



## DEFORESTATION: SEEING THE WOOD FOR THE TREES

In this series of primers, Adrienn Sarandi, Head of ESG Strategy & Development, and Bhaskar Sastry, ESG Content Manager, examine key sustainability challenges that humanity is facing and will continue to face in coming decades. All the challenges discussed are significant in their own right, and how they interact with each other and impact on society and the environment highlights interconnected and complex systems in which we will play a part. The first primer in the series focussed on biodiversity loss. Deforestation is another major challenge and the consequent impacts at both local and global scales pose a multitude of threats that investors will need to evaluate.

“ When the last tree is cut, the last fish is caught, and the last river is polluted; when to breathe the air is sickening, you will realise, too late, that wealth is not in bank accounts and that you can't eat money.”

**Alanis Obomsawin, Abenaki American Canadian documentary filmmaker**

This piece is about the relentless destruction of one of Earth's most precious assets – its trees – and what can be done about it. Trees provide a multitude of services to people and wildlife, while also protecting us all from the ravages of climate change and extreme weather. Yet, humanity's growing need for certain products, notably beef, soy and palm oil, threaten to strip our forests away with catastrophic consequences.

We highlight the main factors driving this trend, the key regions impacted and why it is unsustainable. We then outline what role governments, companies, consumers and investors can play to halt and reverse unsustainable deforestation. Costa Rica is showcased as an example of what is possible when governments value the importance of nature.

As with biodiversity loss, data and disclosures on deforestation-related impacts are often lacking. Asset owners and investors should therefore push for better disclosures and ask meaningful questions to their fiduciaries and companies respectively on their impact on and exposure to deforestation risks. Ongoing engagement with companies on deforestation exposures will be a critical driver of improved standards.

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## The scale of the deforestation challenge

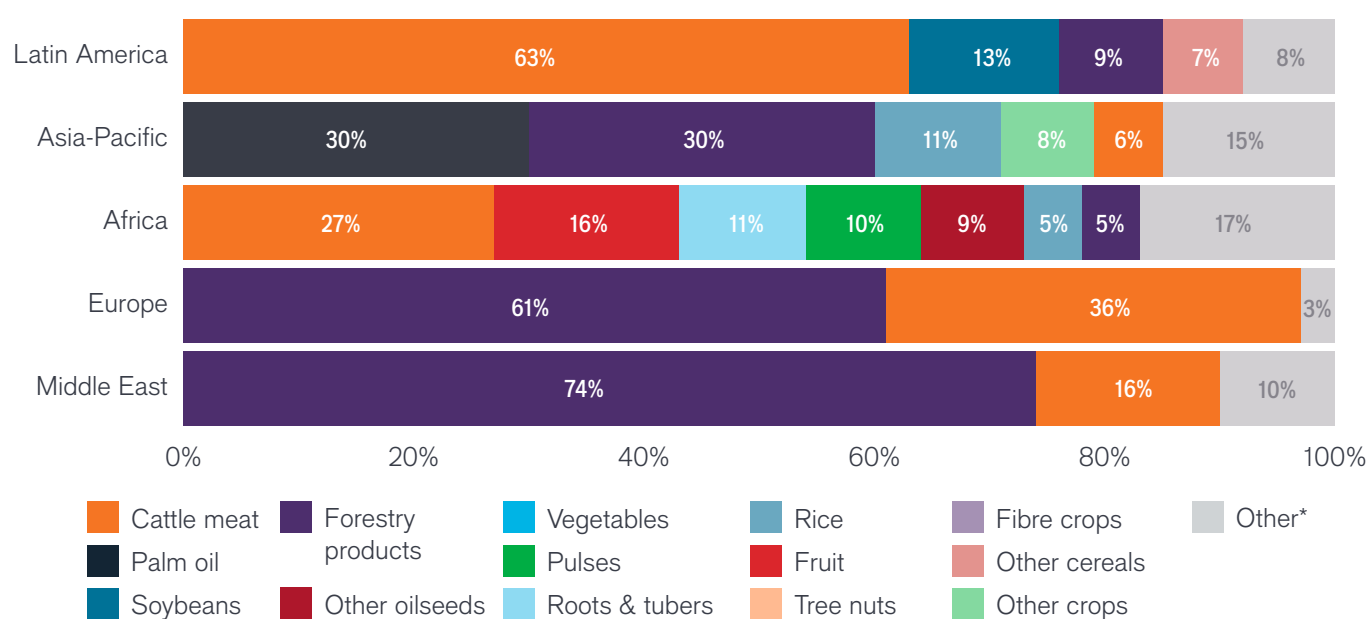
“To be without trees would, in the most literal way, to be without our roots.”

