Platform voor
Duurzame
Financiering

A Guideline on the use of Deforestation Risk Mitigation Solutions for Financial Institutions

From the Sustainable Finance Platform

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The Sustainable Finance Platform

This report is a reflection of the deliberations of the Working Group on Biodiversity set up under the auspices of the Sustainable Finance Platform. The working group consists of Actiam, APG, ASN Bank, a.s.r., FMO, Rabobank, Robeco, the Ministry of Agriculture, Nature and Food Quality and the Erasmus Platform for Sustainable Value Creation. The working group is and is chaired and sponsored by the NWB Bank.

The Sustainable Finance Platform is a cooperative venture of De Nederlandsche Bank (chair), the Dutch Banking Association, the Dutch Association of Insurers, the Federation of the Dutch Pension Funds, the Dutch Fund and Asset Management Association, Invest-NL, the Netherlands Authority for the Financial Markets, the Ministry of Finance, the Ministry of Economic Affairs and Climate, and the Sustainable Finance Lab. Platform members meet twice a year to forge cross-sectoral links, to find ways to prevent or overcome obstacles to sustainable funding and to encourage sustainability by working together on specific topics.

The Sustainable Finance Platform fully supports this paper. However, the practices and advice described herein are in no way binding for the individual financial institutions comprising the industry organizations which are members of the Platform, nor are they committed to take any specific follow-up actions. Furthermore, this paper outlines private sector initiatives and as such does not contain any supervisory requirements.

Scope of this Report

This report was produced on request of the Working Group on Biodiversity, chaired by NWB Bank, and aims to provide financial institutions around the globe with actionable steps and specific services to analyze and mitigate their impact on deforestation. Additionally, a number of best practice examples from the Dutch financial sector is shared. As such the report functions as an introductory document to the thematic complex of deforestation. Financial institutions can utilize this document as a starting point for first access to the topic or, if already addressing the topic actively, find further inspiration in the best practice examples that are provided for each part of the process. A focal point of this publication is the introduction of a list of services and tools that help financial institutions in tackling the issue of deforestation, connected to illustrations on how these sources are already applied in the field. This report is part of a series of contributions by the Working Group on Biodiversity relating to biodiversity in general and deforestation specifically.

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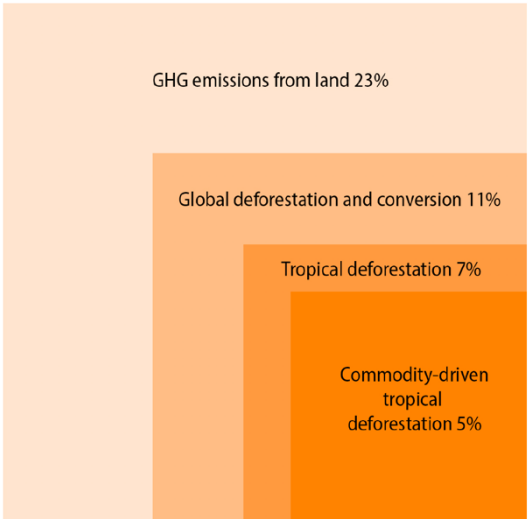
Introduction

Deforestation is a serious issue for economies, societies and the environment alike. The destruction of forests worldwide has direct and indirect implications on natural habitats, the climate, local communities, supply and value chains, as well as consumers. The financial sector is not exempt from this. Investments are at risk of losing value[1], for example in form of stranded assets, as regulations[2] will force portfolio companies to adjust previously successful business models[3]. In Indonesia, it can already be observed how governmental regulations lead to the stranding of assets, as land intended for palm oil plantations cannot be used for the production of this commodity anymore[4]. Likewise, market demands change as consumers become increasingly aware of the damages caused by deforestation and related products[5]. In conclusion, the profitability of investments that do not take deforestation issues and related sustainability topics into accounts may decrease, when consumers shift to overall more sustainable products that protect forests and biodiversity. Acknowledging both the financial risks and opportunities rooted in deforestation, it becomes clear why financial institutions can no longer ignore deforestation and why frontrunners are taking the lead in tackling the issue.

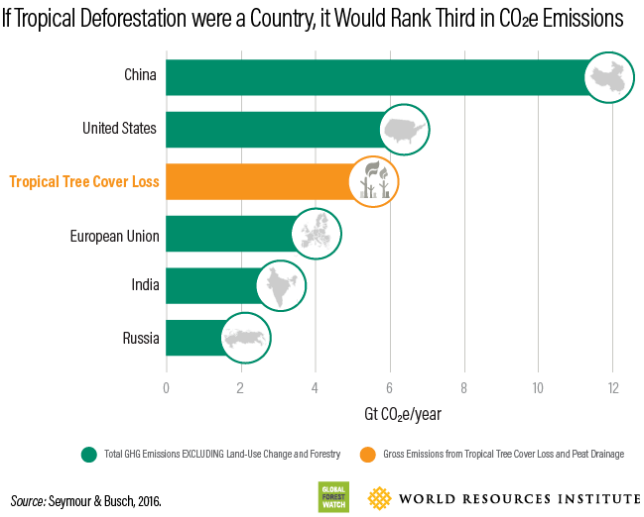
As the Carbon Disclosure Project (CDP) highlighted in its Forest Report 2017, corporate revenues of at least US$941 billion depend on forest-risk commodities. The role of commodities in deforestation of tropical forests is well-known. The below graphic (from the CERES Investor Guide on Deforestation, June 2020) indicates 5/7th of tropical deforestation is caused by unsustainable commodity production.



With supply chains under scrutiny and both political bodies, such as the EU[6], as well as investors themselves[7], pushing for deforestation-free value chains, the financial sector is confronted with developments and risks that it needs to find the right responses to. But in a changing global market, risks can turn into opportunities. The World Economic Forum highlights in its report *The Role of the Financial Sector in Deforestation-Free Supply Chains* that the transition to deforestation-free agricultural practices offers an investment opportunity of up to US$200 billion[8] for the four commodities of beef, soy, palm oil and paper/pulp alone. In actively promoting sustainable agricultural practices, the World Economic Forum sees the potential for investors and producers "to boost productivity per hectare, reduce input costs and significantly raise overall profitability"[9]. This report provides several illustrations on how institutions from the Dutch financial sector are leading this development, providing and finding new solutions to tackle the deforestation issue.

Global Deforestation Trends

Considering its negative effects, deforestation should have come to a halt long ago. That is not the case. In 2016 alone, more than 6 million hectares of primary forest were lost around the globe[10]. And while reported numbers of tree cover loss have gone down since then (3.6 million hectares for primary forests in 2018[11]), yet to released numbers for 2019 are feared to significantly increase again. Global forest covers continue to decrease at unsustainable rates. An estimated 10-17% of global carbon emissions stems from deforestation[12] (see figure on the right).



Forests act as so-called carbon sinks, with trees taking up carbon dioxide from the atmosphere, when they grow. Consequently, the burning of these trees sets carbon dioxide free. That has negative consequences on the global climate. The impact of deforestation goes beyond carbon emissions only, and has impact on local communities and on biodiversity. Already partial deforestation in an area can have a large impact on the biodiversity of a region, with a 20% tree cover loss being enough to lead to a 39-54% loss in conservation value for the respective area. Local species can struggle to adapt to the new environmental circumstances[13], and are driven out of their habitats or directly killed during the deforestation process itself[14]. But not only climate and biodiversity are affected, but also local soil and water quality[15,16]. Further, deforestation negatively impacts local and especially indigenous communities that depend on a healthy forest for survival[17]. Unfortunately, a dominant, practical and global strategy to halt these developments is still missing. This task could have been taken on by the New York Declaration on Forests[18], but 2020 will see the vast majority of its endorsers fail to live up to the zero deforestation commitments of the declaration. In response, the European Commission has called for stricter measures in its 'Communication on Stepping up EU Action to Protect and Restore the World's Forests'[19]. This comes as part of a strategic focus shift towards increasingly sustainable land use and forest protection, which is also connected to the redirection of financial means towards these activities.

Moving Forward

For now, the search for working solutions continues. The financial sector can play a decisive role in reducing deforestation numbers globally. Targeted investments and engagements with portfolio companies and direct clients can create the right amount of pressure to initiate positive change and increase the sustainability of sectors connected to deforestation. Consequently, this report aims to facilitate a financial institution's understanding of:

1) How deforestation issues are connected to their activities and investment portfolio(s);
2) which steps are being taken by frontrunners in the industry to turn a negative impact into positive influence, and specifically;
3) which tools are available to financial institutions in this process, providing examples of financial institutions that use these tools as best practice already.

