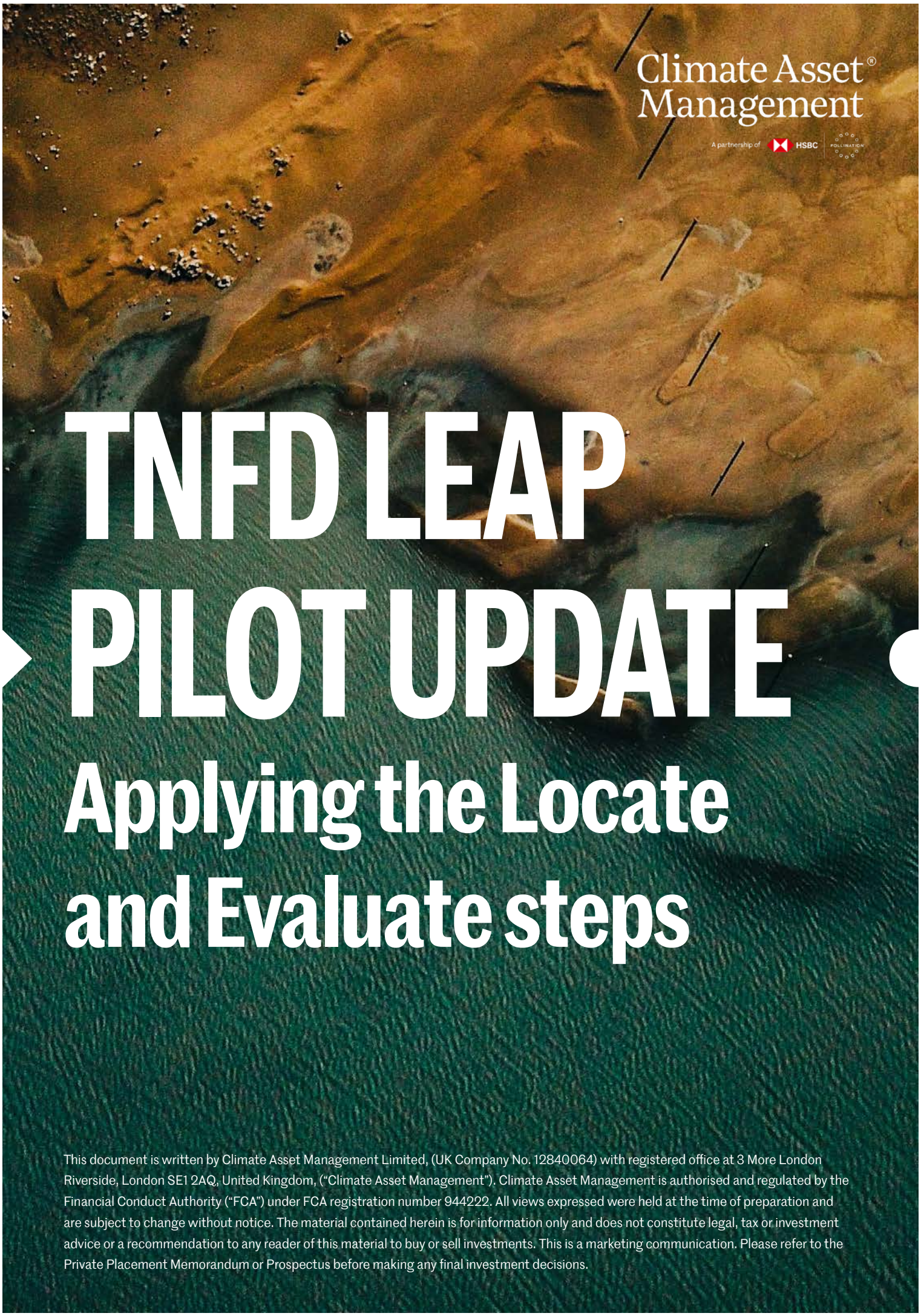


TNFD LEAP PILOT UPDATE

Applying the Locate and Evaluate steps

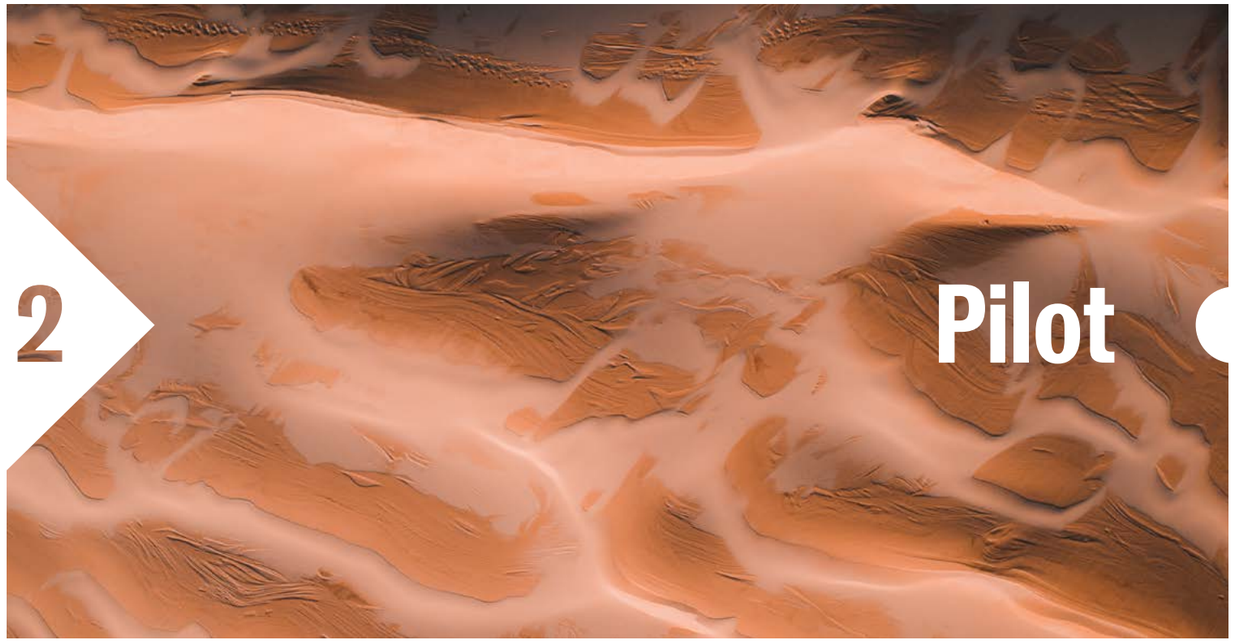
1 Introduction

Nature is in a state of continuous decline, with potentially devastating consequences for society, driven in large part by the way our economies incentivise unsustainable extraction, use and consumption of natural resources[1]

With growing recognition of the need for change, the private sector is increasingly reevaluating its interaction with the natural world. **The Taskforce on Nature-related Financial Disclosures** (TNFD) has been established to help meet this challenge by directing finance away from nature negative activities and towards positive outcomes for nature. As a market-led initiative, it aims to create a standardised framework for disclosure which will provide financial institutions with decision-useful information to direct financial flows to nature-positive outcomes. It is hoped that the uptake of TNFD will be accelerated, capitalising on the momentum generated by the Taskforce on Climate-related Financial Disclosures, which has 2,600 supporting organisations with a combined market capitalisation of over $25 trillion.

CLIMATE ASSET MANAGEMENT HAS BEEN ACTIVELY PARTICIPATING IN THIS PROCESS, ENGAGING ACROSS A NUMBER OF THE TASKFORCE'S WORKING GROUPS, NOTABLY AROUND TARGETS AND METRICS, AS WELL AS BUILDING CAPACITY BOTH INTERNALLY AND EXTERNALLY TO DELIVER ON THE TNFD'S AMBITION.