Richard Mabey, *Beechcombings: The Narratives of Trees* (2008)

Humans have been felling trees for millennia. What is different is that the rate of deforestation has multiplied in the last century and more so in recent decades. An area the size of India and Nigeria has been lost through deforestation since 1990 (United Nations (UN), 2021). Every year, we lose approximately 10 million hectares (almost 40,000 square miles) of forest in the tropics and sub-tropics<sup>1</sup>. The World Wildlife Fund (WWF) estimates that without action, the world could lose up to 170 million hectares (over 650,000 square miles) of forest land by 2030<sup>2</sup>.

The drivers of this unsustainable trend are many and varied. The chart below shows the main reasons for deforestation globally.

**Figure 1: Drivers of deforestation**



\*Other represents vegetables, fruit, tree nuts or fibre crops.

Source: 'Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition' (Florence Pendrill et al 2019 Environ. Res. Lett. 14 055003)

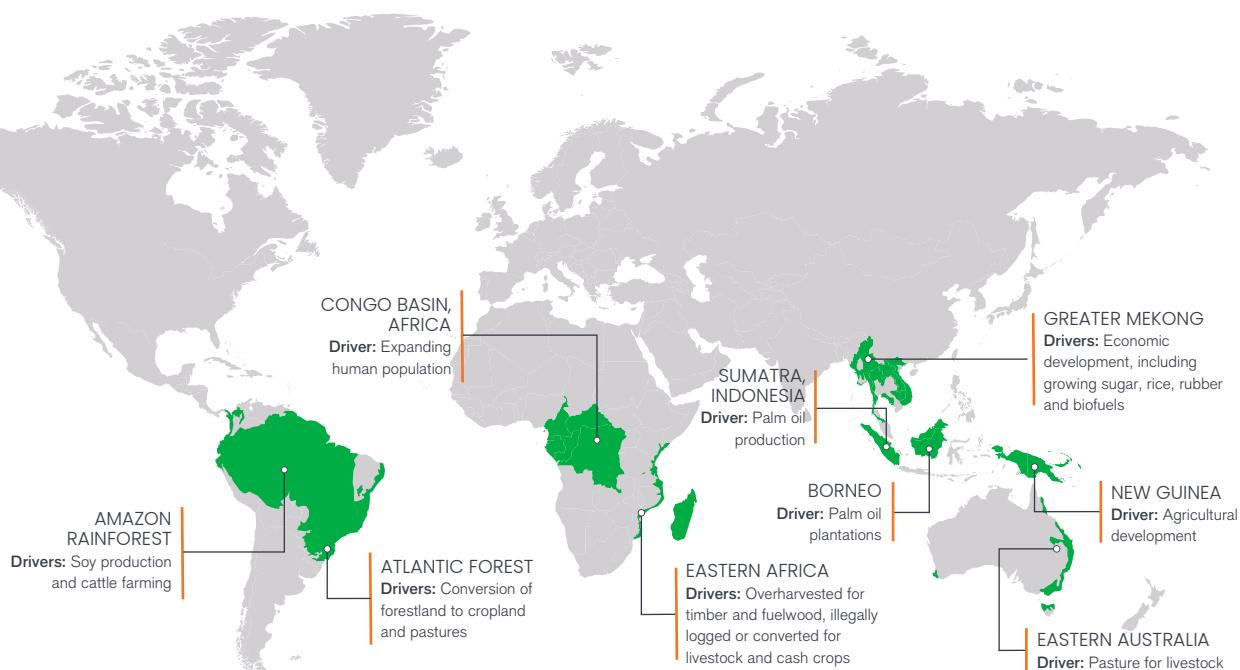
Agriculture is the primary driver of tree felling, particularly the rearing of cattle for beef and the production of soy (the majority of which is fed to cows), palm oil and other oilseeds. The production of timber products including paper is another significant driver. Many of these products are destined for developed markets.

<sup>1</sup> 'Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition' (Florence Pendrill et al 2019 Environ. Res. Lett. 14 055003)

<sup>2</sup> 'Saving forests at risk' (WWF, 2015)

The map below using data from the WWF highlights the regions of the world most impacted by deforestation and the specific drivers of demand.

**Figure 2: Where is deforestation happening?**



Source: WWF (2015)

Shading is for illustrative purposes only.

