Investor Engagement Brief on Nature

Food and Agriculture Sector

This is the second edition of the 'Sectoral Investor Engagement Briefs on Nature' series. It has been designed for use by the Finance for Biodiversity Foundation's members and investors involved in the Nature Action 100 initiative.

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Finance *for* Biodiversity Foundation

Overview

- This brief on the Food and Agricultural Sector forms part of a series of Sectoral Investor Engagement Briefs on Nature that have been created by the Finance for Biodiversity (FfB) Foundation and its members.
- The purpose of this unique series is to support investors engaging with companies on nature-related issues, notably with a series of questions that can serve as a starting point for investors when engaging with companies regarding their impacts and dependencies on nature, and in particular, when seeking to influence company actions and strategies to curb biodiversity loss and shift towards a nature-positive approach. The Food and Agriculture sector is one of the priority sectors for the Nature Action 100 investor initiative, and this engagement guide has been designed to support investors that are involved in that initiative.
- The global food system is responsible for a third of humanity's GHG emissions, over 70% of freshwater withdrawals, and 90% of the deforestation across the globe.
- Nature impacts and dependencies vary significantly between food producers, manufacturers, food retailers, and food service companies.
- In comparison with other sectors, the upstream activities in the Food and Agriculture sector have an unusually significant potential impact (Medium, High, or Very High) across all the IPBES impact drivers. However, the distribution of potential impacts is generally much lower in the midstream (manufacturing) and downstream parts of the value chain, with the exception of emissions of nutrient soil and water pollutants where food manufacturing has a Very High potential impact, and volume of water use where beverage manufacturing has a High potential impact.
- Unsurprisingly, when assessing dependencies in the ENCORE database, the producer segment of the value chain ranks High or Very High across the vast majority of ecosystem services listed. Further downstream, water is the key dependency.
- Whilst this sector is currently one of the most environmentally damaging (and nature-dependent) sectors, it has the capacity to provide significant solutions to our conjoined nature-climate-health/social crises, by scaling up regenerative practices and ecosystem restoration.
- The sector's transformation will also contribute to meeting a number of the targets set out in the Global Biodiversity Framework (GBF), and to meeting a number of the UN's Sustainable Development Goals (SDGs).
- **Investors should focus their engagements on a few key topics** to support the food system's transformation including: **deforestation** and **land-use change**, **soil health** and **regenerative production techniques**, **pollution**, **methane emissions**, **water use**, and **healthier, lower-impact product offerings**.

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What's inside the brief

This brief is made up of four sections

The **first section** provides an overview of the sector including how the sector specifically impacts and depends on nature, particularly in sensitive locations. It then looks at some of the most forward-looking regulations on biodiversity that are relevant for engagements in this sector. Finally, this section considers how the sector links to the objectives of the goals and targets of the Kunming-Montréal Global Biodiversity Framework (GBF) which sets out an ambitious pathway to reverse biodiversity loss by 2030 and to reach the global vision of a world living in harmony with nature by 2050.

The **second section** then considers, in detail, some of the most relevant sector-specific company actions that investors can expect of companies at different stages of their journey to address biodiversity loss.

The **third section** lays out a series of questions that can serve as a starting point for investors planning to engage with companies on nature.

The **fourth section** provides a curated set of useful supporting tools that can be used to assist the engagement process.

Each of these sections can be referred to separately. Investors with greater food systems expertise may wish to refer directly to Part III and use Parts I, II, and IV for reference.

This brief has been developed in alignment with the sectoral guides published by the Taskforce on Nature-related Financial Disclosures (TNFD)[1] and the partnership between Business for Nature (BfN), the World Economic Forum (WEF) and the World Business Council for Sustainable Development (WBCSD) as well as the sectoral reports from Planet Tracker. This brief has been written by investors for investors.

The FfB Foundation has also produced a more general Guide on Engagement with Companies for financial institutions that are looking for ways to engage with companies on biodiversity across multiple sectors.

Sustainable Industry Classification System coverage

This Sector Brief covers the whole Food and Beverage sector as defined under the Sustainable Industry Classification System (see Appendix 2 for more details) with the exception of tobacco:

- Agricultural Products
- Alcoholic Beverages
- Meat, Poultry & Dairy
- Non-alcoholic Beverages
- Processed Foods
- Food Retailers & Distributors
- Restaurants

1. The TNFD is a market-led, science-based and government-backed initiative providing organisations with the tools to act on evolving nature-related issues

Part I

Connections between the Food and Agriculture Sector and Nature

Introduction

The Food and Agriculture Sector covers a wide variety of business activities, and its relationship with the financial markets is complex. In this Sector Brief we have taken a systems perspective, examining the nature impacts and dependencies across the value chain, from the producers at one end, via the food and beverage manufacturers, to the food retail and food service companies at the other.

Conceptually, the global food system is simple – it exploits natural resources (sunlight, soil, air, plants, animals and water) to produce food for humanity. As such, its dependence on nature is obvious. However, the challenge for humanity, and for the food companies and financial institutions funding them, is that the current system is destroying the very natural capital base on which it depends.

The global food system is responsible for a third of humanity's GHG emissions, over 70% of freshwater withdrawals, and 90% of the deforestation across the globe.[2] It is also failing to feed the world in an equitable and nutritious way,[3] and is a significant cause of malnutrition in an increasing number of countries.[4] Not all of these harms are caused by the companies in the Food and Agriculture sector – governments and citizens bear a significant responsibility too. However, Finance for Biodiversity (FfB) Foundation's multi-tool pilot analysis[5] identified the Food and Agriculture sector as responsible for 29% of the overall potential impact on biodiversity from companies in the MSCI ACWI Index[6] - which means that this sector ranks as the most impactful of all assessed sectors.[7]

It is important to note that the Food and Agriculture sector has the potential to be a source of significant solutions for all of these interlinked problems. Scaling up regenerative production practices (e.g. soil conservation, crop diversification, agroforestry etc.), will reduce GHG emissions, increase CO_2 capture, increase biodiversity, and has the potential to enhance the social wellbeing of the communities involved. Shifting diets and production practices away from reliance on extractive, high-intensity, animal-based systems towards 'plant-forward' diets and food products that are designed with human health at their heart has the potential to reduce pollution, reduce food waste and enhance human health, as well as generating significant economic benefits.[8]

2. These impacts are discussed in detail later in this report
3. WFP. 2025. WFP 2025 Global Outlook. Rome https://doi.org/10.71958/wfp129881
4. https://www.who.int/health-topics/malnutrition#tab=tab_1
5. This applied four biodiversity-impact assessment tools to provide biodiversity footprint scores of high-potential impact sectors and industries.
6. The MSCI ACWI Index was used as the company universe, as it is a leading benchmark for many investors. The index captures large and mid-cap companies across 23 Developed Markets and 24 Emerging Markets with over two thousand constituents
7. This figure is derived from Finance for Biodiversity's multi-tool study which covered 68 GICS L3 industries in the MSCI ACWI index in total.
8. The net benefits of achieving a food system transformation are estimated to be worth 5 to 10 trillion USD a year, equivalent to between 4 and 8 percent of global GDP in 2020. (Ruggeri et al. (2024). The Economics of the Food System Transformation. Food System Economics Commission, Global Policy Report.

Investor focus

Priority actions

There are multiple changes that investors can encourage food systems companies to make to address the system's impact on nature, as set out in Part II of this Sector Brief. However, seven priority actions are highlighted here for convenience.[9]

Priority action	Nature relevance	Climate relevance	Human health / Nutrition relevance	Potential financial implications (will vary across the value chain)[10]
1. Halt deforestation and other ecosystem conversion, and restore nature	Very high	Very high	Medium	Reduced risk of exclusion from regulated markets and customer sourcing programmes, especially where deforestation / conversion-free requirements apply. Lower exposure to disruption from ecosystem degradation, land-use conflict and loss of productive landscapes. May require upfront spending on traceability, monitoring, supplier engagement and restoration, but can reduce longer-term remediation, legal and procurement costs. Potentially stronger position with lenders and investors on supply-chain due diligence, transition credibility and litigation/reputation risk.
2. Improve soil health and transition to regenerative / nature-friendly production[11]	Very high	High	Medium	Lower exposure to yield volatility, crop failure and productivity decline linked to degraded soils and climate shocks. Potential reduction over time in fertiliser, pesticide and irrigation needs, though transition may involve short-term implementation costs and temporary yield risk. Supports long-term productive value of farmland and sourcing landscapes, reducing impairment risk. More stable input quality and availability for manufacturers and downstream buyers.
3. Reduce nutrient, pesticide, antibiotic and plastic pollution from food systems	Very high	Medium-High	Medium-high	Reduced risk of fines, tighter discharge limits, product restrictions, litigation and remediation costs linked to pollution and antimicrobial resistance. May require capex for treatment, monitoring, packaging redesign and changed input practices, but can reduce waste, input leakage and compliance costs over time. Lower risk of community conflict, site disruption and reputational damage in pollution hotspots. Improves readiness for customer requirements on residues, stewardship and packaging performance.
4. Cut food loss and waste across the whole chain	High	High	Medium	Direct efficiency gains from lower shrinkage, spoilage, write-offs and disposal costs. Better inventory management, forecasting and cold-chain performance can improve stock turns and reduce cash tied up in waste. More product sold rather than lost, with possible upside from by-product valorisation and secondary markets. Some investment may be needed in storage, logistics, data and redistribution systems, but this is often one of the clearest near-term payback areas.
5. Cut methane and other high-emitting production sources, especially livestock and rice	High	Very high	Medium	Reduced exposure to emissions-related policy tightening, customer pressure, portfolio decarbonisation constraints and higher cost of capital for high-emitting business models. May require investment in feed, manure systems, rice practices, energy efficiency and monitoring. Can improve access to lower-emission product demand and preferred-supplier status. Helps reduce the risk that high-emitting production assets, herds or supply chains become economically disadvantaged ('stranded') under tighter climate and nature expectations.

Table 1: Summary of priority actions required to transform the global food system. FfB analysis (continued on the next page)

9. These priority actions are derived from a number of reports analysing the changes required to transform the global food system – refer to Part IV for a complete list
10. Part II of this report identifies in more detail which actions are most relevant to which parts of the value chain
11. This report uses 'Regenerative' agriculture to cover multiple approaches to food production including organic which all share the objective of working with nature, rather than against it, so that chemical inputs are reduced and soil health is improved. Investors should note that 'regenerative' is not well defined and carries a risk of greenwashing

Priority action	Nature relevance	Climate relevance	Human health / Nutrition relevance	Potential financial implications (will vary across the value chain)
6. Reduce water use and improve water stewardship	Very high	Low	Medium	Lower risk of production disruption, curtailment, lower yields and site shutdowns in water-stressed basins. May require investment in irrigation efficiency, recycling, treatment and basin-level stewardship. Reduced exposure to rising water, treatment and discharge costs. Lower risk of conflict with communities and regulators over scarce or polluted water resources. Increased asset resilience: especially important for producers and beverage / food processing assets in priority basins.
7. Reform food environments and product offerings so healthy, lower-impact choices become the default	Medium-high	Medium-high	Very high	Better positioning for shifts in consumer demand, procurement standards and public-policy pressure toward healthier, lower-impact offerings. Reduced dependence on product lines with high nature, climate or nutrition-related scrutiny. May support growth in lower-impact categories, though reformulation and assortment change can involve commercial execution risk and short-term margin pressure. Stronger alignment with customer and investor expectations on health, affordability and sustainability. May require reallocation of innovation, marketing and merchandising spend toward products with more resilient long-term demand.

Table 1: Summary of priority actions required to transform the global food system. FfB analysis

12.IPCC AR6 WGII Chapter 5, Box 5.5, page 753 https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter05.pdf

Cross-cutting themes for financial institutions

There are several cross-cutting themes that are relevant for financial institutions when engaging with the food system's transformation:

Responsible supply chains

Many of the harms caused by the food system occur upstream in food production, but the demand that drives these harms is generated further downstream which is where the majority of the funding provided by the financial markets and lending banks is focused. Mitigating or preventing these harms requires actions to be transmitted up the supply chains involved, and supply chain transparency so that information about the effect of these actions to be transmitted back to the downstream actors responsible (and disclosed to their funders). In addition to this, downstream companies will need to work with their peers to support upstream companies across supply chains and to transfer the capital, resources and knowledge required to enable sustainable transformation.

Just transition

The food system's transformation will only succeed if the process upholds human rights and labour standards to ensure that as far as possible no-one is permanently disadvantaged as a result.

Company lobbying

Efforts to transform the system will be undermined unless financial institutions ensure that lobbying by companies (and their industry groups) is consistent with their public statements and supports the required transformation.

Alternative proteins

Providing a nutritious and sufficient diet for the global population will be a challenge in a heating climate. Alternative proteins (including plant-based meat substitutes as well as proteins from other non-livestock sources such as insects, algae, fungi, worms, and animal proteins grown in the laboratory) have the potential to alleviate pressure on land-use, reduce pollution, and emissions of methane and other GHGs.[12]

Packaging

Food and beverage companies account for 51% of the global packaging products used. There are important trade-offs to be considered with respect to packaging and food loss and waste. Poor packaging can increase food loss and waste, however waste packaging (particularly plastic) is a significant part of the food system's pollution footprint, and food manufacturers, retailers and food service companies have a vital role to play in reducing packaging waste and increasing recycling (as well as growing regulatory obligations in this area). Investors can refer to Finance for Biodiversity's Forestry, Paper and Packaging Sector Brief for more detailed information, including recommended company actions and engagement questions for investors.

12.IPCC AR6 WGII Chapter 5, Box 5.5, page 753 https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter05.pdf

The food system is complex

In spite of its conceptual simplicity, in reality the global food system is extremely complex. For example, primary producers (farmers), involved in the initial stages of the supply chains (crop cultivation and animal breeding) will often sell to a trading company or farmer cooperative which aggregates the products for their customers, such as distributors and wholesalers. These intermediaries will then sell the packaged products to food manufacturers and processors, who will in turn combine multiple ingredients and then sell the processed food products on to retailers and food service companies further down the value chain.

A further complication is the fact that a significant proportion of many basic food commodities are exported,[13] and then the processed food products are exported again. The Food and Agriculture Organization (FAO) estimate that food and agriculture trade nearly quintupled from 2000 to 2022, rising from USD 400bn in 2000 to USD 1.9tr in 2022.

Overall, exports are still dominated by raw food products, which accounted for 37% of food exports in 2023. However, the most significant growth has been in the 'composites' category (processed food products combining plant and animal products), which has grown from 24% of exports in 1995 to 27% in 2023.[14]

At a country level, there are significant differences between the countries that are net importers of food and those that are net exporters, and also the countries where raw food products account for the majority of their food exports (such as Australia, Brazil, Canada, and the USA), and those that export a higher proportion of other categories (such as Germany and Japan, where 'composites' dominate, or France and China, where raw product exports are matched by exports of fermented and composite products respectively) - see Figure 1.

