IMPLEMENTING THE TNFD LEAP-FI APPROACH

A CASE STUDY OF CLARITY AI AND GIST IMPACT

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PREAMBLE

The following case study displays how Clarity AI tools can be used by an hypothetical asset manager, Biome AM, that wants to assess the nature related opportunities, risks, impacts, and dependencies of its portfolio and report following the LEAP-FI framework. The case study builds on TNFD's v0.4 beta materials.

INTRODUCTION

Clarity AI's TNFD solution, developed in partnership with GIST Impact, integrates multiple frameworks and data sources providing comprehensive support to financial institutions throughout the stages of the LEAP-FI process. The tool combines self-reported data from companies, AI-based estimations on environmental pressures (e.g., Nitrogen Oxides emissions -NOx-), observational data at the asset level (e.g., satellite images), and models that quantify impacts on nature (e.g., Potentially Disappeared Fraction).

The portfolio level aggregation allows investors to get an overview of their performance and facilitates reporting, while the ability to drill down at the asset level provides actionable insights and transparency.

LOCATE

Biome AM can effortlessly upload complex portfolios, and Clarity AI builds a breakdown of the capital allocated to each portfolio entity, including those held in funds of funds. The tool identifies assets linked to portfolio companies in sectors with large biodiversity impact[1], displaying their location in maps with different biodiversity related overlays (e.g., areas of rapid decline in ecosystem integrity). This allows Biome AM to explore the assets and their interface with nature. The calculation of impacts on nature, detailed in the Evaluate phase, can also be used as a way to identify companies with relevant interactions with nature.

EVALUATE PRIORITY, DEPENDENCIES AND IMPACTS

Once Biome AM has identified the interfaces with nature; it should assess dependencies and impacts.

Dependencies

The degree and type of dependence on nature varies across different sectors. Based on existing materiality assessments of dependencies on ecosystem services, Clarity AI has identified high-risk areas for different sectors (e.g., areas of high water stress for Oil & Gas companies).

At a company level, risk depends on the share of production that comes from these high-risk areas. Climate TRACE[2] estimates of production per asset for certain sectors, based on satellite data and advanced modeling techniques. These are combined with asset ownership information to calculate the share of a company's production that comes from each asset[3]. The share of production of assets in high-risk areas is used as a proxy for the share of revenues with high-risk dependencies on nature.

To gain insights into which assets contribute to the risk of a company, Biome AM can interact with maps that show company assets with the information that is used to perform the calculations. As seen in Figure 1, Biome AM can access the details and see that Energy Corp owns 55% of Asset 1, which is located in a water pollution and flood risk area, and that such asset generates 1% of the company's production.

Impacts

Impact of companies on the environment can arise from direct pressures (e.g., land use) or indirect pressures (e.g., water extraction). Biome AM can quantify the impact of these pressures by using the Potentially Disappeared Fraction (PDF) metric, which has been calculated in collaboration with GIST Impact.

> **Potentially Disappeared Fraction (PDF) vs. Mean Species Abundance (MSA)**
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> The PDF measures the risk associated with species extinction based on marginal environmental pressures arising from companies' actions (e.g., pollutant emissions, land use). It can be used to understand the relative performance of companies, especially at the portfolio level or analyze in-depth the largest drivers of each company's impact.

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1. Sectors currently covered include Oil & Gas, Cement, Steel, Aluminum, and Electricity generation.
2. Climate TRACE is a global non-profit coalition created to make meaningful climate action faster and easier by independently tracking greenhouse gas (GHG) emissions with tools such as satellite imagery and remote sensing techniques.
3. For industries where Climate TRACE does not provide production information, such as Oil and Gas, Clarity AI calculates the distribution of production based on emissions per asset and the efficiencies of each type of asset.

