered for the *residual impact* that remains after negative impacts have been avoided, mitigated or restored to the extent possible (see figure 2). This means that a financial institution should start by identifying ways to avoid, mitigate or restore negative impacts resulting from its investments, e.g. by means of exclusion and investment criteria.

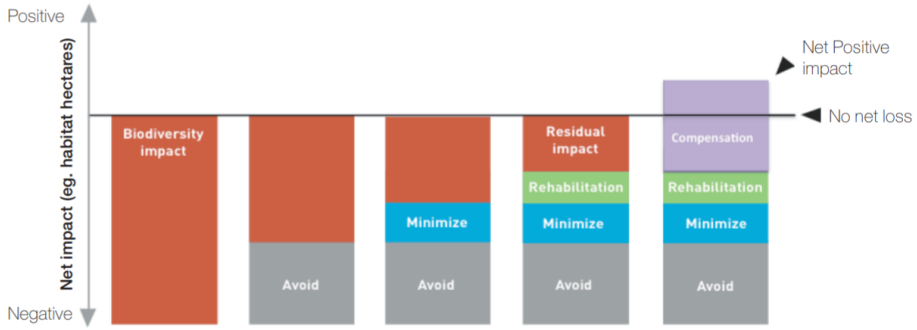


Figure 2: The mitigation hierarchy (source: IUCN NL, Lanius, D.R. et al.,2013)

A more comprehensive discussion of the use of biodiversity offsets can be found in the publications of the Business & Biodiversity Offsets Program (BBOP), e.g. the 'Resource Paper – No Net Loss and Loss-Gain Calculations in Biodiversity Offsets' (BBOP, 2012).

3.4.2 Like-for-like and stakeholder value

An important concept in the discussions around biodiversity offsets is the 'like-for-like' discussion: the biodiversity gains should be comparable - in ecological terms, from a conservation-priority perspective, and to local stakeholders - to the losses occurred. Different components of biodiversity cannot be viewed as substitutes (i.e., traded) for each other when seeking to secure no-net-loss. This principle implies that one knows what biodiversity is lost and where. Moreover, apart from an intrinsic value, biodiversity will also have a value to local stakeholders, including use-values (medicinal plants, building materials, food resource) and non-use cultural values (recreation, sacred sites, etc.). Such values and the costs and benefits to local communities should be considered in offset design, involving the stakeholders involved.

Taking these principles into account may be feasible on a project level, but will of course be a challenge on the level of an investment portfolio. How these principles find their way into biodiversity-positive investment decisions is outside the scope of this report, but is a question that should be addressed by financial institutions striving for a no-net-loss or net-gain.

More information on the like-for-like principle and stakeholders value can again be found in BBOP publications.

3.4.3 Uncertainty in biodiversity gain

In practice, the biodiversity gain will not be fully certain at the start of a project that aims to deliver biodiversity gains. A number of factors will add to this uncertainty, like a lack of data, uncertainty in the ecological system, impacts of unexpected threats like invasive species, fires and floods. Following BBOP-guidelines, such uncertainties should be taken into account by taking a precautionary approach when risk and uncertainty are high. This could mean an investment in project preparation and monitoring and the use of a multiplier: calculating in uncertainties by aiming for a higher biodiversity gain than is needed to offset the impact. How uncertainties are taken into account in biodiversity-positive investments will need to be addressed on a case-by-case basis. More information can be found in BBOP publications.

4 INTEGRATING BIODIVERSITY POSITIVE INVESTMENTS IN THE BFFI

4.1 Introduction

In this chapter guidance is provided for the integration of biodiversity-positive investments in the Biodiversity Footprint Financial Institutions, illustrated with some case studies. The following investments are addressed:

- Investments in an increase in biodiversity (4.3)
    - Investments in the enhancement of existing biodiversity
    - Investments in the restoration of biodiversity
- Investments in impact reduction; addressing drivers of biodiversity loss (4.4)
- Investment in the avoidance of negative impacts on biodiversity (4.5)
    - Investments in green energy
    - Investments in reduced-impact resources
    - Investments in alternative livelihoods
    - Investments averting future risks to biodiversity
- Investments complying with biodiversity related investment criteria (4.6)
- Investments under biodiversity related engagement (4.7)

It must be realised that the BFFI is based on a *calculation* of the impact on biodiversity (see 4.2 for a brief explanation of the BFFI methodology). Integration of the biodiversity-positive investments is discussed in the light of such a calculation. Other footprinting methodologies may require a different approach.

The guidance on the integration of different types of positive impact in a biodiversity footprint will never be a one-size-fits-all. Deviation from the approaches and use of data described to assess the positive impact may be necessary on a case-by-case basis.

4.2 The BFFI footprint methodology

The BFFI footprint methodology is based on an assessment of the drivers of biodiversity loss which are linked to the investments of a financial institution. See figure 2 for a schematic overview of this approach. To enable a footprint analysis on the level of an investment portfolio, the BFFI uses indirect data from the 'Exiobase' database for the assessment of the environmental pressures (resource use, emissions, etc.) induced by the economic activities the FI invests in. These Exiobase data are country-specific sector averages. The environmental pressures are attributed to the investor based on attribution rules, like the share of the investment in the total value of the investee.

The environmental effects are then translated in an impact on biodiversity using the 'ReCiPe' model, which is based on best available knowledge regarding pressure–impact relations (e.g. the impact on biodiversity resulting from a 1 degree temperature rise).

For a more comprehensive overview of the BFFI methodology, see the report ‘Towards ASN Bank’s Biodiversity footprint’ (CREM and PRé Consultants, 2016) and the publication ‘Common ground in biodiversity footprint methodologies for the financial sector’ (ACTIAM, ASN Bank, CDC Biodiversité, 2018), downloadable from the website of ASN Bank.

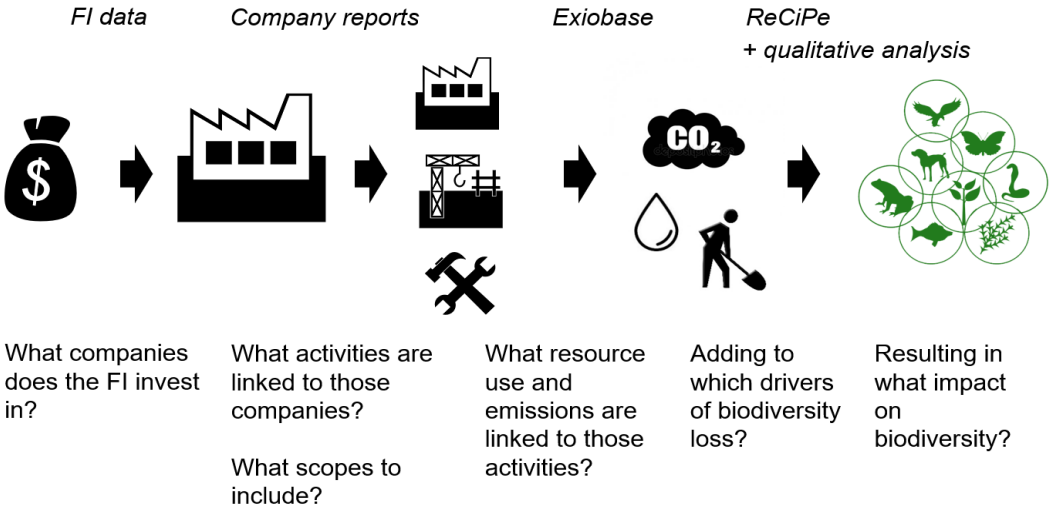


Figure 2: The steps in the BFFI methodology, including the input of data and the questions answered in each step.