These complex supply chains are already showing signs of strain as the effects of climate change and geopolitical tensions combine, and these stresses will increase in the future, disrupting food production and supply chains.

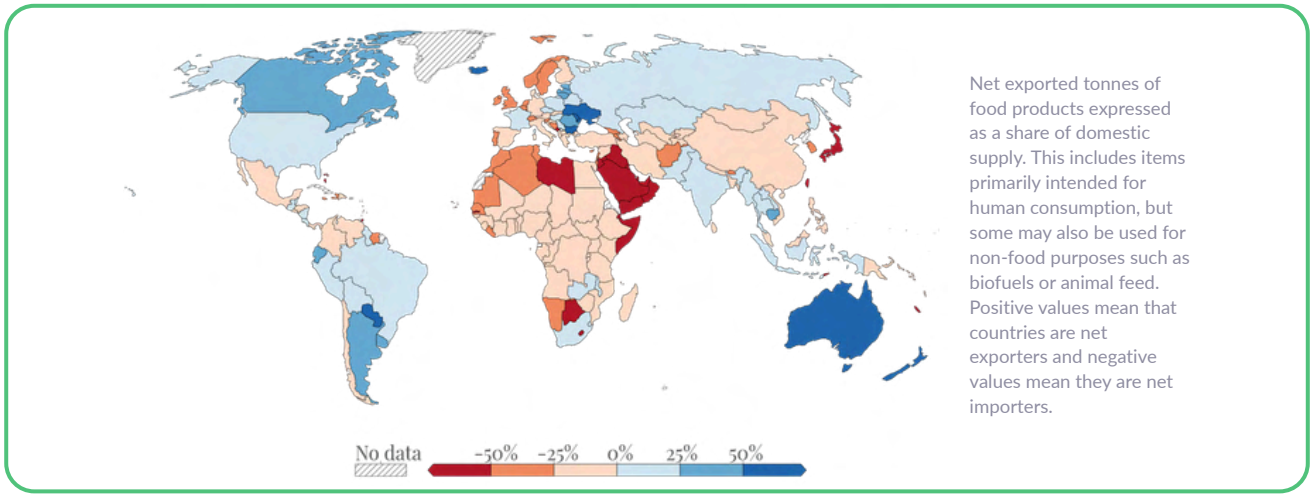

Figure 1: Net trade of food products as a share of domestic supply (2023). Analysis by Our World in Data of FAO data

13. In 2023, about 46 percent of the global production of vegetable oils, 34 percent of fish and seafood and 34 percent of sugars and sweeteners, 20 percent of cereals and 26 percent of pulses were exported (https://www.fao.org/statistics/highlights-archive/highlights-detail/food-balance-sheets-2010-2023/en)
14. https://unctadstat.unctad.org/EN/ProcessedFood.html

A vulnerable and costly system

The global food system has a number of significant vulnerabilities that create risks for investors and potentially add cost to the system.

Oligopolies

The global food system is dominated by a few multinational companies creating significant concentration risk. As a result, these companies hold significant power and account for the majority of the profits. Planet Tracker estimated that 53% of the total revenues of the global food system are accounted for by less than 0.1% of the companies. In valuation terms, fewer than 0.001% of the companies estimated to be operating in the global food system are quoted but their value equates to roughly half that of the enterprise value for the system as a whole.[15]

When different value chain segments are analysed, this tendency towards concentration becomes even clearer. Across the three core segments of the Food and Agriculture value chain (producers and traders, manufacturers and distributors, and retailers and food service), the top 1% of companies capture 25%-31% of the segment's global revenues – see Figure 2.[16]

Figure 2: Market shares of top 1% of companies in each value chain segment (number of companies in top 1% for each segment shown). Planet Tracker data, FfB analysis

15. https://planet-tracker.org/financial-markets-roadmap-for-transforming-the-global-food-system/
16. FfB analysis of Planet Tracker's food system database. ETC's 2022 Food Barons report showed even more extreme concentrations in specific parts of the value chain (https://www.etcgroup.org/content/food-barons-2022)

The global food system's dominance by a few multinational companies is replicated in the growth of large farms, concentrating land ownership in the hands of an ever shrinking group,[17] and the narrowing of the range of crop and animal species that form the bulk of the system's raw materials.[18]

While this concentration of market share and species creates significant systemic risks, it also reduces the number of companies that investors need to engage with to shift the system.

Transport choke points

Unimpeded transport is crucial for the proper functioning of the global food system. In 2017, Chatham House published an analysis of the 'Chokepoints and Vulnerabilities in Global Food Trade' which identified 14 transport chokepoints that are critical to food security – see Figure 3.

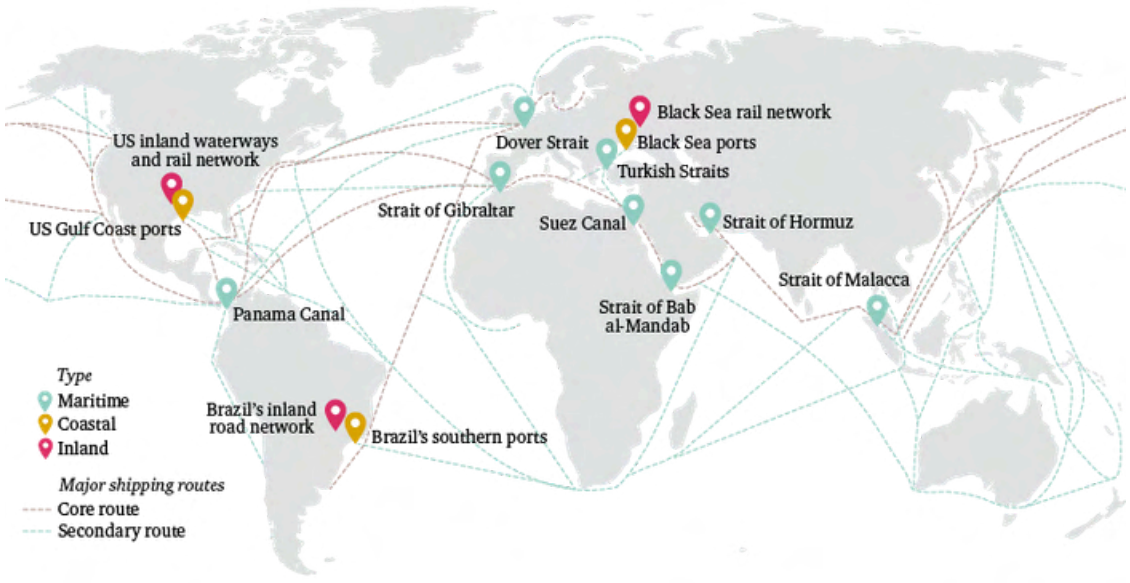

Figure 3: Maritime, coastal and inland chokepoints and major shipping routes. Chatham House

Nearly 60% of the global food miles relating to transporting food are accounted for by marine transport, with 31% accounted for by road, and 10% by rail.[19] Events over the last few years in Europe and the Middle East have served to reinforce the message of systemic vulnerability, and also to highlight the fact that it is not only actual foodstuffs that are impacted, but also trade in food system inputs such as gas, fertiliser and machinery, with potentially severe impacts on producers.

17. For a detailed discussion of this topic refer to 'Too Big to Feed' Exploring the impacts of mega-mergers, concentration, concentration of power in the agri-food sector (IPBES, 2017)
18. For example, the FAO reported that in 2014 only nine crops (sugar cane, maize, rice, wheat, potatoes, soybeans, oil-palm fruit, sugar beet and cassava) accounting for over 66 percent of all crop production by weigh. FAO. 2019. The State of the World's Biodiversity for Food and Agriculture, J. Bélanger & D. Pilling (eds.). FAO Commission on Genetic Resources for Food and Agriculture Assessments. Rome. 572 pp. (http://www.fao.org/3/CA3129EN/CA3129EN.pdf)
19. Only 0.16% travels by air. Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. Science, 360(6392), 987-992.

Social impacts

The global food system is a significant source of employment. The FAO estimates that 39% of the global workforce was employed in the global food system in 2022.[20] However, many of the jobs provided are low paid and insecure. Data from the World Bank shows that a majority of workers in 'low income' countries work in the agricultural sector (agriculture, hunting, forestry and fishing). This proportion drops as countries move up the development scale and their food systems become more complex– see Figure 4.

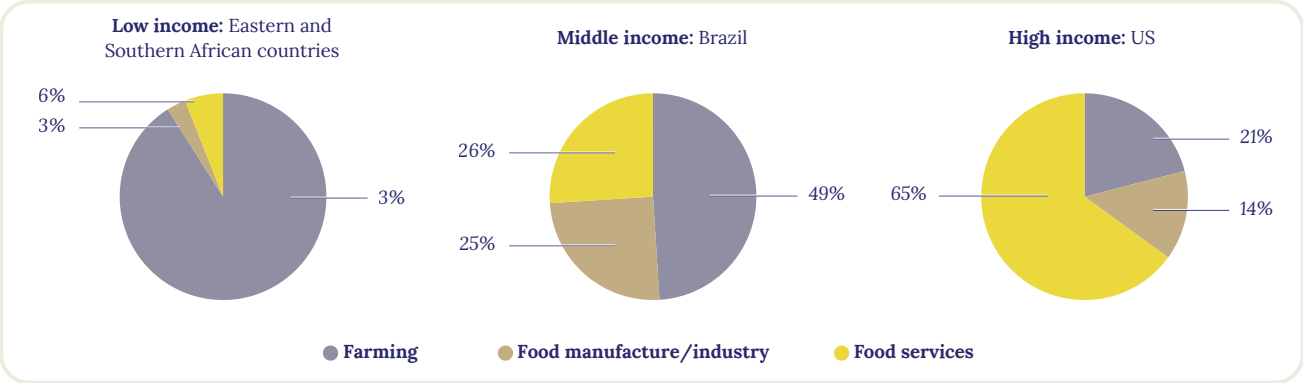

Figure 4: Distribution of food system jobs in different countries. World Bank, 2017.

As a result, food system workers in Low Income countries are likely to lack financial resilience and are particularly at risk from supply chain changes, making a focus on just transition principles and supply chain transparency important considerations for investors.

Health and nutrition

The production end of the global food system is a significant source of pollution, particularly pesticides and nitrogen run-off, both of which negatively impact workers and local communities.[21]

The global food system is failing to provide sufficient nutrition to the world's population in an equitable way and is creating significant economic costs as a result:

- 20% of global deaths in 2017 were due to dietary risk factors arising from suboptimal diets.[22]
- Overweight and obesity[23] are significant (and rapidly increasing) risk factors for non-communicable diseases such as cardiovascular diseases, diabetes, cancers, neurological disorders, chronic respiratory diseases, and digestive disorders. The latest World Health Organisation (WHO) report showed that adult obesity has more than doubled since 1990 globally, and adolescent obesity has quadrupled.
- Overweight and obesity are no longer just a 'rich country' problem. Many low- and middle-income countries are now facing what the WHO describes as a 'double burden' of malnutrition – parts of their populations are suffering from a lack of nutrition while also experiencing a rapid upsurge in noncommunicable disease risk factors such as obesity and overweight, particularly in urban settings.[24]

20. FAO. 2024. Employment indicators 2000–2022. October 2024 update. FAOSTAT Analytical Briefs, No. 92. Rome.
21. For example, refer to United Nations Environment Programme (2022). Synthesis Report on the Environmental and Health Impacts of Pesticides and Fertilizers and Ways to Minimize Them. Geneva. https://wedocs.unep.org/items/41da1b91-733a-4628-92c2-1212b4e137d8
22. GBD 2017 Diet Collaborators. Health effects of dietary risks in 195 countries, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2019;393(10184):1958-1972. doi:10.1016/S0140-6736(19)30041-8
23. Adult obesity is defined by the World Health Organisation as a Body Mass Index (BMI) greater than or equal to 30. Overweight is defined as a BMI greater than or equal to 25
24. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight
25. https://accesstonutrition.org/index/global-access-to-nutrition-index/

Economic (true) cost

The true cost of all these harmful impacts is significant. Estimates and methods vary, but three credible studies provide a useful guide to the likely impact of the current global food system on the global economy, and clearly demonstrate that the hidden costs of the system far outweigh the system's profits[26] (by up to 10 times) – see Figure 5.

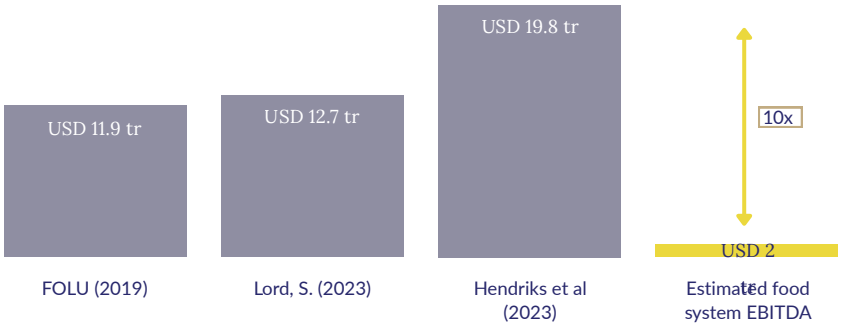

Figure 5: Global food system's hidden costs vs estimated global food system EBITDA. FfB analysis

Food and Land Use Coalition (FOLU)'s 2019 report, Growing Better: Ten Critical Transitions to Transform Food and Land Use,[27] estimated the true costs of the global food system to be USD 11.9tr, capturing environmental, social and health impacts.

A more recent estimate for the FAO report, The State of Food and Agriculture 2023,[28] used a different approach but covered a similar set of negative impacts and came up with a similar figure (USD 12.7tr),[29] with a 95% chance of being ≥ USD 10.8tr and a 5% chance of being ≥ USD 16tr.

The UN Food Systems Summit Scientific Group was responsible for the third estimate – a much higher figure of USD 19.8tr. This study broke the estimate down into USD 7tr (range 4-11) in environmental costs, USD 11tr (range 3-39) in costs to human life and USD 1tr (range 0.2-1.7) in economic costs. The very wide ranges serve to highlight the challenges that apply to all three estimation approaches.

26. Food system EBITDA estimate (USD 1.95tr) based on Planet Tracker's estimate of global food system revenues (USD 15-19tr) (see https://planet-tracker.org/how-much-is-your-food-worth/), and their estimate of the average EBITDA margin for the global food system of 10% (see https://planet-tracker.org/financial-markets-roadmap-for-transforming-the-global-food-system/)
27. FOLU. 2019. Growing Better: Ten Critical Transitions to Transform Food and Land Use. https://www.foodandlandusecoalition.org/wp-content/uploads/2019/09/FOLU-GrowingBetter-GlobalReport.pdf
28. FAO. 2023. In Brief to The State of Food and Agriculture 2023. Revealing the true cost of food to transform agrifood systems. Rome. https://doi.org/10.4060/cc7937en
29. The author of the FAO report explains the methodological differences between these three studies in detail – see Chapter 2, Table 1 of the FAO's 'The State of Food and Agriculture' report

Part I

Scope of the food and agriculture sector

Simplifying the food system value chain - upstream, midstream and downstream

In this Sector Brief, the activities associated with food production (including the sourcing of agricultural inputs such as seeds and agrochemicals, the production of the commodity itself, and the trading associated with soft commodities) are referred to as 'upstream'.