The objective of this report is, thus, to inspire financial institutions to not only better understand their impact, but to also provide them with actionable steps and supportive services that can help them to reduce deforestation-related ESG risks, connect them to the frontrunners already applying them, and to realize financial opportunities, while also actively protecting biodiversity through decreased deforestation. Given the continuous and dynamic changes in the field as well as the diversity of organizational environments, the provided ideas should not be seen as complete solutions, but rather as general ideas that can and should be adjusted to fit the respective institutional contexts. Taking the situational complexity as well as the different needs of different types of financial institutions into account, this document will distinguish between a) asset management, b) project finance and corporate loans, with a more direct client relationship and c) commodity finance, in its final recommendation of which tools and services are most useful for which type of finance. Outside of this, more detailed recommendations are kept general as their applicability might vary from organization to organization.

The Working Group on Biodiversity, chaired by NWB Bank, is comprised of representatives of Dutch financial institutions (see page 3), including banks, insurance companies, pension funds and asset managers, that represent a sizeable sample of the Dutch financial sector. The group members are united in their concern for the topic of deforestation and their desire to positively contribute to solutions. This initial document constitutes a first general introduction to the topic of deforestation by the Working Group on Biodiversity, with a follow-up report presenting more in-depth case studies on the activities of the working group further succeeding this publication.

1 Finance & Deforestation

This report (as indicated under Scope and visible in the next chapter) focuses on an analysis of tools and services that support FIs in monitoring and managing their exposure to deforestation risks. In this chapter, we briefly put this into the context of the bigger picture of financial flows related to drivers of deforestation, and into the context of (the diverse universe) of financial institutions.

1.1 Green and grey finance flows related to drivers of deforestation

The below figure by the New York Declaration on Forests (NYDF) provides estimates of green and grey finance flows related to drivers of deforestation. It underlines that public finance initiatives aiming to reduce deforestation – though growing – are still smaller than the volumes of private finance going into key commodity drivers in deforestation countries. It underlines the potential influence that private FIs have to create change.

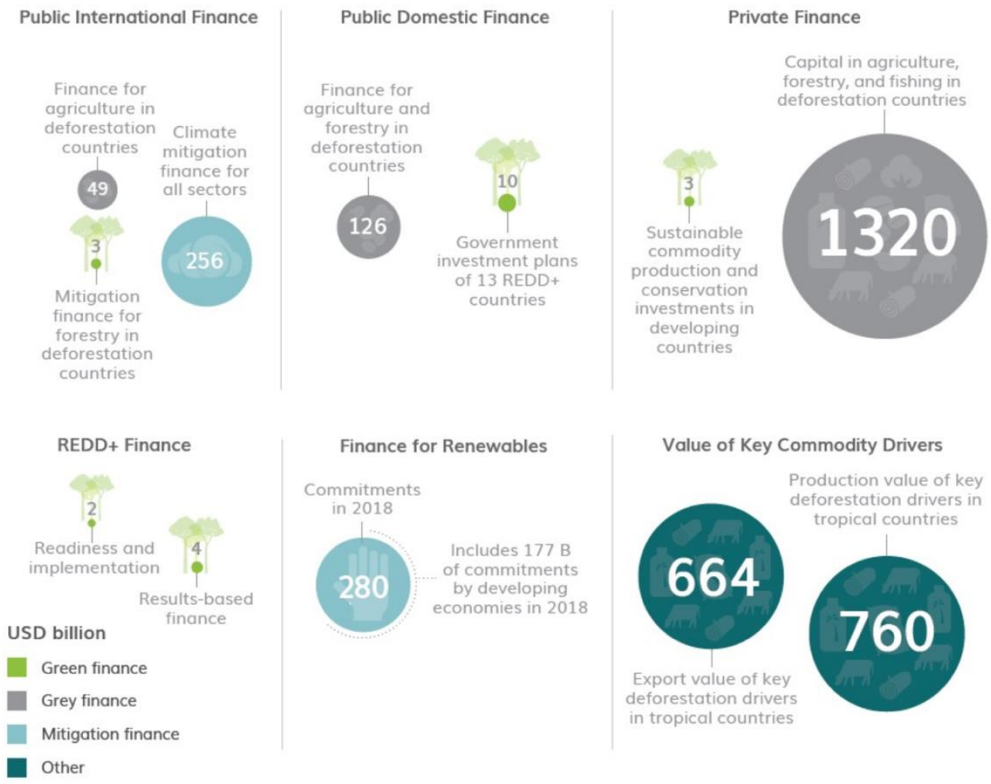


Figure 3: Estimates of green and grey finance flows captured by this assessment (since 2010). Source: NYDF Five-Year Assessment Report, 2019

1.2 Do no harm and do good

In chapter 2 the focus is on minimizing deforestation by decreasing and mitigating the risk of deforestation from high-risk commodities. This is a key strategy, as high-risk commodities are currently a major driver of deforestation (see figure 1). Still it is good to see this in the context of the wide range of interventions open to FIs in addressing deforestation, including influencing international and national policies: in the climate negotiations, on different valuations of land and carbon.

Ultimately, efforts to reduce deforestation aim to 'do no harm', and FIs also want to 'do more good'. This means not only reducing deforestation, but also supporting reforestation and other actions to restore natural systems leading to net positive impact. The below image of the 'Mitigation Hierarchy' shows one interpretation of working towards doing more good.

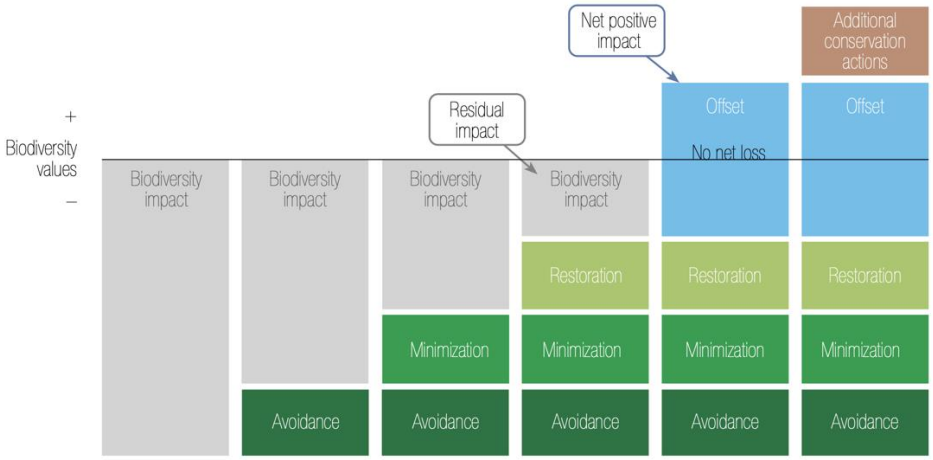


Figure 3: Mitigation Hierarchy[20]

The visual in figure 3 was developed with biodiversity offsets as part of the solution. A crucial caveat when aiming for Net Positive Impact through offsets, is that four principles must apply:

- Limitations: there are limits to offsets – not all impacts can be offset;
- Additionality: biodiversity gains from offsets should be demonstrated to be additional to business–as–usual scenarios;
- Equivalency: biodiversity gains achieved must be comparable in type to the biodiversity losses incurred by the project (one hectare of forest cannot simply be compared with another hectare, as its value depends on the context of the surrounding landscape, whether part of a wildlife corridor, the diversity in trees and other plant and animal wildlife, cultural values etc.); and,
- Permanence: the biodiversity gains achieved are lasting and protected from risk of failure.

Another perspective when considering deforestation commitments is the difference between zero deforestation and net zero deforestation, as described in the box on the next page (CERES, June 2020).

Ultimately, FIs have a range of options to influence deforestation, amongst others:

- Risk and baseline assessment, policy and commitments, engagement and monitoring as described in the next chapter; but also
- shifts in portfolios, with divestment from highest-risk companies or sectors where engagement is unlikely to lead to sufficient change, to investment in companies and sectors that are more inherently sustainable and require more investment to get to scale;
- sector cooperation, joining forces to gain more influence on key (field or policy) actors (e.g. the IISF of Ceres, the Consumer Goods Forum, Business for Nature, Round Tables on sustainable palm (RSPO), soy (RTRS) and beef (GRSB));

- applying the landscape approach (in engagement with field actors), considering not just the direct concessional area but working with other stakeholders in the landscape;
- learning more about and working with carbon credits. This can add value to forests, and to the business model of farmers (making it attractive to keep the forest instead of deforesting), especially with a higher price on carbon. The caveat here is to ensure quality carbon credits with proper accounting at scale;
- engagement with local, regional and national government (a.o. on pricing of carbon, land, water and other natural resources);
- participation in international negotiations on climate (UNFCCC) and biodiversity (CBD).