Figure 1 - Detail on company revenues derived from high-risk areas and associated assets (mock-up)
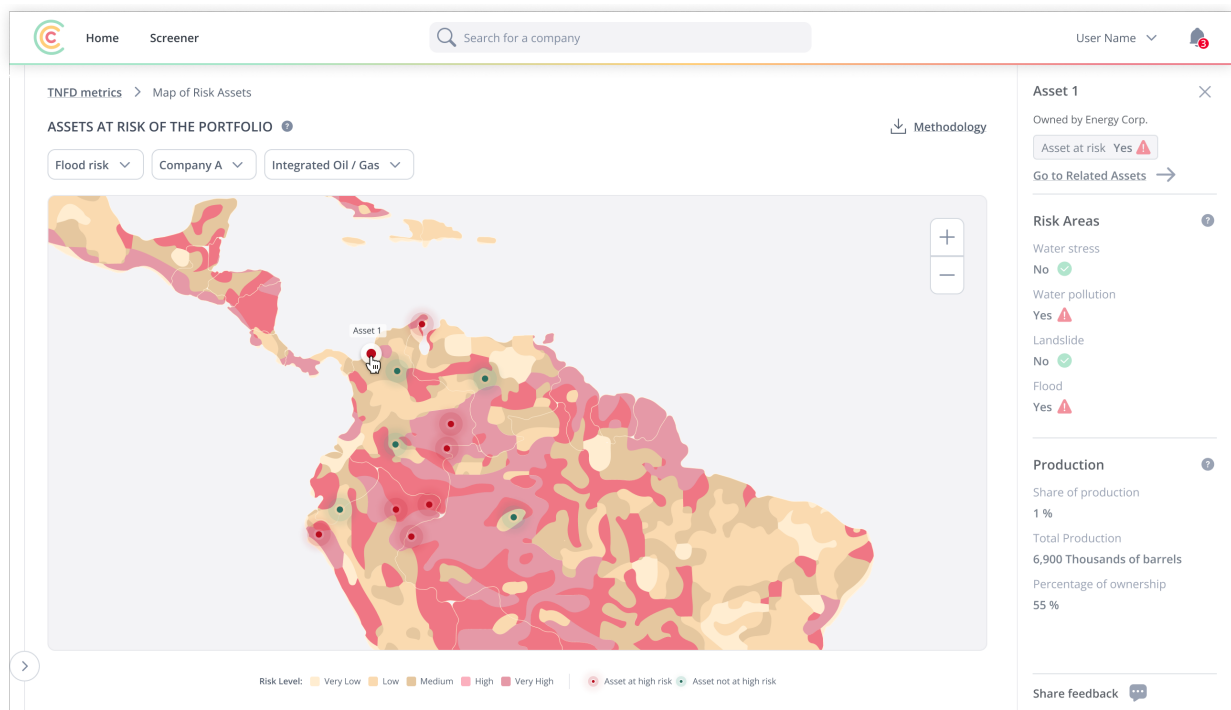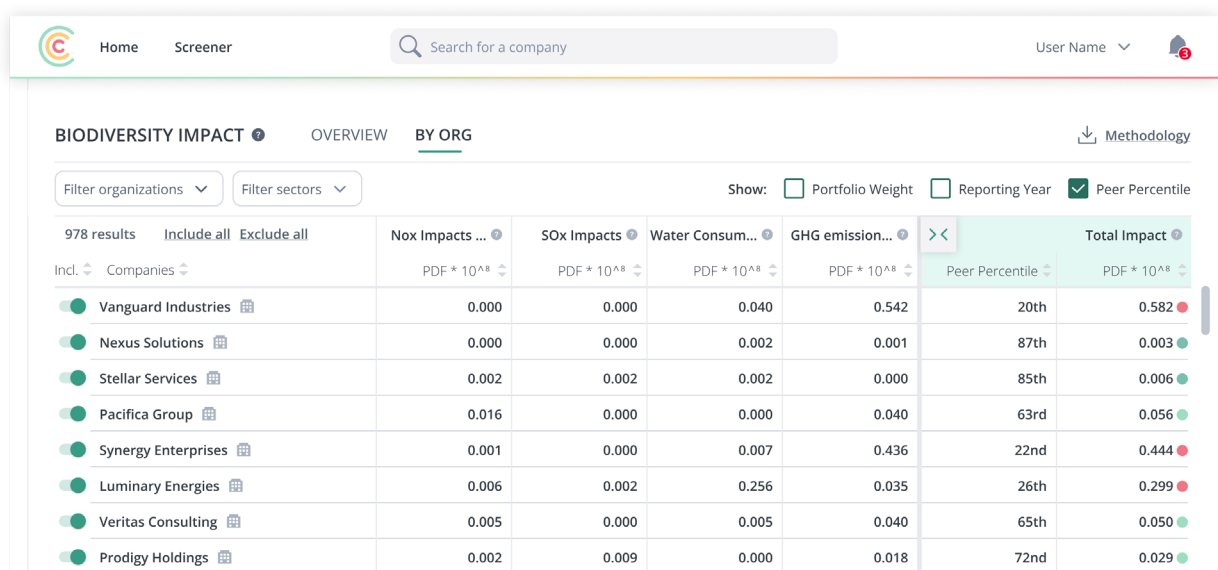

Figure 2 - Breakdown of company impact on nature per driver per driver (mockup)

The model adopts the latest Life Cycle Impact Assessment (LCIA) methodology[4] to estimate the biodiversity impacts that can lead to the extinction of species. It also incorporates company-specific location data to account for the differences in impacts across regions[5].

The use of companies' self-reported data (e.g., GHG emissions) allows for a meaningful comparison of each company's impact to that of its peers, providing valuable insights into a company's relative performance.

By combining reported data with Clarity AI's machine learning estimations, the tool enables the assessment of the environmental impact of the majority of companies within Biome AM's portfolio (+95% of commonly used broad indexes are covered). To facilitate meaningful engagement with companies, Clarity AI's tool also offers a breakdown of the impact based on the drivers that contribute to it. This enables Biome AM to identify areas where improvement can be targeted (e.g., the main driver of impact for Veritas Consulting in Figure 2 is the NOx emissions).

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4. Verones, F. H. (2020). LC-IMPACT: A regionalized life cycle damage assessment method.
5. The geographical distribution of companies' assets or activities is used when available; otherwise, the distribution of revenues is used as a proxy.