Food processing, food and beverage manufacturing, and the wholesale activities associated with distribution the food products to customers, are referred to as 'midstream'.

Food retailers and food service companies (including restaurants) are referred to as 'downstream'.

Consumers are obviously an essential component of the food system since they are the ultimate beneficiary of all the system's activities, and they are responsible for a significant amount of the waste in the system. However, investors are not able to directly influence or engage with consumers and so this guide does not address any of the issues associated with consumers (including such issues as nutrition, diet, social factors etc), nor does it cover the businesses involved in the end of life for the food chain.

A simplified value chain

Figure 6 below illustrates the value chain of the Food and Agriculture sector proposed by the Taskforce on Nature-Related Financial Disclosures (TNFD).

Companies will need to map out their full value chain[30] to have a clear view of the impacts on nature that have been caused, or contributed to, by a business and its supply chain as well as the dependencies of the business on nature.[31]

Similarly, investors wishing to address the nature impacts and dependencies embedded in their portfolios will need to consider the upstream part of the food system even if their capital is allocated further downstream, since most of the impacts and dependencies arise from the food production process.

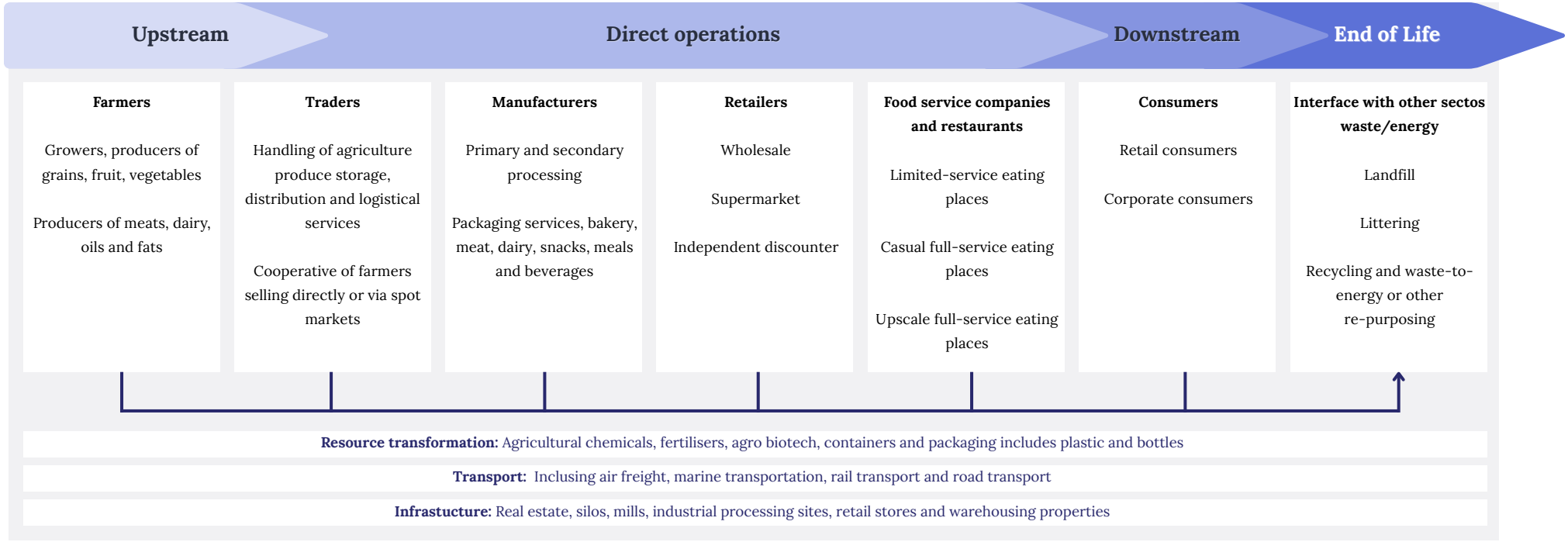

Figure 6: Value chain illustration proposed by the TNFD for the Food and Agriculture Products sector. TNFD Draft Sector Guidance, Food and Agriculture (2023)

30. A value chain goes beyond the selling of goods and products by offering value throughout the customer journey, from marketing to after-sales support. The supply chain focuses on sourcing materials and delivering goods to the customer.
31. See: https://tnfd.global/about/why-nature-matters/

How this sector impacts and depends on nature

It is crucial for investor engagement practices to be anchored in science and best practices to help drive the sustainable transformation of companies toward the goals and targets of the Kunming-Montréal Global Biodiversity Framework (GBF). Understanding, as well as measuring, how this sector impacts and depends on nature is, therefore, essential for the better management of supply chains and to encourage more biodiversity friendly and regenerative practices.

The food system depends on nature

It hardly needs stating that the food system depends on nature. Without nature, and the ecosystem services that nature provides, there would be no food.

The ENCORE[32] database provides a tool for financial institutions that allows them to identify the potential impacts ('pressures') and dependencies on nature for sectors of the economy, both in terms of their direct operations and also their value chain.[33]

The actual nature dependencies of a particular company in the Food and Agriculture sector will vary depending on its own business model and the locations of its operations, and the business models and locations of the companies in its value chain.

The producer segment of the value chain ranks High or Very High across the vast majority of ecosystem services listed in the ENCORE database when assessing dependencies.

In contrast, the dependencies of the mid and downstream segments are generally much lower, with the obvious exception of water-related ecosystem services such as:

- water supply (Very High for beverages manufacturing),
- water purification (Very High for food manufacturing, and food service, and High for beverages) and
- water flow regulation which scores as High for food and beverage manufacturing).

Beverages manufacturing also scores Very High with respect to genetic material provisioning (something one might assume given the importance of specific crop varieties for wines and spirits) – see Figure 7.

32. https://encorenature.org/en/about/about-encore
33. As part of the 2024 update of ENCORE, information on key upstream and downstream value chain links was added, covering two tiers upstream and two tiers downstream from the direct operations.

		Upstream					Midstream		Downstream	
		Aquaculture	Fishing	Meat production	Cereal production	Rice production	Food manufacuring	Beverages manufacturing	Food retail	Food services
Provisioning services	Biomass provisioning	Very high	Very high	Very high	Very high	Very high	N/A	N/A	N/A	N/A
	Genetic material	Medium	High	Medium	Very high	Very high	N/A	Very high	N/A	No data
	Water supply	High	High	High	High	High	High	High	Medium	Medium
	Other provisioning services - Animal-based energy	N/A	N/A	N/A	Medium	Medium	N/A	N/A	N/A	N/A
Regulating and maintenance services	Global climate regulation	Medium	Very high	Medium	Very high	Very high	Very low	Very low	Very low	Medium
	Rainfall pattern regulation	Very high	Very high	Very high	Very high	Very high	N/A	N/A	Very low	Medium
	Local (micro and meso) climate regulation	High	Medium	Medium	Very high	Very high	Low	Low	Low	Low
	Air filtration	Medium	Low	Medium	Medium	Medium	Very low	Very low	Very low	Very low
	Soil quality regulation	Medium	Medium	High	Very high	Very high	N/A	N/A	N/A	N/A
	Soil and sediment retention	Very high	Very high	Very high	Very high	Very high	Low	Low	Medium	Low
	Solid waste remediation	Very high	Very high	Medium	Medium	Medium	Medium	Medium	No data	No data
	Water purification	Very high	Very high	High	Very high	Very high	Very high	High	No data	Very high
	Water flow regulation	High	High	High	High	High	High	High	Medium	Low
	Flood mitigation services	High	Medium	Medium	High	High	Medium	Medium	Medium	Very low
	Storm mitigation	High	High	High	High	Very high	Medium	Medium	Medium	Low
	Noise attenuation	No data	No data	Very low	N/A	N/A	N/A	N/A	N/A	No data
	Pollination	N/A	N/A	N/A	High	Very low	N/A	N/A	N/A	N/A
	Biological control	High	High	Medium	High	High	Very low	Very low	Very low	Very low
	Nursery population and habitat maintenance	Very low	Very high	Very low	Very low	Very low	N/A	N/A	N/A	N/A
	Other (Dilution by atmosphere and ecosystems)	Medium	Medium	Low	Medium	Medium	Low	Low	N/A	No Data

Figure 7: Summary of nature dependencies for the Food and Agriculture sector (ENCORE, 2024 version). FfB analysis.

The food system's heavy planetary footprint

Ironically, given its very heavy dependence on nature, the global food system is a primary driver of nature loss, depleting the natural capital base on which the global food system depends.

The global food system is responsible for an estimated 34% of humanity's global greenhouse gas (GHG) emissions,[34] causes almost 90% of the world's deforestation,[35] and is responsible for over 70% of all freshwater withdrawals.[36] In addition, the food system is responsible for significant quantities of pollution:

- Non-CO_2 GHG emissions (methane, nitrous oxide and fluorinated GHGs)
- Nitrogen and phosphorous run-off;
- Pesticide leakage;
- Particulate air pollution;
- Antimicrobial resistance through excess use of antibiotics; and
- Plastic pollution.

In addition to this, approximately one quarter of global food production is either lost in the initial production process or further down the supply chain, or wasted by the retailer or end user each year.[37] As a result, it is a significant driver of climate change, terrestrial biodiversity loss and an increasing factor in freshwater biodiversity loss – see Figure 8.

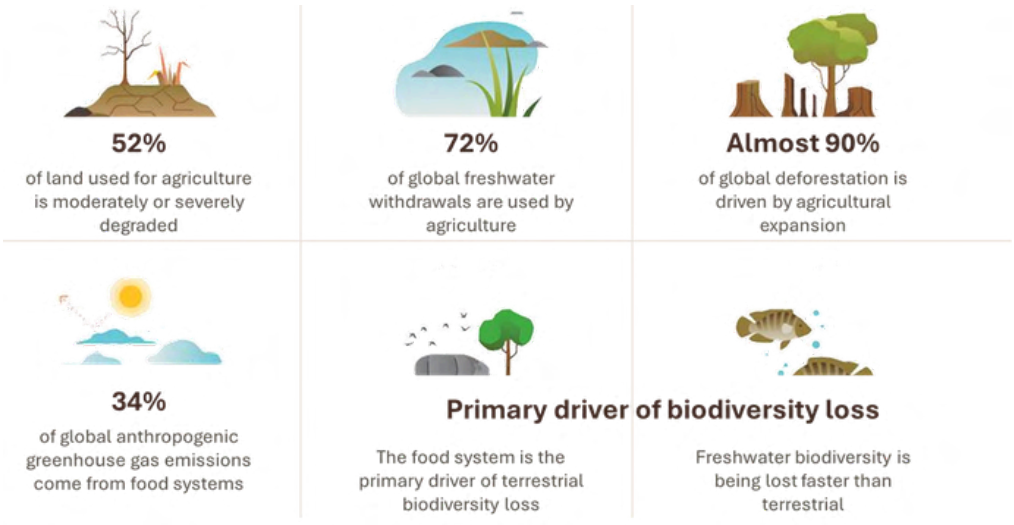

Figure 8: Environmental impacts of the global food system. FfB analysis, data from FAO, UN Water, UNEP and IPBES

34. Crippa et al. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. Nature Food, 2(3), 198-209. https://doi.org/10.1038/s43016-021-00225-9
35. https://www.fao.org/newsroom/detail/cop26-agricultural-expansion-drives-almost-90-percent-of-global-deforestation/en
36. https://www.unwater.org/sites/default/files/2025-01/UN-Water_Water_Facts_one_pager_January_2025.pdf
37. Approximate derived figure. It combines FAO's estimate that 13.2% of food produced was lost before retail in 2021 (1.25 billion tonnes) with UNEP's estimate that 1.05 billion tonnes of food was wasted at retail, food service and household level in 2022.

Assessing potential nature impacts using ENCORE

The potential nature impacts of the Food and Agriculture sector are summarised in the ENCORE database (scale from Very Low to Very High), providing a clear insight into the effects that different products and supply chains will have on a company's potential nature impacts[38] – see Figure 9.

In comparison with other sectors, the upstream activities in the Food and Agriculture sector have an unusually significant potential impact (Medium, High, or Very High) across all the IPBES impact drivers. However, the distribution of potential impacts is then generally much lower in the midstream (manufacturing) and downstream parts of the value chain, with the exception of food manufacturing[39] which has a Very High potential impact with respect to emissions of nutrient soil and water pollutants, and beverage manufacturing[40] which has a High potential impact in relation to volume of water use.

		Upstream					Midstream		Downstream	
Impact drivers	Potential impacts ('pressures')	Aquaculture	Fishing	Meat production	Cereal production	Rice production	Food manufacuring	Beverages manufacturing	Food retail	Food services
Land/freshwater /ocean-use change	Area of land use	Medium	N/A	Very high	High	High	Low	Medium	Low	Low
	Area of freshwater use	High	High	High	Medium	High	N/A	N/A	N/A	Low
	Area of seabeduse	High	High	N/A	N/A	N/A	N/A	Low	N/A	N/A
Climate change	Emissions of GHG	Medium	Medium	High	Medium	High	Medium	N/A	Medium	Low
Pollution	Emissions of non-GHG air pollutants	N/A	Medium	High	High	High	Medium	Low	Medium	Low
	Emissions of toxic soil and water pollutants	High	Medium	High	High	High	Medium	N/A	Very low	Low
	Emissions of nutrient soil and water pollutants	High	No data	High	Very high	High	Very high	N/A	N/A	Low
	Generation and release of solid waste	High	High	Very high	High	High	Medium	Medium	Very low	Medium
Resource exploitation	Volume of water use	Medium	Medium	High	Very high	Very high	Medium	High	Medium	Low
	Other biotic resource extraction (e.g. fish, timber)	Very high	High	No data	No data	No data	Medium	Medium	N/A	N/A
	Other abiotic resource extraction	N/A	N/A	N/A	N/A	N/A	N/A	Low	N/A	N/A
Invasives and other	Disturbances (e.g. noise, light)	Medium	High	Medium	Medium	Medium	Medium	Medium	Very low	Low
	Introduction of invasive species	High	Medium	High	Very high	Medium	N/A	No data	No data	N/A

Figure 9: Summary of potential nature impacts as shown in ENCORE (2024 version). FfB analysis.