The use of direct data (environmental data from the investees themselves) would of course result in a more accurate footprint, but is not feasible on the level of an investment portfolio, where thousands of companies are involved. However, in the case of biodiversity-positive investments, the number of investees is much more limited and the projects and locations are in most cases known by the impact investor.

This means that in case of biodiversity-positive investments, the BFFI methodology can and will (also) use direct, location specific data when such data are available.

4.3 Investments in an increase in biodiversity

4.3.1 Investments in the enhancement and restoration of biodiversity

Example

A. Enhancement:
   Investment in the creation of artificial reefs in a wind park at sea, resulting in new habitat and an increase in marine species in the area.
B. Restoration:
   Investments in nature restoration of degraded agricultural land, restoring the level of biodiversity to the state it was before agriculture took place.

Integration in the BFFI

The footprint of an investment in the enhancement or restoration of needs to be addressed on a case by case basis, since the gain in biodiversity will be location specific and will depend on the biodiversity interventions invested in. The result for biodiversity can be based on monitoring of (changes in) biodiversity in the impact area, on estimations/predictions of impact (based on similar cases and expert judgement) and/or can be based on calculations (focusing on changes in the drivers of biodiversity loss). The BFFI footprint will be based on:

- The expected or actual biodiversity gain of the interventions (B-A):
  A. The reference situation: the (estimated/expected) level of biodiversity in the area when the investment would not take place, or, if not feasible, the level of biodiversity in the area at the start of the investment.
  B. The (estimated/expected) level of biodiversity following the implementation of pro-biodiversity interventions invested in.
- And/or the calculated biodiversity gain of the interventions (C)
- The negative impacts resulting from the interventions (D)

⇨ The net-impact being: B-A-D or C-D

Data

The following data are needed to calculate the footprint:

	Information needed	**Type of data**	**Remarks**
A	The level of biodiversity in the reference situation	Field/monitoring data Data from scientific research/case-studies Expert judgment	For the BFFI, the result needs to be expressed as a percentage of biodiversity intactness or loss (e.g. a biodiversity level of 60% compared to a pristine state).
B	The expected level of biodiversity following the interventions	Data from scientific research Data from comparable areas/case-studies Expert judgment	For the BFFI, the result needs to be expressed as a percentage of biodiversity intactness or loss (e.g. a biodiversity level of 80% compared to a pristine state).
	The actual level of biodiversity following the intervention	Field/monitoring data Expert judgment	For the BFFI, the result needs to be expressed as a percentage of biodiversity intactness or loss (e.g. a biodiversity level of 80% compared to a pristine state). Not yet available at the time of the investment decision
C	Information on the (positive) environmental changes resulting from the interventions (land use, resource use, emissions)	Direct data from the project. Indirect data from databases like ecoinvent, Agri-footprint, Exiobase, etc.	The data are used to calculate the (positive) biodiversity footprint using ReCiPe

D	Information on the (negative) environmental pressures resulting from the interventions (land use, resource use, emissions)	Direct data from the project Indirect data from databases like ecoinvent, Agri-footprint, Exiobase, etc.	The data are used to calculate the (negative) biodiversity footprint using ReCiPe

Case 1

Investment in artificial reefs at a wind park at sea

In case of investments in the creation of artificial reefs in an existing wind park at sea, the biodiversity-positive impact is calculated as follows:

1. B-A: The expected biodiversity gain in the wind park area in % of species gain, based on monitoring of the changes in biodiversity in a similar case study in another wind park.
2. C: The calculated impact on biodiversity from the avoided emissions from grey electricity.
3. D: The calculated impact on biodiversity of the production and placement of the wind park and the artificial reefs.

The biodiversity gain being B-A+C-D.

Case 2

Fund for sustainable forestry

A fund is developed to invest in sustainable, FSC certified forestry projects in regions which are currently characterized by high deforestation rates. The carbon sequestration over the lifetime of the fund is projected to reach over 20 million metric tons of CO2.

The biodiversity-positive impact is calculated as follows:

1. B-A: The expected biodiversity gain in the area in % of species gain, based on the management type before and after the investment. The expected increase or decrease in biodiversity resulting from a change in management type is based on a Global Meta-Analysis of the Impact of Forest Management on Species Richness. The following management types are distinguished (Chaudhary et al. 2016 – DOI:10.1038/srep23954):

Management type		PDF compared to pristine satiation
1.	Retention harvesting	-0.012
2.	Selection systems	-0.011
3.	Reduced impact logging	-0.009
4.	Conventional selective logging	0.134
5.	Clear-cutting	0.218
6.	Agroforestry	0.322
7.	Timber plantations	0.397
8.	Fuelwood plantations	0.434
9.	Slash and burn	0.533
10.	Plantation non-timber	0.548

2. C: The calculated carbon storage based on tree type and site specific conditions of the forestry project. This calculation, is based on the IPCC Guidelines for National Greenhouse Gas Inventories. The biodiversity gain from carbon stored is calculated using ReCiPe.

3. D: Data on the environmental pressures resulting from the establishment and operation of a forestry project. The biodiversity loss of these environmental pressures is calculated using ReCiPe.

The biodiversity gain being B-A+C-D.

4.4 Investments in impact reduction; addressing drivers of biodiversity loss

Example

C. Investments in FSC management and certification of an existing forestry plantation, resulting in a positive biodiversity impact compared to the situation before certification.
D. Investments in agroforestry in existing cocoa farms, resulting, amongst others, in an increase in carbon sequestration compared to the situation before the implementation of agroforestry measures.

Integration in the BFFI

This type of biodiversity positive investment is frequently used in impact investing and is often closely related to certification initiatives (like FSC, MSC, RTRS, RSPO, Bonsucro, etc.).

Integration in a biodiversity footprint will require a calculation of the net positive impact on biodiversity, following similar steps as an investment in enhancing/restoring biodiversity. The BFFI footprint will be based on:

- The expected or actual biodiversity gain of the interventions (B-A):
  A. The reference situation: the (estimated/expected) level of biodiversity in the area when the investment would not take place, or, if not feasible, the level of biodiversity in the area at the start of the investment.
  B. The (estimated/expected) level of biodiversity following the implementation of pro-biodiversity interventions invested in; like better management practices addressing one or more drivers of biodiversity loss.
- And/or the calculated biodiversity gain of the interventions (C)
- The negative impacts resulting from the interventions (D)

⇨ The net-impact being: B-A-D or C-D

NB: Investments in impact reduction are often related to economic activities, like agriculture, mining or forestry. In this case it is important to take into account a functional unit (see 3.3.2) to account for any changes in output/production as a result of the better management practices.

Data

The data needed for the footprint calculation are the same as for investments in biodiversity enhancement and restoration (see 4.2), with the following additions:

1. Data are needed on the functional unit. For example, in case of an investment in sustainable agriculture, data are needed on the level of production before and after the implementation of better management practices.

2. Data are needed on the biodiversity benefits of better management practices. In case of a limited number, clearly defined measures/interventions the biodiversity benefits can be

calculated, like the positive effect from a reduction in energy use or water use. However, when interventions are not specified, but reference is made to the use of a sustainability standard (like FSC or RSPO), the biodiversity benefits (the reductions in impact) cannot just be calculated. Such standards usually include a wide variety of better management practices. In this case, data on the biodiversity benefits of such standards are needed (general impact data or impact data for different situations or ecoregions). However, these data are in many cases still lacking (see annex 1).

In those cases where data on the biodiversity benefits of sustainability standards are still lacking, the decision can be made not to include an impact reduction in the footprint or to include a (more or less arbitrary) impact reduction percentage. In the first option the use of standards which are widely recognised for their contribution to a more sustainable production is not rewarded in the footprint. In the second option the use of these standards is rewarded in the footprint, but the reward is not yet backed up by (field) data.

