

Assessing nature-related issues of key value chain clients as a Brazilian Asset Manager





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Name of participating organisations: JGP Gestão de Crédito Ltda piloted the TNFD v0.4 beta recommendations and guidance with technical support from Frontierra - an environmental geospatial consultancy that helps organisations to analyse and evaluate nature-related risks - as well Global Canopy who provided additional capacity building and project management support.

Overview

Scope

The case study explores the application of TNFDs LEAP approach for a Brazilian Asset Manager (JGP), with specific focus on the assessment of nature-related issues associated with two key clients. Technical and capacity building support was funded by Norway's International Climate and Forest Initiative's (NICFI) Funding Scheme and therefore the scope of the pilot has a specific focus on deforestation.

Geography	Brazil
Sector	Food and Beverage (Agricultural Products)
Biome	Tropical and subtropical forests (T1), Intensive Land Use Systems (T7)
Dependencies and impacts	Land-use change

Pilot timeframe

April – October 2023

Business summary

JGP Gestão de Crédito Ltda is a company with almost 10 years of existence that manages US\$ 1.7 billion through different strategies, including: HG and HY, Structured Credits, Special Sits and ESG markets in Brazil and abroad. The firm is composed by 25 professionals, among portfolio managers, analysts and data scientists, with broad coverage capabilities, supported by well-developed technological and operational processes.

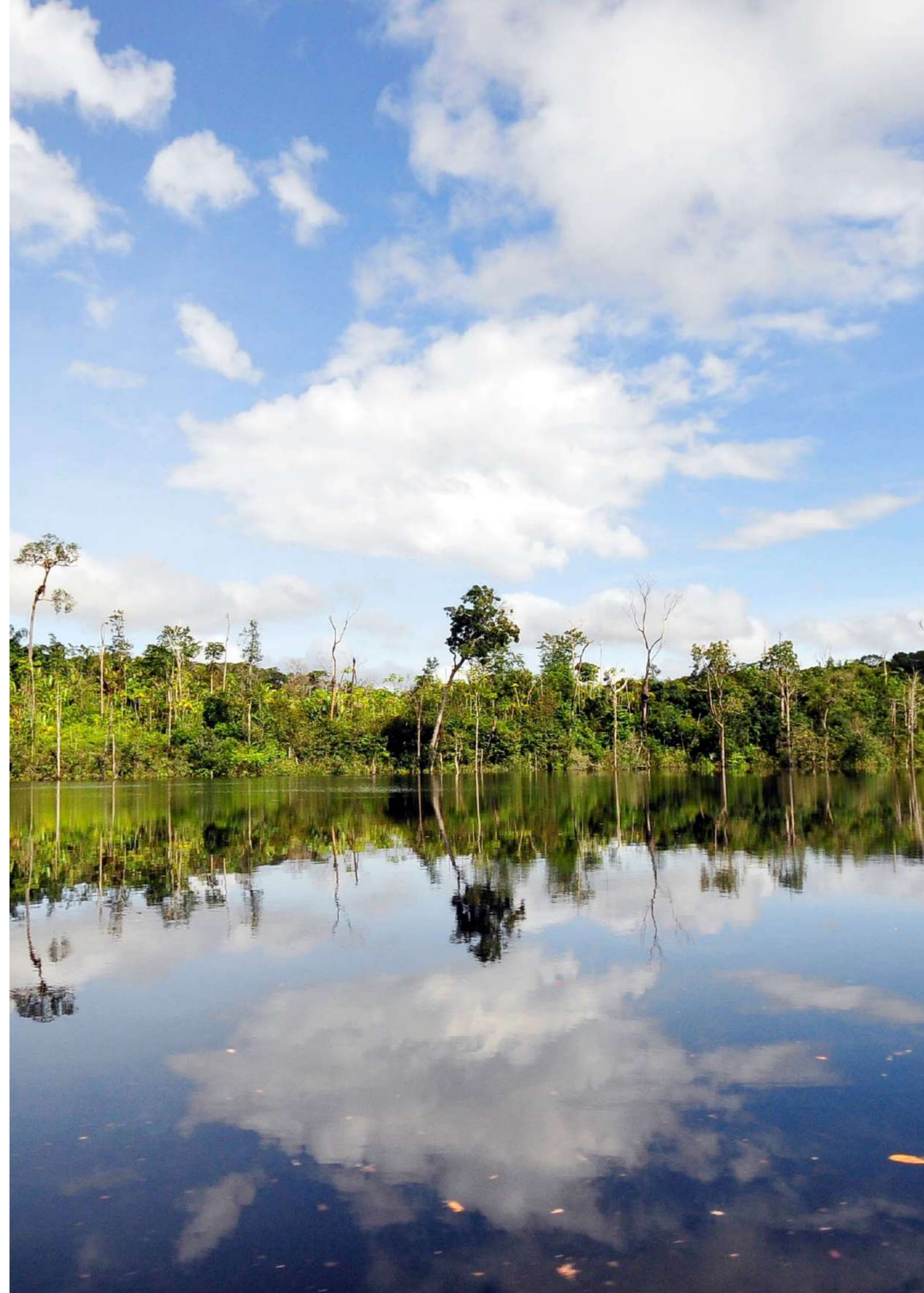
Key finding(s)