As Figure 2 indicates, the vast majority (95%) of deforestation today occurs in developing countries in the tropics, where land is cleared for agriculture and logging among other reasons. Often, developing countries lack the necessary governance and oversight, in contrast to developed country governments which have introduced policies and regulations on forest management and the

preservation of forests. However, research<sup>3</sup> shows that global trade drives much of the world's deforestation. The study found that over a quarter (26%) of global deforestation was driven by international demand for products like beef and soy, the vast majority (87%) of which was exported to countries that have decreasing deforestation rates or increasing forest cover, particularly in Europe and Asia.

<sup>3</sup> 'Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition' (Pendrill et al., 2019)



Therefore, while commitments on deforestation at a national level are to be commended, the extent of developed countries 'outsourcing' deforestation to the developing world should not be overlooked. Additionally, much of the deforestation that has taken place over previous centuries has been carried out in developed countries as they industrialised, concordant with their cumulative emissions profile since the Industrial Revolution.

This considered, future deforestation is likely to be driven by the burgeoning middle classes in low and low-middle income countries with rapid population and economic growth. Meat consumption is projected to grow by 30% in Africa, 18% in the Asia-Pacific region and 12% in Latin America by 2030, while the projected increase in meat consumption is 0.4% in Europe and 9% in North America<sup>4</sup>.

### Beef and soy production



The global food system is one of the major drivers of deforestation, biodiversity loss and climate change. Agricultural land covers almost 40% of Earth's ice-free surface<sup>5</sup> and nearly 80% of global agricultural land is used for livestock production, such as meat and dairy<sup>6</sup>. This figure has been rising in recent years, amid rising demand for meat among an increasingly affluent middle class in South America and Asia. The rearing of cattle for beef and the growing of soy (the large majority of which is used to feed livestock) are driving more than two-thirds of the recorded habitat loss in Brazil's Amazon and Cerrado regions, and Argentina and Paraguay's Gran Chaco region<sup>7</sup>.

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<sup>4</sup> 'OECD-FAO Agricultural Outlook 2021-2030: Chapter 6: Meat' (OECD, 2021)

<sup>5</sup> 'What are the biggest drivers of tropical deforestation?' (WWF, 2018)

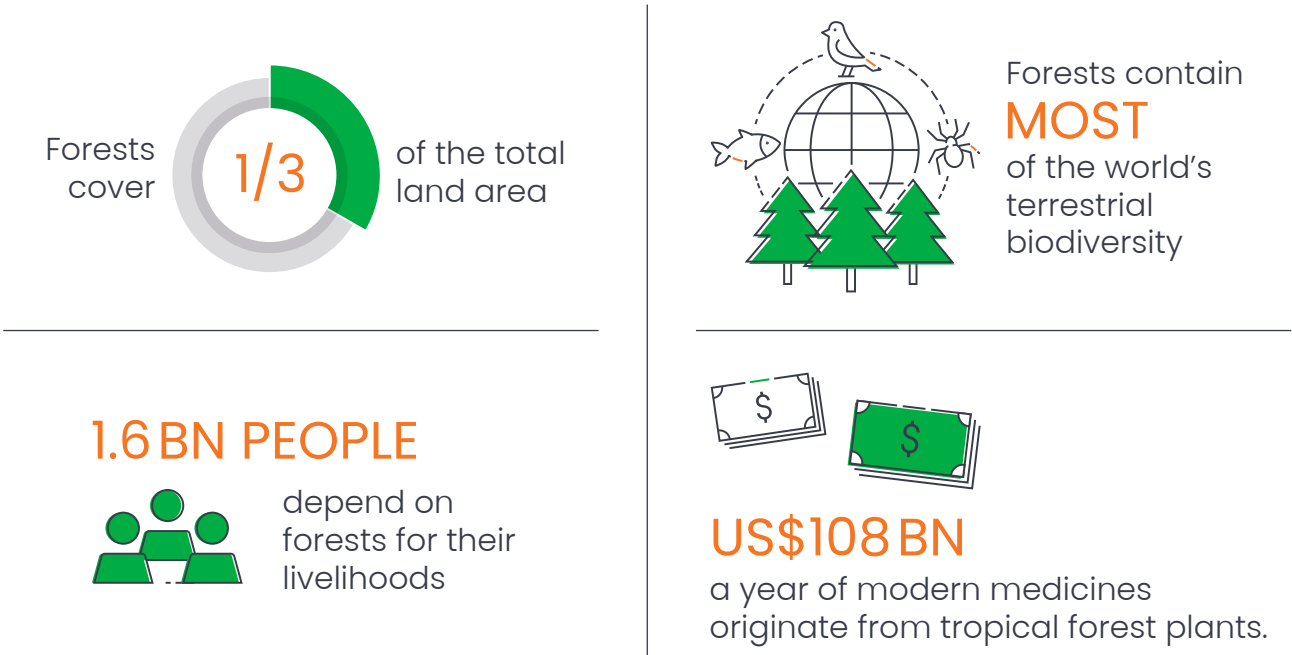
<sup>6</sup> 'How much of the world's land would we need in order to feed the global population with the average diet of a given country?' (Ritchie, 2017)

<sup>7</sup> 'What are the biggest drivers of tropical deforestation?' (WWF, 2018)

Why should we care?