This topic has also been discussed in the workshop 'Integrating biodiversity-positive investments in biodiversity footprinting' (see annex 2). The idea to reward certification when impact data are still lacking was supported by most participants, provided that the standards meet certain criteria (independent, multi-stakeholder, explicitly addressing biodiversity etc.). However, it was also mentioned that financial institutions should be careful with the integration of such standards in investment criteria (see 4.5), since certification may not be feasible for small companies/farmers. Requiring certification could mean that small companies are excluded from investment and FIs miss out on important biodiversity conservation opportunities.

To stimulate the uptake of widely accepted, biodiversity relevant sustainability standards, the BFFI will include a percentage of X% footprint reduction for those standards where impact data are still lacking. When more data are/become available, this percentage will be adjusted. The selection of labels for which this reduction percentage applies and the exact percentage will take place on a case by case basis, taking into account the opinion of nature conservation organisations, like IUCN and WWF. This is beyond the scope of this study.

The use of sustainability standards in investment criteria is discussed in more detail in paragraph 4.6 and annex 1.

Case 3
Investment in shade grown coffee
The case of shade grown coffee represents a broader category of agroforestry projects. These calculations are therefore also applicable to other crops mixed with trees of a different variety. The biodiversity-positive impact of agroforestry projects can differ substantially based on the type of agroforestry. In literature, 5 different agroforestry systems are distinguished. These categories are shown in figure 3. The impact is calculated based on the type of agroforestry. The "unshaded monoculture" will have the same biodiversity impact of as the "plantation non-timber" category from Chaudhary et al (2016). They are similar, as for instance palm oil plantations (often unshaded monocultures) fall within this category. The mid category of "commercial polyculture" is linked to the general agroforestry system and the "rustic" agroforestry scheme is assumed to have negligible impact on biodiversity.

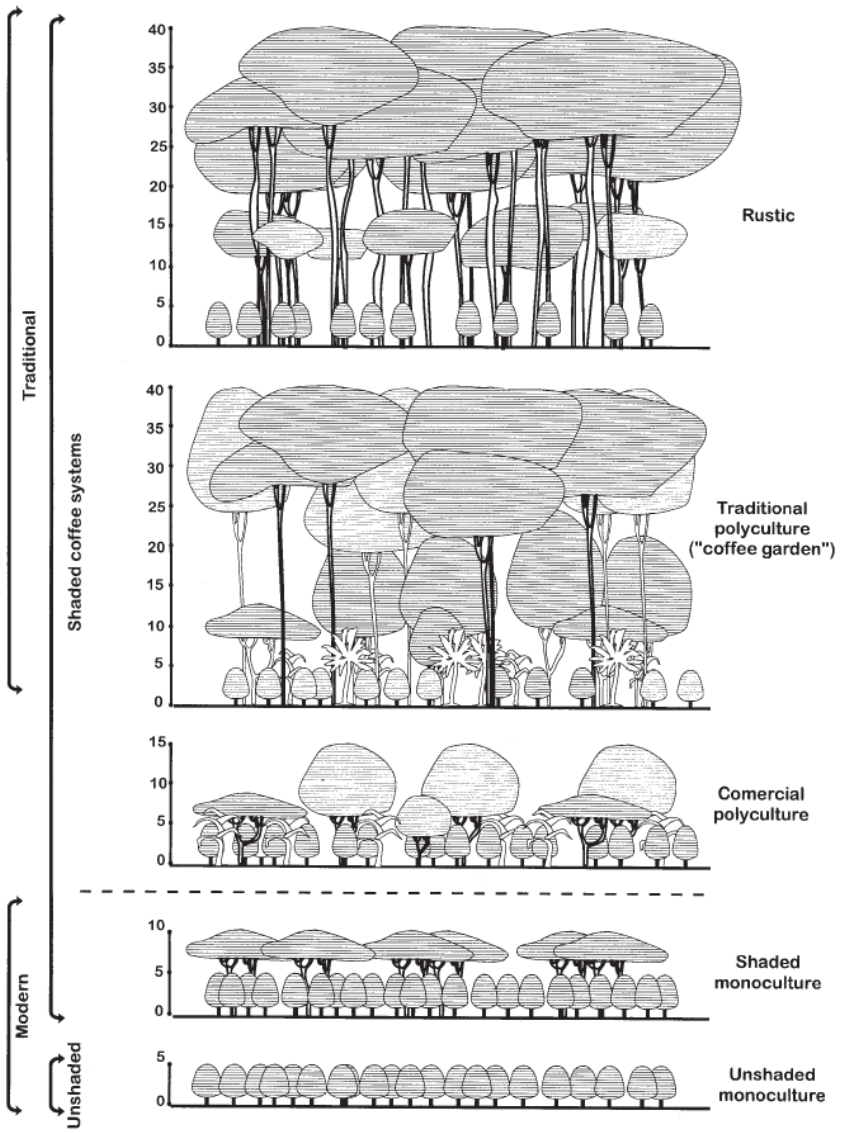


Figure 3: Schematic overview of five coffee-growing systems (image from Moguel & Toledo: 1999 – DOI: 10.1046/j.1523-1739.1999.97153.x)

1. B-A: The following potentially disappeared fractions of species (PDFs) are derived by combining the research of Chaudhary et al (2016) with the different agroforestry practices.

Management type		PDF compared to pristine satiation
1.	Rustic	0.05
2.	Traditional polyculture (coffee garden)	0.2
3.	Commercial polyculture	0.35
4.	Shaded monoculture	0.45
5.	Unshaded monoculture	0.55

2. C: The calculated carbon storage based on tree type and site specific conditions of the forestry project. This calculation, is based on the IPCC Guidelines for National Greenhouse Gas Inventories. The result is translated into biodiversity gain using ReCiPe.
3. D: Data on the environmental pressures resulting from the establishment and operation of a forestry project. The biodiversity loss of these environmental pressures is calculated using ReCiPe.

The biodiversity gain being B-A+C-D.

4.5 Investment in the avoidance of negative impacts on biodiversity

4.5.1 Investments in green energy

Example
Investments in green energy, replacing fossil-based energy, resulting in avoided CO_2 emissions. Taking into account any potential negative impacts of the production of green energy, the investment could result in a net positive impact on biodiversity.

Integration in a biodiversity footprint:
Integration in the BFFI will be based on a calculation of the biodiversity impact of the green energy and the energy which is being replaced. This calculation not only includes greenhouse gas emissions, but also other environmental pressures resulting from the production of energy. The BFFI footprint will be based on:

- The impact on biodiversity of the energy replaced and the green energy:
  A. The impact on biodiversity in the reference situation: the impact on biodiversity resulting from greenhouse gas emissions and other impacts from the use and production of the energy replaced, taking into account the full life cycle and a functional unit.
  Either based on the actual energy replaced (if this information is available) or the energy mix in the country of production.
  B. The impact on biodiversity resulting from greenhouse gas emissions and other impacts from the use and production of the green energy, taking into account the full life cycle and a functional unit.

⇨ The net-impact being: B-A

The publication 'Paving the way towards an harmonised Carbon Accounting Approach for the Financial Sector' (Platform Carbon Accounting Financials, 2016) provides a more comprehensive overview of a carbon accounting approach for financial institutions.

Data

	Information needed	**Type of data**	**Remarks**
A	Information on the type of energy replaced by the green energy	Direct data from the location, company or region where the energy is used Statistical data on the energy mix of the country where the energy is used	Direct data are preferred over the country mix.
	Information on the environmental pressures linked to the energy that is replaced, including greenhouse gasses	Life cycle based environmental data on the energy that is replaced (resource use, land use, emissions, etc.) from databases like ecoinvent.	The data are used to calculate the (negative) biodiversity footprint using ReCiPe
B	Information on the type of green energy	project data or fund data	
	Information on the environmental pressures	Life cycle based environmental data on the green energy (resource	The data are used to calculate the

	linked to the green energy, including greenhouse gasses	use, land use, emissions, etc.) from databases like ecoinvent.	(negative) biodiversity footprint using ReCiPe

The data on greenhouse gas emissions from the green energy and the energy replaced can be used to calculate the avoided carbon emissions.