1 IPBES 2019 & Dasgupta 2021



2 Pilot

Over the last year, we have partnered with Phoenix, the UK's largest long-term savings and retirement business, to pilot the TNFD framework

While over 130 organisations have engaged in some form of TNFD pilot, we believe our pilot provides a unique perspective as a result of:

- **Comprehensive location-specific information**: we collect a range of site-level information on every investment opportunity. The granularity of this data grows as investment opportunities progress through due diligence and into asset management phases. Data are typically available on location, habitats, species, chemical and water inputs, and other specific metrics relevant to particular investments.
- **Focus on nature-related opportunities**: as well as the important role in identifying nature-related risks, the TNFD framework enables users to assess nature-related opportunities. Our approach to investments is well aligned with the TNFD, with all investments accepted for further review expected to contribute meaningfully towards our impact objectives.
- **Forward looking**: as a relatively young organisation, we have been in an excellent position to integrate the requirements of the TNFD into our processes and management systems. This ensures investments start to capture the necessary data from day one and removes the need to retrofit requirements.

Our objective was to understand better the TNFD process, including data requirements, prioritisation, target setting and disclosure, as well as how this information can be applied to ensure our investments are assessed, managed and monitored in a way that enables us to demonstrate quantifiable improvements to the state of nature.

Working alongside experts from **The Biodiversity Consultancy**, engaged by Phoenix, we applied a bespoke methodology translating each step of the TNFD's LEAP framework (Locate, Evaluate, Assess, Prepare) into a process applicable to our site-based approach to asset management. The pilot spanned five agriculture and forestry investment opportunities across multiple geographies. This report details the findings of the first stage of the pilot, focused on the Locate and Evaluate phases of the framework.

3 Findings

The Locate and Evaluate phases have provided vital information regarding our interactions with nature which we will now use to assess and integrate the associated risks and opportunities into our investment review and long-term management processes

The process and outcome of each step is detailed on the following pages.

LOCATE

Using the projects, the Locate phase examined where in the world our footprint will be and how that footprint interacts with nature. The objective was to identify priority areas where interactions between our operations and nature could have potentially material risks and/or opportunities to inform decision making.

To carry out the Locate phase, an overlay analysis was conducted between the project footprints and a range of datasets relating to nature. We applied the best available datasets for screening across three categories identified within the TNFD guidance, namely Low Ecosystem Integrity, High Biodiversity Importance and Water Stress[2].

The outcome of this analysis is presented in Table 1 opposite. While overlap with low integrity ecosystems and areas of water stress was variable across the projects included in the pilot, we found all either overlapped or were adjacent to (within 2km) areas of high biodiversity importance. As such, all projects were identified as priority areas for assessment due to the likelihood of material nature-related risks and/or opportunities. The most significant driver of this was proximity to areas designated for biodiversity importance, whether protected areas or Key Biodiversity Areas.

2 Note that the pilot was conducted based on a beta version of the LEAP framework, subsequent versions have updated this guidance to refer to areas of rapid decline in ecosystem integrity rather than areas of low ecosystem integrity. This may therefore change the outcome of the Locate phase for some projects during future assessments. The updated guidance also added a fourth category relating to areas of high ecosystem integrity which during this pilot had been included as a subset of areas of high biodiversity importance.

Box 1

Locate Phase Data Needs

1. **Location data for all assets** – files containing at least the boundaries of each asset in GIS (Geographic Information System) format were obtained from internal and third-party operator data. For some assets additional information was available relating to sub-divisions of the asset (e.g. land-use)
2. **Water Stress data** – assessment of water stress was drawn from the **WRI Aqueduct tool** providing a water stress rating for each watershed in which assets are located.
3. **Sites of High Biodiversity data** – biodiversity data were drawn from several datasets. Protected areas, sites of biodiversity importance and species extinction risk were drawn from the World Database of Protected Areas, the World Database of Key Biodiversity Areas, and the STAR (Species Threat Abatement and Restoration) layers, all of which are accessible through **IBAT** (Integrated Biodiversity Assessment Tool). Data on sites of high ecosystem integrity were drawn from the **Ecoregion Intactness Index.**
4. **Low Integrity Ecosystem data** – Data on sites of low ecosystem integrity were drawn from the **Ecoregion Intactness Index.**