- **The LEAP approach can be used for different purposes**
Due to the flexibility built into the LEAP approach, it can be used for a variety of different purposes and to align with distinct goals. For example, the case study demonstrated how it can be utilised to assess existing clients, and also potential clients as part of a due diligence process.
- **GIS is incredibly important for location-based assessments at a large scale**
Only GIS is capable of undertaking the location-based analysis required within the LEAP approach at the detail and scale necessary to robustly assess nature-related risks and opportunities. GIS is capable of mapping and analysing large quantities (e.g. hundreds of thousands of sites) of location specific data at a level of detail, and across timescales, that would not be feasible through any other method. It is able to compare historic conditions with current conditions to determine key changes in the state of nature that have occurred. These capabilities are critical when considering the nature-related dependencies and impacts associated with business operations.
- **Embedding specific data sharing requirements into contractual agreement must become standard practice**
There is a critical need for implementing specific data sharing requirements, prior to engagement, for entities within downstream value chains. These should be documented within contractual agreements and should incorporate a range of data points critical for the assessment of nature-related issues such as location and information required for dependencies, metrics and targets. More granular and complete information would allow for a more refined and robust assessment of nature-related issues. For JGP, a requirement for location data to be shared is embedded into the agreements for those entities incorporated into their ESG credit fund. Within the Pilot Project, this allowed for a rapid and easy process for mapping the locations of their assessed companies, enabling more resources to be utilised to strengthen other aspects of the assessment.

- **Robust dependencies analysis requires detailed data**

More detailed information than is commonly available is required to undertake a robust assessment of dependencies that results in actionable insights. As such, the approach recommended by Frontierra is to identify those companies that are considered likely to have high impact or likely to have high dependencies and prioritise data collection for the dependency analysis on those companies.

About this case study: This case study forms part of a series of six case studies run as part of Global Canopy's TNFD piloting program. The pilots tested the v0.4 beta version of the TNFD recommendations and its accompanying 'LEAP' (Locate, Evaluate, Assess, Prepare) approach.



Business case

The UN FAO states in their 'The state of the world's forests 2020' report that "Agricultural expansion continues to be the main driver of deforestation and forest degradation and the associated loss of forest biodiversity. Large-scale commercial agriculture (primarily cattle ranching and cultivation of soya bean and oil palm) accounted for 40 percent of tropical deforestation between 2000 and 2010, and local subsistence agriculture for another 33 percent."¹ As such, investments within agriculture companies may represent potentially significant deforestation risks if not managed and monitored appropriately. Those financial institutions that have financed, facilitated, investment and insured activities and assets associated with agriculture should consider it as a priority focus in order to assist in understanding their exposure to nature-related issues.

JGP's involvement in the pilot program, exploring the application of TNFDs LEAP approach to assess their nature-related issues, aimed to extend beyond the organisation's internal benefits. The main objective was to contribute to the promotion of a sustainable and resilient economy in Brazil. By actively participating in these assessment and disclosure practices, JGP aims to align its financial activities with environmental and social goals, seeking to create a positive and lasting impact on the country's economic and social landscape.