4.5.2 Investments in reduced-impact (green) resources

Example
Investments in the recycling of plastic, replacing the use of virgin plastic, resulting in a reduced impact on biodiversity, taking into account any negative impacts of recycling (e.g. transport for waste collection, energy used for processing, etc.).

Integration in the BFFI
Integration in the BFFI is similar to investments in green energy. The BFFI footprint will be based on:

- The impact on biodiversity of the resource replaced and the green resource:
  A. The impact on biodiversity in the reference situation: the impact on biodiversity of the resource which is replaced, taking into account the full life cycle and a functional unit.
  B. The impact on biodiversity of the use of the green energy, resulting from greenhouse gas emissions and other impacts from the energy production.

⇨ The net-impact being: B-A

Data

	Information needed	**Type of data**	**Remarks**
A	Information on the 'traditional' resource which is being replaced	Data from the company/organisation/sector using the resource. Indirect data from databases on the resource use in the country/sector/product involved.	This includes data on the whole supply chain (e.g. country of origin of the resource). Direct data are preferred over indirect data from databases.
	Information on the environmental pressures linked to the resource which is being replaced	Direct data or indirect data: life cycle based environmental data on the resource (resource use, land use, emissions, etc.) from databases like ecoinvent.	The data must be linked to a functional unit. The data are used to calculate the biodiversity impact using ReCiPe
B	Information on the green resource	Data from the company/organisation/sector using the green resource.	This includes data on the whole supply chain.
	Information on the environmental pressures linked to the green resource	Indirect data: life cycle based environmental data on the resource (resource use, land	The data must be linked to a functional unit.

		use, emissions, etc.) from databases like ecoinvent.	Use of attribution rules regarding the positive impact of recycling and reuse might be needed. The data are used to calculate the biodiversity impact using ReCiPe

4.5.3 Investments in alternative livelihoods

Example
Investments in eco-tourism preventing the loss of habitat due to slash and burn agriculture by providing an alternative, more sustainable livelihood to the communities involved.

Integration in the BFFI
The result of an investment in alternative livelihoods can either be estimated (e.g. based on similar cases and expert judgment) or can be calculated based on the impact of the economic activities with and without the investment. The integration in the BFFI will be based on:

- The estimated/expected biodiversity gain of the alternative livelihood (B-A):
  A. The reference situation: the (estimated/expected) level of biodiversity in the area when the investment would not take place.
  B. The estimated/expected level of biodiversity following the realisation of the alternative livelihoods.
- The calculated biodiversity gain of the alternative livelihoods (D-C):
  C. The reference situation: the impact on biodiversity of the economic activities providing the livelihoods to the stakeholders, if the investment is not made.
  D. The impact on biodiversity of the new, more sustainable economic activities providing a comparable livelihood to the stakeholders following the investment.
- Negative impacts resulting from a potential (regional) shift of economic activities to another location, either estimated or calculated (E):

⇨ The net-impact being: B-A-E or D-C-E

Data

	Information needed	**Type of data**	**Remarks**
A	Information on the livelihood of stakeholders without the investment (the reference situation)	Data from the area/region.	This is a prediction of the economic activities in the area without the investment.
	The estimated level of biodiversity in the (future) situation without the investment	Expert judgment Field/monitoring data Data from scientific research/case-studies	For the BFFI, the result needs to be expressed as a percentage of biodiversity intactness or loss (e.g. a biodiversity level of 50% compared to a pristine state).

B	The livelihood of stakeholders when the investment is made	Data from the area or fund	This is a prediction of what will happen to the economic activities in the area when the investment is made
	The estimated level of biodiversity when the alternative livelihood is realised	Expert judgment Field/monitoring data Data from scientific research/case-studies	For the BFFI, the result needs to be expressed as a percentage of biodiversity intactness or loss (e.g. a biodiversity level of 80% compared to a pristine state).
C	Information on the livelihood of stakeholders without the investment (the reference situation)	Data from the area/region.	This is a prediction of the economic activities in the area without the investment.
	Information on the environmental pressures linked to the economic activities without the investment	Indirect data: life cycle based environmental data on the activities (resource use, land use, emissions, etc.) from databases like ecoinvent.	The data are used to calculate the biodiversity impact using ReCiPe
D	The livelihood of stakeholders when the investment is made	Data from the area or fund	This is a prediction of the economic activities in the area when the investment is made
	Information on the environmental pressures linked to the economic activities when the investment is made	Indirect data: life cycle based environmental data on the activities (resource use, land use, emissions, etc.) from databases like ecoinvent	The data are used to calculate the biodiversity impact using ReCiPe
E	Information on the potential shift of economic activities to other areas	Expert judgement Data from scientific research/case-studies	This is a prediction whether the economic activities replaced by the alternative livelihood will shift to other areas
	Estimation: The estimated change in biodiversity in other areas when the economic activities shift	Expert judgment Data from scientific research/case-studies	For the BFFI, the result needs to be expressed as a percentage of biodiversity gain or loss (e.g. a biodiversity loss of 20%).
	Calculation: Information on the environmental pressures linked to the economic activities that are expected to shift to other areas	Indirect data: life cycle based environmental data on the activities (resource use, land use, emissions, etc.) from databases like ecoinvent.	The data are used to calculate the biodiversity impact using ReCiPe

4.5.4 Investments averting future risks to biodiversity

Example
Investments in a private nature estate that runs the risk of (partly) being converted into an agricultural area due to a lack of funding.

Integration in the BFFI
Integration in the BFFI will require an estimation or calculation of the biodiversity that will be lost if the investment is not made. The integration in the BFFI will be based on:

- The estimated/expected biodiversity gain of an investment in the area (B-A)
  A. The reference situation: the estimated/expected level of biodiversity in the area when the investment does not take place and biodiversity is lost.
  B. The estimated/expected level of biodiversity in the area when the investment is made and the risk of biodiversity loss is averted.
- The calculated impact on biodiversity in the area when the investment is not made. This impact is also the biodiversity gain when an investment prevents the activities from taking place (C)

⇨ The net-impact being: B-A or C

Data

	Information needed	**Type of data**	**Remarks**
A	Information on the risk the biodiversity in the area runs, like economic activities planned	Direct data from the area	This is a prediction of what will happen in the area when the investment is not made
	The estimated level of biodiversity in the (future) situation without the investment	Expert judgment Data from similar cases	For the BFFI, the result needs to be expressed as a percentage of biodiversity intactness or loss (e.g. a biodiversity level of 50% compared to a pristine state)
B	The estimated level of biodiversity when the investment is made	Expert judgment Field/monitoring data of current biodiversity	When the risk is averted, the biodiversity could remain the same as before the investment or the level of biodiversity may be higher/lower, depending on trends and other influences in the area For the BFFI, the result needs to be expressed as a percentage of biodiversity intactness or loss (e.g. a biodiversity level of 80% compared to a pristine state)
C	Information on the changes/economic activities in the area when the investment is not made	Direct data from the area/region	This is a prediction of what will happen in the area when the investment is not made

	Information on the environmental pressures resulting from the changes in the area without the investment	Indirect data: life cycle based environmental data on the activities planned (resource use, land use, emissions, etc.) from databases like ecoinvent	The data are used to calculate the biodiversity impact using ReCiPe This impact is also the biodiversity gain when an investment prevents the activities from taking place

4.6 Investments complying with biodiversity related investment criteria

Example

Many biodiversity related investment criteria focus on a reduction of negative impacts on biodiversity by requiring better management practices (either or not linked to certification initiatives) from the investee. Examples of such criteria are:

- Requirements regarding FSC certification in case of forestry related investments, e.g. investments in the paper industry.
- Exclusion of investments in state bonds of countries that do not endorse the Kyoto Protocol and/or the Paris Agreement.
- Requirements regarding the involvement of housing corporations in the construction of new buildings in green, undeveloped areas in case of investments in residential construction.

