

IDENTIFYING NATURAL CAPITAL RISKS AND OPPORTUNITIES AS PART OF DESIGNING AN INVESTOR ENGAGEMENT STRATEGY

This test case provides an example how investors can use the ENCORE tool to identify potential exposures in their portfolios to natural capital depletion. This is a hypothetical test case based on fictitious companies. Investors may follow different steps, or in a different order, based on their processes and objectives. For example, their interest may be driven by risks associated with a specific region rather than a company or production process.

Read more about the tool [here](#).

User profile

- Asset manager

Primary market

- Global portfolio of listed equity

AMC, an asset management company, was considering expanding its investments in food consumer goods companies. It held food retailers, food manufacturers and agricultural (in particular soy) traders in its portfolio. AMC was committed to responsible investment and had been looking to incorporate environmental, social and governance (ESG) risks into its corporate engagement and investment analysis. Through its exposure to the food sector, AMC was concerned about the potential dependencies and impacts of arable crops, such as soy, and their role in corporate supply chains. AMC wanted to better understand the natural capital risks associated with soy production and sourcing locations, and to identify potential opportunities to reduce its risk exposures and impacts on ecosystem services.¹

To understand its exposures to natural capital risks associated with soy, AMC took the following steps:

1. Using the [ENCORE](#) tool, it identified key soy dependencies and impact drivers on natural capital assets and ecosystems.
2. Via the Transparency for Sustainable Economies tool ([Trase](#)), ESG data providers, and engagement with investees, it identified soy sourcing locations for companies in its portfolio.
3. Through [ENCORE](#), it identified *where* natural capital depletion might be occurring.
4. It compared company sourcing location data with a map of natural capital depletion.

Using this information, AMC designed an engagement strategy for investees, through which it aimed to understand and discuss their practices and performance, to reduce risks associated with dependency and impact on natural capital and ecosystem services. It reinforced the strategy with indirect engagement, through collaboration with existing financial sector initiatives, to support policies that help businesses manage natural capital.

¹Natural capital is defined as the “stock of renewable and non-renewable resources that combine to yield a flow of benefits to people” by the [Natural Capital Protocol](#).

STEP 1: IDENTIFYING DEPENDENCIES AND IMPACT DRIVERS

Using [ENCORE](#), AMC identified the natural capital dependencies associated with agricultural products such as soy and other large-scale irrigated arable crops.

Large-scale irrigated arable crops are dependent on 19 of the 21 ecosystem services² listed in ENCORE. Each is assigned a level of materiality, defined as the potential importance of the contribution an ecosystem service makes to a production process, and the significance of the impact if that ecosystem service is disrupted. The ecosystem services identified as having *Very High Materiality* for large-scale irrigated arable crops are:

- flood and storm protection;
- mass stabilisation and erosion control;
- groundwater provision.

These services are delivered by natural capital assets (outlined in the table below). Depletion of natural capital assets can present specific risks, including physical and operational risks, for soy supply chains and ultimately AMC.³ However, distribution and depletion of natural capital assets is not uniform globally, and certain geographies may exhibit more or faster rates of depletion than others.

Natural capital asset	Flood and storm protection	Mass stabilisation and erosion control	Groundwater
Atmosphere			
Biodiversity (Habitats & Species)	X	X	
Land geomorphology		X	
Ocean geomorphology			
Minerals			
Soil and sediments		X	
Water			X

There can be many reasons for depletion of natural capital in a particular area, and it cannot always be attributed to a single sector or company. However, by understanding the impact drivers⁴ associated with soy production, AMC could explore whether investments may contribute to the depletion of natural capital assets in a particular area.

As identified in ENCORE, the following *Very High Materiality* impact drivers are associated with large-scale irrigated arable crops:

- **Freshwater ecosystem use (e.g., wetlands or rivers necessary to provide an ecosystem service):** Expansion of irrigated arable crops has led to increased habitat modification, in particular through drainage (e.g., of wetlands) and conversion of natural habitats to croplands. Drainage of wetlands for irrigation can lead to the spread and settlement of invasive species.
- **Terrestrial ecosystem use (e.g., area of agriculture type):** Expansion of irrigated arable crops has led to habitat modification and conversion of natural habitats to croplands.
- **Water use (e.g., volume of groundwater consumed):** Irrigation of arable crops creates a substantial water footprint, which may be unsustainable in many parts of the world.

Assessing the practices and mitigation measures associated with irrigation and habitat modification or conversion in companies' operations helped AMC ensure that its investments were not contributing to the ongoing depletion of natural capital assets and avoid associated operational and reputational risks.

² Ecosystem services are defined as "benefits people yield from ecosystems" by the [Millennium Ecosystem Assessment](#).

³ The risks associated with natural capital for businesses are discussed in WEF's report [Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy \(2020\)](#), and risks associated with biodiversity specifically are available in DNB's report [Indebted to nature: Exploring biodiversity risks for the Dutch financial sector \(2020\)](#).