Throughout this process, JGP hopes to gain insights into best practices in nature-related risk assessment and financial disclosure. With the pilot approach, we anticipate having a significant impact on risk reduction and the strategic identification of opportunities. This learning not only enriches the organisation's understanding of nature-related issues but also equips the team with the necessary tools to incorporate environmental considerations, especially those related to biodiversity and nature, into financial reports.

We also expect that active participation in the pilot will provide us with increased transparency in disclosing information about JGP's environmental impact. This transparency is essential for establishing clear communication lines with investors and other stakeholders, playing a significant role in modern business practices that emphasize responsibility and responsible financial management.

¹ FAO and UNEP (2020) [The State of the World's Forests: Forests, Biodiversity and People](#).

Pilot scope

Within their portfolio, JGP has a group of ESG focused funds. Given the focus on responsible investment within these funds, the ESG Credit fund was taken forward for assessment as they aligned with JGPs existing strategy of ensuring the entities within the funds were operating responsibly. The ESG Credit fund allocates capital across a diverse range of products and industries primarily across the whole of Brazil. Agriculture was selected in order to align with the funding requirements focused on deforestation and due to the interests of JGP – noting the expansion of agriculture is one of the leading causes of deforestation and biodiversity loss globally and therefore, investments within agriculture companies may represent potentially significant deforestation risks if not managed and monitored appropriately.

As JGP had existing relationships with the businesses within these funds, access to detailed location information was considered feasible enabling a more robust assessment of nature-related issues. JGP advised that they have been developing and integrating nature-related socio-environmental assessment metrics into its portfolio and that they were interested in a more detailed assessment of their investments at a commodity production level on agriculture and farming. As investments in larger companies were already subject to other nature-related assessments and as their data would be difficult to access, JGP focused assessments on investments in two medium sized agricultural companies.

- One company was selected as they represented a significant investment in terms of financial value within one of the existing ESG funds.
- One company was selected for which JGP was considering providing financing but had not yet engaged.

This meant the LEAP approach was used to assess the nature-related issues associated with an existing investment but also adopted as part of their due diligence process for determining the feasibility of financing a new investment.

The investments were analysed in line with the TNFDs LEAP approach, and executed through a series of five workshops:

- Introduction and Scoping
- Locate: Geospatial data and nature-related risks - Using GIS software and satellite data to understand nature-related issues
- Evaluate: Approaching the Evaluate stage and demonstration of supporting tools
- Assess: Risks and opportunities
- Prepare: Responding, reporting and next steps

Analysis

Part 1: Determining sensitive locations

Process used to identify sensitive locations:

1. Business footprint location data for the Assessed Companies were provided by the Financial Institution
2. Key-state of nature datasets were obtained through open-source data
3. An analysis was undertaken using GIS software to determine those business footprint locations that interface with ecologically sensitive locations

To support assessment of sensitive locations in line with the Locate phase of TNFD's LEAP approach, JGP directly requested the location information from the assessed companies. Initially, JGP had hoped to assess a third key company as part of the pilot but location information was not readily available and therefore they were excluded from further analysis. This was because the type of analysis (company production level assessment) being tested would have required more resources to determine the location specific data using publicly available sources; resources that were not available within the budget assigned for technical support.

The remaining two companies supplied a list of government administered geo-referenced numbers that identified the property boundaries of each location. The geo-referenced numbers form part of the Cadastro Ambiental Rural (Rural Environmental Registry)² and are referred to as CAR IDs. The CAR ID system of Brazil is a world leading georeferenced database of land parcels. It is important to note that this system is not readily available in many other countries and this will make the identification of business footprint data more challenging in other jurisdictions. Using the CAR IDs, Frontierra were able to map the location of each of the sites supplied (Illustrative example seen in Figure 1).