Table 1

Output of the locate phase[3]

Project	Low Ecosystem Integrity	High Biodiversity Importance	Water Stress	Priority Areas
Agriculture 1	No	Yes	High	Yes
Agriculture 2	Yes	Yes	Extremely High	Yes
Agriculture 3	Yes	Yes	Medium	Yes
Forestry 1	No	Yes	Low	Yes
Forestry 2	No	Yes	Low	Yes

3 Projects assessed in this pilot were live opportunities under review for potential investment and are not necessarily representative of the natural capital strategy.

EVALUATE

The Evaluate phase aimed to investigate in more detail, the potential material impacts and dependencies at priority locations. Based on the output of the Locate phase all projects were progressed to Evaluate.

Identification of relevant environmental assets and ecosystem services by priority location

The first step of this phase was to identify the environmental assets within or adjacent to our footprint. Given that the pilot is forward-looking from the perspective of investment opportunities, this assessment is done for the baseline condition of a project prior to investment. Land-use change is a fundamental part of our Natural Capital strategy and proposed changes to land-use as part of our management of assets are captured at a later stage of the process (see Table 3 opposite). This was conducted using a combination of existing project documents and satellite imagery. We classified the environmental assets present based on land-use and broad management practices (see Table 2). This process identified that while projects all have a dominant land-use[4], there is notable variation between them in terms of homogeneity.

Table 2

Land uses within projects

Baseline Land-use Class	Agriculture 1	Agriculture 2	Agriculture 8	Forestry 1	Forestry 2
Intensive agricultural land	97.5%	55.5%	0%	0%	0%
Man-made pasture	0%	44%	90.5%	0%	74%
Forest plantation	0%	0%	0%	0%	13%
Secondary Forest	0%	0%	0%	37%	4%
Lightly used forest	0%	0%	5%	57%	0%
Natural vegetation	0%	0%	0%	0%	3%
Wetland/Aquatic	2.5%	0.5%	4.5%	6%	4%
Built Area (Infrastructure)	0%	0%	0%	0%	1%

4 Land-use was categorised based on the GLC2000 classifications which are integrated into widely recognized land-use models including GLOBIO (Akeman 2009)

Identification of impacts

Once existing land-use was identified, we conducted a high-level assessment of the most relevant impacts for each project. This was based on existing conditions and proposed land-use change and ongoing management. The process further prioritised the areas requiring detailed analysis based on the likelihood that the projects will have material impacts (positive or negative) upon the ecosystems with which they interact (Table 3).

Table 3

High Level Impact Mapping

Impact Pathways	Agriculture 1	Agriculture 2	Agriculture 8	Forestry 1	Forestry 2
Land-use Change	+	+	+	+	+
Land Management	N/A	+	N/A	+	+
Water-use	+	+	-	N/A	+
Pollution	+	+	-	N/A	N/A
Wildlife Disturbance/ Mortality	-	-	-	+	-
Operational GHG	+	+	+	+	+
Invasive Species	N/A	+	N/A	N/A	N/A
Impact Upon Communities	+	N/A	N/A	N/A	N/A

Identification of dependencies

A high-level assessment of dependencies was conducted based on the output of the ENCORE tool[5]. Through this process we identified material dependencies of 18 ecosystem services across the agriculture and forestry projects, including 12 upon which agriculture is highly or very highly dependent and 11 upon which forestry is highly or very highly dependent. The provision of these ecosystem services is mapped back to eight natural capital assets, of which habitats, species and water are the most heavily associated (Table 4). This was in line with expectations given that natural capital investments inherently depend on that capital and the ecosystem services it provides.