38. In this guide, consistent with SBTN and TNFD, 'impact' refers to actual changes in the state of nature, and 'pressure' or 'potential impact' refers to the potential harm (identified in the ENCORE database). It is also important to note that a single 'pressure' (e.g. 'Emissions of toxic pollutants to water and soil') can result in multiple 'impacts' on nature.
39. The potential impacts of 'Food manufacturing' shown in this table are the highest ENCORE values across all the categories of food manufacturing (processing of meat, fish, and fruit and vegetables, and the manufacture of oils, dairy, grain mill and starch products, other food products, and animal feed).
40. The potential impacts of 'Beverages manufacturing shown in this table are the highest ENCORE values across all the categories of beverage manufacturing (equivalent to the manufacture of soft drinks; production of mineral waters and other bottled waters)

Sensitive locations within the sector value chains

As expressed in the TNFD recommendations,[41] nature-related impacts and dependencies are location-specific and therefore require local, context-specific assessment and responses. The TNFD provides sectoral guidance for individual companies on how to 'Locate' their impacts on biodiversity, as the first step of their LEAP assessment framework (Locate- Evaluate-Assess-Prepare).

Financial institutions will also benefit from identifying the locations and types of ecosystems linked to the material sectors in their portfolios (including through supply chains) when assessing nature impacts and dependencies.

Companies and investors should focus on identifying 'priority locations' i.e. areas that are:

- **Material locations** – where the organisation has material nature-related impacts, dependencies, risks and/or opportunities;[42] and/or
- **Sensitive locations** – defined by the TNFD as ecologically sensitive locations that meet one or more of five criteria: 1) important for biodiversity, including species; and/or 2) areas of high ecosystem integrity; and/or 3) areas of rapid decline in ecosystem integrity; and/or 4) areas of high physical water risks; and/or 5) areas of importance for ecosystem service provision, including benefits to Indigenous Peoples, local communities and stakeholders.[43]

The assessment of impacts on priority locations will vary greatly for each individual company.
In an ideal world, specific company disclosures will provide the location detail that investors need to investigate their potential exposure to companies operating in priority locations. However, in the absence of such disclosures, investors can use a variety of tools to support this analysis.

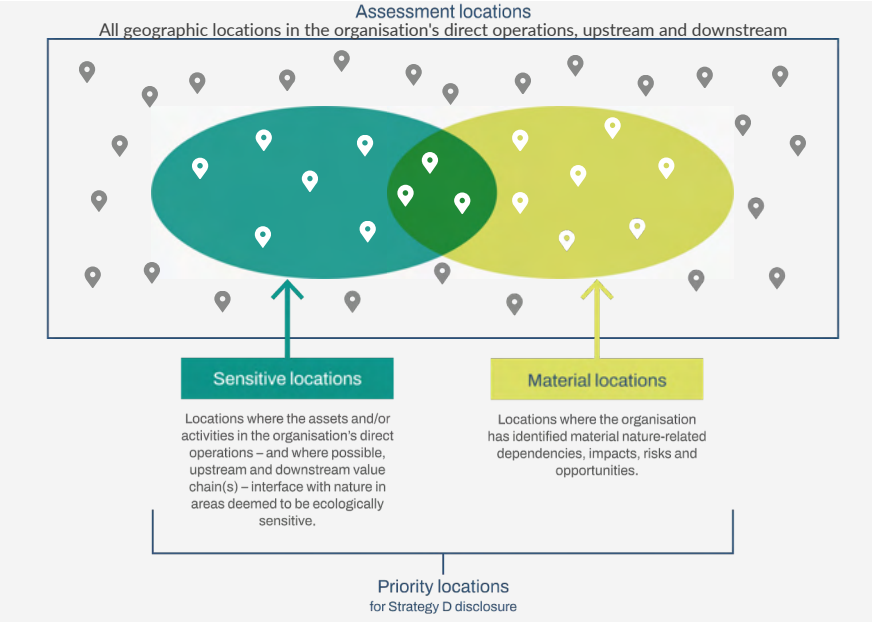

Figure 10: Priority locations, Guidance on the identification and assessment of nature-related issues - The TNFD LEAP approach v1 - September 2023

41. These are recommendations that provide companies and financial institutions of all sizes with a risk management and disclosure framework to identify, assess, manage and, where appropriate, disclose nature-related issues, green transition plans, nature markets and bioeconomy investment strategies.
42. 'Material' in the context of impacts and dependencies is defined by the TNFD as ' the organisation's most significant impacts on the ... environment'
43. See: https://tnfd.global/wp-content/uploads/2023/08/Guidance_for_Financial_Institutions_v1.pdf?v=1695215983

Case study: mapping drivers of deforestation

Deforestation driven by land-use change caused by the activities of food system companies is one of the key negative impacts of the Food and Agriculture sector. There are a variety of tools that investors can use to examine the risks of deforestation in particular locations. One example is Global Forest Watch's Interactive World Forest Map – see Figure 11.

This tool allows the user to select a variety of indicators relating to deforestation as well as a number of other forest-related data points relating to land cover, land use, climate and biodiversity. Even more detailed tools are available, such as the Deforisk tool[44] developed by Aim4Forests, which allows users to model future deforestation risk and also examine the potential benefits of nature-positive actions such as forest conservation.

Water is another obvious candidate when it comes to examining both impacts and dependencies of companies in the Food and Agriculture sector. The FAO provides AQUASTAT, a global information system on water resources and agricultural water management that collects, analyses and provides free access to over 180 variables and indicators by country from 1960. The WRI provides Aqueduct, an interactive water risk atlas that enables users to analyse current and future water risks in different locations around the globe.

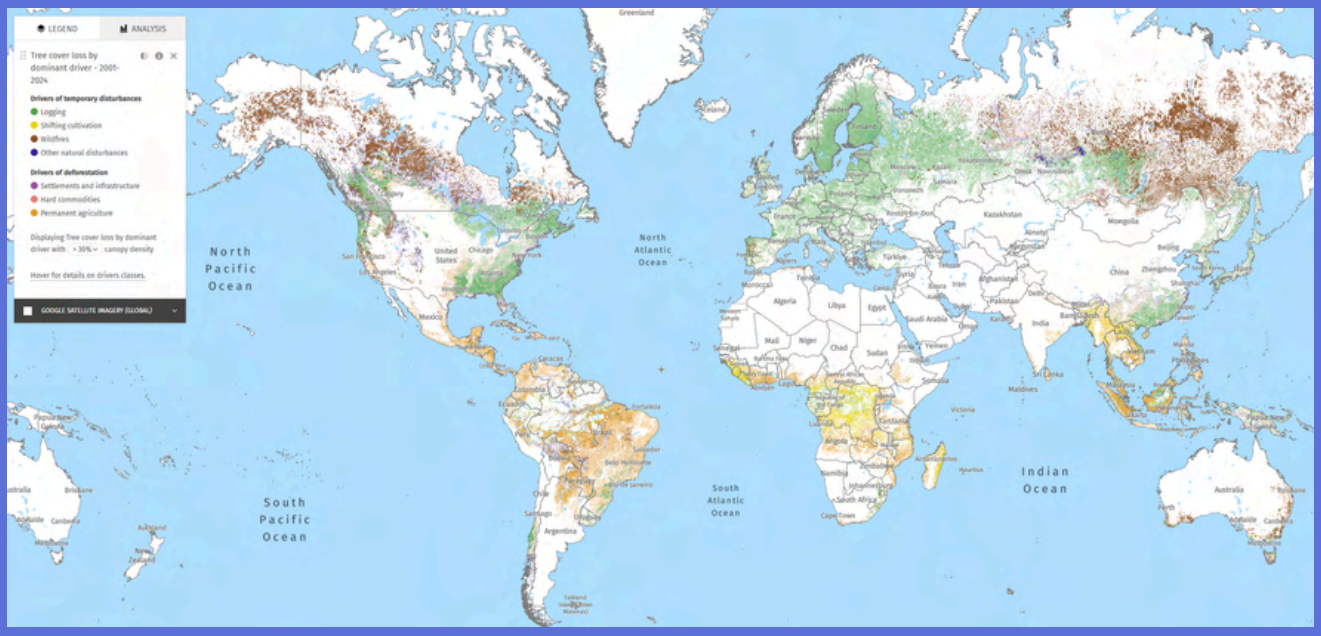

Figure 11: Interactive World Forest Map. Global Forest Watch (FfB extract)

44. https://www.fao.org/in-action/aim4forests/news-and-events/news/news-detail/mapping-deforestation-risk-with-the-new-aim4forests--deforisk-solution/en

Solutions

It is clear that the global food system needs transforming, however, the gains could be significant. The FOLU report referenced earlier estimates that investing between USD 300bn and USD 350bn a year would generate USD 5.7tr per annum by 2030, and USD 10.5tr per annum by 2050, and free up 1.2bn hectares of land to be used for restoring natural ecosystems (equivalent to reducing crop and pastureland by 40%).[45]

There have been a number of reports highlighting the transformative actions that are required.[46] They all agree that the system needs to use land more efficiently[47] (and less destructively), become less wasteful, provide better nutrition to all, and reduce the amount of pollution.

Table 1 on page 6 summarises the priority actions that are most relevant to companies from a nature/climate/health perspective. There are two remaining priority actions that are less open to corporate leadership and more likely to require regulation and/or policy changes:

1 **Shift diets toward healthy, sustainable, more plant-rich patterns**
Nature benefit: diet shifts reduce pressure on land, forests and biodiversity by lowering demand for resource-intensive production.
Climate benefit: lower demand for emissions-intensive foods, especially ruminant meat and dairy, is widely identified as a major mitigation lever.
Health/Nutrition benefit: WHO and FAO treat sustainable healthy diets as central to improving diet quality and reducing malnutrition and diet-related disease.

2 **Repurpose harmful agricultural subsidies and public support**
Nature benefit: FAO, UNEP and UNDP argue that much existing government support is distorting and harmful to nature and health.
Climate benefit: repurposing support can redirect production incentives toward lower-emission outcomes.
Health/Nutrition benefit: repurposed support can help shift systems toward healthier, more equitable food outcomes.

45. FOLU. 2019. Growing Better: Ten Critical Transitions to Transform Food and Land Use. https://www.foodandlandusecoalition.org/wp-content/uploads/2019/09/FOLU-GrowingBetter-GlobalReport.pdf
46. Refer to Part IV of this report for a list
47. 'Efficiently' in this context means after factoring in all costs (including externalities – see the 'true cost' discussion earlier). It does not signify using intensive farming techniques supported by extensive use of chemical inputs (although that is an approach that some organisations advocate)

Forward-looking regulations relevant to the sector

Regulatory change constitutes a significant investment risk in relation to businesses that are not prepared. Investors can be inspired by forward-looking regulations on biodiversity to guide the transformation of the companies in their portfolio. With engagement, they can exercise influence on companies to improve their practices and be prepared in the context of a sustainable policy transition, which goes further than simply complying with environmental safeguards.

The most relevant nature-related regulatory developments are currently found in Europe and, to a lesser extent, in the United States. The regulatory picture is uneven: the EU has moved further in developing binding frameworks affecting land use, ecosystem restoration, disclosure and due diligence, while the United States remains more fragmented, with a mix of proposed federal action and more concrete state-level measures.

Europe

- EU Regulation on Deforestation-free products – the EUDR requires that all EU imports and exports of specific soft commodities, including wood, are deforestation-free and produced in compliance with the laws of the country of origin. Any operator or trader who places these commodities on the EU market, or exports from it, will have to be able to prove that the products do not originate from recently deforested land or have contributed to forest degradation. The EUDR entered into force in 2023, however its application dates have been delayed twice. The main EUDR obligations apply from 30 December 2026 for medium-sized and large operators, and from 30 June 2027 for micro/small enterprises.[48] The amended regulation differentiates between primary operators, downstream operators, and traders, placing the greatest burden on the company responsible for the first point of entry into the EU.
- EU Farm to Fork Strategy - The Farm to Fork Strategy is at the heart of the EU Green Deal, aiming to make food systems 'fair, healthy and environmentally-friendly.' It is the EU's central policy framework for the transition to sustainable food systems, including objectives relating to sustainable production, sustainable consumption, nutrition, and food loss and waste reduction. The strategy sets out both regulatory and non-regulatory initiatives, with the common agricultural and fisheries policies as key tools to support a just transition.
  The EU Commission plans to put forward proposals for a legislative framework for sustainable food systems to support implementation of the strategy and development of sustainable food policy. The Commission will also develop a contingency plan for ensuring food supply and food security. The EU will support the global transition to sustainable agri-food systems through its trade policies and international cooperation instruments.[49]
- EU Directive on Waste – revised version adopted in September 2025. The Directive sets binding 2030 targets on EU member states to achieve a 10% reduction in food waste generated in processing and manufacturing (vs the 2021-23 average) and a 30% per capita reduction in food waste generated in retail, food services and households.

48. https://trade.ec.europa.eu/access-to-markets/en/news/delay-until-december-2026-and-other-developments-implementation-eudr-regulation
49. So far the EU's Farm to Fork Strategy has not resulted in much legislation apart from new targets on food waste. Proposed legislation to limit the use of pesticides was withdrawn in May 2024

- EU Nature Restoration Law (Regulation (EU) 2024/1991) creates a legally binding framework for restoration of degraded ecosystems across the EU, requiring Member States to develop national restoration plans and implement measures over 2030–2050 horizons. Member States are required to submit draft National Restoration Plans by 1 September 2026 and final plans by September 2027. For the Food & Agriculture sector, this is especially relevant because it links biodiversity restoration, agricultural landscapes, soils, water systems and long-term food security. It is likely to affect land-use planning, ecosystem management, and the expectations placed on companies operating in land-intensive value chains.
- EU Directive on single-use plastics - aims to prevent and reduce the environmental impact of certain plastic products, including cotton bud sticks, cutlery, plates, straws and stirrers, food and beverage containers, plastic bags, and packets and wrappers. The Directive came into force on 3rd July 2021, with a recycling mandate taking effect on 1st January 2025. EU Member States are required to use alternatives to Single Use Plastics (SUP) food and beverage containers where they are easily available and affordable. They must reduce the consumption of SUPs for which there is no alternative through awareness-raising, new designs, labelling, and improved waste management and clean-up obligations for producers, and report the progress made to the European Commission. Specific targets that applied from 2025 include a 77% separate collection target for plastic bottles (increasing to 90% by 2029), 25% minimum recycled content in PET[50] beverage bottles, and 30% in all plastic beverage bottles from 2030.[51]
- EU Packaging and Packaging Waste Regulation (PPWR) - adopted in early 2025 and fully applicable from 12th August 2026, is a core component of the EU's Circular Economy Action Plan. The PPWR aims to ensure that all packaging placed on the EU market is reusable, recyclable, or compostable by 2030. It replaces the previous Packaging and Packaging Waste Directive[52] and introduces mandatory design-for-recyclability criteria, recycled content targets, and packaging waste reduction goals, while also standardising Extended Producer Responsibility (EPR) systems[53] and labelling across Member States. The regulation will significantly affect packaging users across the value chain in the EU. In particular, the PPWR also introduces PFAS concentration limits for food-contact packaging, effective from 12 August 2026.
- EU Corporate Sustainability Due Diligence Directive (CS3D) – The CSDDD establishes due diligence obligations in relation to adverse human rights and environmental impacts across value chains. The timetable and scope have changed materially under the EU's recent simplification measures. The revised version entered into force in March 2026; Member States must transpose it by July 2028, and national laws will apply from July 2029. For Food & Agriculture companies, this remains a significant signal that environmental and social due diligence expectations in supply chains are moving from voluntary practice toward legal obligation, albeit on a delayed timeline and for a narrower group of companies than originally envisaged.