Figure 1: Example of a business footprint of an agricultural company within GIS software where the blue polygons represent farms or sourcing locations (NOTE: this is a randomised sample and does not represent the Assessed Companies)



² SICAR (n.d) [Regularização Ambiental - Cadastro Ambiental Rural. Sistema Nacional de Cadastro Ambiental Rural.](#)

One challenge observed was that the farm locations provided did not highlight the percentage of the business footprint that they represented for each company. It was also difficult to determine the exact crops planted at each farm. Without knowing the percentage of the business footprint the locations represent, it is not possible to understand if the assessment is covering the majority of their operations, a small randomly selected portion or a specific selection of their operations (e.g. potentially a selection of low risk assets). As such, the level of materiality of the dependencies, impacts and risks cannot be understood in the context of their wider operations. Further, crop specific information would enable a more granular assessment of their operations as specific impacts, dependencies and risks are associated with different types of crops.

Using GIS software, Frontierra undertook a geospatial analysis to compare each of the business footprint locations for the assessed companies with the location of a range of key nature-related datasets to determine if any intersected with ecologically sensitive locations.

The key state of nature datasets which were used in the assessment were selected:

- based on their relevance to the industry and its potential impacts and dependencies (i.e. those associated specifically with agricultural operations were used)
- as they are considered the most up-to-date, accurate and refined for the countries and regions analysed.

The datasets covered key aspects of nature such as Biomes, Biodiversity Hotspots, Protected Areas, Indigenous Areas, High Ecosystem Integrity, Deforestation and Water Risk. All datasets were open-source and freely available. The analysis highlighted that farms were located in key biomes, areas of low water stress and intersected with at least one or more of the key datasets listed.

The TNFD recommendations and guidance states that organisations should pay particular attention to any sensitive locations where their business model or value chain may have an impact or dependency³.

The TNFD defines sensitive locations as:

- Areas important for biodiversity, including species;
- Areas of high ecosystem integrity;
- Areas of rapid decline in ecosystem integrity;
- Areas of high physical water risks; and/or
- Areas of importance for ecosystem service provision, including benefits to Indigenous Peoples, Local Communities and affected stakeholders.

An assessment using the nature-related datasets initially listed all locations as sensitive locations in line with criteria. To help prioritise, Frontierra applied the following additional criteria in order to determine a practical subset of locations that are considered comparatively higher impact and should be initially prioritised for further activities:

- Each dataset was assigned an impact value (e.g. locations with extreme water stress were assigned a value of 5, whilst locations with negligible water stress were assigned a value of 0). These impact values were combined to provide an Overall Biodiversity Impact Rating (“OBIR”). Any location that scored an overall risk rating above 50 was considered a priority location for this assessment.
- Any sourcing location that was found to have deforestation within the previous five years according to official government data was automatically considered a priority location given the scope of the pilot project and the specific interest in deforestation.

Based on the criteria above, a list of priority locations was determined which became the focus for the remaining steps of the pilot project.

Geographic Information Systems (GIS)

GIS is incredibly beneficial for the analysis required within the LEAP approach as it enables large quantities of location specific data to be mapped and assessed at a global scale and across various timescales. A manual approach using spreadsheets and tables is generally insufficient for the type and volume of assessment required for the LEAP approach as location and monitoring changes over time is key, and this can only be properly assessed in a GIS.

GIS data includes:

- the location information for the assets in a portfolio, such as a set of coordinates representing a building or a polygon representing a farm; and
- the nature-related datasets which include polygons such as protected areas or raster data such as annual deforestation data – this data is analysed to identify the interface with nature and determine impacts, dependencies, risk and opportunities.

This stage utilised GIS, tools such as [Trase](#) and [ENCORE](#), location data provided by companies and open-source data for key state of nature datasets.



Part 2: Determining nature-related impacts and dependencies

Process used to identify nature-related impacts and dependencies:

1. Activities and processes at business footprint locations determined
2. Environmental assets, ecosystem services, dependencies and impacts determined through expert knowledge and variety of tools including [ENCORE](#) and [SBTN Materiality Matrix](#)
3. Dependency analysis undertaken based on size of location and production output
4. Impact analysis undertaken based on nature interface and sensitivity of baseline conditions at business footprint locations

In order to determine the dependencies and impacts at each priority location, the businesses processes and activities were identified. Given each priority location represents either agricultural farming and/or forestry activities, the associated processes primarily consist of:

- Ground preparation (e.g. land clearing, tilling)
- Seed treatment and planting
- Fertiliser application
- Weed, pest and disease control
- General maintenance of crops and plantations (e.g. pruning)
- Irrigation
- Harvesting.