Table 4

High Level Dependency Mapping

Ecosystem service		Agriculture	Forestry
Direct	Fibres and other materials	M	VH
	Genetic materials	M	N/A
	Ground water	VH	VH
	Surface water	H	VH
Enabling	Pollination	H	H
	Soil Quality	H	H
	Ventilation	L	N/A
	Water flow maintenance	H	H
	Water quality	H	N/A
Mitigating	Bioremediation	M	M
	Dilution by atmosphere and ecosystems	M	N/A
	Filtration	M	VL
Protecting	Buffering and attenuation of mass flows	H	N/A
	Climate regulation	H	VH
	Disease control	H	H
	Flood and storm protection	VH	VH
	Mass stabilisation and erosion control	VH	VH
	Pest control	H	H

Natural Capital Asset	Number of Associated Ecosystem Services
Atmosphere	5
Ocean Geomorphology	1
Land Geomorphology	3
Species	11
Habitats	11
Soils and Sediments	4
Minerals	1
Water	8

5 ENCORE Partners (Global Canopy, UNEP FI, and UNEP-WCMC) (2023). ENCORE: Exploring Natural Capital Opportunities, Risks and Exposure. [On-line], May 2023 of the version downloaded], Cambridge, UK: the ENCORE Partners. Available at: encorenature.org. DOI: doi.org/10.34892/dz3x-y059.

Impact Analysis

We conducted a more detailed assessment of impacts based on the initial screening. This focused on a forward-looking quantification of relevant impacts based on predicted management of assets over their lifetime. The assessment was based around the TNFD's 'state of nature' metric which refers to both the extent and condition of environmental assets. As such we followed a threshold-based approach to quantifying impacts across these two parameters which can then be combined to provide an assessment of the potential impacts (see Box 2).

As no projects were under full production, no trend data were available. Impact had to be estimated based on land-use category, changes in volume, and in some cases expert opinion using a conservative approach.

This analysis enabled us to map the material impacts for each project as well as take a wider portfolio view of our impact (Table 5). The outcome of the analysis highlights that the sum of the projects reviewed is expected to provide substantial positive impacts in the long term. While the analysis highlights the variability of impact profiles across the projects, it also demonstrates the positive impacts consistent across land-use change, a key focus of our Natural Capital strategy. The heatmap also provides insight into areas on which to focus regarding the mitigation and reduction of potential negative impacts, including wildlife disturbance (primarily through initial conversion and harvesting), pollution (including the use of chemical fertilizer and pesticides) and water use. Operational GHG emission could not be estimated for the projects and thus excluded at this stage.

Box 2

Impact Scoring Approach

Impact is scored based on its extend and its potential to create a change compared to the baseline condition. This is based on pre-defined thresholds for Extent and Change in Condition which are then multiplied to create an impact score as follows:

Impact = Extent Score x Change in Condition Score

Extent (ha)					
Extent	Very Small <100	Small 100 - <1,000	Small-Med 1,000 - <10,00	Med- Large 10,000 - <100,000	Very Large >100,000
Score	0.1	**1**	**2**	**4**	**6**

Change in condition (+/-%)					
Change	Very Small <1%	Modest 1 - <10%	Moderate 10 -<20%	Substantial 20 - <50%	Very Substantial >50%
Score	0.1	**1**	**2**	**4**	**6**

Box 3

Locate Phase Data Needs

1. **Land-use data** – baseline and projected land-use data for all assets in a GIS format that enables mapping and quantification of area, obtained from internal and third-party operator data available through combination of tools, reports and field collection.
2. **Impact and Management data** – data relating to baseline, impacts and projected management data. Data were available for some (e.g. land-use) but not all impacts, for other impacts , management data were applied as a proxy for impact. For example, expected harvesting method, volume of water consumption, volume of chemical application. These data were sourced from a range of internal and external providers. These included due diligence assessments, vendor information, asset plans and internal consultation, satellite imagery, **IBAT**, **GBIF**, **Global Forest Watch**, regional data platforms.
3. **Dependency data** – high-level data on the likely dependencies of the production processes occurring at assets. These data were drawn from the **ENCORE** database.