50. Polyethylene terephthalate (PET) is the most common thermoplastic polymer resin of the polyester family and is used in fibres for clothing, containers for liquids and foods, and thermoforming for manufacturing, and in combination with glass fibre for engineering resins
51. https://packagingeurope.com/comment/europes-single-use-plastics-directive-what-do-we-know-so-far/12620.article
52. Directive 94/62/EC 27
53. EPR systems are designed to hold producers financially accountable for the cost of managing their packaging and products in the waste stream

United States

- The FOREST Act remains proposed federal legislation rather than current law. Reintroduced in Congress in late 2023, it would prohibit imports of certain products made from commodities produced on land subject to illegal deforestation and would require import declarations and risk-mitigation steps. Although it has not been enacted, it remains an important signal of the direction of travel in U.S. policy discussions on deforestation-linked supply chains.
- **State-level packaging regulation** - The most tangible U.S. regulatory developments for many Food & Agriculture companies are at state level.
- California's Plastic Pollution Prevention and Packaging Producer Responsibility Act (SB 54) establishes an extended producer responsibility regime covering packaging and single-use plastic food service ware across the economy. The law is intended to shift responsibility for end-of-life management onto producers and is accompanied by recyclability, compostability and other implementation requirements that will shape packaging choices in one of the country's most important consumer markets.
- State-level PFAS in food packaging rules - In a similar way, individual States are regulating with respect to PFAS in food packaging. Fourteen States have enacted laws relating to PFAS in food containers and packaging materials and a further ten have proposed bills pending. The legislation varies between States but generally bans the sale or use of food packaging that contains more than a set amount of intentionally added PFAS (e.g. 100ppm in California). Some States have taken a softer approach by allowing such sales to continue if the use of PFAS in the packaging is determined to be unavoidable by an official State regulator (e.g. Maine).

How the sector links to the objectives of the Global Biodiversity Framework

The sustainable transformation of the companies in the Food and Agri sector can contribute to halting biodiversity loss by 2030. Below is a list of issues to keep in mind, and also levers that could be activated in the sector, with regard to the targets of the Global Biodiversity Framework (GBF), and which could be applied to find ways to reduce company pressures on biodiversity and/or develop concrete solutions for nature recovery. The GBF targets that are most directly relevant for this sector are:

Targets 1, 2 & 3 - Participatory and Biodiversity-Inclusive Spatial Planning and Restoration of Degraded Ecosystems:
Within the framework of Target 1, the Food and Agriculture sector faces the imperative of adopting participatory and biodiversity-inclusive spatial planning as well as contributing to the restoration of 30% of degraded terrestrial, inland water, and marine ecosystems by 2030. The sector must align with integrated management processes addressing land and sea-use changes. Incorporating biodiversity considerations into spatial planning is essential for the industry to develop regenerative sustainable land-use practices while respecting the rights of Indigenous Peoples and local communities.

Target 7 - Reduce Pollution Risks:
For the Food and Agriculture sector, Target 7 is directly relevant as it addresses the sector's environmental impact, particularly in terms of soil and water pollution from pesticides and nutrients, as well as from packaging waste.

Target 8 - Climate Action for Biodiversity:
As noted earlier in this report, the Food and Agriculture sector is responsible for a third of humanity's GHG emissions both from production processes and from land use change, and extractive production practices deplete and pollute soils and reduce their capacity to act as carbon sinks.

Target 10 - Sustainable Use of Biodiversity:
This target directly refers to agroecology and to food security, calling for a substantial increase of biodiversity-friendly practices that contribute to the resilience and long-term efficiency and productivity of food production systems. It is about ensuring that areas under agriculture, aquaculture, fisheries, and forestry are managed sustainably.

Target 13 - Fair and Equitable Sharing of Benefits:
This requirement emphasises the industry's responsibility to implement legal, policy, and capacity-building measures, ensuring transparent benefit-sharing practices. For the Food and Agriculture sector, which is heavily reliant on natural resources, meeting this target is essential for ethical sourcing and maintaining positive relationships with communities who are providing these resources.

Target 15 - Disclosure of Risks, Dependencies, and Impacts on Biodiversity:
Measuring, managing, and disclosing nature-related risks and opportunities by companies, including from the Food and Agriculture sector, will ultimately support a shift in global financial flows toward nature-positive outcomes.

Target 16 - Enabling Sustainable Consumption Choices:
The Food and Agriculture Sector can participate in raising supplier and consumer awareness to help enable more informed decisions and sustainable consumption choices.

Target 22 - Representation and Participation of Indigenous People and Local Communities:
The activities of the Food and Agriculture sector must be conducted while respecting the cultures and the rights over lands, territories, resources, and traditional knowledge of Indigenous Peoples and local communities. Companies have to ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and data, and must adhere to free, prior, and informed consent.

Part II

Recommended Company Actions to help address Biodiversity Loss

Introduction

All companies in the Food and Agriculture sector need to have a strategic ambition to minimise negative impacts on nature and, where possible, contribute to the reversal of nature loss by 2030. This should encompass their supply chains as well as their direct operations. Supply chain traceability is an essential tool for companies that wish to put in place an effective nature strategy, and effective implementation will invariably require collaboration with other companies in the value chain.

The nature strategy should follow the **ACT-D framework:**[54] **Assess, Commit, Transform, Disclose.**[55]

Assess

Measure and prioritise impacts and dependencies on nature to ensure the company is acting on the most material ones.

As a starting point, investors need to ensure that companies understand their supply chains' dependency and impacts on nature, as identified through an assessment of nature-related dependencies, impacts, risks, and opportunities (DIRO), conducted following the TNFD LEAP[56] process.

The assessment needs to encompass nature loss pressures on all relevant biomes, as well as evaluate risks and impacts across the whole supply chain, from indirect raw material and components suppliers to how consumers use and dispose of the company's products. The assessment will allow companies to identify and address the most material biodiversity risks and impacts (using tools such as ENCORE or the SBTN Materiality Screening Tool[57]), as well as understanding its sphere of influence.

Refer to the previous discussion on impacts and dependencies to identify what might be expected for companies at particular points of the value chain.

Commit (set targets)

Set transparent, time-bound, specific, science-based targets to put the company on the right track towards operating within the Earth's limits and aligning with the Global Biodiversity Framework, with the aim of reversing nature loss by 2030.

54. Developed by a variety of organisations including the Capitals Coalition, Business for Nature, WBCSD, TNFD, Science Based Targets Network, WEF and WWF.
55. https://capitalscoalition.org/business-actions/
56. See TNFD's Tool catalogue for Nature-related data tools to help assess nature-related issues and aligned with the TNFD's LEAP approach. https://tnfd.global/guidance/tools-catalogue/
57. https://sciencebasedtargetsnetwork.org/companies/take-action/assess/materiality-screening/

Targets need to be ambitious (while also being achievable), set against a clear baseline, with specific cut-off dates and measurable KPIs to fulfil the company's biodiversity ambition. The targets should be based upon the company's assessment of its impacts and dependencies on nature, and should focus on the most material factors in its direct operations and those of its value chain.

The Science Based Targets Network (SBTN) provides extensive guidance for companies on how to decide which nature impacts to prioritise and how to develop, measure, set and disclose related science-based targets.[58]

Transform (take action)

The company should design an action plan using the SBTN's AR3T Action Framework: Avoid, Reduce, Regenerate, Restore, and Transform.

Companies at the start of their nature-positive journey will need to focus on avoiding and reducing their negative impacts on nature. However, more mature companies should take actions that will actually regenerate and restore nature, with the ultimate aim of acting to transform the underlying systems that are driving nature loss.

At all stages of the value chain, it is important that companies are not simultaneously supporting business associations or other lobbying efforts that act in opposition to their nature action plans, and are engaging positively with regulators and policy makers to support the transformation of the sector.

It is also important that the design and implementation of the plan prioritises rights-based approaches and is developed in collaboration with Indigenous Peoples and local communities when they are affected.

Companies will inevitably need to consider trade-offs when deciding what actions to take. Investors should look for clear, science-based, and evidence-backed, explanations to support such decisions.

Disclose

Track performance and publicly report material nature-related information on a regular and consistent basis.

Companies should use the overall reporting framework provided by the TNFD to guide them when compiling and reporting nature-related information, and their reporting should comply with the relevant sustainability reporting standards such as those provided by the ISSB, EFRAG, and the GRI.

58. https://sciencebasedtargetsnetwork.org/step-up-for-nature/

Recommended company actions

The specific actions taken by a company will depend on its position in the value chain, the nature of the products and services it provides, the inputs it depends on, and will be location-specific. However, given the most material impacts discussed earlier, it is possible to identify actions that are likely to be relevant to many companies in the sector.[59] The actions will apply to companies' direct operations and to activities across their supply chains.

The actions that are appropriate will also depend upon the company's 'maturity level'. In this Sector Brief we have used a scale from 'basic' to 'mature' summarised in Table 2 below. The levels assigned are meant as guidance only and do not represent precise classifications.[60]

Maturity level	Description
Basic	This action should be within the grasp of the majority of companies.
Intermediate	This action is more likely to require a greater level of organisational maturity with respect to nature actions.
Advanced	The prioritisation of strategic actions takes place according to where the company has the most influence or impact on nature and the multiple core benefits.

Table 2: Company maturity levels. Finance for Biodiversity Foundation (2025), derived from WBCSD and Capitals Coalition

More mature companies will be able to extend their actions across the majority of their operations and a larger proportion of their supply chains than less mature companies.

The detailed actions recommended in this Sector Brief align with the high-level Priority Actions recommended in Table 1 earlier in this report (see page 6).

The recommended actions are grouped into eight categories for ease of reference.[61]

59. The 'Assess' and 'Commit' stages of the ACT-D framework obviously involve taking action; in addition, positive policy engagement is an essential tool that should be deployed alongside any set of actions to align with the 'Transform' element of ACT-D. These elements are not included in the action lists in this section to avoid repetition.
60. There are numerous ways to define maturity level – investors can refer to WBCSD's Roadmaps to Nature Positive - Foundations for all businesses and the Capitals Coalition Maturity Tool for further guidance.
61. In practice, many actions will relate to more than one category

- Build responsible supply chains and engage stakeholders.
- Restore nature and halt deforestation and other ecosystem conversion
- Transition to regenerative / nature-friendly production[62]
- Reduce pollution
- Reduce food loss and waste
- Reduce methane emissions
- Improve water stewardship and reduce water use
- Reform product offerings and food environments

The actions are shown on a heatmap to indicate:

1. the subsectors they are most relevant to [no colour indicates less relevance];
2. the likely biodiversity benefit from taking the action (higher or lower); and
3. the likely feasibility of the action in the near to mid-term (dependent on cost, current technology, regulatory clarity, etc).[63]

Companies should prioritise more feasible actions with a high benefit to nature, as summarised in Table 3.

		Feasibility	
		'Easy'	'Difficult'
Benefit to nature	High	Priority 1 - P1	Priority 2 - P2
	Lower	Priority 3 - P3	Priority 4 - P4

Table 3: Prioritising actions (nature benefit vs feasibility).[64] Finance for Biodiversity Foundation.

62. This report uses 'Regenerative' agriculture to cover multiple approaches to food production including organic which all share the objective of working with nature, rather than against it, so that chemical inputs are reduced and soil health is improved. Investors should note that 'regenerative' is not well defined and carries a risk of greenwashing
63. Feasibility is estimated independent of the maturity of the company. However, more mature companies are more likely to be able to undertake actions that are judged to be less feasible ('difficult') where organisational capacity (knowledge, and resources) is an important factor. For example, creating products that are 'safe and sustainable by design' is often challenging, but mature organisations are more likely to have the capacity to achieve this due to stronger leadership, human resources, supplier relationships, etc. Conversely, some 'easy' actions will still be more challenging for organisations with lower capabilities
64. Important caveat: the 'feasibility' of a particular action is based on broad judgements, not on detailed analysis, and changes in technologies, regulation, and other factors may significantly change the assessed feasibility of an action in the future

Build responsible supply chains

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Require responsible sourcing of input materials (agricultural, aquaculture, feed, fibre, packaging and agrochemicals), including certification where available	Basic	P1	P1	P1	P1	P1	P1
Ensure compliance with Access & Benefit Sharing rules when accessing or utilising genetic resources or associated traditional knowledge in breeding, R&D, ingredient discovery, fermentation, biomaterials or similar activities.	Basic	P2	P2	P2	P2	P2 (indirect)	P2 (indirect)
Ensure site selection and raw material sourcing (including inputs such as water) respects Indigenous and local community rights and is supported by FPIC (Free, Prior, and Informed Consent) principles.	Basic	P3	P3	P3	P3	P3 (indirect)	P3 (indirect)
Include human rights safeguards in supplier agreements, aligned with the UN Guiding Principles on Business & Human Rights	Basic	P3	P3	P3	P3	P3	P3
Support supplier capacity building through training, joint improvement plans and knowledge-sharing	Intermediate	P3	P3	P3	P2	P2	P2
Enhance supply chain transparency by mapping to lower-tier suppliers and identifying critical food, feed, fibre, packaging and raw material sources	Intermediate	P2	P2	P2	P2	P2	P2
Integrate environmental stewardship requirements into supplier contracts (e.g. deforestation/conversion, methane reduction, water efficiency, pollution control)	Intermediate	P2	P2	P2	P1	P1	P1
Work with suppliers to ensure nature and climate plans incorporate just transition principles	Advanced	P3	P3	P3	P2	P2	P2

Restore nature and halt deforestation and other ecosystem conversion

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Adopt, implement, and report on, a no-deforestation / no-conversion commitment with a time-bound cut-off date covering own operations and relevant sourcing.	Basic	P1	P1	P1	P1 (indirect)	P1 (indirect)	P1 (indirect)
Achieve traceability for conversion-risk raw materials to farm, ranch, pond, vessel or landscape/jurisdiction level, and use it to monitor compliance.	Intermediate	P1	P1	P1	P1 (indirect)	P1 (indirect)	P1 (indirect)
Protect and restore natural habitats in and around production areas, particularly including high-value ecosystems.	Intermediate	P1	P1	P1	P2 (indirect)	P2 (indirect)	P2 (indirect)
Disclose exposure to deforestation-risk commodities and associated risk mitigation procedures	Advanced	P2	P2	P2	P2 (indirect)	P2 (indirect)	P2 (indirect)
Participate in landscape or seascape restoration programmes with shared targets, financing and grievance/remedy processes in priority sourcing regions.	Advanced	P2	P2	P2	P1 (indirect)	P1 (indirect)	P1 (indirect)