Understanding the processes and activities then allows for the material environmental assets (e.g. land, water, minerals, materials) and ecosystem services (e.g. pollination, water purification, biological controls) to be determined. Regarding the assessed companies, the key environmental assets and ecosystem services are detailed below (Table 1). These were informed by the [ENCORE](#) tool and reflect the categories provided in the [TNFD guidance](#).

Table 1. Environmental assets and ecosystem services required for the Assessed Companies

Environmental assets	Description
Land	Area required for the farm and forest stand, and soil required for planting
Water resources	Required for irrigation
Cultivated biological resources	Soybeans, bananas, cocoa, cassava and acai as well as timber are the economic products associated with the land
Ecosystem Services	
Flood and storm protection	Crops and tree saplings are extremely vulnerable to flood and storm events. A single event can destroy a harvest cycle. Landscapes, soil and ecosystems provide natural flood defences.
Mass stabilisation and erosion control	Crops require stable terrain to root and grow. They are vulnerable to soil loss (erosion) as the nutrients and stabilisation properties are lost. Permanent vegetation provides soil stability and protects soil from erosion caused by wind, rain and other natural processes.
Water supply (groundwater or surface water)	Crops and forest stands require water for growth.
Climate regulation	Specific climatic conditions are required for growth such as temperature, wind, rain, humidity, and sunlight.
Disease and pest control	Ecosystems naturally provide disease and pest control. For example, animals prey on insects that could otherwise feed on crops.
Water purification and flow regulation	Crops and tree stands require good quality water and consistent water flow (direction and quantity) to manage water supply and erosion.
Soil quality and retention	Soil properties such as type, textures, infiltration capacity and organic content affect the crops and tree stands capacity to grow.
Pollination	Some crops and trees require pollinators for reproduction.

Using [ENCORE](#) and the [SBTN materiality matrix](#), potential environmental impacts were then identified, including for example terrestrial ecosystem damage, water use and depletion, soil pollution, and others.

Detailed information and data regarding dependencies (e.g. amount of water usage at each location) of the operations at each of the assessed companies' locations was out of scope for the pilot project due to the preliminary nature of the assessment. As such, a proxy approach was adopted utilising the size (i.e. hectares) of the farm as an indicator of the comparative size of the nature-related dependencies. This was used on the basis that a larger farm would likely have a greater reliance on environmental assets (e.g. land and water) and ecosystem services than a smaller farm. Whilst it is acknowledged that this is not always the case (particularly when comparing agroforestry farms to monoculture crops for example), this method has been used as a simple proxy to allow for further ranking of the priority locations. The priority locations have been categorised using a quintile distribution based on the size of the farms and a qualitative description has been assigned as detailed in Table 2.

Table 2. Dependency analysis

Dependency	Definition
Very high	Area above 500 ha
High	Area between 180 and 500 ha
Medium	Area between 60 and 180 ha
Low	Area between 40 and 60 ha
Very low	Area between 0 and 40 ha

In order to better understand nature-related impacts, the interface with nature (as identified in sensitive location analysis) was used to indicate the vulnerability of each assessed location to impact and consequently the relative size of the likely impact, to support upcoming identification of material risks and opportunities. This was done by using Overall Biodiversity Impact Rating (OBIR) scores. The Impact Rating is calculated

by assigning a value (e.g. locations with extreme water stress were assigned a value of 5, whilst locations with negligible water stress were assigned a value of 0). These impact values were combined to provide an overall rating or an OBIR. The OBIR enables further prioritisation of the locations that require actions in response to their potential nature-related impact or further assessment (Table 3).

Table 3. Example output of OBIR scores for CAR IDs, used to prioritise further actions

#	Company	CAR ID	OBIR
1	Company 1	CAR ID	60.3
2	Company 2	CAR ID	55.7
3	Company 2	CAR ID	50.6
4	Company 1	CAR ID	49.2
5	Company 1	CAR ID	48.4

In such a process, issues of significant concern such as identified deforestation within the boundaries of a business footprint would be assigned the highest impact rating and ultimately prioritised (illustrative example provided in Figure 2).