ASSESS MATERIAL RISKS AND OPPORTUNITIES

To understand the materiality of the risks identified, Biome AM needs to be able to aggregate them at a company and portfolio level. Companies that have a high share of revenues in high-risk areas are considered to be at risk, as well as those that have a higher impact on nature than their peers (as they might be subject to new regulation or reputational risks arising from controversies published in the news). With the tool, Biome AM can gain insights into the share of portfolio investments that are considered to be at risk. For example, when examining Oil & Gas companies in a broad-based index, Clarity AI's analysis revealed that 50% of them have at least 25% of their production in high-risk areas.

Biome AM can measure opportunities using Clarity AI's EU Taxonomy solution, used by entities such as Invesco or Wellington. The product incorporates the latest guidance by the European Commission related to Biodiversity, identifying business activities that represent an opportunity for the protection and restoration of biodiversity and ecosystems. Biome AM leverages such capabilities to analyze at individual company level the opportunities linked to nature of portfolio companies (e.g., a company has a material mitigation opportunity since it derives 7% of its turnover from soil remediation). This information, together with other biodiversity-related metrics offered by Clarity AI (e.g., environmental controversies, SFDR Principal Adverse Impacts, policies) can be used by Biome AM to prepare a matrix of risks and define its risk management strategy.

PREPARE TO RESPOND AND REPORT

As a final step, Biome AM can use Clarity AI's tool to calculate the risk, opportunity, dependency, and impact metrics proposed in Annex 4.4 of the TNFD Framework. Reports are automatically built considering Biome AM's portfolio composition:

- Nature-related risks are measured through the proportion of investments in companies with substantial dependence on ecosystem services at risk (i.e., companies with a large share of revenues derived from assets in high-risk areas) or with a high impact on nature (i.e., companies with a high impact as measured by the Potentially Disappeared Fraction).
- Nature-related opportunities are measured according to the EU Taxonomy recommendations.
- Dependency and impact metrics are calculated at the company level and aggregated based on the investment on each company relative to its enterprise value.

SCOPE AND LIMITATIONS

- Asset data coverage: The asset level data currently available through Clarity AI's TNFD covers the industries of Oil & Gas, Cement, Steel, Aluminum, and Electricity generation, with the aim of covering others like the Agriculture sector in the near future.
- Coverage: Clarity AI focuses on publicly listed companies. Some private companies that emit public debt are covered and there are ongoing efforts to increase their availability. Financial instruments not directly related to companies (e.g., mortgage-backed securities) are not covered.
- Risk methodology: Clarity AI's tool follows the "asset tagging" approach proposed by TNFD, incorporating Level 4 data (physical asset-level data), but does not model the financial implications of the risks.
- Value Chain: The upstream and downstream value chains of the companies contained in the portfolios are not included due to the lack of information. Clarity AI and GIST impact plan to explore the use of environmentally-extended input-output methods to include this impact.

Figure 3 - Portfolio overview of TNFD metrics proposed in annex 4.4 (mockup)

AUTHORS

Renato Coelho
Director of Product Research & Innovation at Clarity AI

Dr. Guillermo Velázquez
Manager of Product Research & Innovation at Clarity AI

Dr. Swapna Panda
Associate of Research and Innovation Lab at GIST Impact

At Clarity AI, we are continuously evolving our tools based on the latest scientific developments, methodologies improvements and new data sources. We would welcome your feedback at **insights@clarity.ai.**

ABOUT CLARITY AI

Clarity AI is a sustainability technology platform that uses machine learning and big data to deliver environmental and social insights to investors, organizations, and consumers. Clarity AI's capabilities are an essential tool for end-to-end sustainability analysis related to investing, corporate research, benchmarking, consumer ecommerce, and regulatory reporting. As of May 2023, Clarity AI's platform analyzes more than 70,000 companies, 360,000 funds, 198 countries, and 199 local governments, which represents more breadth than any other player in the market.

One way Clarity AI delivers on its mission to bring societal impact to markets is by ensuring its capabilities are delivered directly into clients' workflows through integrations with partners like BlackRock - Aladdin, Refinitiv an LSEG business, BNP Manaos, CACEIS, Allfunds, and Simcorp. Additionally, Clarity AI's sustainability insights reach more than 150 million consumers across more than 400,000 merchants on the Klarna platform. Clarity AI has offices in North America, Europe, and the Middle East, and its client network manages tens of trillions in assets and includes companies like Invesco, Nordea, BlackRock, Santander, Wellington, and BNP Paribas.

ABOUT GIST IMPACT

GIST Impact is a leading impact data and analytics provider that has been measuring and quantifying corporate impacts for more than 15 years. GIST Impact's historic and deep expertise in the economics of ecosystems and biodiversity (TEEB) enriches its clients' knowledge of their impacts and dependencies on nature.

With a team of 100+ scientists, engineers, data scientists and ecological and environmental economists, GIST Impact codifies this experience within its market-leading impact platforms and datasets, covering 12,800+ companies with geographically precise, time-series data. GIST Impact works with pioneering companies across all sectors and with investors representing over $8 trillion in assets under management.