Transition to regenerative / nature-friendly production

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Set soil health baselines and targets using metrics such as soil organic matter, ground cover, erosion risk and biological activity.	Basic	P3	P3	P3	N/A	P3 (indirect)	P3 (indirect)
Implement regenerative crop practices such as cover crops, crop rotation, reduced tillage, residue retention and diversified systems suited to local context.	Intermediate	P1	N/A	N/A	P1 (indirect)	P1 (indirect)	P1 (indirect)
Improve grazing and pasture management through rotational grazing, stocking-rate alignment, pasture recovery and silvopastoral or grassland restoration approaches.	Intermediate	N/A	P1	N/A	P1 (indirect)	P1 (indirect)	P1 (indirect)
Integrate trees and on-farm biodiversity features through agroforestry, shelterbelts, hedgerows, mixed systems or silvopasture where ecologically appropriate.	Advanced	P2	P2	N/A	P2 (indirect)	P2 (indirect)	P2 (indirect)

Reduce pollution

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Apply nutrient budgeting and precision nutrient management so fertiliser and feed nutrient application matches crop or system needs and minimises runoff and leaching.	Basic	P1	P2	P1	P1 (indirect)	P1 (indirect)	P1 (indirect)
Review and redesign food packaging and components to reduce material use, increase recycled content and move away from virgin plastics and paper.	Basic	N/A	N/A	N/A	P1	P2	P2
Deploy technologies to capture and treat harmful emissions from food processing and storage operations to prevent them reaching the environment.	Basic	N/A	N/A	N/A	P2	N/A	N/A
Reduce pesticide dependency through integrated pest management (IPM), elimination of highly hazardous pesticides, and use of ecological controls.	Intermediate	P1	N/A	N/A	P1 (indirect)	P1 (indirect)	P1 (indirect)
Strengthen antibiotic stewardship through preventive animal health, biosecurity, vaccination, veterinary oversight and strict controls on routine/prophylactic use.	Intermediate	N/A	P1	P1	P1 (indirect)	P1 (indirect)	P1 (indirect)
Manage manure, slurry, effluent and farm wastewater to prevent leakage, runoff and direct discharge, and recover nutrients where feasible.	Intermediate	N/A	P1	P1	P1 (indirect)	P1 (indirect)	P1 (indirect)
Eliminate avoidable plastics and prevent leakage of packaging, mulch films, bale wrap, nets, ropes and other operational plastics; improve circular recovery systems.	Intermediate	P2	P3	P2	P1	P1	P1
Work with recyclability standard-setters and regulators to ensure comprehensive guidance and enable timely adoption for food packaging.	Intermediate	N/A	N/A	N/A	P2	P2	P2
Invest in recycling infrastructure.	Intermediate	N/A	N/A	N/A	P2	P2	P2
Scale reuse/refill/return packaging models where viable (including pooled systems and reverse logistics) for food products and food service formats.	Intermediate	N/A	N/A	N/A	P2	P2	P2

Reduce food loss and waste

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Redesign date-labelling, pack formats, store presentation, and consumer communications to prevent avoidable waste during manufacturing and distribution operations, in stores, kitchens and outlets.	Basic	N/A	N/A	N/A	P2	P2	P2
Prioritise redistribution of surplus edible food and redesign portions, date-label presentation and customer communications to prevent avoidable waste in stores, outlets and kitchens.	Basic	N/A	N/A	N/A	N/A	P1	P1
Measure food loss and waste at each relevant stage, set reduction targets, and assign operational accountability for delivery.	Intermediate	P1	P1	P1	P1	P1	P1
Improve harvesting, storage, cold-chain, inventory and forecasting systems to reduce physical losses and spoilage.	Intermediate	P1	P1	P1	P1	P1	P1
Use specification changes, whole-crop / whole-animal use, secondary markets and by-product valorisation to keep edible material in the food chain.	Intermediate	P2	P2	P2	P1	P1 (indirect)	P1 (indirect)
Support circularity-friendly policies by working with policymakers on waste-reduction initiatives.	Intermediate	P4	P4	P4	P2	P2	P3
Collaborate across the value chain to design out waste and promote circular business models.	Advanced	P3	P3	P3	P2	P2	P2

Reduce methane emissions

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Implement enteric methane reduction measures in ruminant systems, such as better forage quality, improved herd efficiency and approved feed additives where appropriate.	Intermediate	N/A	P1	N/A	P1 (indirect)	P1 (indirect)	P1 (indirect)
Reduce manure methane through covered storage, anaerobic digestion, solids separation, aeration or other manure-management improvements suited to system type.	Intermediate	N/A	P1	N/A	P1 (indirect)	P1 (indirect)	P1 (indirect)
Adopt low-methane rice production practices, residue management and cultivar or nutrient strategies that reduce emissions without shifting harm elsewhere.	Intermediate	P1	N/A	N/A	P1 (indirect)	P1 (indirect)	P1 (indirect)

Improve water stewardship and reduce water use

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Perform water scarcity and water-quality risk assessments to identify vulnerabilities in priority basins and water-stressed regions, prioritise action in those locations, and prepare for potential disruptions	Basic	P1	P1	P1	P1	P2 (indirect)	P2 (indirect)
Conduct regular water-use, discharge and water-quality audits, and provide employee training on efficient water use, wastewater management and local water-risk response	Basic	P3	P3	P3	P3	P4 (indirect)	P4 (indirect)
Invest in water-efficient technologies, including recycling and reuse systems, and optimise processes to reduce freshwater withdrawals.	Basic	P2	P2	P1	P2	P3	P2
Collaborate with stakeholders in priority basins and sourcing regions to strengthen water governance, allocation, stewardship and drought-resilience planning.	Intermediate	P2	P2	P2	P2	P2 (indirect)	P2 (indirect)
Support watershed restoration, groundwater recharge, and other basin-level measures to help remediate water stress and strengthen freshwater ecosystem health in priority basins.	Advanced	P2	P2	P2	P2	P2 (indirect)	P2 (indirect)

Reform product offerings and food environments

Action	Maturity	Crop producers	Livestock producers	Aquaculture producers	Manufacturers	Retailers	Food service
Set time-bound targets to rebalance protein and product portfolios toward healthier, more plant-rich and lower-impact offerings.	Basic	N/A	N/A	N/A	P3	P3	P3
Embed health and nature criteria into category management, assortment architecture and new product development governance.	Basic	N/A	N/A	N/A	P3	P3	P3
Reformulate products and redesign menus so plant-rich choices are attractive, affordable and the default option where possible.	Intermediate	N/A	N/A	N/A	P1	P1	P1
Use pricing, promotion, placement and loyalty mechanisms to favour healthier, lower-impact foods over high-impact options.	Intermediate	N/A	N/A	N/A	N/A	P1	P1
Use responsible marketing and consumer information to normalise healthy, lower-impact eating patterns and avoid marketing that locks in high-impact demand.	Intermediate	N/A	N/A	N/A	P3	P3	P3
Align procurement contracts, supplier scorecards and innovation funding with the shift to healthier, lower-impact offerings.	Intermediate	N/A	N/A	N/A	P1	P1	P1
Increase sourcing from diversified, sustainable plant-based supply chains and develop transition plans for suppliers affected by protein-demand shifts.	Advanced	N/A	N/A	N/A	P2	P2	P2
Use trade terms, joint promotions, pack design and category-management support to help downstream customers favour healthier, lower-impact foods over high-impact options.	Advanced	N/A	N/A	N/A	P2	N/A	N/A

Part III

Finance for Biodiversity Foundation's Call to Action: Questions for Investors to Engage Companies on Nature

As investors enter into engagements with companies from the Food & Agriculture sector, we propose the list of questions below that investors can select from to help evaluate companies' performance and push for more ambitious actions. The questions have been organised following the structure of the Nature Action 100 Investor Expectations, covering ambition, assessment, targets, implementation, governance and engagement with stakeholders.

Questions are divided into those that investors should expect to be answered from company filings,[65] and those questions that are more likely to require a specific response from management.

A number of the questions are cross-sectoral and have been applied across all of our briefs. The questions shown in blue are specific to the Food & Agriculture sector.

Some of the questions are likely to apply to companies across the value chain, others are more likely to only be relevant for companies in specific segments. The relevance of a question to a particular part of the sector has been indicated using icons (not applied to cross-sectoral questions or questions that apply to all parts of the food and agriculture sector).

Producers **Manu-facturers** **Food retail** **Food service**

65. The extent to which questions can be answered from company reports is a potential indicator of the company's maturity

Producers | Manu-facturers | Food retail | Food service

1. Ambition

Companies need to publicly commit to minimise contributions to key drivers of nature loss and to conserve and restore ecosystems at the operational level and throughout value chains by 2030.

Disclosure-based questions (from reports)

1A Does the company publicly commit to minimising contributions to key drivers of nature loss and to conserving and restoring ecosystems across its operations and value chain by 2030?

1B How is nature integrated and positioned within the company's overall sustainability strategy?

1C Has the company committed to reporting regularly on nature using frameworks such as TNFD?

1D Has the company publicly committed to eliminating deforestation and ecosystem conversion from its products and supply chains?

1E Has the company committed to transitioning to circular packaging systems that prioritise reuse, recyclability, and increased recycled material content?

1F Has the company committed to reducing food loss and waste across its operations and value chain?

1G Has the company committed to reducing methane and other high-emitting production sources, especially in livestock and rice value chains where relevant?

1H Has the company committed to supporting healthier, more sustainable and more plant-rich consumption patterns where relevant to its product portfolio and customer offering?

1I Has the company committed to reducing packaging impacts by cutting unnecessary material use, increasing reuse/recyclability and recycled content, and preventing packaging leakage where material?

Potential follow-up questions (for engagement interactions)

- Does the company have Board-level or executive buy-in for its nature ambition, and is there evidence of a public commitment to this ambition?
- How does the company define success in achieving its nature commitments by 2030?
- If no nature commitments exist, is the company willing to set one/more, and could this be linked to executive remuneration to signal ambition?
- How material are nature considerations in relation to the company's long-term strategy and financial performance?
- How are nature considerations integrated into long-term strategy and capital allocation decisions?
- How does the company balance growth objectives with the need to reduce impacts on ecosystems?
- How does the company's nature strategy address the main food-system drivers of nature loss - including land-use change, water stress, pollution, methane and waste?
- What commitments has the company made to shift sourcing practices toward lower-impact diets?
- What commitments has the company made to shift product portfolios or merchandising toward healthier and lower-impact diets?
- What are the companies ambitions with respect to methane reduction in livestock, dairy or rice supply chains, and what role does this play in its nature strategy?
- What are the companies ambitions with respect to circular packaging across branded products, private-label ranges, in-store formats and food service packaging?

2. Assessment

Companies need to assess and publicly disclose nature-related dependencies, impacts, risks, and opportunities at the operational level and throughout value chains.

Disclosure-based questions (from reports)

2A Does the company disclose priority locations under TNFD for its direct operations and, where material, for upstream and downstream activities in its value chain?

2B What proportion of the supply chain can the company trace (including Tier 1 suppliers and beyond)?

2C Has the company conducted nature-related impact and dependency assessments for its direct operations and value chain?

2D What metrics does the company use to assess and manage nature-related risks and opportunities?

2E Has the company undertaken a nature-related risk scenario analysis? If so, what are the results?

2F Does the company disclose exposure to deforestation, ecosystem conversion, and biodiversity-sensitive sourcing regions?

2G Does the company measure and disclose the proportion of high-risk commodity volumes that are verified as deforestation- and conversion-free?

2H Does the company disclose water withdrawal, consumption and discharge data for operations and priority supply-chain locations?

2I Does the company assess and disclose nutrient, pesticide, manure, antibiotic, effluent and plastic pollution risks across operations and supply chains?

2J Does the company measure and disclose food loss and waste across relevant stages of its operations and value chain?

2K Does the company assess and disclose methane hotspots and other major land-based or biological emission sources related to agriculture, livestock, rice and waste?

2L Does the company disclose how biodiversity, soil health, habitat quality or ecosystem condition is being monitored in production landscapes and priority sourcing regions?

2M Does the company disclose the extent to which product sales or menus are aligned with healthier and lower-impact dietary patterns?

2N Does the company disclose an average health score for its product portfolio using a recognised scoring system?

2O Does the company disclose packaging-related metrics such as material use, reuse rates, recyclability, recycled content and leakage-prevention performance where material?

2P Does the company disclose participation in landscape, seascape or watershed restoration programmes in priority sourcing regions, including targets and outcomes?

2. Assessment (continued)

Companies need to assess and publicly disclose nature-related dependencies, impacts, risks, and opportunities at the operational level and throughout value chains.

Potential follow-up questions (for engagement interactions)

- What has the company identified as its most material nature dependencies and risks, and how do these link to financial risks?
- Which regions, sourcing landscapes or commodities pose the greatest nature-related risks to the business?
- How frequently are nature-related risk assessments updated and reviewed by management?
- What proportion of significant operating sites have had nature-related risks assessed and monitored?
- What tools or methodologies does the company use to assess nature impacts and dependencies?
- What plans does the company have to increase the proportion of its supply chain that is traceable?

- How does the company verify that raw materials and ingredients are deforestation- and conversion-free?
- How does the company assess biodiversity and water risks in feed supply chains, including soy and other imported ingredients where relevant?
- What proportion of food loss and waste occurs upstream, in operations, and downstream, and what confidence does the company have in those estimates?
- How does the company assess whether its product mix and consumer offering are aligned with healthier, lower-impact dietary patterns?
- How does the company assess packaging outcomes in end markets (waste/reuse/recycle)?

3. Targets

Companies need to set time-bound, context-specific, science-based targets informed by risk assessments on nature-related dependencies, impacts, risks and opportunities, and disclose annual progress against targets.

Disclosure-based questions (from reports)

3A Has the company published science-based targets on nature with baselines, milestones, and transparent methodologies?

3B Has the company published science-based targets to:
- Reduce GHG emissions?
- Decrease water use and water pollution?
- Minimise the release of hazardous and priority substances to air, water and soil?
- Achieve deforestation- and conversion-free supply chains where relevant?
- Reduce hazardous waste generation and increase circular material use?

3C Has the company set time-bound targets for increasing sustainable sourcing and the use of lower-impact materials as part of a circular economy strategy?

3D What targets has the company set in relation to supply-chain traceability?

3E Has the company set time-bound targets to eliminate deforestation and ecosystem conversion from raw material sourcing and production?

3F Has the company set targets to improve soil health and/or support regenerative or nature-friendly production systems?

3G Has the company set targets to reduce nutrient, pesticide, antibiotic, effluent and plastic pollution?

3H Has the company set targets to reduce water consumption and improve wastewater quality in operations and priority sourcing regions?

3I Has the company set targets to reduce food loss and waste across the value chain?

3J Has the company set targets to reduce methane and other high-emitting production sources, including livestock and rice?

3K Has the company set targets to increase traceability for high-risk commodities to farm, production unit, fishery, feed mill, vessel, pond or landscape/jurisdiction level?