Figure 2: An example of deforestation event detected using satellite imagery. The blue polygon denotes the boundaries of a farm and the red polygons highlight the areas where the forest has been removed (NOTE: this is a randomised sample and does not represent the Assessed Companies)



Part 3: Assessing material nature-related risks and opportunities

Process used to assess nature-related risks and opportunities:

1. Development of a longlist of the nature-related risks and opportunities based on findings of Locate and Evaluate testing
2. Collaborative workshop to review risks and opportunities, identify existing management and mitigation measures, identify areas for strengthening of existing measures, assess the materiality of the risks and opportunities identified

The financial implications of some nature-related risks and opportunities are not able to be easily incorporated into the financial model but are undoubtedly significant in the long-term. Therefore, material risks to, and opportunities for, nature need to be considered alongside material financial implications. Further, it is critical for financial institutions to also consider the possible environmental and societal implications their operations pose to nature.

A longlist of nature-related risks and opportunities was developed by Frontierra, in collaboration with JGP, and was informed by the findings of the Locate and Evaluate testing. The risks (Table 4) and opportunities identified took into account aspects such as the specific location, the type of activities undertaken at those locations, the interface with nature (e.g. protected areas, water risk, exposure to deforestation), the relationship between the financial institution and the Assessed Companies.

Table 4: Illustrative example of the identification of nature-related risk

Risk	Company	Description	Nature-related implication	Financial implication
R1	Company 2	Operations located in or near water stressed region with high dependency on water for irrigation purposes	<ul style="list-style-type: none"> • Potential degradation of nature due to decrease in water availability • Stakeholder conflicts 	<ul style="list-style-type: none"> • Fines • Decreased sales • Decreased value of asset • Increased cost of personnel and monitoring activities • Increased compliance costs • Loss of market access

JGP worked closely with Frontierra to develop a risk and opportunity register, assigning appropriate ratings, discussing existing mitigation measures and proposing additional measures that could be taken to mitigate risks and maximise opportunities. Collective reviews included representatives from ESG team, risk management team, investment managers, subsidiary companies, communications team etc. Each of the representatives were able to give a different perspective on how the risk was viewed and managed within their respective parts of the business. Further assessments of identified risks will be undertaken through engagement with the other stakeholders and senior management in order to determine those that should be disclosed in line with the TNFD recommendations.

In light of the nature-related dependencies, impacts, risks and opportunities identified as part of the pilot projects, JGP identified areas in which additional strategies and processes could be considered, or areas in which existing strategies should be strengthened to manage nature-related issues. JGP identified that managing the risk of deforestation within their activities and investments can be embedded into the existing strategies and would strengthen the existing strategies due to the significant link between deforestation and climate change.

Part 4: Preparing for disclosure and next steps

Having completed the Locate, Evaluate and Assess phases of the LEAP approach, JGP reviewed and considered the actions and disclosures required in response to the findings. Specific actions for each risk and opportunity had been identified in the Assess phase, and therefore this phase focused on identifying the resources, strategies and mechanisms required at the organisational level to implement the identified actions, monitor implementation and disclose in line with the TNFD recommendations.

JGP recognised the need to engage with the assessed companies to discuss the outcomes, either directly or via the subsidiary entities. They also determined that updates to existing policies and processes were required in order to identify, manage and disclose on nature-related issues. For example, in some processes, nature-related issues were already considered but simply required additional aspects to be incorporated. Additionally, it was recognised that increased awareness and training was required across the business, along with more tools