NET-ZERO VS. NO-DEFORESTATION AND THE ROLE OF FOREST RESTORATION

Companies differ in how they phrase their deforestation policies, but there is one word that makes a big difference: "net."

No-deforestation Does not allow for any deforestation in supply chains, whether legal or illegal. This is also referred to as "zero-gross" deforestation.

Net-zero deforestation Allows for deforestation as long as the same area of forest lost is reforested elsewhere.

No-deforestation is a more robust commitment because:

- Reforestation does not negate **reputational** risks that companies face by having deforestation exposure in their supply chains. Deforestation events can still be linked to their supply chains by monitoring organizations.
- Reforestation is not a substitute for protecting existing forests. Forests and other natural ecosystems store large amounts of "irrecoverable carbon"—carbon that is vulnerable to release upon land use conversion, and once lost, cannot be re-sequestered in time to avoid catastrophic climate change.[60]

When done in tandem with protecting existing forests, **reforestation is a critical part of the solution to climate change. But it must be done carefully.** Reforestation projects must respect the land rights and livelihoods of local people, especially indigenous communities. Moreover, reforestation efforts should aim to restore biodiverse natural forests, not create monoculture tree plantations.

Box from CERES Investor Guide on Deforestation, June 2020

1.3 Diversity of FIs

The term 'Financial Institutions' is a broad term encompassing a range of different organisations.
Public and private, different in the size of their portfolio and the types of finance they provide. Grouping FIs can be done in various ways.

In a recent report by the DNB and PBL[1], FIs were grouped in three categories: pension funds, insurance companies and banks. However, 'banks' is still diverse: development banks, central banks, commercial banks, investment banks, retail banks, promotional banks etc. Without going too far into categorization (always more ways to cut the cake), a key aspect is the type of relationship an FI has with actors directly impacting the forest. The field actor making decisions to deforest, protect, manage or restore a forest can be a big Brazilian farm, a logging company, a mining company or a government building a road. Relevant for the type of engagement and influence is whether there is a direct relationship between the FI and that actor. For a pension fund, there are likely multiple steps between funds and field actor. An asset manager can, depending on portfolio and policy, have more or less direct engagement. An investment bank can finance a specific project of the field actor and be in direct contact with the field actor's executives. Through a loan (setting conditions) or equity (with other opportunities for influence). A commercial bank can provide a corporate loan and engage in a multi-year, direct relationship with such a client. Each relationship has different leverage points, with other crucial factors the size of the investment, the duration and the related flexibility (a quick divestment possible, or a more complex legal contract).

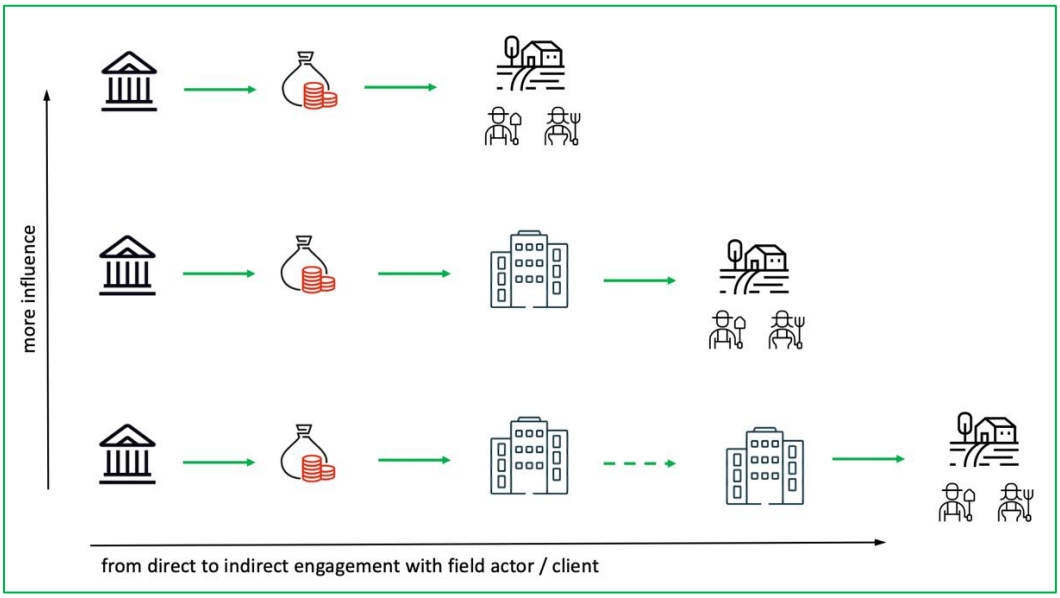


Figure 4: relationship between FI and the actor directly impacting a forest (here a farmer; can also be a mining company or a road developer) can be direct, one step removed or with a more complex supply chain

In the next chapter, when analysing different tools and services related to deforestation available to FIs, we differentiate between:

- Asset management (often indirect, sometimes direct client relationship): institutions investing the combined monetary resources of clients in various, often indirect ways, e.g. in the form of mutual or index funds. Focus of financing lays on companies. Direct client relationships are limited, institutions may start long-term engagements with companies.

[1] *Biodiversity and the financial sector: cross pollination? Exploring risks of biodiversity loss for the Dutch financial sector. DNB and PBL, June 2020*

- Project finance and corporate loans (direct, multi-year client relationship): investment activities focusing on public and private projects often following a multiyear trajectory, where initial loans are paid back throughout the project's lifetime. Contact between financial institutions and projects is close and direct.
- Commodity finance (more complex supply chain, more indirect relationship): financing of the production, manufacturing and trading of raw materials, energy and metals. Commodities can include agricultural crops, such as soy or wheat, but also coffee or timber. Supply chains are complex and investment relationships often indirect.

2 Steps to Minimize Deforestation

Today, an array of ever-developing tools and services allows organizations to actively monitor and influence their exposure to deforestation risks, both related to their own commodities and their supply chains. Despite these possibilities, deforestation remains a sustainability issue for many companies and progress is limited. With future regulations likely imposing stricter deforestation rules in many Western economies[21], it should be in the interest of every financial institution to take on the topic of deforestation. Therefore, this report provides guidelines for financial institutions on how they can minimize the deforestation impacts of their investment portfolios. Following step-by-step advice, a comprehensive overview on the available tools and services to facilitate the reduction of deforestation risks for companies is provided. Each step entails a number of relevant measures, whose intricacies require further explanation.

2.1 Step 1: Understanding your exposure – Risk and Baseline Assessment

Organizations that are connected to deforestation themselves or through their supply chains are exposed to various risks that ultimately might result in significant financial losses. In a CDP survey, 92% of organizations reported substantive business risks stemming from deforestation[22]. However, subsequent action tends to be limited, even though an average of up to 15% of business profits for connected companies are dependent on deforestation-driving commodities[23]. This also affects investors that see inactive portfolio companies steer towards significant revenue losses. Therefore, it is vital that financial institutions initially analyze the extent of their risk exposure stemming from forest-related commodities and then try to tackle these risks. With more information available, the quality of problem definitions and issue prioritizations increases. Thus, it is important that analyses go into detail. Each portfolio company, their supply chains, and production regions ideally get assessed. This trove of information can then be used to map a couple of different possible scenarios that might occur.

By conducting scenario analyses, an organization can prepare itself for a number of different future situations and formulate responses and strategies to worst-case, best-case and intermediate (base case) scenarios[24]. Setting specific goals at the beginning of this process can help to hold oneself accountable on progress. The idea of such scenario analyses is to understand the (financial) impacts that different risk approaches have on the respective financial institution. Which factors get analysed depends on data availabilities and which areas the financial institution wants to focus on, but could relate to financial insights on investment returns, market demands for certain commodities or risk probabilities, as well as environmental impacts (e.g. species growth or emission statistics).

This document will introduce a number of services that can help in achieving such a situational overview. Following up on this information baseline, organizations can then set time-bound targets for reducing their negative impact on deforestation. Likewise, organizations ideally continue to monitor their portfolios regularly, which is also one of the pillars of the UN Principles for Responsible Investment[25]. This allows for continued accountability.

2.1.1 Risk and baseline assessments and scenario analyses[26,27]

Step 1a: Collect Information, Assess Risks and Baseline

Subsidiary Overview: Gain extensive understanding of all risks coming from the investee company and all of its subsidiaries throughout the supply chain (following OECD Guidelines on Multinational Enterprises) connected to soft commodities.

Pre-Financing Screening: To ensure compliance of possible investment objects with company policies, part of an organization's due diligence[28].