⁴ Defined as natural or man-made pressures that can affect natural capital assets and their ability to continue providing goods and services.

STEP 2: IDENTIFYING COMPANY SOURCING LOCATIONS FOR SOY PRODUCTION

To understand individual company exposures to potential natural capital risks associated with soy supply chains, AMC needed to obtain data on soy sourcing locations.

It did this in two ways:

1. Knowing soy is a driver of tropical deforestation, AMC used [Trase](#)⁵ to map portfolio companies to the database, and identify which biomes agricultural traders are sourcing from.
2. It engaged with companies to disclose their sourcing data and understand challenges around supply chain traceability.

AMC also liaised with ESG data providers to access further information on sourcing locations.

Through this process, AMC determined that the primary soy production location for companies in its portfolio is Brazil. One of its investees, the (hypothetical) Soy Production Company (SPC), indicated that a significant proportion of its soy supply originates from Sinop (Mato Grosso, Brazil), as per Figure 1.

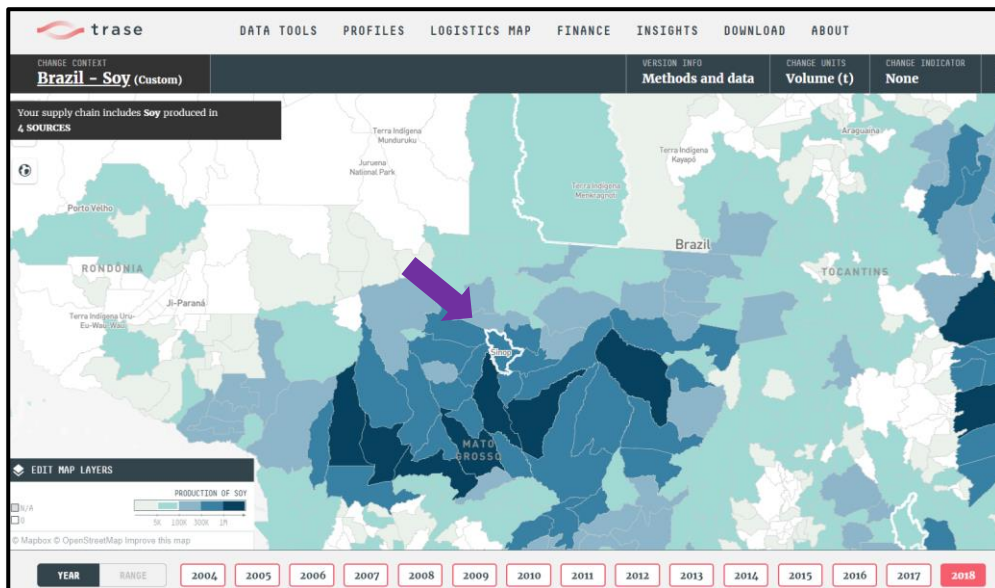


Figure 1. Screen capture of [Trase](#), displaying the production of soy (in tonnes) per Brazilian municipality. The municipality of Sinop is indicated by a purple arrow.

⁵ A supply chain mapping tool which links the trade of commodities that drive deforestation back to financial markets.

STEP 3: IDENTIFYING HOTSPOTS OF NATURAL CAPITAL DEPLETION

Through hotspot maps of natural capital depletion⁶ (available through [ENCORE](#)), AMC found hotspots of soil and sediment depletion in the Amazon basin and hotspots of biodiversity depletion in the West central and Southern regions of Brazil. The overlap of hotspots of depletion for multiple natural capital assets (atmosphere, water, soil and sediments, and biodiversity) increases the risk of disruption to ecosystem services and warrants increased attention. AMC identified the Sinop municipality as having overlaps of hotspots of water, soil and sediments, and biodiversity depletion (Figure 2).

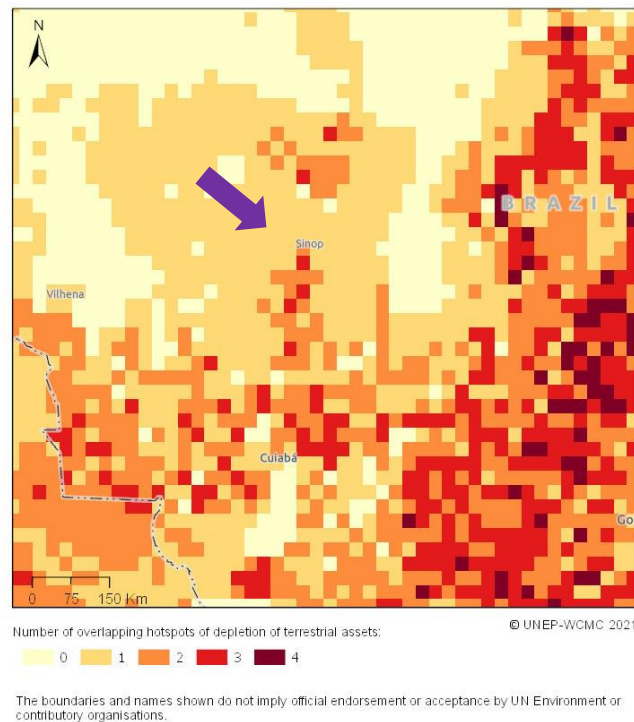


Figure 2. Number of overlapping hotspots of depletion of natural capital assets in Brazil, focusing on the municipality of Sinop (indicated by a purple arrow).