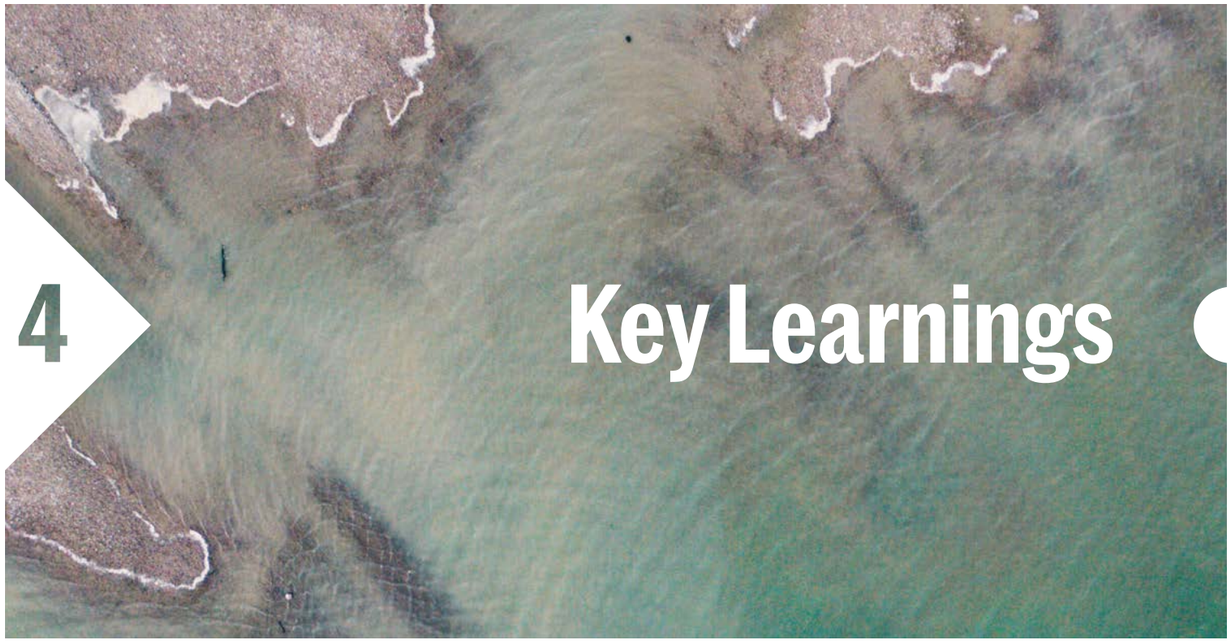
Table 5

Impact analysis heatmap

Impact Pathways	**Agriculture 1**	**Agriculture 2**	**Agriculture 3**	**Forestry 1**	**Forestry 2**
Land-use Change					
Land Management					
Water-use					
Pollution					
Wildlife Disturbance/ Mortality					
Operational GHG	**TBD**	**TBD**	**TBD**	**TBD**	**TBD**
Invasive Species					
Impact Upon Communities					

Postitive Impact — **Negative Impact**

© Climate Asset Management Limited | TNFD LEAP Pilot Update | September 2023 | All rights reserved



4 Key Learnings

Focuses Efforts on to Priority Impacts and Dependencies

The Locate and Evaluate phases have provided us with a useful overview of where the most material impacts and dependencies could lie for agriculture and forestry opportunities in target investment geographies. Agriculture and forestry are the primary drivers of biodiversity and nature loss globally, with significant negative impacts associated with land-use change, pollution, and water consumption. While our Natural Capital strategy takes a new approach to agriculture and forestry, looking to regenerate land and reduce pressure of nature, it is important for us to conduct assessments such as this to see where our strategy is delivering the most significant benefits to inform the overall investment strategy.

Challenges in Predicting Changes in State of Nature

The TNFD framework looks to provide an approach for organisations to understand how their activities and associated impacts lead to changes in the 'state of nature' and how in turn this can affect the sustainability of the organisation by reducing the flow of ecosystem services upon which they depend. In existing operations these changes to the 'state of nature' can be tracked through ongoing monitoring and comparison to a baseline. In our pilot, we looked to predict the likely changes to the 'state of nature' based on proposed changes to the management of land in line with our positive impact commitments.