Best Practice

Rabobank performs the above analysis for all its clients with an exposure of more than EUR 1 mln on compliance with its Sustainability Policy Framework and assesses the relative performance of the client in the sector on an annual basis[29]. Actiam also pays special attention to companies involved in deforestation and to companies sourcing from companies that are still involved in deforestation in its screening procedure. Information is sourced from tools such as WWF Palm Oil Scorecards or the Forest 500. ASN Bank has developed the BFFI methodology to measure its impact on biodiversity and initiated the Partnership Biodiversity Accounting Financials (PBAF) to further develop the assessment and disclosure of impact on biodiversity. Likewise, given the large impact of land-use related industries on biodiversity APG pays special attention to deforestation in food supply chains, focusing on key commodities including palm oil, soy and cattle. APG has been doing this since 2011, helping to establish the PRI Investor Working Group on Sustainable Palm Oil. ASR screens its investments on deforestation, related controversies and compliance with international conventions on biodiversity and deforestation.

Step 1b: Scenario Analysis

Base Case Scenario Analysis[30]: Conduct a scenario analysis delineating the organization's exposure to "physical, regulatory, legal and reputational"[31] risks, which especially in relation to deforestation are often rooted in the activities of portfolio companies, assuming improvements in reducing deforestation exposure at current levels.

Worst Case Scenario Analysis[32]: Conduct a scenario analysis assuming reduced or non-existing efforts and, therefore, continued deforestation practices.

Best Case Scenario Analysis[33]: Conduct a scenario analysis delineating deforestation levels and portfolio impact, assuming all portfolio companies commit to zero deforestation.

The references provided in the endnotes can help to gain further insights into scenario analyses and how they work.

2.2 Step 2: Planning – Developing a Policy & Action Plan

To successfully tackle deforestation issues, long-term strategies are required[34]. This is a process that has to start with the portfolio companies. However, the investing network FAIRR highlighted that among the 60 largest global livestock producers 84% of the companies did not have deforestation policies in place[35]. By introducing internal investment policies, financial institutions can therefore guide their own investment and engagement behaviour towards portfolio companies and actively encourage them to adopt relevant policies themselves (see Action Points). Ideally, action plans involve clear milestones that a financial institution can compare its progress against, e.g. milestones towards a deforestation-free investment portfolio. Further examples for such milestones could be an investment portfolio that is sourcing 100% of a defined commodity from certified producers or investment

engagements with companies involved in deforestation. By communicating these milestones to the public, financial institutions can show their commitment and set themselves apart from other institutions as drivers of change. Likewise, this might inspire other companies to match the commitments.

Another potential avenue consists of the establishment of financial incentives and/or products that provide an alternative to deforestation practices. Green bonds can be used to directly finance sustainable agriculture, for example. Their idea is to allocate resources directly for sustainable projects and businesses.

2.2.1 Steps towards Policies, Commitment and Action Plans[36,37]

Step 2: Planning: Developing a Policy and Action Plan with public commitments

Commitment: Openly commit (through measurable, time-bound goals) to the removal (zero-deforestation) or large-scaled reduction of deforestation caused by portfolio companies/clients to protect natural ecosystems. Develop an action plan to achieve these goals.

Policy: Development of an investment policy that applies to the entire portfolio, with the following policy options (combining both exclusion/negative screening and engagement/positive incentives):

- Relocation of funds from misaligned companies to deforestation-free supply chains.
- Exclude companies fully from your investment portfolio if they display continued unethical behavior with regards to deforestation38
- Set conditions, requiring portfolio companies/clients to:
    - ensure deforestation-free production and procurement of soft commodities;
    - adhere to relevant certifications for soft commodities;
    - protect High Carbon Stock (HCS) land, peatland and High Conservation Value (HCV) areas39;
    - install comprehensive and transparent grievance mechanisms;
    - refrain from burning forests;
    - engage smallholders and increase supportive investment40;
    - monitor and report their emissions and reduce these emissions over time with a measurable, time-bound target;
- Explore and establish sustainable landscape bonds or green bonds linked to zero deforestation to increase the sustainability of your fixed income portfolio (see 2.2.2 below)

Best Practice

ACTIAM has set the target to have zero exposure to deforestation by 2030, which is documented in its deforestation policy. Similarly, ASN Bank addresses deforestation in strict investment policies on various topics directly relating to deforestation, such as its palm oil investment policy or its policy on soy investments. It has set a long term goal to have a net positive effect on biodiversity in 2030 with all its investments. Likewise, Rabobank includes important commitments in its Sustainability Policy Framework, such as to avoid causing or contributing to adverse impacts on biodiversity and ecosystem services, strive for a net positive impact on biodiversity and ecosystem services and achieving zero net deforestation by not engaging in transactions that are directly linked to deforestation activities. In Brazil, home to a large part of the Amazon forests, Rabobank does not finance deforestation in any biome, even if legally allowed41. a.s.r. has set a commitment to increase its impact investments with 300 million dollar a year, with a special focus on biodiversity.

The Forest 500 rankings[42] can provide further insights into existing policies of relevant companies involved with forest commodities. Various companies including General Mills, Unilever or Mars Inc. have already committed to protecting forests or areas with high conservation value specifically

2.2.2 Green Bonds and Sustainable Landscape Bonds

Tackling deforestation also introduces opportunities to a financial institution. In order to ensure the sustainable upkeep of forest environments, financially viable solutions have to be established and worthwhile financial products need to be introduced. Otherwise, a decisive short-term argument for the land use of forest areas leans immediately towards easy financial profits by stripping whole landscapes of their resources.

Bonds as fixed-income instruments can enable targeted capital-raising in different contexts. *Green Bonds* specifically promote a variety of sustainable projects that aim at alleviating diverse sustainability issues, such as sustainable transport projects or low carbon infrastructure construction. In comparison to regular bonds, green bonds offer benefits of "green impact (…), clear fit within ESG (…) mandates and regulatory support"[43]. However, it is important that the profitability of these projects over the maturity of the bond is still ensured, to allow for contractually correct interest payments and overall capital repayments to bond investors. As reporting on sustainability projects and issues tends to be transparent and extensive, risks can be better evaluated, which allows for improved investment decisions. Overall, 95% of issued bonds are considered investment grade[44]. Commonly, green bonds do not deviate from traditional bonds in their functioning, except for the focus on green, sustainable projects being targeted with the raised financing. While there is no official definition of what can be considered a 'green' bond, the '*International Capital Market Association* introduced guidelines in form of the *Green Bond Principles.* In the EU, regulation is being developed on the definition of environmentally sustainable activities and an EU Green Bond Standard.

Sustainable Landscape Bonds aim at directing resources specifically towards the promotion of sustainable land use in a defined area[45]. Financial resources devoted to these bonds can be utilized to establish long-term sustainable agricultural systems that do not destroy the environments in which they are being produced. Directing resources towards sustainable solutions can be an effective way for financial institutions to incentivize more sustainable practices among portfolio companies or other related entities. Commonly, projects are bundled to achieve the scale necessary to form a green bond (>US$250m). In a similar vein, conservation finance projects have gained traction in recent years, that seek to combine conservation projects with financially viable products, for example through the use of bonds that enable a transition towards responsible agriculture or sustainable travel that keep the conservation and upkeep of an area in account. The International Union for Conservation of Nature reports more in-depth on potential financial products in this context[46].

2.3 Step 3: Acting – Implementation and Engagement

While a majority of companies have committed to action against deforestation only a fraction of these companies actually follows through on its plans. Thus, the implementation of commitments can be seen as the most important step in the process. Financial institutions can push companies towards these commitments via engagements. As indicated in the previous chapter, the type of engagement depends on the type of financial institution and their relation (direct or indirect) with field actors.

2.3.1 Asset managers and investors with an indirect relationship to the field actors

A prominent approach is the collaborative route. This leads to improved leverage, which in turn can be utilized to apply pressure on non-compliant holdings. An example of this approach is the PRI Working Group on Palm Oil[47] which united >50 investors. Likewise, institutions, investment networks and organizations such as the PRI network[48], CERES[49], As You Sow[50], the Ellen MacArthur Foundation[51] or the Banking Environment Initiative (BEI) and their 'Soft Commodities Compact' can provide assistance, through the connection to a broader investor network or content expertise in different fields. Organizations and financial institutions can come together to define and share specific goals, which they can then collaboratively follow up on with bundled resources and a bigger voice. Additionally, sharing knowledge can advance the individual engagements of each involved institution. The alignment of goals and policy expectations among investors can likewise help portfolio companies to better understand the expectations of investors and facilitate their transition towards better practices.

It is important that engagements develop action points that are tailored to the situation at hand, as their impact is context specific. For this, services such as satellite monitoring tools can help, as they provide evidence-based inputs for engagement discussions with companies.