3L Has the company set targets to shift product portfolios, sales or menus toward healthier and lower-impact dietary patterns?

3M Has the company set outcome-based “nature-positive” targets for restoration or net improvement linked to priority locations and sourcing landscapes?

3N Has the company set targets for packaging reduction, reuse, recyclability and recycled content for food packaging where material?

3. Targets (continued)

Companies need to set time-bound, context-specific, science-based targets informed by risk assessments on nature-related dependencies, impacts, risks and opportunities, and disclose annual progress against targets.

Potential follow-up questions (for engagement interactions)

- How were the company's nature-related targets determined and what scientific frameworks informed them?
- What milestones will indicate that the company is on track to achieve its nature commitments?
- How do nature targets link to employee incentives, procurement policies, and product portfolio decisions?
- What constraints are preventing the company from setting targets in particular areas, and how might these be overcome?
- To what extent are targets differentiated across business operations or product lines with materially different nature risk profiles?
- What proportion of key agricultural sourcing is currently traceable and/or verified as deforestation-free, and how will the company scale this?
- Where relevant, what metrics does the company use to track progress on soil health, biodiversity outcomes, methane reduction or antibiotic stewardship?
- What plans does the company have to increase achieved packaging circularity outcomes and over what timeframe?

4. Implementation

Companies need to develop a company-wide plan on how to achieve targets. The design and implementation of the plan should prioritise rights-based approaches and be developed in collaboration with Indigenous Peoples and local communities when they are affected. Progress against the plan should be disclosed annually.

Disclosure-based questions (from reports)

4A Does the company have a Nature Action Plan linked to its impact and dependency assessments?

4B Are the company's actions to reduce nature impacts prioritised according to the mitigation hierarchy?

4C What investments, including capex, has the company made (and what is planned) to reduce its impact on nature and to protect or restore ecosystems?

4D What processes ensure traceability of high-risk agricultural raw materials to origin and prevent sourcing from deforested or converted land?

4E What steps is the company taking to improve farming practices and outcomes related to soil health, water stewardship, biodiversity and habitat quality?

4F What actions are being taken to reduce nutrient, pesticide, manure, antibiotic, effluent and plastic pollution from operations and supply chains?

4G How is the company reducing food loss and waste in production, processing, distribution, retail operations and consumer-facing channels?

4H What measures are in place to reduce methane and other high-emitting production sources, especially in livestock and rice systems where relevant?

4I What steps is the company taking to reformulate products, redesign assortments or adjust menus to incentivise consumption of healthier and lower-impact products?

4J What steps is the company taking to reduce packaging material use, scale reuse/refill, improve recyclability and increase recycled content for food packaging where material?

4K How does the company participate in landscape, seascape or watershed restoration programmes with shared targets, financing and grievance/remedy processes?

4. Implementation (continued)

Companies need to develop a company-wide plan on how to achieve targets. The design and implementation of the plan should prioritise rights-based approaches and be developed in collaboration with Indigenous Peoples and local communities when they are affected. Progress against the plan should be disclosed annually.

Potential follow-up questions (for engagement interactions)

- To what extent is nature risk management integrated into enterprise risk management and investment planning?
- What investments are planned over the next five years to reduce the company's impact on nature?
- What are the main barriers to implementation, and how is the company addressing them?
- How does the company ensure operational teams implement nature-related commitments in practice?
- What partnerships are in place to support ecosystem restoration or conservation projects?
- What steps is the company taking to ensure that actions to reduce nature-related harms in one part of the supply chain do not simply displace those harms to other regions, suppliers or commodities?
- What are the main technical, commercial or behavioural barriers to reducing food loss and waste across the business?
- What plans does the company have for reformulating products and rebalancing product portfolios towards healthier and lower-impact products?
- How is the company reshaping its marketing strategy to favour healthier and lower-impact food product choices?
- How is the company moving from packaging redesign to improving actual collection, reuse and recycling outcomes in the markets where it operates?

5. Governance

Companies need to establish Board oversight - which is key to ensuring biodiversity is embedded in strategic decisions and implementation - and disclose management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

Disclosure-based questions (from reports)

5A What governance structures, policies, and procedures are in place to ensure the achievement of the company's nature commitments and targets, and the effective application of the company's nature strategy and risk management processes?

5B Does the Board oversee nature-related dependencies, impacts, risks, and opportunities?

5C Are product, sourcing and commercial decision-making processes aligned with the company's commitments on pollution reduction, food waste and healthier, lower-impact diets?

Potential follow-up questions (for engagement interactions)

- How are nature-related issues reflected in Board discussions and decision-making?
- How often does the board review nature-related risks and progress toward environmental targets?
- How are nature-related KPIs incorporated into executive performance evaluation and remuneration?
- What governance mechanisms ensure accountability for sustainability commitments?
- What is the current level of nature-related expertise in the C-suite and Board, and what plans are in place to maintain or increase this expertise?
- How does the procurement process ensure compliance with sourcing requirements for high-risk agricultural commodities and other critical inputs?
- How are nutrition, affordability and environmental objectives governed together so that trade-offs are identified and managed?

6. Engagement with Stakeholders

Companies need to engage with external parties, including actors throughout value chains, trade associations, policymakers, and other stakeholders, to create an enabling environment for implementing the plan and achieving targets.

Disclosure-based questions (from reports)

6A Has the company published a sustainable procurement code or policy?

6B Are procurement policies aligned with requirements for deforestation- and conversion-free sourcing and responsible supply chains?

6C To what extent does the company engage with stakeholders to create an enabling environment for implementing its Nature Action Plan and achieving the targets of the Global Biodiversity Framework?

6D Are supplier scorecards, commercial incentives and innovation funding aligned with the company's nature, climate and just-transition expectations?

6E How does the company support suppliers or producers to improve nature outcomes and adopt regenerative production practices (e.g. through training, incentives, long-term contracts, data-sharing, extension services or financing)?

6F How does the company engage suppliers to eliminate deforestation and ecosystem conversion from agricultural supply chains?

6G How does the company collaborate with producers, suppliers, waste-management actors, governments and civil society to reduce pollution, improve water stewardship, restore nature and reduce food loss and waste?

6H How does the company engage customers, consumers or clients to support healthier and lower-impact choices and more sustainable consumption patterns?

6I How does the company engage with policymakers to support progressive nature-positive policies relevant to food systems?

6J How does the company work with recyclability standard-setters, waste-management actors and policymakers to accelerate circular packaging systems?

6. Engagement with Stakeholders (continued)

Companies need to engage with external parties, including actors throughout value chains, trade associations, policymakers, and other stakeholders, to create an enabling environment for implementing the plan and achieving targets.

Potential follow-up questions (for engagement interactions)

- What barriers currently limit effective stakeholder engagement, and how is the company addressing them?
- What examples or case studies can the company provide to demonstrate effective collaboration with suppliers, customers, or regulators on biodiversity outcomes?
- How does the company collaborate with suppliers to reduce environmental impacts across the value chain?
- How are suppliers assessed and rewarded for progress on nature outcomes, not just cost and volume performance?
- How does the company verify that suppliers comply with sourcing and production policies?
- How does the company ensure that its lobbying activities and trade-association memberships are aligned with its stated nature commitments?
- What role do partnerships with governments or NGOs play in achieving nature-related goals?
- How does the company engage with Indigenous Peoples and Local Communities affected by its operations to ensure the implementation of its Nature Action Plan follows a rights-based approach, including adherence to FPIC (Free, Prior, Informed Consent) principles and to Access and Benefit Sharing requirements?
- What demand or pressure is coming from customers to move towards more nature-friendly practices, and how is the company responding?
- What support is the company providing to assist suppliers in eliminating deforestation and ecosystem conversion?
- What procurement and supplier engagement mechanisms ensure sustainable sourcing beyond certification, including audits, grievance mechanisms and corrective action plans?
- How does the company collaborate with downstream actors and consumers to cut food waste and shift demand toward healthier and lower-impact options?
- How is the company using industry collaboration to improve packaging recovery, reuse and recycling outcomes rather than relying only on its own operations?

Part IV

Supporting Resources for Company Analysis

This section provides various supporting tools in the form of recommended resources and collaborative engagements covering issues in the sector, as well as sector-specific and cross-sectoral data sources. These supporting tools help to access more information and build further knowledge to mobilise when engaging with companies.

Recommended resources

We recommend the following resources to help investors gather more information about the sustainable transformation of the sector toward the protection and restoration of nature:

- Accountability Framework: Provides widely recognised definitions, norms and operational guidance on no-deforestation, no-conversion and responsible supply chain management, including monitoring and verification guidance.
- Capitals Coalition Food & Beverage Sector Guide: Companion guidance to the Natural Capital Protocol to help food and beverage businesses identify, measure and value impacts and dependencies on natural capital in decision-making.
- Ceres – Food Emissions 50: A practical benchmark and engagement resource for investors assessing how major food companies are addressing emissions in line with a more resilient food system transition.
- Ceres Investor Water Toolkit: A practical toolkit for evaluating and integrating water-related risk across investment processes, with strong relevance to food and agricultural value chains.
- Ellen MacArthur Foundation - 2030 Plastics Agenda for Business: The 2030 Plastics Agenda provides a forward-looking business agenda for tackling plastic waste and pollution.
- FAIRR – Oceans and Biodiversity Impact / aquaculture resources: Relevant for investors analysing biodiversity and feed-related risks in salmon aquaculture and the broader seafood value chain.
- FAIRR – The Four Labours of Regenerative Agriculture: An investor-focused assessment of regenerative agriculture commitments by major food and retail companies, useful for distinguishing substantive programmes from high-level pledges.
- FAIRR and Planet Tracker have both published an extensive range of reports covering the production and manufacturing parts of the food system.
- Planet Tracker – Avoiding Aquafailure: A practical investor resource on biodiversity risks in aquaculture and the financing challenge associated with a transition toward more regenerative aquaculture systems.
- PRI Investor expectations on sustainable commodities and agricultural supply chains: Useful for engagement on land-use change, traceability and responsible sourcing of cattle, soy, palm oil and other high-impact commodities.
- PRI – Growing Water Risk Resilience: An investor guide focused on water risks in agricultural supply chains, with indicators and engagement questions relevant to food, beverage, retail and agricultural products companies.

- PRI guide on plastic packaging engagement: Useful where food manufacturers, retailers and food service companies have material exposure to packaging waste and pollution issues.
- SBTi FLAG Guidance: Provides the leading framework for companies in land-intensive sectors to set science-based targets covering land-based emissions and removals.
- Science Based Targets Network – land and freshwater targets: Relevant for companies setting science-based targets on land conversion, freshwater use and nutrient pollution; both areas are particularly material to food-system companies.
- Sustainable Markets Initiative – Agribusiness hub: The Sustainable Markets Initiative's Agribusiness Hub was launched in 2020 with the aim of accelerating the adoption of regenerative agriculture practices within the industry, while ensuring positive partnerships with the world's farmers. It provides access to a variety of reports including 'Scaling Regenerative Farming: A Practical Guide'.
- TNFD Additional Sector Guidance: Food & Agriculture: Sector-specific guidance on applying the LEAP approach and TNFD's recommended disclosures and metrics across agricultural products, animal protein, processed foods, retail and restaurants.
- TNFD Guidance on Biomes: A useful complement to sector guidance when assessing how food-system value chains interact with forests, freshwater, grasslands, savannas, coastal and marine systems.
- WBCSD Roadmap to Nature Positive: Row Crop Commodities: Business guidance focused on halting and reversing nature loss in row-crop commodity systems, with relevance across agricultural supply chains.
- WBCSD – Global framework for regenerative agriculture: Useful for investors seeking more comparable corporate reporting on regenerative agriculture outcomes and KPIs from farm level to company level. The WBCSD framework aims to align on key outcomes in regenerative agriculture and provides a common language to guide businesses, investors and policymakers.

Food systems transformation

The following reports set out the systemic changes required to transform the global food system and provide the basis for the Priority Actions identified earlier in this report (see page 6).

- Chatham House, Food system impacts on biodiversity loss: Covers diet change, protecting and restoring ecosystems, and biodiversity-supporting production.
- CGIAR, Actions to Transform Food Systems Under Climate Change: Proposes four action areas to achieve the required transformation.
- FAO, The State of the World's Land and Water Resources for Food and Agriculture 2021 (SOLAW 2021): Systems at Breaking Point: Covers water stress and scarcity in agrifood systems, sustainable water management, land-water-ecosystem linkages, resilience, and the policy/investment changes needed to transform food and agriculture.
- FAO / UNDP / UNEP, A Multi-Billion-Dollar Opportunity: Repurposing agricultural support to transform food systems: Covers subsidy reform / repurposing public support.
- FOLU, Accelerating the 10 Critical Transitions: Positive Tipping Points for Food and Land Use Systems Transformation: Sets out the required 10 critical transitions and analyses the potential economic benefits.
- IPCC, Climate Change and Land: Includes detailed analysis of the impacts of land-use change on climate and climate change on food security.

- OECD, Climate mitigation co-benefits from sustainable nutrient management in agriculture: Covers pollution / nutrient-management.
- Planet Tracker, Financial Markets Roadmap for Transforming the Global Food System: Provides a financial markets perspective on the issue, covering four themes: responsible supply chains, increasing (true cost) efficiency, reducing pollution, and sustainable product offerings, supported by analysis of financial data from 400,000 food system companies.
- UNEP, Food loss and waste / Food Waste Index material: Supports the importance of cutting food loss and waste for emissions, resource efficiency and nature.
- WHO & FAO, Sustainable healthy diets: Guiding principles: Covers diet shift, sustainable healthy diets, and the health-environment link.
- WHO, Food systems for health: information brief: Covers healthier food environments, downstream product reform, and nutrition-focused food-system action.
- World Bank, Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System: Covers livestock/rice mitigation, soils, agrifood decarbonization and climate-smart production.
- World Bank, Nourish and Flourish: Water Solutions to Feed 10 Billion People on a Livable Planet (2026): Covers sustainable agricultural water management, showing how more context-specific water use, irrigation and governance can improve food production while reducing pressure on scarce water resources and ecosystems.
- WRI, Creating a Sustainable Food Future: Sets out a menu of 22 solutions for feeding nearly 50 billion people by 2050.
- WWF, The Great Food Puzzle: Interactive map setting out place-based solutions to help scale national action.

Collaborative engagements covering issues in the sector

In its Guide on Engagement with Companies, the FfB Foundation provides an overview of biodiversity-related collaborative engagements. For the Food & Agriculture sector, the following initiatives are particularly relevant:

- Ceres – Food Emissions 50: Supports investor engagement with major North American food companies on disclosure, targets and transition planning for food-sector emissions.
- Ceres – Valuing Water Finance Initiative: A global investor-led engagement focused on corporate water stewardship, freshwater risk and resilience.
- Deforestation Investor Group (IIGCC): Launched in 2026 to build on the work of the Finance Sector Deforestation Action, providing tools, peer learning and capacity building for investors addressing deforestation and land-use change.