Integration in the BFFI

The potential biodiversity gain of biodiversity related investment criteria can be twofold:

- The criteria can have an effect on the practices of potential investees and other financial institutions through awareness raising by showing what biodiversity topics play a role in the access to capital.
- The criteria can contribute to an actual change in behaviour of potential investees in order to comply with the investment criteria.

The effect of biodiversity related investment criteria on awareness raising is not tangible enough and too indirect/unsure to allow a translation into a positive contribution to a biodiversity footprint. This effect is therefore not discussed any further.

The potential gain in biodiversity resulting from a change in behaviour (like the implementation of better management practices) is comparable with the biodiversity gain through impact investment, discussed in the previous sections. Especially impact investing with the aim of reducing the pressures on biodiversity will be relevant in this respect. However, an important difference with a direct investment in interventions that reduce pressures on biodiversity is the fact that investment criteria will only lead to biodiversity gain if these criteria result in a positive *change in behaviour* of the investees. In those cases where investees *already comply* with the investment criteria, the criteria do not lead to any biodiversity gain compared to the situation before the investment. This is of course a ‘grey area’: it will not always be clear what role the investment criteria played in the practices of the investee.

If it is unclear whether the investor is responsible for the biodiversity gain, the positive effect should not be counted as a positive contribution used to compensate for negative impacts (e.g. to reach a no-net-loss). This will also set ‘regular’ investments apart from impact investment.

How to show above-average performance in the BFFI?
Even though the effect of investment criteria cannot be counted as positive impacts, the results of these criteria (e.g. the FI only invests in best-in-class) should find their way into the footprint. When direct data (data from the investees) are used, the better performance on biodiversity (reflected in the investment criteria) will also find its way into the results of the biodiversity footprint. However, when sector averages are used to calculate a footprint (which is the case when using Exiobase data in the BFFI), above-average performance does not show up in the footprint and the use of biodiversity related investment criteria is therefore not 'rewarded'.

A solution to this dilemma could be to adjust an impact score based on sector averages with *correction factors* reflecting the positive effect of different investment criteria. However, this is not an easy job, since the effects will often be very situation specific. If correction factors are to be used, it is recommended to limit this to investment criteria that apply to clearly defined economic activities (like forestry, mining, construction etc.) and that require (an obligation, not a preference) clearly defined better management practices. For example: "Equity: The company meets the requirements of RSPO, RTRS, FSC, NTA8080 or comparable standards or quality labels."

Investment criteria that cannot be included in a footprint by using a correction factor are criteria which are too vague or not obligatory. For example: "Equity: The company has a management system and policy for topics relevant to its operations, such as CO_2 emissions and energy, water, waste and recycling."

Use of sustainability standards
In the investment criteria currently used by investors, *sustainability standards* like RSPO, FSC, and RTRS play an important role (see also annex 1). Some of these standards are also widely recognised for their (potential) contribution to the conservation of biodiversity. For this reason the BFFI will start using a correction factor for investment criteria requiring compliance with widely accepted biodiversity relevant standards (see also 4.4). As mentioned before, the selection of standards for which such a correction will be used and the magnitude of the correction factor will be decided on case-by-case basis.

Selection of a correction factor for standards
When sector averages on a country level are used, the average will be based on production with and without better management practices, certified or not. This mixture of good and bad practices is ideally taken into account when deciding on a correction factor for better management practices. For example, in Sweden more than 60% of forest areas are certified through FSC or PEFC. Average environmental data on the forestry sector in Sweden therefore already include a high percentage of forestry with a reduced impact on biodiversity. In this situation an FSC-correction factor should probably be different from a correction factor in a country where the level of sustainable forestry certification is maybe only 5%.

4.7 Investments under biodiversity related engagement

Example
Engagement with an investee on the investee's negative impact on biodiversity by addressing the drivers of biodiversity loss and the implementation of better management practices.

Integration in the BFFI

An engagement process will only lead to biodiversity gain if the process results in an actual change in behaviour of the investee. Since the outcome of an engagement process is uncertain, engagement as such cannot be integrated in a biodiversity footprint. Integration is only relevant when a positive change in behaviour can be proven and attributed to the engagement process. This also means that the integration of engagement in a biodiversity footprint will need to be considered on a case-by-case basis.

4.8 Reporting of the footprint and a no-net-loss strategy

The previous paragraphs show that 'biodiversity-positive investments' covers a wide range of contributions to the conservation and sustainable use of biodiversity. To provide a transparent picture of the biodiversity footprint of a financial institution's investment portfolio, the financial institution may consider to report separately on different parts of the footprint (see table 1).

Different biodiversity-positive investments might also be treated differently in achieving a no-net-loss or net-gain. In line with the findings of the workshop 'Integrating biodiversity-positive investments in biodiversity footprinting' (see annex 2) it is recommended that avoidance and reduction of negative impact are no used to achieve a net-gain. A net gain can only be achieved by means of an actual increase in biodiversity (see table 1).

Moreover, the results of the workshop also indicate that a financial institution should be very careful in its communication on a no-net-loss on the level of an investment portfolio. For many stakeholders, a no-net-loss implies a strategy which meets the requirements of initiatives like BBOP, including (for example) like-for-like compensation. Since this is not realistic on a portfolio level due to a lack of detailed and location specific footprint data, a financial institution with a no-net-loss or net-gain objective needs to explain how this objective needs to be interpreted. An objective of minimising negative impacts and maximising positive impacts (without balancing out the two) will be more in line with reality. At the same time, it must be realised that a no-net-loss or net-gain objective will trigger positive action and will be more valuable from a communication point of view.

Table 1 Biodiversity-positive investments: reporting, integration in the footprint and use in a no-net-loss and net-gain strategy

	Report on	**Integration in footprint?**	**Use to reach a no-net-loss?**	**Use to reach a net-positive-gain?**
Impact investing				
Increase of biodiversity				
Enhancement of biodiversity	Net positive impact	✓	✓	✓
Nature restoration	Net positive impact	✓	✓	✓
Reduction of negative impacts				
Interventions addressing drivers of biodiversity loss	Net positive impact	✓	✓	
Avoided negative impacts				

Green energy and resources	Net positive impact	✓	✓	
Alternative livelihoods	Net positive impact	✓	✓	
Interventions averting future risks	Net positive impact	✓	✓	
All investments				
Negative impacts on biodiversity	Net negative impact, adjusted for: • Investment criteria • Engagement resulting in positive change	✓	n.a.	n.a.
The mitigation hierarchy	Application of the mitigation hierarchy		✓	✓

By differentiating investments according to their impact on biodiversity, both in the footprint and a no-net-loss or net-gain strategy, an FI will be transparent about its relation with biodiversity and the way in which biodiversity-positive impacts are used to achieve the FI's objective.

ANNEX 1 BIODIVERSITY GAINS FROM CERTIFIED BETTER MANAGEMENT PRACTICES

Standards in investment criteria

Many impact investors invest in better management practices and certification to achieve a net biodiversity gain and many investment criteria also refer to such practices and certifications. For example, compliance with RSPO criteria (Round table on Sustainable Palm Oil) or RSPO certification is required in case of investments in palm oil producing and processing companies. The use of such certifications is often related to direct or indirect investments in agriculture, fisheries and forestry, including references to:

RSPO	Round table on Sustainable Palm Oil
RTRS	Round table on Responsible Soy
FSC	Forest Stewardship Council
PEFC	Program for the Endorsement of Forest Certification
MSC	Marine Stewardship Council
Bonsucro	Sugar Cane
BCI	better Cotton Initiative
Organic	Organic production
RFA	Rainforest Alliance

This is illustrated by the table below which provides an example of environmental standards/certification referred to in the sustainability policy, investment criteria or investment funds by a selection of Dutch financial institutions. Please note that this overview is not a comprehensive overview of the sustainability policy or investment criteria of these financial institutions, nor does it show how strict the requirements are with regard to compliance to these standards. Standards may be used as a minimum requirement, but also as a reference to assess the level of sustainability of producers and processors.