Increasingly, there is a call for organizations, including financial institutions, to move beyond certification requirements[52] and existing stakeholder commitments, but instead formulate their own goals that they assess companies on. This can help push the sustainable commodity performance of their investments, support client engagement and financial innovation. If a holding does not improve its commodity-related sustainability performance over a longer period of time and continuously poses a sustainability risk to the investment portfolio, investors should consider divestment[53].

2.3.2 FIs with a direct relationship with field actors (project finance or corporate loans including farm finance)

When an FI (an investment bank or a commercial bank) enters into a direct, multi-year relationship with a field actor, the options for influence through engagement increase. This is the case when an investment bank invests (through equity or a loan) in a specific field-based project; or when a commercial bank provides a corporate loan to a company with direct field activities in or near a forest.

Other factors such as the size and type of the investment (relative to the overall size of the company and possible other investors) also play a role. Still, in a direct relationship there are specific conditions and contractual requirements that can be defined, and the direct communication with the client allows for closer engagement, monitoring and even personal contacts that can affect change. This also influences the type of tools required, as in such engagements the detail of the satellite and other field data need to be focused on the exact land under contract (ideally including data on the broader landscape). Options to engage include:

- A strong company-wide no deforestation policy for the FI that investment teams can refer to in their negotiations. Rabobank has a policy that excludes deforestation even where it is legal (as a.o. in Brazil certain types of deforestation are – while unsustainable - still legal).
- Contractual agreements on the company-wide no deforestation policy with strict conditions, which can lead to termination of the relationship with clients, when satellite monitoring shows deforestation has occurred (or other non-compliances).

- Distinguishing between exclusion conditions and 'continuous improvement towards compliance' conditions. The latter would lead to a stepwise improvement plan towards compliance that the client agrees to, with progress monitored closely (using the latest monitoring tools).
- Contractual agreements on reduction of basis points in a multi-year loan. For instance: if the client cannot comply with all requirements in the first year (such as certification for sustainable forestry) but can work to achieve this in year two or three, the contract can include language on reduction of basis points (lower interest rate) on achieving compliance with these conditions.
- Technical assistance to improve sustainable agricultural practices.
- Alternative financing solutions, including blended finance for companies that restore degraded land, or incentives to not deforest, e.g. via carbon credits for protecting HCV forest. An example from practice would be the Agri3 fund by Rabobank, a blended finance vehicle aimed at unlocking at least USD 1 bn in finance for nature positive agriculture including the restoration of degraded land which is an important solution to stop deforestation54.

2.3.3 Action Points[55,56]

Step 3: Engagements

Financial Incentives: Companies in soft commodity supply chains can be incentivized to increase sustainable practices[57], e.g. as good sustainability performance leads to preferential loan rates.

Communicate Policy Standards: Clearly communicate policy standards to the portfolio to initiate changes.

Non-Compliance Engagements: Initiating engagements with companies that do not comply with established policies.

Best Practice

Robeco and a.s.r. engage with companies with significant exposure to commodities that drive deforestation globally. Most important commodities are palm oil, soy, beef, tropical timber, cocoa and rubber. Both companies also go a step further and directly engage with the government of Brazil to improve their performance in preventing deforestation in the Amazon. Similarly, APG joined the initiative of seventy food producers and supermarket chains to stop the deforestation of the Brazilian Cerrado region. Likewise, APG is engaging with companies requiring appropriate management and disclosure of deforestation risks in their supply chains.

Rabobank engages with corporate clients (including large farmers) that are active in sensitive sectors with a link to deforestation. In case of non-compliance with its policies clients have to agree to a time bound improvement plan or the relationship will be terminated. Engagements with policy compliant clients focus on financing and rewarding sustainable agricultural practices that avoid deforestations. This is done through a variety of financial solutions such as green bonds, sustainability linked loans and blended finance[58,59]. APG is engaging with a number of companies requiring appropriate management and disclosure of deforestation risks in their supply chains. The initiative is now called the UN PRI – Ceres Investor Initiative for Sustainable Forests.

2.4 Step 4: Monitor and Report[60,61]

Steadily monitoring and reporting progress not only helps keeping oneself accountable towards prior commitments, it also sends a signal to other companies and helps other businesses and consumers to make informed choices. Financial institutions should report on their engagements and sustainability performance at least on a yearly basis, communicating successes and remaining risks. ESG data providers can help keeping track

of company performances and reporting frameworks such as the Global Reporting Initiative (GRI) provide an indication on how and what type of data to report on.

Step 4a: Monitoring

Policy Review: Regular adjustment of policies in response to changing risks.
Post-Financing Screening: Identifying non-compliance among the established investment portfolio.

Best Practice

Through a strategic partnership with Satelligence, Actiam is developing in-house knowledge and expertise regarding sectors that have a significant negative impact on biodiversity. Information from Satelligence is used in engagements with companies to be able to monitor actual behavioral change. Rabobank updates its policy every two years to respond to changing risks and societal changes resulting in an updated policy on deforestation in Brazil.

Step 4b: Reporting

Policy Implementation Process: Provide public updates on the progress of policies against previously identified milestones.
Reporting Frequency: Ideally at least once a year.
Reporting Content: Each report should provide extensive information on various aspects:

- Percentage of commodities verified as being free of environmental & social impacts
- Total carbon emissions, as deforestation emits carbon62.
- Percentage of portfolio company suppliers compliant with procurement standards
- Active and historical social conflicts and complaints
- % Of total land used that is deforested / ha of deforested area
- Divestment decisions due to unmet procurement standards

Reporting Scope: Reporting includes progress for all subsidiaries involved in the procurement or production of soft commodities.
Independent Verification: Reports should be confirmed by an independent verification body.

Best Practice

In its annual report Rabobank reports on its engagements with its clients that are non-compliant with its policy and for which a time bound plan to improve has been agreed. This includes the progress reporting on the number of clients that have become compliant with our policies or have been off boarded as a result of continuing non-compliance.

2.5 Overall Solution Applicability Matrix

For any institution that wants to assess matters related to deforestation from a broader scope, the overall tool applicability matrix shows the general usefulness of the different tools for the respective steps. Applicability assessments have been undertaken in consultation with the financial institutions that form the Working Group on Biodiversity and represent their practical experience with the respective tools and sources. Ultimately, the suitability of a tool remains context- and user-dependent and may differ from financial institution to financial

institution. Given the breadth of available tools and services online, this list is selective in its scope and consequently non-exhaustive.

	Step 1: Information	**Step 2: Action Plan**	**Step 3: Engagements**	**Step 4: Monitor & Report**
Forest 500				
ZSL SPOTT Tool				
TRASE Tool				
WRI Global Forest Watch				
Satelligence				
Sarvision				
Planet				
20Tree				
Sustainalytics				
MSCI				
Vigeo Eiris				
ISS ESG				
Chain Reaction Research				

	= Not useful		= partially useful		= useful	= very useful

2.6 Solution Applicability Matrix by Type of Financial Institution

	Step 1: Information	**Step 2: Action Plan**	**Step 3: Engagements**	**Step 4: Monitor & Report**
Assessment & Ranking Services				
Forest 500				
ZSL SPOTT Tool				
Supply Chain Analysis Tools				
TRASE Tool				
Satellite Monitoring				
WRI Global Forest Watch				
Satelligence				
Sarvision				
Planet				
20Tree				
ESG Data/Research Providers				
Sustainalytics				
MSCI				
Vigeo Eiris				
ISS ESG				
Chain Reaction Research				

	= not applicable		= useful		= very useful

	Step 1: Information	Step 2: Action Plan	Step 3: Engagements	Step 4: Monitor & Report
Assessment & Ranking Services				
Forest 500				
ZSL SPOTT Tool				
Supply Chain Analysis Tools				
TRASE Tool				
Satellite Monitoring				
WRI Global Forest Watch				
Satelligence				
Sarvision				
Planet				
20Tree				
AgroTools				
ESG Data/Research Providers				
Sustainalytics				
MSCI				
Vigeo Eiris				
ISS ESG				
Chain Reaction Research				

	= not applicable		= useful		= very useful

	Step 1: Information	Step 2: Action Plan	Step 3: Engagements	Step 4: Monitor & Report
Assessment & Ranking Services				
Forest 500				
ZSL SPOTT Tool				
Supply Chain Analysis Tools				
TRASE Tool				
Satellite Monitoring				
WRI Global Forest Watch				
Satelligence				
Sarvision				
Planet				
20Tree				
ESG Data/Research Providers				
Sustainalytics				
MSCI				
Vigeo Eiris				
ISS ESG				
Chain Reaction Research				

	= not applicable		= useful		= very useful

3 Available Solutions

3.1 Assessment & Ranking Services

This type of informational sources offers insights into company analyses that are conducted based on unique methodologies that often are based on some type of ESG factors.