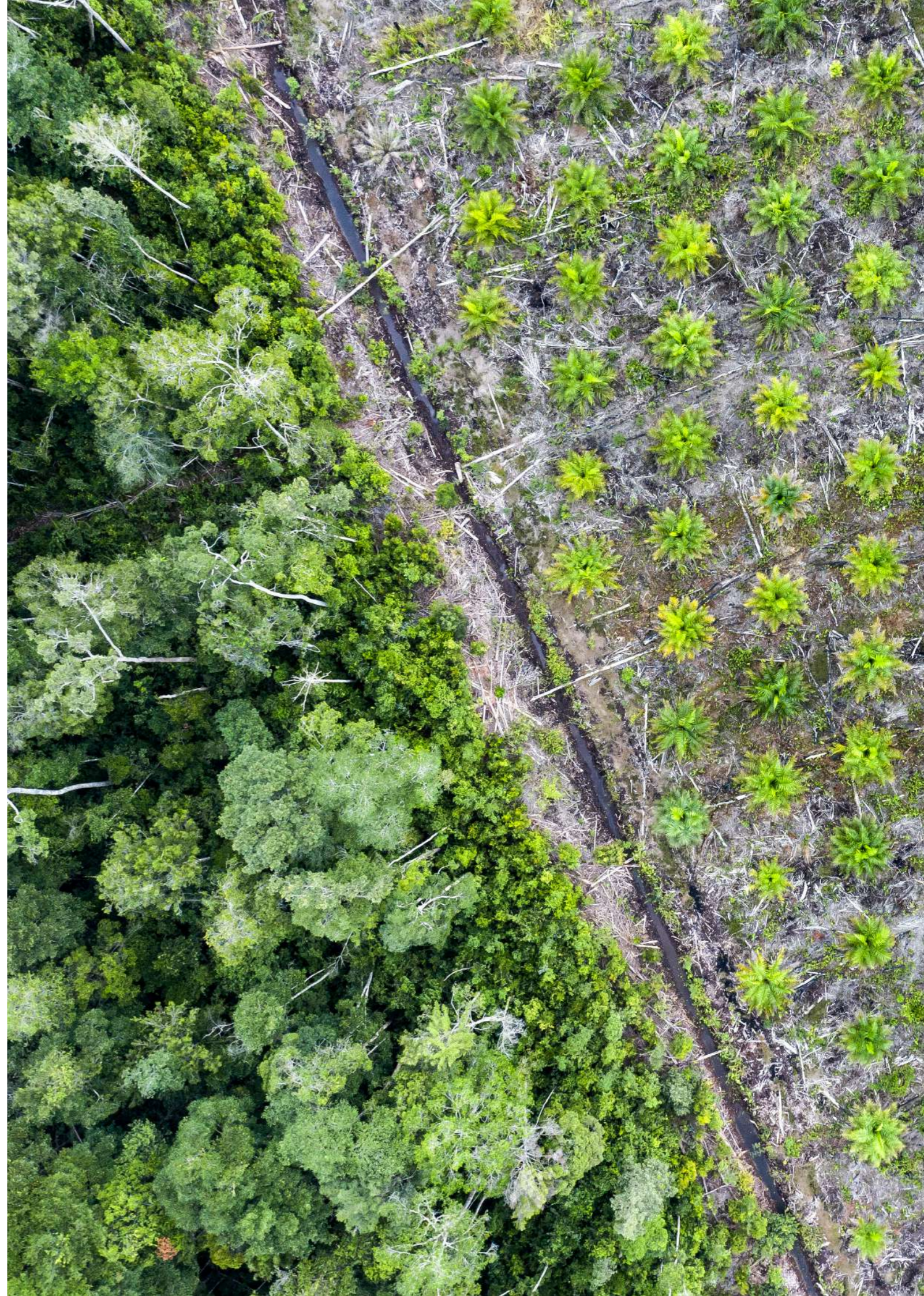
and software. It was also determined that there are existing mechanisms and structures within the business that could be utilised and leveraged to manage the additional nature-related actions identified. For example, JGP already has an internal framework for setting targets and defining and measuring progress. As such, this framework would be utilised for developing and adopting nature-related KPIs.

In regard to reporting, JGP has a defined structure in which they report and disclose material issues to stakeholders which consists of a variety of internal mechanisms of communication (e.g. updates to investors) and also public disclosure. As part of this, JGP discloses nature-related issues through their period reports published on their website and will use this same approach for disclosing in line with the TNFD recommendations.

This pilot has helped JGP acquire knowledge about best practices in risk assessment and financial disclosure linked to nature, enabling us to increase our transparency and communication with our stakeholders. JGP is committed to releasing its first TNFD report in 2024, sharing the insights gained and acknowledging the risks and opportunities related to biodiversity in their ESG investment portfolios.

*The methodology and tools used in this study do not represent the analysis process used by JGP in the evaluation of assets.

*The methodology presented in this study is in the development phase and there is no guarantee that it will be incorporated in the investment analysis process.



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