Table 1 Examples of environmental standards/certification referred to in the sustainability policy, investment criteria or investment funds by a selection of financial institutions

	RSPO	RTRS	FSC	PEFC	MSC	Bonsucro	BCI
ASN Bank	X	X	X	X			
ACTIAM	X	X	X		X		
Rabobank	X	X	X	X	X	X	
ING	X	X	X	X			
ABN AMRO	X	X	X	X		X	X

Producers that operate in line with these standards may perform above average where it comes to the impact on biodiversity, positively affecting the biodiversity footprint of the economic activity and therefore the biodiversity footprint of the investor. However, integration in the footprint requires data on the positive effect: is the impact reduction induced by these standards measured? The same is true for many other standards based on better management practices, like Organic, Utz Certified, FairTrade, Rainforest Alliance, 4C, etc.

Integration in a biodiversity footprint

In practice, there are five options of integrating the effect of certification or compliance to certification criteria in a biodiversity footprint:

1. By using location specific direct monitoring data, showing *the actual positive impact* on biodiversity through a baseline analysis before the standard criteria are implemented and monitoring of the level of biodiversity after the standard is implemented.
2. By using location specific *expected or calculated positive impacts* resulting from the better management practices implemented. For example by calculating the positive impact on biodiversity resulting from carbon sequestration measures.
3. By using a standard/certification specific *fixed adjustment score* for all situations or a fixed adjustment score tailored to a limited number of situations, based on *standard/certification-specific impact studies*.
   Such situations may include different ecoregions where different impacts have been found.
4. By using a standard/certification specific *fixed adjustment score* for all situations or a fixed adjustment score tailored to a limited number of situations, *based on expert judgement*.
   This expert judgement can also entail the use of the criteria of a standard/certification to calculate the biodiversity gain compared to an average situation. For example, if a label requires a specified maximum of water use, this requirement can be used in the footprint calculation instead of average data on water use.

The first way of integration is potentially the most accurate, followed by the second, third and fourth option. In the first option, location specific characteristics are automatically included in the impact. In the second, third and fourth option, location specific characteristics (e.g. different ecosystems) can be included if the relations between location specific characteristics and the impact on biodiversity are clear. It should be noted that in case of a footprint analysis on a portfolio level, the amount of time and number of data needed to account for location specific characteristics may be too high.

In practice, integration of (certified) better management practices could start at the level of option four and move to the level of option 1 when data become available and the scope of the footprint is limited to a selection of investments.

Availability of data on biodiversity impacts of certification initiatives

Several studies have addressed the role of certification initiatives in the conservation and sustainable use of biodiversity. Findings of three of these studies are presented below.

'How sectors can contribute to sustainable use and conservation of biodiversity' (PBL, 2014)

The CBD publication 'How sectors can contribute to sustainable use and conservation of biodiversity' (PBL, 2014) looks into the biodiversity benefits of certification initiatives. It is stated in this study:

"*As the market share of certified products continues to grow, the question of their actual on-ground impact on biodiversity becomes urgent. Understanding the on-ground impacts of certification schemes on biodiversity is essential to strengthen their credibility as a tool for biodiversity conservation (Mallet, 2012) and to determine whether these schemes successfully achieve the changes that they anticipate (Milder et al., 2012). Due to a lack of sufficient data, it is difficult to derive general conclusions (PBL, 2014), however considerable efforts have recently been made to improve the state of knowledge*."

"*Measuring the on-ground impact of certification schemes on biodiversity is very challenging in all sectors. However, looking at existing literature on the subject leads to the conclusion that*

certification could contribute to reducing on-site biodiversity loss. Nevertheless, there are differences between local and regional spatial levels, as well as between sectors."

"At present, the availability of reports on the impacts differs highly depending on the type of commodity, with a prevalence of studies on the biodiversity impacts of wood and coffee certification, and a lack of such studies on soy and palm oil certification (PBL, 2014)."

'Biodiversity in standards and labels for the food industry' (Global Nature Fund et al, 2015)
The report 'Biodiversity in standards and labels for the food industry' (Global Nature Fund et al, 2015) states:

- *In most standards the determination of the starting point (baseline) is not required. However, a record of the status quo is needed for the implementation of criteria such as the development of biodiversity action plans, conservation plans, water management plans etc. In addition, the positive effect of criteria can only be assessed if a baseline is determined and monitoring takes place.*
- *The impacts of measures on biodiversity are typically to be determined only in the medium or long-term. In addition, other factors play a role that cannot be influenced by the farmer. Long term monitoring is therefore a necessity. Standard organisations/ companies should implement a monitoring system with key data and indicators on farm level as well as on regional level.*
- *Monitoring the impact on biodiversity is a challenge for all standard organisations and therefore a task that organisations and companies should implement together. A shared monitoring system at regional scale that is maintained by a conjunction of standards/ companies would be more meaningful and cost effective.*
- *Only a functioning monitoring system can prove that certified farms contribute to the conservation of biodiversity. It should be in the interest of standard organisations and food companies to provide this evidence. Positive results can be used to raise the profile of standards and companies (e.g. request of financial support for the implementation of standards; information in sustainability reports, legal compliance, etc.).*

'Certification and biodiversity – how voluntary certification standards impact biodiversity and human livelihoods' (IUCN CEESP, 2016)
Issue 21 of 'Policy matters' (2016), a peer reviewed journal published by IUCN's Commission on Environmental, Economic and Social Policy (CEESP), also deals with the topic of 'Certification and biodiversity – how voluntary certification standards impact biodiversity and human livelihoods'. The publication states that biodiversity conservation impacts of Voluntary Certification Schemes (VCS) may be delivered and evaluated in three main ways:

1. Conserving existing natural ecosystems and their associated biodiversity.
2. Improving the conservation value of production systems and landscapes.
3. Reducing off-site environmental impacts

These three 'impact pathways' may be evaluated at three different levels, ranging from the most direct to the least so:

a. Adoption of specific best management practices (BMPs) or VCS requirements associated with the impact area.
b. Documentation of proximate outcomes at the level of individual certified entities (e.g., farms, forest management units, farmer or forest owner groups, or mills).
c. Documentation of broader outcomes at the level of landscapes, watershed, or regions.

An analysis of evidence of biodiversity conservation impact of the SAN/Rainforest Alliance standard shows that evidence of impact is highest on the adoption of BMPs and low on actual outcomes in the field. The latter is more complex and costly than measuring the implementation of BMP measures. However, the adoption of BMPs can only serve as a proxy for biodiversity gain.

The IUCN publication also mentions another challenge in assessing the positive impact of Voluntary Certification Standards (VCS), namely the fact that issue of 'selection effects': the phenomenon that producers already conforming to the requirements of certification standards may have stronger incentives to participate in such programs as the cost of compliance is lower for them than for laggards. Rigorous assessment of the effects of certification is complicated by this potential selection bias.