3.1.1 Forest 500

Category: Assessment & Ranking Service

FOREST 500
Website: https://forest500.org
Methodology: Self-developed
Commodity Focus: Palm Oil, Soy, Timber, Paper and Pulp, Beef, Leather
Services: Company Rankings and Profiles

Forest 500 is an assessment and ranking service that offers detailed insights into 350 companies, 50 countries and 150 financial institutions that are particularly exposed to deforestation risks through their business and supply chains. The main focus lays on six types of commodities: palm oil, soy, timber, paper and pulp, beef, and leather.

Forest 500 has been established in response to industry commitments made as part of the *Consumer Goods Forum*[63] and the *New York Declaration on Forests*[64]. While a majority of organizations openly committed to actively tackle deforestation, a previously defined milestone of zero deforestation by 2020 is far from being reached. Forest 500 helps in monitoring the current progress of the most impactful companies and provides a transparent analysis of company activities against deforestation. Specific assessment methodologies help Forest 500 in analyzing and scoring the performance of each company based on various performance indicators. Analyses are informed by a multitude of data, including customs data or market research data. As a result, Forest 500 provides interested organizations with a robust overview of organizational performances in relation to deforestation, as well as more detailed statistics on strengths, weaknesses and areas for improvement for the assessed firms. The results are accessible in publicly available databases and can help companies understand how the listed companies, as (potential) business partners, are connected to deforestation risks.

Methodology

The 500 analyzed organizations have been selected based on how their business and supply chains are connected to deforestation risks, their market share, and a variety of other factors, as laid out in the selection methodology documentations by Forest 500[65,66]. Companies are divided into different types: *Producers, Processors, Trader/Importers, Manufacturers,* and *Retailers.* The subsequent analysis of these companies follows specifically developed assessment methodologies[67,68]. Scores from 0 to 100 are translated into a score band ranging from 0 (worst) to 5 (best). Organizations are assessed in five key assessment categories. These categories are:

1. Overall Intent and Awareness (10 points)
2. Commodity Commitments (16 points)
3. Commitment Scope & Ambition (24 points)
4. Reporting, Monitoring & Implementation (34 points)
5. Social commitments (16 points)

A table providing a full overview of the analyzed factors can be found online[69].

The actual implementation of commitments has been the most recent introduction to the methodology, allowing for a more nuanced assessment of how organizations follow up on their previously defined goals. Key indicators for the implementation of commitments are:

1. Monitoring and verifying compliance
2. Engaging with non-compliant suppliers
3. Having a grievance mechanism
4. Reporting on collaborative actions
5. Detailed, transparent reporting on suppliers and sourcing regions

Overall, this allows for in-depth insights into the most important organizations connected to deforestation.

3.1.2 ZSL SPOTT Tool

Category: Assessment & Ranking Service

ZSL SPOTT TOOL
Website: https://www.spott.org
Methodology: Forest 500 Methodology
Commodity Focus: Palm Oil, Tropical Forestry / Pulp, Rubber
Services: Company Ranking and Profiles

The SPOTT Tool, short for Sustainability *Policy Transparency Toolkit*, is a free online platform supporting sustainable commodity production and trade by providing in-depth analyses on the transparency of tropical forestry and palm oil companies. The driving force behind this tool is ZSL, the Zoological Society of London.

SPOTT assesses more than 200 companies against >100 indicators and additionally reports a company's progress on these indicators over time. These in-depth trend analyses provide investors, buyers and other stakeholders to access important information for engagements and risk management.

Methodology

The main focus of the SPOTT assessments lays on the transparency level of a company, which are being scored on a scale between 0 and 100, which is translated into three color-coded bands indicating lower transparency (<33%; red), moderate transparency (33-66%; yellow) and higher transparency (>66%; green). Data is gathered based on publicly available information, which could lead to incomplete assessments and, resultingly, non-genuine scores. Examples of score indicators are policy transparency, policy quality or policy commitments. Likewise, the self-reported progress of companies is included in the overall assessment, even though a clear focus remains on the general availability of public policies and commitments.

3.2 Supply Chain Analysis Tools

3.2.1 TRASE Tool

Category: Monitoring Tool

TRASE
Website: https://trase.earth
Methodology: Self-developed
Commodity Focus: 13 Forest-risk Commodities, incl. Soy, Beef and Palm Oil.
Services: Supply Chain Flow Map, Company Profiles, Logistics Map

Using publicly available data, TRASE maps supply chain linkages. The goal is to increase supply chain transparency all the way from production places to end consumers. This allows organizations to better understand their risk exposures and to "identify opportunities for more sustainable production"[70]. A variety of data visualizations assists this. TRASE identifies the supply chain routes of soft commodities down to individual company level, seeking to ultimately map the supply chains of "entire countries and commodities"[71] covering 70% of the total traded volume of forest-risk commodities. For now, TRASE focuses on South America and Indonesia, for which it provides export data on 13 commodities and in-depth sub-national origins of soy and beef exports for Brazil and Paraguay.

Further, TRASE is currently (July 2020) developing a second service called TRASE.finance which aims at increasing supply chain transparency by mapping the financing streams of companies that are involved in forest-risk commodities.

3.3 Satellite Monitoring

3.3.1 WRI Global Forest Watch

Category: Monitoring Tool

WRI GLOBAL FOREST WATCH
Website: *https://www.globalforestwatch.org/*
Methodology: /
Commodity Focus: Beef, Soy, Palm Oil, Pulp, Paper, Energy, Minerals
Services: Interactive Forest Maps, Fire Alerts, Climate and Emission Data

WRI Global Forest Watch is a free online platform providing data and tools for monitoring forests.
One of these tools is, for example, an interactive world map that enables real-time monitoring of where and how forests are changing around the world. Other tools alert users of recent deforestation or help analyzing long-term trends of deforestation. Users can download available data for specific areas or the entire world. This enables organizations access to in-depth information necessary to reduce deforestation risks. The provided data is based on the independent research of the *World Resource Institute* (WRI).

The data underlying each tool and map can be compiled into customized reports displaying the data in clear graphics.

At the heart of the Global Forest Watch service lays an interactive map[72] that provides users with a multitude of different insights on forests globally. Configurations allow the user to, for example, display forest changes, including tree cover losses and gains, land use, primary forests or fire alerts, among many other possibilities. Information is available ranging back until 2001, allowing for a better understanding of long-term developments. A variety of adjustable settings leads to a high customizability of the data tailored to the needs of each user. In addition, WRI offers users the opportunity to create customized maps[73].

Other tools include fire tracking[74] or a climate tool[75] providing a by-country overview on carbon emissions resulting from tree biomass loss in a global interactive map. The pro version[76] of these tools has been created in order to 'translate' the underlying geospatial data of the project into action points for organizations. Allowing for even more detailed insights, conditions are broken down onto individual farm-level and allow for an accurate assessment of deforestation risks for every organization.

3.3.2 Satelligence

Category: Satellite Monitoring Tool

SATELLIGENCE
Website: *https://satelligence.com/*
Methodology: /
Commodity Focus: Palm Oil, Soy, Beef, Cocoa, Coffee, Rubber, Pulp.
Services: Commodity Analytics, Automated Grievance Response, Supply Chain Risk Analysis

Satelligence is an online service provider that, with the help of satellites, tracks forests globally to inform organizations on different topics, such as supply chain sustainability and deforestation risks. The provided data can help organizations to get better insights into their supply chains and allow for risk assessments at farm level.

3.3.3 Sarvision

Category: Satellite Monitoring Tool

SARVISION
Website: *https://www.sarvision.nl/*
Methodology: /
Commodity Focus: Land, crop and forest cover changes, fire and hydrology data.
Services: Land Cover Monitoring, Logging Detection, Other Monitoring Services

Sarvision is a Dutch provider of satellite data allowing for "near real time" monitoring of forests and other natural systems. The service provider offers insights into changes of land cover, crops, and forest cover, as well as fire and hydrology data. Especially relevant for deforestation is the logging detection service of Sarvision. Other types of data monitoring can also be accessed.

3.3.4 PlanetPLANET

Category: Satellite Monitoring Tool

Website: *https://www.planet.com*
Methodology: /
Commodity Focus: /
Services: Global satellite imagery, live change-tracking.

Planet offers satellite monitoring of the earth including imagery archives to compare the development of areas between 2009/2014 (depending on the desired resolution) and today. This allows for the monitoring of assets as well as the collection of information. There is no focus on forest data specifically.