With the exception of land-use change, for which GLOBIO data provided robust estimates to the change in the 'state of nature' it was necessary for us to rely on changes in scale of the pressure as a proxy for impact (e.g. change in the volume of chemicals applied to land). As such, the results of our impact analysis were inherently linked to the baseline condition. This rewarded projects where pre-investment conditions were poor and reduced the significance of positive impacts where pre-investment conditions are good. We therefore expect to see some projects where impact analysis shows limited change as this represents the maintenance of well-managed land. We also expect to see similar projects in similar areas scoring differently based on the pre-project state of the land.

Aligning TNFD Requirements with Existing Processes

The first key learning identified during the implementation of the Locate and Evaluate phases of the TNFD framework was that the majority of the information and analysis required was already conducted through our proprietary ESG & Impact Management System screening tools, underpinned by the strategy's commitment to its impact objectives. This information can be used to screen out opportunities and inform detailed due diligence and planning for projects to complete the Assess and Prepare steps of the framework. The core exercise was to take these existing processes and set them in the context of the LEAP framework. As such, conducting the required assessments does not create a significant additional burden for investment opportunities in the context of the natural capital strategy. Procedures can readily be developed to draw relevant data from existing locations and integrate them into TNFD assessment and disclosure.

Mapping Outputs to Disclosure Metrics

Once the Locate and Evaluate phases were completed, we performed a mapping exercise to understand how the LEAP framework can support the disclosure of TNFD's core metrics[6]. We identified that information complied during the pilot was of relevance to nine of the ten core dependency and impact metrics.

Timeline

The Locate phase was relatively quick to implement. As mentioned above, most data were readily available and the task of collating and processing them was streamlined. In total, the process for this pilot took <1 day.

The Evaluate phase was a larger undertaking, with the process requiring the collation of multiple datasets from a variety of sources. In particular, translating existing assessments of potential impact into the format outlined by the impact analysis methodology was time consuming. In total the process was estimated to take ~1 week. This could potentially be streamlined in future by ensuring that impact scoring is conducted as standard during due diligence.

Progress to Assess and Prepare Phases

The Locate and Evaluate phases have outlined clear and material impact and dependencies pathways associated with each of the projects within the pilot. Some of these will likely translate into nature-related risks which need to be managed, for example potential increased water consumption in areas of water stress. The majority however have the potential to represent nature-related opportunities both from the business performance as well as a sustainability performance perspective. The next stage of the pilot will now focus on how these impacts and dependencies can be translated into quantifiable risks and opportunities.

6 Note that the pilot was conducted based on a beta version of the TNFD framework, subsequent versions have updated the set of core metrics. However the mapping is still broadly representative of how information flows from Locate and Evaluate into disclosure metrics.

© Climate Asset Management Limited | TNFD LEAP Pilot Update | September 2023 | All rights reserved

LOCATE

Impact Pathways	Agriculture 1	Agriculture 2	Agriculture 8	Forestry 1	Forestry 2
Low Ecosystem Integrity	No	Yes	Yes	No	No
High Biodiversity Importance	Yes	Yes	Yes	Yes	Yes
Water Stress	High	Extremely High	Medium	Low	Low
Priority Area	Yes	Yes	Yes	Yes	Yes

EVALUATE

Impact Pathways	Agriculture 1	Agriculture 2	Agriculture 3	Forestry 1	Forestry 2
Land-use Change					
Land Management					
Water-use					
Pollution					
Wildlife Disturbance/ Mortality					
Operational GHG	**TBD**	**TBD**	**TBD**	**TBD**	**TBD**
Invasive Species					
Impact Upon Communities					