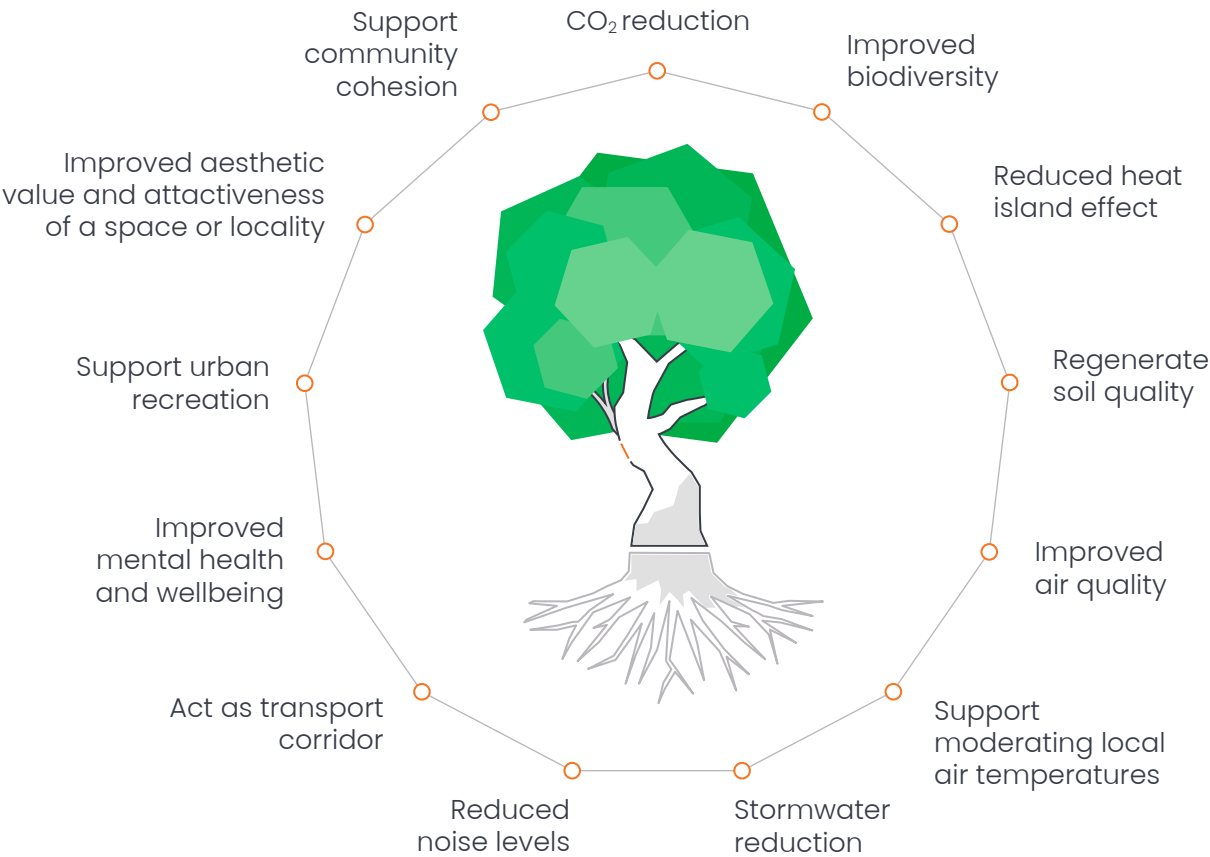
Forests are critical to all life on Earth, as Figures 3 and 4 show.

Figure 3: Forests: key facts



Source: UN (2021)

Figure 4: Benefits of trees and green infrastructure



Source: UN Biodiversity / Greenpeace, February 2022.