3.3.5 20Tree

Category: Satellite Monitoring Tool

20TREE
Website: *https://20tree.ai/*
Methodology: /
Commodity Focus: /
Services: Tracking of Tree Health, Forest Threats, Tree Features, and Forest Productivity.

Similar to the other providers, 20Tree offers satellite imagery analysis of global forests and their tree levels. Exemplary accessible information relates to tree species, tree growth or harvesting insights, among many others. Related to forest health & threats, 20Tree reports on deforestation, soil health, insect plagues, and further disturbances. The tool can thus be used as both an information-gathering system, as well as a monitoring tool.

3.3.6 Agrotools

Category: Monitoring Tool

AGROTOOLS
Website: *https://agrotools.com.br/en*
Methodology: /
Commodity Focus: /
Services: Supply Chain Information, Agricultural and farm-level data provision, monitoring assistance.

Agrotools is a Brazilian service provider that helps financial institutions to connect landscape- and farm-level information to finance activities, assisting in the monitoring of deforestation risks. This tool is very useful for corporate loans because it allows screening when the geographical coordinates of the land being financed are known up front. In doing this, the tool is ideal for gaining more detailed insights into the production chains of commodities and other products.

3.4 ESG Data/Research Provider

Dozens of ESG data and/or research providers offer insights into the ESG performances of companies. While many services focus on a niche area of the market, a couple of larger data providers offer broad, holistic insights into the ESG performance of companies. This section focuses on the latter type of providers, but some research into more specialized ESG data providers can be useful if a certain type of data is being searched for.

3.4.1 Sustainalytics

Category: ESG Data Provider

SUSTAINALYTICS
Website: *https://www.sustainalytics.com*
Methodology: Self-developed
Commodity Focus: /
Services: ESG Research & Integration, Compliance & Screening Research, Portfolio Analysis, Index Services, Sustainable Finance Solutions, and Engagement Services

Sustainalytics is one example for a number of services that provide customers with research insights into several different domains, with a focus on ESG research. This type of service can help stakeholders to increase their insights on deforestation risks of their business and supply chain, such as sustainability indices, ESG risk reports on relevant companies, or individualized portfolio screenings.

Consequently, Sustainalytics and comparable companies provide information not only on deforestation or biodiversity-related topic, but a broad variety of ESG topics for a large number of organizations reaching beyond the topic of deforestation. The breadth of available research enables companies and investors to delve into detailed information on the organizations that they want to know more about, e.g. for future investments or to better grasp the intricacies of one's supply chain.

Additionally, Sustainalytics offers to create analyses based on the portfolio of a company, enabling targeted research insights for every interested organization.

3.4.2 MSCI

Category: ESG Research Provider

MSCI
Website: https://www.msci.com
Methodology: Self-developed
Commodity Focus: /
Services: ESG Ratings & Research, ESG Indices, ESG Analytics, Risk Management Insights, Factor Investment Information

Similar to Sustainalytics, MSCI analyses the ESG performance of organizations based on a variety of different criteria, such as climate change performance, pollution & waste emissions or natural resource performance. A combination of AI and analysts prepares the available data on more than 13,000 companies, which then gets

published in company ESG reports that map the performance and risks related to overall 37 ESG categories. This includes information on biodiversity performance, land use change and raw material sourcing, which can help in gaining an understanding of the involvement of a portfolio company in deforestation practices, as well as an estimation of how weak or strong that companies policies are.

3.4.3 Vigeo Eiris

Category: ESG Research Provider

VIGEO EIRIS
Website: *http://vigeo-eiris.com*
Methodology: Self-developed
Commodity Focus: /
Services: ESG Research, SDG Assessments, Controversy Risk Assessment, Climate Risk Assessment, Portfolio Analysis

Vigeo Eiris provides a breadth of information on companies and countries, both analyzing their ESG and SDG performance. Together with an assessment of risks and controversies that an organization is exposed to, this data provider offers an holistic assessment of the sustainability performance of an analyzed company. Part of this analysis are also insights on measures an organization takes to prevent deforestation, as well as general information on land use and natural resource usage.

3.4.4 ISS ESG

Category: ESG Research Provider

ISS ESG
Website: *https://www.issgovernance.com/esg/*
Methodology: Self-developed
Commodity Focus: /
Services: ESG Ratings & Rankings, ESG Index, Screening & Controversies, Policy Research

In the same line of companies, ISS provides ESG insights into organizations and countries, as well as governance quality scores and carbon risk ratings. Applicable information providing deeper insights into deforestation can be found as part of the ESG ratings, as they include environmental performance scores on different criteria. Policy assessments and carbon risk ratings can likewise provide broader information in a company's handling of the deforestation issue.

3.4.5 Chain Reaction Research

Category: ESG Research Provider

CHAIN REACTION RESEARCH

Website: https://chainreactionresearch.com/
Methodology: Self-developed
Commodity Focus: Palm Oil, Soy, Cattle, Coffee, Cacao, Timber Pulp, Paper
Services: Sustainability Reporting, Sustainability Analysis

Chain Reaction Research provides in-depth research reports on market trends and specific companies linked to deforestation and its connected risks. A special focus is put on financial risks, with investors, analysts and banks being the addressed target groups.

The freely accessible reports divide their analysis over three risk areas: sustainability risk, business risk, and financial risk. Analyzed companies are either directly or via their suppliers contributing to deforestation and in a position where financiers can influence them. The reports can provide not only in-depth information on risks associated with specific companies, but also include engagement suggestions with clearly defined areas for improvement.

Practice Insight: In practice, the reports by Chain Reaction Research can be used as a starting point in identifying issues related to deforestation, as the research bureau provides comprehensive insights into deforestation-related issues (e.g. shadow companies and corporate ownership structures in the palm oil production). Likewise, company reports allow for first insights into the deforestation-related risks of a number of large international companies, such as Cargill, P&G or Walmart.

Supply Chain Flows: A customizable data visualization mapping supply chain flows from producing municipality and company to importer and end user provides the user with data on eight countries: Argentina, Bolivia, Brazil, Colombia, Ecuador, Indonesia, Paraguay, and Peru. An even wider variety of soft commodities can be inspected, from soy over palm oil to coffee and pulp. The interactive map covers trade and production volumes, export and import values per company, and further information.

Company Profiles & Logistics Map: Likewise, it is possible to gain direct insights on individual companies via company profiles that are available for a sizable but not exhaustive number of organizations. Additionally, a logistics map provides overviews on the spread of soy and cattle facilities, such as refineries, in Brazil.

4 Conclusion

Forests are a crucial part of the planet's ecosystems, forming a vital part of nature and contributing to the health of animal species and humans alike. They act as carbon sinks, refuge and natural protection for ecosystems, but also as resource providers for the livelihoods of whole communities. Their importance and role within the environment has been long documented and well explained. Nonetheless, deforestation remains a problem. A group of Dutch financial institutions is taking direct steps to reduce their impact on the world's forests and to realize opportunities in protecting them through their financial activities. This report seeks to support financial institutions on their journey to follow the financial frontrunners and work together to increase their contribution to a deforestation-free planet - regardless of their geographical background or current involvement in anti-deforestation activities. For this, a step-by-step plan has been presented laying out the best practices observed in the sector, including some direct illustrations of implementation from the Dutch financial sector. In addition, a number of services has been introduced that can provide financial institutions with the data, tools and expertise needed to tackle this complex issue.

It is encouraging to see that concrete steps are being taken by several financial institutions already to address this serious issue. But it also needs to be acknowledged that the sector still has a long way to go, if it wants to significantly reduce its negative impact on deforestation. Therefore, the Working Group on Biodiversity strongly encourages every financial institution to assess their current activities in the area of deforestation, to conduct analyses on how they can contribute to solutions in the future, to find inspiration in and seek cooperation with the examples provided in this report. Likewise, the working group will continue to stay vigilant and active in tackling the problem, with future publications on the topics of biodiversity and deforestation being planned.