Hotspots of natural capital depletion in Brazil

In Brazil, all 43 ecoregions* overlap with a hotspot of relative depletion for at least one natural capital asset (atmosphere, water, soil and sediment, or biodiversity), highlighting the pressure on natural capital stocks in the country.

Over 90% of the area of four ecoregions* overlap with hotspots of depletion: the *Brazilian Atlantic Dry Forests* (96% - located near the Atlantic Ocean coastline), the *Cerrado* (95% - spanning the West Central region), the *Chiquitano Dry Forests* (94% - spanning the Brazil-Bolivia border), and the *Uruguayan Savanna* (92% - spanning the Brazil-Uruguay border). The *Pantanal*, a key ecoregion in West Central Brazil, at the border with Bolivia, has an 88% overlap of its area with hotspots of natural capital depletion. Almost 5% of the *Cerrado* (89,000 km²) overlaps with hotspots of depletion for all four natural capital assets.

* Ecoregions defined by [Dinerstein et al \(2017\)](#).

⁶ Hotspots of natural capital depletion are defined as the top 20% of relative depletion values globally.

STEP 4: COMPARING COMPANY LOCATION SOURCING WITH NATURAL CAPITAL HOTSPOTS OF DEPLETION

AMC explored which soy sourcing locations were associated with hotspots of natural capital depletion, and the depletion of specific natural capital assets that soy depends on; namely **biodiversity (habitats and species), soil and sediments, and water**.⁷ Armed with that information, AMC could share with SPC that hotspots of depletion for one to three natural capital assets are found in Sinop. This helped initiate a discussion in line with its engagement strategy.

REFINING AN ENGAGEMENT STRATEGY

Using all of this information, AMC refined its engagement strategy for investees with exposure to Brazilian soy, through both direct and indirect engagement:

1. Direct engagement with companies:
 - Encouraged better traceability of supply chains, leading to more comprehensive coverage and accuracy of sourcing location mapping and a request for disclosure of the percentage of sustainably sourced soy.
 - Focused dialogue on depletion high-risk hotspots.
 - Aided understanding of the governance frameworks for management of biodiversity loss, soil and sediments, and water, which varied depending on the company's position in the supply chain. AMC asked questions on irrigation and habitat modification and conversion.
 - Encouraged companies to adopt international best practice, such as the [RTRS Standard for Responsible Soy Production](#) and [IFC Performance Standards](#). This minimised the risks associated with dependencies on natural capital (e.g., storm protection).
 - Encouraged companies to assess future risks associated with natural capital depletion in their sourcing locations.
2. Indirect engagement via investor coalitions or initiatives:
 - Promoted the [ABIOVE Soy Moratorium](#) for the prevention of negative impacts of soy production on natural capital and reduction of risks associated with conversion of the Amazonian forests to soy agricultural land.
 - Enabled engagement with public agencies and industry associations to combat deforestation, for example via the [Principles for Responsible Investment \(PRI\)](#)'s Sustainable Commodities collaborative engagement and the [Investors Policy Dialogue on Deforestation \(IPDD\)](#).

In addition, AMC aligned with national and global environmental goals, such as Brazil's Low Carbon Emission Agriculture Program (ABC)⁸ and will look to align with the developing post-2020 global biodiversity framework under the Convention on Biological Diversity. Potential pathways towards alignment with the latter can be found in the ENCORE Biodiversity Module.

⁷ Land geomorphology was not retained as a natural capital asset in the analysis underlying the maps of global hotspots of natural capital depletion as it was not perceived as presenting a material environmental risk for investors.

⁸ More information is available in [Climate Policy Initiative \(2020\)](#).

OTHER RESOURCES

ENCORE can be used in combination with other tools to strengthen an investor's capacity to assess and engage with companies. These include:

- [Trase](#): The tool uses publicly available data to map the supply chains of key commodities, highlighting links between consumer countries, via trading companies, to places of production, and helping users understand risks and identify opportunities for more sustainable production.
- [Trase Finance](#): This builds on Trase and links the trade of commodities that drive deforestation to financial markets worldwide by bringing transparency to direct and indirect financial flows to tropical deforestation.
- [IBAT](#): The Integrated Biodiversity Assessment Tool (IBAT) allows users to screen locations for potential biodiversity impacts and opportunities, and benchmarks them against World Bank, IFC, OECD and other financial sector standards.