Deforestation has serious economic implications at local and global levels, and particularly in how it exacerbates climate change and biodiversity loss, ultimately impacting all our lives:

- At a global level, deforestation exacerbates climate change and detracts from climate mitigation efforts. Between 2001 and 2019, the world's forests absorbed about twice as much carbon dioxide as they emitted. On a net basis, trees represent a carbon sink each year equivalent to 1.5 times more carbon than the United States emits annually<sup>8</sup>. When trees are cut, the process reverses, and carbon dioxide is released back into the atmosphere. The WWF estimates that deforestation and forest degradation account for approximately 15% of global carbon emissions<sup>9</sup> – more than the combined emissions from all the cars, trucks, planes and ships globally<sup>10</sup>.
- The felling of trees due to logging, hunting, agricultural expansion and creating human settlements acts to destroy animal and plant habitats. As trees are removed, the roots that bind the soil together and shelter it from wind and rain are removed. Soil erosion results, leaving the soil vulnerable to being washed or blown away, reducing soil nutrients and increasing water loss. Together, habitat loss and soil degradation reduce the number and variety of local species and with 80% of Earth's land animals and plants living in forests<sup>11</sup>, deforestation threatens several endangered species.
- Trees play a critical role in climate adaptation. Their foliage provides a valuable canopy and evaporation from the leaves cools the underlying area. Tree roots protect against droughts by storing groundwater, while mangrove forests protect coastal areas from flooding and shoreline erosion<sup>12</sup>.
- Deforestation caused by burning of vegetation can cause forest wildfires that spread far and wide. Fire smoke can create dry conditions which spreads fires, while disruption of the forest ecosystem through warming can make fires easier to spread.
- Deforestation and ecosystem destruction increases the likelihood of the emergence of diseases that can transfer from animals to humans with global epidemiological consequences, as with the COVID-19 pandemic.
- Rural and indigenous communities are severely impacted by deforestation. Globally, approximately 250 million people – often among the rural poor – depend on forest and savannah areas for food, medicine and shelter. When trees are cut, these communities are often forced to migrate to forested areas, placing additional pressure on local ecosystems and resources.
- Many of today's drugs derive from tropical medicinal plants, including quinine (malaria treatment), curare (muscle relaxant) and several steroids. Three thousand plants have anti-cancer properties and 70% of these are found in tropical forests<sup>13</sup>.

## No more coffee?



Almost 20% of forest cover in the Amazon has been lost since 1970 (WWF, 2019). If this rate of deforestation continues, Brazil's annual agricultural production losses could reach \$422 million. (WEF, 2020). Among other foodstuffs, coffee is threatened because forests are being cut down for soy production or livestock farming. Trees transfer much-needed water vapour from the oceans to inland coffee plantations which require it. Without these trees, coffee yields are markedly reduced.

<sup>8</sup> 'Forests absorb twice as much carbon as they emit each year' (World Resources Institute, Harris & Gibbs, 2021)

<sup>9</sup> 'Deforestation and forest degradation' (WWF, 2022)

<sup>10</sup> 'Deforestation and climate change' (The World Counts, 2020)

<sup>11</sup> 'Why are forests important to us?' (Flora & Fauna International, 2022)

<sup>12</sup> 'From heatwaves to rising seas: How trees defend us' (UN Environment Programme, 2019)

<sup>13</sup> 'Drugs from the forest' (Eniscuola, 2022)



## Marking a line in the soil

### COP26 outcomes

Deforestation is a global challenge requiring global solutions. COP26 in November 2021 represented a much-needed step forward in global efforts to tackle deforestation. Over 140 countries representing 90% of the world's forests signed the 'Glasgow Leaders' Declaration on Forests and Land Use', to halt and reverse forest loss and land degradation by 2030.

Moreover, 12 countries pledged 12 billion USD of public climate finance from 2021 to 2025 to a new Global Forest Finance Pledge to help restore degraded land, tackle wildfires and advance the rights of indigenous peoples and local communities in developing countries. A further \$1.5 billion was pledged by a number of countries and philanthropic donors to protect the forests of the Congo Basin, home to the second-largest tropical rainforest in the world, and \$1.7 billion from 2021 to 2025 to advance indigenous peoples' and local communities' forest tenure rights and support their role as guardians of forests and nature.

Furthermore, 30 institutions with over \$8.7 trillion of global assets committed to mobilising \$7.2 billion of funding for deforestation efforts. These investors also aim to move away from investment in activities linked to agricultural commodity-driven deforestation by 2025.