5 References

1 https://www.cdp.net/en/articles/media/investment-returns-at-risk-as-many-corporates-fail-to-tackle-deforestation

2 https://ec.europa.eu/environment/forests/pdf/respondents-additional-inputs/Global%20Canopy.pdf

3 https://www.weforum.org/agenda/2018/09/the-deforestation-risks-lurking-in-the-banking-sector/

4 https://www.smithschool.ox.ac.uk/research/sustainable-finance/publications/Stranded_Assets_in_Palm_Oil_Production.pdf

5 https://www.reuters.com/article/us-palmoil-outlook-demand/global-2019-palm-oil-demand-set-for-first-contraction-in-two-decades-idUSKCN1QK0RE

6 https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1565272554103&uri=CELEX:52019DC0352

7 https://www.unpri.org/news-and-press/230-investors-with-usd-162-trillion-in-aum-call-for-corporate-action-on-deforestation-signaling-support-for-the-amazon/4867.article

8 https://www.weforum.org/agenda/2017/01/forest-friendly-products-arent-just-ethical-theyre-a-billion-dollar-investment-opportunity/

9 https://www.weforum.org/agenda/2017/01/forest-friendly-products-arent-just-ethical-theyre-a-billion-dollar-investment-opportunity/

10 https://www.wri.org/blog/2019/04/world-lost-belgium-sized-area-primary-rainforests-last-year

11 https://www.wri.org/blog/2019/04/world-lost-belgium-sized-area-primary-rainforests-last-year

12 Samii, C., Lisiecki, M., Kulkarni, P., Paler, L., & Chavis, L. (2015). Decentralised forest management for reducing deforestation and poverty in low-and middle-income countries A systematic review.

13 Zemp, D. C., Schleussner, C. F., Barbosa, H. M., Hirota, M., Montade, V., Sampaio, G., ... & Rammig, A. (2017). Self-amplified Amazon forest loss due to vegetation-atmosphere feedbacks. Nature communications, 8, 14681.

14 García-Morales, R., Moreno, C. E., Badano, E. I., Zuria, I., Galindo-González, J., Rojas-Martínez, A. E., & Ávila-Gómez, E. S. (2016). Deforestation impacts on bat functional diversity in tropical landscapes. PloS one, 11(12), e0166765.

15 Karamage, F., Shao, H., Chen, X., Ndayisaba, F., Nahayo, L., Kayiranga, A., ... & Zhang, C. (2016). Deforestation effects on soil erosion in the Lake Kivu Basin, DR Congo-Rwanda. Forests, 7(11), 281.

16 Wang-Erlandsson, L., van der Ent, R., Fetzer, I., Keys, P., Savenije, H., Taniguchi, M., & Gordon, L. (2018, April). When does deforestation affect rainfall? Synergistic hydroclimatic resilience risks in the greater Amazon and Congo regions. In EGU General Assembly Conference Abstracts (Vol. 20, p. 11415).

17 van Solinge, T. B. (2013). Equatorial deforestation as a harmful practice and a criminological issue. In Global Environmental Harm (pp. 38-54). Willan.

18 https://forestdeclaration.org/images/uploads/resource/2019NYDFReport.pdf

19 https://ec.europa.eu/info/publications/eu-communication-2019-stepping-eu-action-protect-and-restore-worlds-forests_en

20 Source: No Net Loss and Net Positive Impact Approaches for Biodiversity, Exploring the potential application of these approaches in the commercial agriculture and forestry sectors, IUCN 2015

21 https://ec.europa.eu/environment/forests/pdf/respondents-additional-inputs/Global%20Canopy.pdf

22 https://www.cdp.net/en/research/global-reports/the-money-trees

23 Ibid.

24 Brzaković, T., Brzaković, A., & Petrović, J. (2016). Application of scenario analysis in the investment projects evaluation. Economics of Agriculture, 63(2), 501-513.

25 https://www.unpri.org/download?ac=4839

26 https://www.script.finance/wp-content/uploads/2019/01/2018-SCRIPT-Palm-Oil-Benchmarking-Methodology_Final.pdf

27 https://forest500.org/sites/default/files/2018_forest_500_financial_institution_assessment_methodology.pdf

28 Dowse, J. (2009). Risk Management: ESG and Due Diligence. Keeping good companies, 61(11), 659.

29 https://www.rabobank.com/en/about-rabobank/in-society/sustainability/articles/2016/rabobank-discusses-sustainability-with-a-growing-number-of-customers.html

30 https://corporatefinanceinstitute.com/resources/knowledge/modeling/scenario-analysis/

31 https://www.weforum.org/agenda/2018/09/the-deforestation-risks-lurking-in-the-banking-sector/

32 https://corporatefinanceinstitute.com/resources/knowledge/modeling/scenario-analysis/

33 Ibid.

34 Chazdon, R. L. (2008). Beyond deforestation: restoring forests and ecosystem services on degraded lands. science, 320(5882), 1458-1460.

35 https://www.fairr.org/article/investors-are-starting-to-see-the-wood-for-the-trees-on-deforestation-2/

36 https://www.script.finance/wp-content/uploads/2019/01/2018-SCRIPT-Palm-Oil-Benchmarking-Methodology_Final.pdf

37 https://forest500.org/sites/default/files/2018_forest_500_financial_institution_assessment_methodology.pdf

38 Dawkins, C. E. (2018). Elevating the role of divestment in socially responsible investing. Journal of Business Ethics, 153(2), 465-478.

39 A measure that proved to be helpful as a part of the RSPO: https://rspo.org/

40 Various such initiatives, e.g. in Indonesia, have shown to reduce deforestation while supporting local communities. See Pirard, R., Gnych, S., Pacheco, P., & Lawry, S. (2015). Zero-deforestation commitments in Indonesia: governance challenges (Vol. 132). CIFOR.

41 https://www.rabobank.com/en/about-rabobank/in-society/sustainability/records/declaration-on-deforestation-in-brazil/index.html

42 https://forest500.org/rankings/companies

43 Mulder, G. (2018). Green Bonds and Integrated Landscape Management. Green Bonds and Integrated Landscape Management (pp. 1–28). Amsterdam: IUCN National Committee of The Netherlands.

44 Mulder, G. (2018). Green Bonds and Integrated Landscape Management. Green Bonds and Integrated Landscape Management (pp. 1–28). Amsterdam: IUCN National Committee of The Netherlands.

45 https://www.un-redd.org/single-post/2018/03/01/World%E2%80%99s-first-%E2%80%98sustainable-landscape-bond%E2%80%99-supports-Indonesia%E2%80%99s-economic-development

46 https://portals.iucn.org/library/sites/library/files/documents/2016-001.pdf

47 https://www.rspo.org/file/acop/generation-investment-management/F-Lending-Policy.pdf

48 https://www.unpri.org/

49 https://www.ceres.org/networks/ceres-investor-network

50 https://www.asyousow.org/invest-your-values

51 https://www.ellenmacarthurfoundation.org/

52 https://www.oxfamnovib.nl/kenniscentrum/blog-kenniscentrum/better-or-beyond-certification

53 Dawkins, C. E. (2018). Elevating the role of divestment in socially responsible investing. Journal of Business Ethics, 153(2), 465-478.

54 https://www.rabobank.com/en/raboworld/articles/the-financial-model-helping-farmers-become-more-sustainable.html

55 https://www.script.finance/wp-content/uploads/2019/01/2018-SCRIPT-Palm-Oil-Benchmarking-Methodology_Final.pdf

56 https://forest500.org/sites/default/files/2018_forest_500_financial_institution_assessment_methodology.pdf

57 https://www.weforum.org/agenda/2018/09/the-deforestation-risks-lurking-in-the-banking-sector/

58 https://www.rabobank.com/en/raboworld/articles/strides-toward-traceable-soy-in-ground-breaking-loan.html

59 https://www.rabobank.com/en/raboworld/articles/the-financial-model-helping-farmers-become-more-sustainable.html

60 https://www.script.finance/wp-content/uploads/2019/01/2018-SCRIPT-Palm-Oil-Benchmarking-Methodology_Final.pdf

61 https://forest500.org/sites/default/files/2018_forest_500_financial_institution_assessment_methodology.pdf

62 Harris, N. L., Brown, S., Hagen, S. C., Saatchi, S. S., Petrova, S., Salas, W., ... & Lotsch, A. (2012). Baseline map of carbon emissions from deforestation in tropical regions. Science, 336(6088), 1573-1576.

63 https://www.theconsumergoodsforum.com/what-we-do/resolutions/

64 http://forestdeclaration.org/goal/goal-2/

65 https://forest500.org/sites/default/files/company_selection_methodology_-_2018.pdf

66 https://forest500.org/sites/default/files/financial_institution_selection_methodology_-_2018.pdf

67 https://forest500.org/sites/default/files/2018_forest_500_company_assessment_methodology.pdf

68 https://forest500.org/sites/default/files/2018_forest_500_financial_institution_assessment_methodology.pdf

69 https://forest500.org/sites/default/files/2018_forest_500_company_assessment_methodology.pdf

70 https://trase.earth/about

71 Ibid.

72 https://www.globalforestwatch.org/map

73 https://developers.globalforestwatch.org/map-builder/

74 https://fires.globalforestwatch.org/map/

75 http://climate.globalforestwatch.org/map/

76 https://pro.globalforestwatch.org/