- FAIRR – Waste & Pollution engagement: Focuses on biodiversity risks linked to animal waste, pollution and nutrient management in intensive livestock supply chains.
- FAIRR – Seafood Traceability Engagement: A collaborative engagement, delivered with WWF, Planet Tracker, WBA and UNEP FI, focused on traceability and risk management in seafood supply chains.
- IEHN & Mercy Investment Services: IEHN Working Group for Pesticide Reduction and Biodiversity: Engagement focused on retailers (food, home improvement), food manufacturers, and agrochemical producers.
- Investor Policy Dialogue on Deforestation: An investor-led engagement initiative to coordinate a public policy dialogue on halting deforestation by engaging with government-related authorities and associations, industry and trade bodies and other stakeholders.
- Nature Action 100: Global investor-led engagement initiative focused on supporting greater corporate ambition and action to reverse nature and biodiversity loss.
- PRI – Spring: stewardship initiative addressing systemic biodiversity risks and engaging companies with the aim of halting and reversing forest loss and land degradation by 2030.
- ShareAction – pesticides investor campaign: Relevant to investors engaging upstream input suppliers and agri-chemical companies on biodiversity harms associated with hazardous pesticide use.

Sector-relevant sustainability initiatives

When assessing companies in the sector, investors can also refer to sustainability initiatives and commitments that signal the level of ambition expected from leading companies.

- CEO Water Mandate / Water Resilience Coalition: Useful as a reference for leading corporate water stewardship expectations and collective action in priority basins.
- Agricultural Sector Roadmap to 1.5°C (Tropical Forest Alliance): Agri-commodity sector signatories aim to use the roadmap to accelerate action on deforestation and conversion to align with global climate goals, in a way that contributes to food security, economic development and farmer livelihoods.
- Consumer Goods Forum – Forest Positive Coalition: A major collective initiative focused on removing deforestation, forest conversion and degradation from key commodity supply chains.
- Forest Future Alliance: A relevant signal for companies committing to conservation, restoration and tree-growing actions, especially where these are linked to credible land-use and restoration strategies.
- Global Methane Pledge: Provides an important policy and engagement reference point for methane reduction in livestock, rice and waste systems.
- Act4nature International: A CEO-level biodiversity commitment platform that can help investors identify companies willing to make more specific and measurable nature commitments.
- Ellen MacArthur Foundation - 2030 Plastics Agenda: Relevant for food manufacturers, retailers and food service companies seeking to reduce packaging waste and virgin plastic use.

- The Business Coalition for a Global Plastics Treaty brings together businesses and financial institutions committed to supporting the development of an ambitious, effective and legally binding UN treaty to end plastic pollution. The coalition is convened by the Ellen MacArthur Foundation and WWF, in collaboration with aligned businesses and supported by strategic NGO partners. A number of mid- and downstream food system companies are already involved.
- The Sustainable Packaging Coalition is a membership-based collaborative with over 500 members including a number of mid- and downstream food system companies. The SPC's mission is to bring sustainable packaging stakeholders together to catalyse actionable improvements to packaging systems and lend an authoritative voice on issues related to packaging sustainability.

Sector-specific and cross-sectoral data

Investors looking for data specific to the Food & Agriculture sector can turn to the following sources:

- World Benchmarking Alliance – Food & Agriculture Benchmark: Assesses major food and agriculture companies on key dimensions of food-system transformation and can be used to support company comparison and engagement prioritisation.
- World Benchmarking Alliance – Ocean Benchmark: Particularly relevant for seafood and aquaculture exposures and marine ecosystem considerations.
- SPOTT Palm Oil: A longstanding transparency benchmark for palm oil producers, processors and traders. Users should note that SPOTT assessments are paused in 2026, but the existing data remain useful for engagement.
- Coller FAIRR Protein Producer Index: Benchmark assessing major listed animal protein companies on critical environmental and broader ESG issues.
- Coller FAIRR Seafood Index: Benchmark assessing ESG risks and opportunities across major global seafood and aquaculture companies.

For cross-sector information, we recommend turning to the following data sources:

- Aqueduct Water Risk Atlas: Open-source mapping tool for analysing water stress, drought, flooding and related water risks.
- CDP – forests and water disclosure: A major source of company-reported environmental data on forests, land and water, increasingly useful for checking disclosure quality and comparability.
- ENCORE: Helps investors explore sector-level dependencies and impacts on nature and identify nature-related risk exposure.
- Global Biodiversity Information Facility: Global biodiversity occurrence data that can support location-based screening and context-setting.
- Integrated Biodiversity Assessment Tool: Provides authoritative biodiversity information for screening locations against protected areas, Key Biodiversity Areas and species-related sensitivities.
- SBTN Natural Lands Map: Useful in the context of no-conversion commitments and land target setting.
- WWF Biodiversity Risk Filter: A corporate and portfolio-level screening tool to prioritise action on biodiversity risk exposure by geography and issue.
- WWF Water Risk Filter: A corporate and portfolio-level screening tool to prioritise action on water-related risk exposure.

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Original version

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Expert review

This Food and Agriculture Sector Brief has been reviewed by a number of experts including Annie Saunders (Green Century Capital Management), Arthur van Mansvelt (Achmea Investment Management), Clemence Bourcet (Sycomore Asset Management), Graham Hamley (Ceres), Sam Cornish (IIGCC), and some who wished to remain anonymous. We are very grateful for their feedback.

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This publication is one of the many practical guides developed by the Finance for Biodiversity (FfB) Foundation in collaboration with its members, to support financial institutions on their journey towards fully integrating nature into their businesses. FfB Foundation membership allows financial institutions to take part in our active working groups which bring together leading banks, investors and insurers to independently share perspectives and best practices. The many guidance documents we produce are the result of these collaborations. We welcome all financial institutions to join the Foundation and fast track alignment of their financial activities and investments with nature recovery. There are now two options to work with us: membership and Hub participation. Visit Finance for Biodiversity Foundation | Join us to find out more.

Appendix 1

Terminology

Nature 'impacts'

ENCORE, TNFD and SBTN use similar concepts but apply different terminology when discussing 'impacts'.

ENCORE focuses on the potential impact that a sector can have on nature as a result of its direct operations and its value chain. In ENCORE, 'impacts' refer to categories of environmental pressures associated with an economic activity (e.g., water abstraction, land use change, pollution, resource extraction), assessed on a scale from Very Low to Very High.

ENCORE ratings signal the potential significance of a pressure for a given sector, but they do not measure the resulting ecological state change, nor are they location-specific. In other words, ENCORE highlights potential impact, not actual impact.

By contrast, **SBTN and TNFD distinguish clearly between the potential impact and the actual impact on nature**.

In **SBTN terminology**, a 'pressure' (e.g., water withdrawal) may lead to an 'impact', defined as a change in the state or functioning of ecosystems. TNFD uses the term 'impact driver' (instead of 'pressure') and 'impacts on nature' for the resulting ecological change.

The potential harms assessed by all three systems (ENCORE's pressures, SBTN's pressures and TNFD's impact drivers) all map to the IPBES five drivers of nature loss: (1) land and sea use change, (2) direct exploitation of organisms, (3) climate change, (4) pollution, and (5) invasive alien species.

However, potential harm is different from actual harm – a distinction made clear by SBTN and TNFD's terminology. A sector may exert a high level of pressure associated with one or more IPBES drivers (for example, by heavy freshwater use), but the actual impact on nature of a sector and/or a specific company might not be significant (for example, because fresh water is plentiful in that location). The actual impact depends on geographic context, ecosystem sensitivity and cumulative effects.

It is also important to note that a single 'pressure' (e.g. 'Emissions of toxic pollutants to water and soil') can result in multiple 'impacts' on nature.

In this guide, consistent with SBTN and TNFD, 'impact' refers to actual changes in the state of nature, and 'pressure' or 'potential impact' refers to the potential harm.

Regenerative agriculture

Regenerative agriculture is not a clearly defined term and does not require food producers to comply with a clear set of standards (unlike, for example, organic farming[66]). However, the broad consensus definition is that regenerative agriculture 'describes holistic farming systems that, among other benefits, improve water and air quality, enhance ecosystem biodiversity, produce nutrient-dense food, and store carbon to help mitigate the effects of climate change.'[67]

As such, regenerative agriculture is defined by agricultural practices and outcomes. There is broad agreement on the main components of regenerative agriculture:[68]

- Building healthy soil
- Minimising soil disturbance
- Keeping soil covered
- Increasing biodiversity
- Integrating livestock responsibly

The lack of a clear, agreed, definition creates a significant risk of greenwashing by companies. The International Finance Corporation published an 'Approach and Framework for Regenerative Agriculture' that investors could use as a basis for developing their own stricter criteria for assessing if a company's practices constitute regenerative agriculture or not – see Figure 12 for a summary of the IFC's framework.

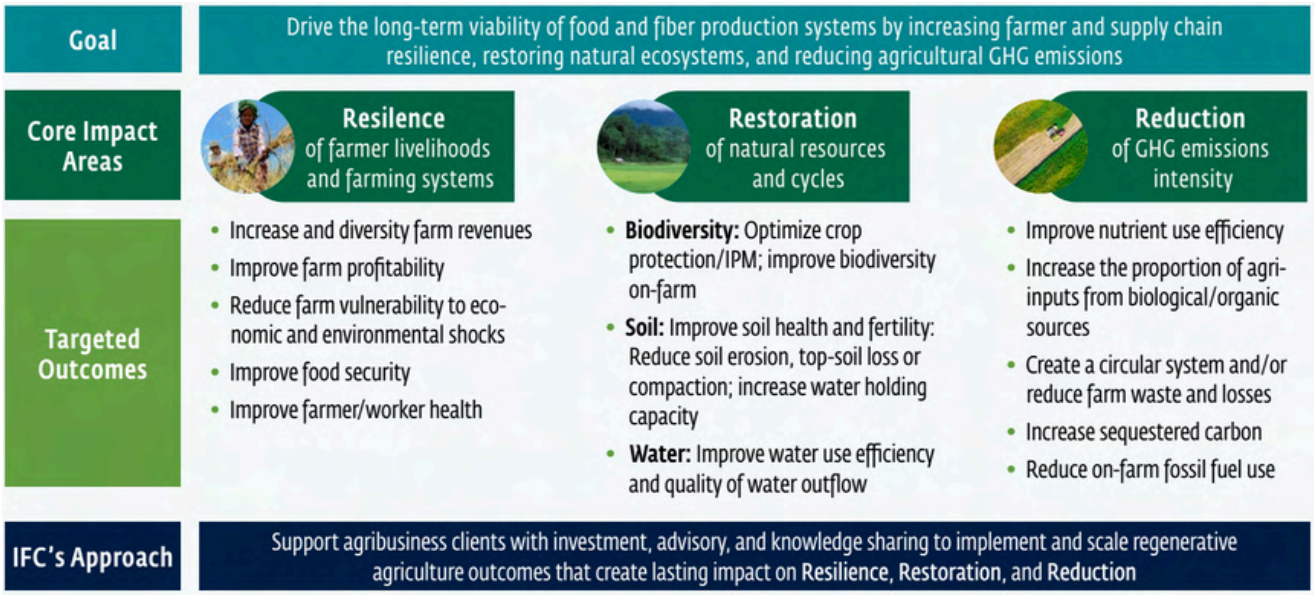

Figure 12: IFC's framework for regenerative agriculture

66. https://agriculture.institute/organic-farming-introduction/ifoam-organic-standards-accreditation-compliance/
67. https://www.cbf.org/issues/agriculture/regenerative-agriculture/
68. https://agriculturegrowing.com/regenerative-agriculture-a-definition-and-why-it-matters/

Appendix 2

Comparing different economic classification systems

Table 4 below presents the different classifications and scope of the Food and Agriculture sector that have been developed by various actors operating in this space. These systems and their accompanying codes per sector are meant to help investors manage and track the progress of the companies in their portfolio as well as determine which specific type of activities the companies in their portfolio are involved in; and, thus, the biodiversity risks, impacts and dependencies they face. Indeed, it is particularly important for investors engaging with companies to know this information so that they can be aware of the companies' economic sector's supply chains and also be able to understand where the impacts are occurring and which actors can have the most influence to transform practices for the overall processes in the sector.

Global Industry Classification Standard[69] (GICS) Level 3 and 4	302010 - Beverages 302020 - Food Products 30101020 - Food Distributors 30101030 - Food Retail 25301040 – Restaurants
International Standard Industrial Classification[70] (ISIC)	A1 - Crop and animal production (excluding A1_115 Growing of tobacco and A1_17 Hunting, trapping and related service activities) A3 – Fishing and aquaculture C10 – Manufacture of food products C11 – Manufacture of beverages G46 – Wholesale trade (except motor vehicles) G47 – Retail trade (except motor vehicles) I56 – Food and beverage service activities
Nomenclature of Economic Activities[71] (NACE)	A01 - Crop and animal production, hunting, and related service activities (excluding A01.15 Growing of tobacco and A01.7 Hunting, trapping and related service activities) A03 - Fishing and aquaculture C10 - Manufacture of food products C11– Manufacture of beverages G46 – Wholesale trade G47 – Retail trade I56 – Food and beverage service activities
Sustainable Industry Classification System[72] (SICS)	Agricultural Products Meat, Poultry & Dairy Processed Foods Non-Alcoholic Beverages Alcoholic Beverages Food Retailers & Distributors Restaurants

Table 4: Classification and scope of the Food and Agriculture Sector

69. The Global Industry Classification Standard (GICS) is an industry taxonomy developed in 1999 by MSCI and Standard & Poor's (S&P) for use by the global financial community.
70. The International Standard Industrial Classification of All Economic Activities (ISIC) is the international reference classification of productive activities.
71. The Statistical Classification of Economic Activities in the European Community, commonly referred to as NACE, is the industry standard classification system used in the European Union.
72. SASB Standards use the Sustainable Industry Classification System® (SICS®) to group companies based on shared sustainability risks and opportunities (as opposed to other economic classification systems which use factors such as business activities and revenue streams).

Appendix 2

Investors generally use the Global Industry Classification Standard (GICS) to manage and track the progress of the companies in their portfolio as well as determine which specific type of activities the companies in their portfolio are involved in.

The ISIC system is used by a number of tools that help organisations explore their exposure to nature-related risk and take the first steps to understand their dependencies and impacts on nature such as the Science Based Targets Network (SBTN) Materiality Screening Tool (MST)[73] and ENCORE[74]
The NACE system is frequently used by governments and other related organisations, when classifying economic activities.

The Sustainable Industry Classification System (SICS) was developed by the Sustainable Accounting Standards Board (SASB, now incorporated into the International Sustainability Standards Board (ISSB). It is used by the Nature Action 100 investor initiative to group the companies that it focuses on into eight sectors.

73. The SBTN's MST is designed to help users carry out a first screening of the types of environmental impacts that are potentially materially relevant to the direct and upstream operations of a sector and a company's activities
74. ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure)

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