In addition to commitments to limit deforestation, COP26 was also notable in tightening up the ambitious but previously ineffective rules on voluntary carbon markets (VCM), which could be a key lever to fight both deforestation and climate change. Historically, carbon offset markets have been criticised for lack of regulation, a lack of clarity on net reduction of emissions, issues of double counting emissions reductions, and, most seriously, providing companies with a licence to pollute. However, agreements at COP26 are expected to strengthen the transparency, reliability and liquidity of voluntary carbon markets. This should result in higher-quality credits, greater demand for offsets as companies aim to meet net zero goals and higher prices of carbon offsets. According to Bloomberg NEF, carbon offset prices could see a rise from \$2-3 in 2021 to anywhere between \$47 per tonne on average or highs of up to \$120 per tonne by 2050, amid rising demand from primarily high-emitting and hard-to-abate sectors, such as heavy industrials and aviation, and possible future limited supply<sup>14</sup>.

An active and transparent market for carbon credits and a higher price of carbon, will both incentivise companies to decarbonise and reforest, rather than greenwash. The growth of the voluntary carbon market is an encouraging sign of progress. However, companies using offsets should aim for genuine emissions reductions and only offset residual emissions they cannot reduce, rather than use

offsets as a license to keep polluting. While voluntary carbon markets have an important role in the quest to achieve net zero by 2050, compliance carbon markets will be necessary to realise the required emissions reductions. Hence, government leadership on carbon pricing is key to the low carbon transition.

Ultimately, stopping unsustainable deforestation is both easier and more effective than reforestation. A tree's carbon absorption rate depends on its age – taller, older trees absorb much more carbon than younger trees – so reforestation takes several years to contribute to climate change mitigation and adaptation.

### Regulation

Regulators are also starting to take firm action on deforestation risks. In November 2021, the European Commission released plans for new regulation to curb global deforestation and forest degradation. The proposed regulation would ban imports and exports of certain commodities and products derived from forests unless they can be shown to be "deforestation-free" and produced in accordance with applicable laws. The regulation also introduces mandatory due diligence rules on companies stipulating that only compliant commodities and products are imported into, or exported from, the European Union (EU) market.

The Sustainable Finance Disclosure Regulations (SFDR) and EU Taxonomy will also focus on reporting on exposures to and management of deforestation and biodiversity loss for in-scope investors.

In the UK, the Environment Act 2021 aims to enshrine environmental protection into law. By prohibiting the use of "forest risk commodities" in UK commercial activities. The Environment Act also introduces a mandatory due diligence system and an annual reporting requirement on companies using forest risk commodities in their supply chains.

The challenge is that disclosures on deforestation and biodiversity-related issues is lacking, but the work of the Taskforce on Nature-related Financial Disclosures (TNFD) is expected to improve on this, as the Taskforce on Climate-related Financial Disclosures (TCFD) has done for climate change risk reporting. Comprehensive disclosure is critical to measure and manage deforestation and biodiversity loss.

While progress is being made, the world continues to see much illegal deforestation, which is not captured by regulations. In the Amazon and Cerrado regions of Brazil, the vast majority of forest destruction could be driven by illegal activities<sup>15</sup> such as land invasions, cattle laundering, induced forest fires and illegal mining and logging. In the future, artificial intelligence may offer a solution to identify, monitor and address such illegal activities.

<sup>14</sup> 'BNEF: Carbon offset prices set to increase 50-fold by 2050' (Edie, 2022)

<sup>15</sup> 'New study finds 94% of deforestation and habitat destruction in Brazil's Amazon and Cerrado could be illegal' (WWF, 2021)

## Companies, investors and consumers

Companies have a responsibility to understand deforestation risks in their operations and supply chains in part because many of them have operations that are dependent, in some form, on forests. This includes agricultural companies that operate farms that produce food products, often on land that has been cleared of trees. It also includes companies that rely on paper products and timber.