TNFD DEPENDENCY AND IMPACT CORE METRICS
Scope 1, 2 and 3 GHG emissions – refer to TCFD
Extent of land/freshwater/ocean use change, by type of ecosystem and business activity
Extent of land/freshwater/ocean use changes, by type of ecosystem and business activity, for prioritised ecosystems
Total pollutants released to soil split by type
Volume of water discharged and concentrations of key pollutants in the wasterwater discharged by type
Total amount of hazardous waster generated by type
Total non-GHG air pollutants by type
Total water withdrawal and consumption from areas of water stress
Quantity of high-risk natural commodities sourced from land/ocean/freshwater split into types
Quantity and share of natural commodities sourced from priority ecosystems split into types

Important Information

For Professional Clients only and should not be distributed to or relied upon by Retail Clients.

This document is issued and approved by HSBC Alternative Investments Limited ("HAIL"). HAIL forms part of HSBC Asset Management and is authorised and regulated by the UK Financial Conduct Authority ("FCA"). Although HAIL as an entity is authorised and regulated by the FCA, some of its activities are unregulated and clients may not be afforded all the protections outlined within the FCA rules. Unregulated activities include portfolio management and advisory activities relating to direct real estate investments.

HSBC Asset Management is a group of companies in many countries and territories throughout the world that are engaged in investment advisory and fund management activities, which are ultimately owned by HSBC Holdings Plc. HSBC Asset Management is the brand name for the asset management business of the HSBC Group.

The material contained herein is for marketing purposes and is for your information only. This document is not contractually binding nor are we required to provide this to you by any legislative provision. It does not constitute legal, tax or investment advice or a recommendation to any reader of this material to buy or sell investments. You must not, therefore, rely on the content of this document when making any investment decisions. This document is not intended for distribution to or use by any person or entity in any jurisdiction or country where such distribution or use would be contrary to law or regulation. This document is not and should not be construed as an offer to sell or the solicitation of an offer to purchase or subscribe to any investment. The contents are confidential and may not be reproduced or further distributed to any person or entity, whether in whole or in part, for any purpose. This document is intended for discussion only and shall not be capable of creating any contractual or other legal obligations on the part of HAIL or any other HSBC Group company. This document is based on information obtained from sources believed to be reliable but which have not been independently verified. HAIL and HSBC Group accept no responsibility as to its accuracy or completeness. Care has been taken to ensure the accuracy of this presentation but HAIL accepts no responsibility for any errors or omissions contained therein.

This document and any issues or disputes arising out of or in connection with it (whether such disputes are contractual or non-contractual in nature, such as claims in tort, for breach of statute or regulation or otherwise) shall be governed by and construed in accordance with English law.

Any views expressed were held at the time of preparation and are subject to change without notice. While any forecast, projection or target where provided is indicative only and not guaranteed in any way. HAIL accepts no liability for any failure to meet such forecast, projection or target. The value of investments and any income from them can go down as well as up and investors may not get back the amount originally invested. Any performance information shown refers to the past and should not be seen as an indication of future returns.

Recipients of this communication who intend to acquire an investment in a Fund are reminded that any such acquisition may only be made on the basis of the final form of the Offering Memorandum or Prospectus, fund legal documentation, and on satisfaction of the requirements of the applicable Subscription Document. It is the responsibility of prospective investors to satisfy themselves as to full compliance with the relevant laws and regulations of any territory in connection with any application to participate in the Fund.

Detailed information for article 8 and 9 sustainable investment products, as categorised under the Sustainable Finance Disclosure Regulation (SFDR), including; description of the environmental or social characteristics or the sustainable investment objective; methodologies used to assess, measure and monitor the environmental or social characteristics and the impact of the selected sustainable investments and; objectives and benchmark information, can be found at: www.assetmanagement.hsbc.co.uk/en/intermediary/investment-expertise/sustainable-investments/sustainable-investment-product-offering

To help improve our service and in the interests of security we may record and/or monitor your communication with us. HAIL provides information to Institutions, Professional Advisers and their clients on the investment products and services of the HSBC Group.

www.assetmanagement.hsbc.com/uk