At the same time, the IUCN publication concludes:
"As VCS schemes have upgraded their M&E systems and the scientific community has increased the quantity and rigor of research on impacts of VCS, the once-accurate refrain that environmental effects of VCS are largely unknown no longer holds true. Certainly, the evidence base is far from complete: as with most other conservation interventions, effects of VCS are difficult to generalize across diverse settings and crops, as the evidence base that does even come close to sampling fully from these disparate contexts suggests. Nevertheless, as illustrated by the case of the SAN/Rainforest Alliance certification scheme, mutually corroborating evidence related to some sets of biodiversity-related results have begun to emerge when portfolio-wide evidence from internal M&E systems is combined with more detailed research studies, including those with credible counterfactuals. Such evidence provides a foundation upon which future evaluation and research efforts can build in a targeted way to fill key gaps such as those defined in this paper."

To summarise
Research and data on the biodiversity benefits of standards/certification initiatives like the ones mentioned in table 1 is still limited. The consequence of this lack of data is that it will be difficult to come up with fixed correction factors based on impact studies. When such data are lacking, integration of the effect of standards/certifications in the biodiversity footprint will need to be based on location specific direct data, location specific expected/calculated impacts, or (fixed) adjustments cores based on expert judgement.

As also discussed in the workshop 'Integrating biodiversity-positive investments in biodiversity footprinting' (see annex 2) standards for which a correction actor is introduced will need to comply with certain requirements. For example, the standards will need to be independent, multistakeholder and biodiversity relevant. For which standards correction factors can be introduced in the BFFI and what these correction factors should look like will be assessed on a case-by-case basis.

ANNEX 2 WORKSHOP INTEGRATING BIODIVERSITY-POSITIVE INVESTMENTS IN BIODIVERSITY FOOTPRINTING

The project 'Biodiversity-positive impacts in the Biodiversity footprint for financial institutions' is commissioned by the Dutch ministry of Agriculture, Nature and Food Quality.

Date: 12 June 2019, 10.00 – 13.00
Location: ASN Bank
Participants: see list of participants at the end of the minutes

Supporting documents
1. Draft project results (pdf)
2. Preliminary results Kialo online consultation (pdf)
3. Presentation during the meeting (pdf)

To receive this information, send an email to Wijnand Broer, CREM, w.broer@crem.nl

Workshop Agenda

10.00 – 10.10	Welcome
10.10 – 10.30	Introduction participants Write down max 3 initiatives that you think should be linked to this project
10.30 – 10.50	Presentation project and draft results
10.50 – 10.55	Introduction group discussion
10.55 – 11.25	Discussion round 1 (3 groups)
11.25 – 11.40	Coffee break
11.40 – 12.10	Discussion round 2 (3 groups)
12.10 – 12.45	Plenary feedback groups & discussion
12.45 – 12.50	Opportunities for cooperation / roadmap
12.50 – 13.00	Conclusion & follow-up steps
13.00 – 13.30	Lunch (optional)

Feedback on the questions and statements from the group discussions
Group discussions were facilitated by means of 3 main questions and a number of statements. The main results of the discussions are presented below. Topics that resulted in a lot of agreement among the groups ('common ground' in the discussion) have been underlined.

1. What categories of biodiversity positive investments need to be separated when a financial institution is aiming for a no-net-loss or net-gain?

Statement
- *An investment in green energy can be treated as a positive impact on biodiversity due to the carbon emissions avoided.*

An investment on green energy can be treated as an indirect biodiversity positive investment, provided that all impacts are taken into account, not just the carbon related impact (e.g. also

including the impact of wind parks on birds, etc.). It must be realized that the indirect biodiversity gain from an investment in green energy (avoided CO2) will decrease over time when the use of green energy grows.

Statement

- *Investments in the reduction of negative impacts (e.g. investments in pro-biodiversity measures in agriculture) can be used to compensate for negative impacts on a portfolio level to reach a no-net-loss, but cannot be used to reach a net-positive-gain.*

The indirect biodiversity gain by investing in green energy does not lead to an increase in biodiversity and should therefore not be used to reach a net positive gain. It is only slowing down a downward trend. A distinction can be made between 'avoided' (like green energy, conservation and avoidance of impact through exclusion), 'less negative' (for example through sustainable agriculture and certification) and 'net positive/increase' (like restoration). A financial institution should be transparent about these different categories.

The level of biodiversity of an impact area should be taken into account one way or another when focusing on biodiversity positive impacts, e.g. by using 'quality hectares'. Conservation in one area may be more valuable than conservation in another area (e.g. biodiversity hot-spots). The impact area may not be known on a portfolio level, but will be known in case of impact investment in specific projects. Similarly, there should be no-go areas for investors in case of negative impacts. In the case of ASN bank this is (at least partly) covered in the investment criteria.

Try to provide a link with the 'Science based targets' when aiming for biodiversity-positive investments, similar to the target on climate.

Statement

A financial institution reporting on a biodiversity footprint should report separately on investments in biodiversity increase (e.g. nature restoration) and a reduction of biodiversity loss (e.g. good agricultural practices).

Different types of positive impacts need to be reported separately by a financial institution and it must be clear that the financial institution is following the mitigation hierarchy. Make clear in the report where you lose biodiversity and where you gain biodiversity. Losing biodiversity in one place and gaining it in another will never result in a real no-net-loss. Be clear about this in the

communication. A financial institution might differentiate between reporting on the footprint (resulting in a number) and reporting on impacts (room for qualitative information). Double counting as a result of positive contributions to biodiversity and climate change is not necessarily a problem, as long they are both reported separately.

Pay a lot of attention to the language that you use. Both to keep the discussion accessible to the non-expert reader and to be clear about the definitions. Current terminology may mean different things to different readers.

2. A positive impact compared to what? The reference situation and attribution of impact.

Statements:

- *The reference situation is the level of biodiversity in the area (where the investment is expected to have an impact) before the investment takes place*
- *The investor investing in pro-biodiversity interventions of an existing economic activity becomes partly responsible for the negative impacts of that activity.*

Get rid of the pristine situation as a reference situation. Using a pristine situation as a reference will demotivate companies and investors to act. In case of biodiversity-positive investments, the situation without the investment should be the reference. This means that negative impacts of the activity invested in should not be attributed to the impact investor. The latter would result in the situation without the activity becoming the reference.

If a 'pristine' situation is used as a reference in footprinting it needs to be clear how this pristine situation is defined. For example, in the ReCiPe methodology the pristine situation is defined as the situation without any human interference (e.g. forest in Europe). The biodiversity level in an ecosystem without any human interference can be lower than the biodiversity level in a system with some human interference as a result of more variety in the landscape. It may be considered to include a year in the definition of the reference situation, similar to the cut-off years used in initiatives like FSC.

It is important to realise that the reference situation is not the same as the target or the situation you want to reach. There is often a reference–target confusion. You can use a pristine situation in a footprint to assess the impact of an economic activity on biodiversity. However, the target of a biodiversity-positive investment will almost never be to reach a pristine situation.

Instead of using a pristine situation in footprinting, using the planetary boundaries may prove to be a better option: is a company operating within or outside its planetary boundaries? This may not be feasible yet, but could be a good valuable alternative for the future. When using planetary boundaries in footprinting, a landscape approach is essential. On a landscape level there will be more actors involved in the impacts on biodiversity and the depletion of stocks (determining the carrying capacity of an ecosystem). This will lead of course to challenges from the viewpoint of attribution.

Another reference which may come in at some point when talking about biodiversity-positive investments is the Living Planet Index as an indicator on a global level. This also goes for the link with the human development agenda and the use of 'resilience' as a factor when defining a reference situation. Resilience requires a balance of ecosystem services, focusing on ecological, economic, social and cultural services.

Incorporating additional reference situations in biodiversity footprint allows more flexible communication opportunities. A reduction of negative impact can be reported as a positive 'impact'. However, the remaining negative impact should still be reported (separately) as the remaining biodiversity 'footprint'. By distinguishing between positive 'impact' and the remaining 'footprint', efforts to improve biodiversity can be quantified while the remaining negative impact is still accounted for. Instead of a no-net-loss objective, a financial institution might consider to set an objective on minimizing negative direct and indirect impact and maximizing positive direct and indirect impact.