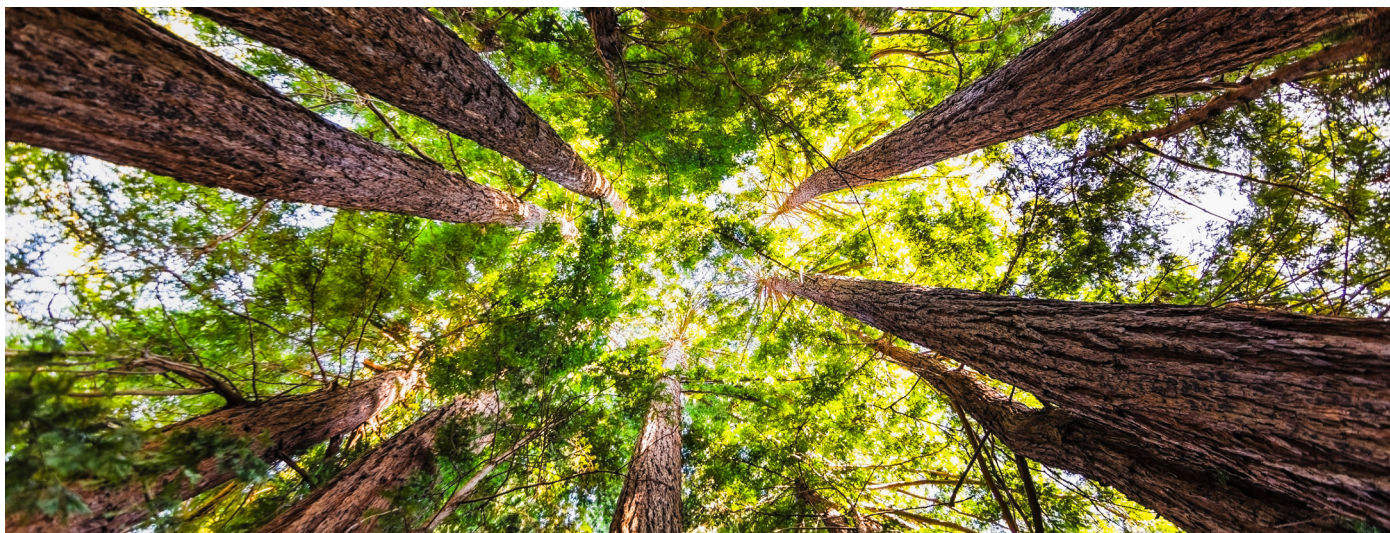
Consumers can push for change in their dietary choices by eating less meat, particularly beef, that comes from areas of unsustainable deforestation, and buying responsibly sourced meat. They can also purchase products that limit the use of palm oil or use sustainably sourced palm oil. According to the WWF, around half of supermarket packaged products contain palm oil, from shampoo, soaps and lipstick to pizza, doughnuts and chocolate<sup>16</sup>. The massive demand for palm

oil explains why it is responsible for almost 40% of forest loss in Borneo between 2000 and 2018<sup>17</sup>.

Consumers, as well as food producers and supermarkets, should also focus on food preservation and reducing food waste. Globally, the UN reports that approximately 14% of food produced is lost between harvest and retail, while an estimated 17% of total global food production is wasted<sup>18</sup>. Food waste contributes around 10% of global greenhouse gas emissions, equivalent to nearly twice the annual emissions produced by all the cars driven in the US and Europe<sup>19</sup>.

Banks can play a role in pushing borrowers to address deforestation risks and only lending to those companies that are disclosing relevant information and evidencing that they are addressing such risks. Institutional investors for their part can engage with companies on their impact and dependence on deforestation (see 'Investor considerations' section).

## Look up. Investor considerations



Deforestation can impact the viability and profitability of companies and therefore the sustainability of long-term returns for investors. The role that deforestation plays in a company's valuation may be influenced by its dependence and/or impact on nature and certain companies and sectors may be more exposed than others.

Customers are increasingly selecting between products and services based on companies' ESG (environmental, social and governance) and climate credentials and the sustainable sourcing of products in their supply chains. Regulations and voluntary initiatives promise a whole raft of requirements on nature-based impacts. Given the above, it should be clear that deforestation is as a material ESG risk that investors should factor into equity and corporate credit analysis. Understanding where forest loss is greatest and what is driving it allows investors to better understand the products, companies, industries and countries with the

greatest impact on – and exposure to – deforestation.

The financially material risks associated with deforestation are likely to be concentrated in the supply chains of companies most reliant on forestry products. We have seen that food production and the agriculture sector have the most impact on deforestation, particularly through the production of beef, soy and palm oil.

Key considerations for these companies will be sustainable sourcing of forestry products, improvements in crop yields and creating resistant crops. Companies involved in the

<sup>16</sup> '8 things to know about palm oil' (WWF, 2022)

<sup>17</sup> 'Palm oil to blame for 39% of forest loss in Borneo since 2000: study' (Reuters, 2019)

<sup>18</sup> 'Stop food loss and waste, for the people, for the planet' (UN, 2021)

<sup>19</sup> '10% of all greenhouse gas emissions come from food we throw in the bin' (WWF, 2021)



production of paper and timber should focus on paper recycling policies and technologies. Analysing risks in these companies' operations and supply chains is essential to determining the attractiveness and creditworthiness of an investment opportunity.

Effective investor engagement is critical to ensure such companies consider their dependence and impact on deforestation. Market-leading companies disclose relevant risks and have strategies in place to evidence how they intend to mitigate or offset their impact on nature. However, these are very few and far between.