Statement

- *To reward financial institutions that include multi-stakeholder, independent and biodiversity relevant standards in their investment criteria (e.g. FSC, MSC, RFA) a positive impact of these certifications should be included in the footprint, even if impact-data are still lacking.*

Rewarding standards in investment criteria by means of a reduced footprint should be considered, even when impact data are lacking. This should only be done for standards meeting certain criteria with regard to being independent, multi-stakeholders, etc. Being a member of ISEAL might serve as one of the criteria. Financial institutions can play a role in making the impact of standards more transparent by asking this from their clients.

It must be realized that there may also be negative aspects linked to certification, like the costs involved. Certification may not be an option for smallholders which can play an important role in halting the loss of biodiversity. Setting stringent certification based investment criteria, rewards frontrunners with access to capital. However, it might hinder companies that want to improve their operations but are not at the level that the certification requires. Excluding these companies or projects could exclude many investment opportunities with the biggest potential for improvement. For this reason, a financial institution may want to set different targets and requirements for different groups/investees.

3. In case of a follow-up to this project: who should be involved and what are key moments and meetings the coming year(s) (roadmap)?

Follow-up with the objective to expand the work to other financial institutions

- Follow-up work by ASN Bank together with other financial institutions, following the common ground paper of 2018 (CDC Biodiversité, ACTIAM and Finance in Motion).
- DNB Working group on biodiversity
- The Ecosystem Services Partnership meeting in October 2019
- Coalition for Private Investment in Conservation (CPIC), meeting on 18/19 July
- The EU CoP on Finance@Biodiversity

Follow-up concerning impact assessment approaches for the financial sector

- Revision of the IRIS+ biodiversity metrics of the GIIN
- FSC ES Procedure
- The Aligning Biodiversity Measures for Business initiative (UNEP WCMC; the initiative is a collaboration between 22 institutions)

Follow-up addressing reporting on biodiversity impact by financial institutions

- GRI: Revision of the GRI biodiversity indicators
- Natural Capital Finance Alliance (NCFA): development of a Financial sector Reporting framework for Nature, similar to the Task Force on Climate Related Financial Disclosures (TCFD).

Meetings and initiatives relevant to several follow-up actions

4. Actieagenda voor Biodiversiteit/ Action Agenda for Biodiversity (IUCN and LNV)
5. Science Based Targets Network
6. IUCN meetings in 2019 and 2020

List of participants

(organisations in alphabetic order)

ABN AMRO	Jan Raes
Arcadis	Johan lammerant
ASN Bank	Roel Nozeman
ASN Bank	Stef Driesen
CREM	Wijnand Broer
DNB	Joris van Toor
FMO	Mikkel Kallesoe
FMO	Eduardo Carriles
FSC	Annerieke Sleurink
ING	Jochen Harkema
IUCN	Marco Keijzer
IUCN	Romie Goedicke
Natuurverdubbelaars	Tom Kools
Natuurverdubbelaars	Lorain Drennan
NWB	Wouter Scheepens
PBL	Marcel Kok
PRé	Mark Goedkoop
PRé	Daniël Kan
Rooftop Revolution	Julia Huisman
RVO	Leenders, dr. C. van (Caroline)
RVO	Ybema, R.A. (Renske)
Stichting DOEN	Irene de Jong
Stichting Natuur en Milieu	Susanne Hagen
Triple Jump	Christophe Bochatay
Triple Jump	Nicolas Baumgartner
WNF	Nicolas Poolen
WUR	Arnold van Vliet
WUR (Nature Today)	Mieke Siebers

ANNEX 3 KIALO ONLINE CONSULTATION

Background
In the past few years, CREM, PRé Sustainability and ASN Bank have been working on a biodiversity footprinting methodology, resulting in the Biodiversity Footprint Financial Institutions (BFFI). At this moment, CREM and PRé Sustainability are working on a project on 'biodiversity positive investments in biodiversity footprinting, commissioned by the Dutch Ministry of Agriculture, Nature and Food Quality.

To integrate biodiversity positive impacts in a biodiversity footprint, a number of important questions need to be answered. For example, do avoided or reduced negative impacts also count as positive impacts? What should be used as the reference situation when assessing positive impacts? To gather input on these questions from a wider audience of experts, a discussion on 'Kialo' has been started.

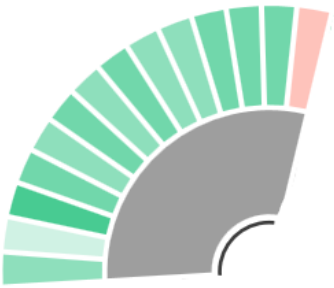
1: Investments in a reduction of negative impacts on biodiversity should be presented separately from investments in an increase in biodiversity.

Pros:

- Reducing negative impact is different than positive impact (7)
- Investment decisions and a "no net loss" requires knowing your positive impacts and your reduced negative impacts (2)
- Increase transparency (2)

Cons:

- Why should they be separated? Actions could cause both impacts at the same time



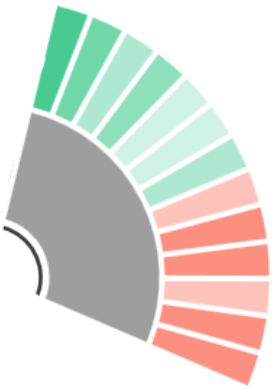
2. The reference situation when assessing biodiversity positive impacts is the level of biodiversity before the investment is made

Pros:

- I agree, most workable, decent first approach (4)
- Yes, but (3)
    - How would it evolve without investment
    - What would be ideal for the ecosystem?

Cons:

- No, compare to a declining baseline of the last years
- No, compare to future declination due to climate change
- Ecosystems fluctuate, so we need an average of a set time period
- No, compare to average biodiversity impact in the sector
- No, take the original ecosystem (for instance in 1850) as reference, maybe the living planet index can be used



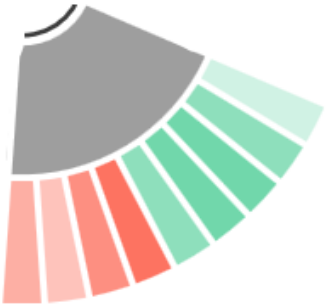
3. Investments in 'green' certifications should be rewarded in the calculation of a biodiversity footprint, even if data on positive impacts are still lacking

Pros:

- Yes, we need proxys or 3rd party audits, but it has to be transparent to avoid greenwashing (3)
- Yes, reward frontrunners and catalyse development, we can't wait for perfect data (2)

Cons:

- No, we need proof of actual gains (3)
- Maybe if there is a list of acceptable certifications (1)



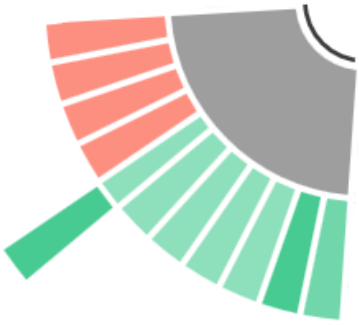
4. For the time being, a biodiversity footprint is a valuable alternative for a more complex assessment of impacts on ecosystem services

Pros

- Yes, good first step, even if reality is much more complex, it can help decision-making, knowledge development, and identification of opportunities to halt destruction of biodiversity (7)

Cons:

- Additional assessments are needed
- Both need to be developed ES is valuable because it can be the basis for a business case
- It is only valuable if the data quality is sufficient, the context is explained and the whole supply chain is taken into account



Note:
Be aware the Biodiversity and Ecosystem Services (ES) are not the same. Biodiversity supports ES and maximizing ES can even reduce biodiversity