Voluntary disclosures, such as the CDP (formerly The Carbon Disclosure Project), are widely used by institutional

investors to evaluate companies on their environmental performance. Companies and governments that disclose to CDP are scored using letter grades A to D-, and different scores are provided for each focus area: climate change, water, and forests.

CDP reports that 70% of 1,500 companies with a high impact on forests fail to provide data on their impact and of the 306 companies that do report data, 24% show no or limited action to reduce deforestation<sup>20</sup>. Pushing for better disclosures in natural capital-related risks and opportunities is vital and should urgently follow climate change-related disclosures. Consequently, we are following the work of the TNFD very closely.

## Engagement 1: Sustainable sourcing of soy

We have been engaging with UK supermarkets on deforestation as part of a long-term engagement program since 2020. UK supermarkets are not sourcing chicken directly from Brazilian deforested land and most UK retailers are committing to eliminate soy-driven deforestation. However, some of these companies' suppliers are buying soy produced from deforested Brazilian land, which is being used to feed UK-raised chickens sold in UK supermarkets.

We engaged with a large UK supermarket chain on this topic. It is already an ESG leader in its peer group with a commitment to source 100% soy from verified deforestation-free areas by 2025 for all products (mostly meat and fish) with no credits.

As part of this commitment, the company has joined a consortium of retailers that pay farmers in the Cerrado region £10 million over five years to produce soy on existing land only. The company also supports national initiatives aimed at reducing deforestation in producing and consuming countries. More work needs to be done by UK retailers and we will continue to engage the company and its peers to ensure they meet their commitments and targets.

## Engagement 2: US meat producers

The global food supply chain has been associated with illegal deforestation for some time. Protein processors are always researching how they can grow meat more quickly as meat consumption has been rising among the growing middle classes in EMs. This has led to the industrialisation of meat processing as the industry has consolidated and the farming of protein has become denser.

Given the importance of these issues, we have initiated a long-term engagement programme with some protein processing and agriculture companies in which we invest. We engaged with a large US food company, which is also a large protein processor and grains trader, sub-sectors that tend to have relatively higher environmental risks through exposure to deforestation. Due to its large size and diverse operations, the company has numerous ESG issues in its product lines, including cocoa, protein processing and in soy trading.

Around 17% of the US food producer's soy exports reportedly came from areas most affected by deforestation. Hence, our engagements have focused on specific goals and targets around deforestation, practical steps towards better traceability in supply chains and disclosure of explicit metrics to measure progress.

In general, we believe it is imperative to ensure that such companies better manage these risks by aligning their actions and policies with specific environmental goals, either by evidencing more spending on achieving their goals and targets or perhaps issuing KPI-linked bonds with issuer-level commitments to deliver on measurable key performance indicators (KPIs), and more granularity around a deforestation strategy.

<sup>20</sup> '70% of companies fail to disclose impact on world's forests' (CDP, 2019)

## Engagement 3: Blockchain-based solutions

Deforestation in supply chains is a key concern for many food companies, as indirect and direct suppliers have been linked to illegal deforestation in the past. We have engaged with a large Brazilian protein processor concerning its efforts to monitor its supply chain. The company has already been monitoring and enforcing direct suppliers to avoid engaging in illegal deforestation for over 10 years and have delisted around 10% of its suppliers who are not compliant. However, the key issue is around indirect suppliers. The company is expanding its focus to indirect suppliers with the goal to eliminate illegal deforestation in its entire supply chain by 2025.

The company does not have access to the cattle information from birth to the direct supplier; suppliers do not want to provide this information (such as number of animals on a farm), as it is a disadvantage in negotiating pricing. To resolve this, in April 2021, the company launched a blockchain platform to track cattle and ensure that indirect suppliers are not engaged in illegal deforestation. The company has made the platform open source so that it can be used by other companies in the industry. We spoke with the Chief Financial Officer in January 2022 as part of our ongoing dialogue. Currently, 14.6% of suppliers use the blockchain technology, which is encouraging progress since they launched the technology in April 2021.

## Building strong foundations for success

Over millions of years, trees have been instrumental in keeping the Earth's climate in equilibrium through absorbing carbon emissions. Trees keep valuable nutrients in the soil and provide shelter and protection for countless species that form part of complex ecosystems that we are only beginning to understand. For centuries, people understood that trees and nature are essential for our continued existence. Yet, we continue to deforest the Earth at an unprecedented rate.

The announcements at COP26 are encouraging but we believe too many governments and policymakers still lack a genuine appreciation of how dependent our lives are on nature. We welcome evidence of enforcement and implementation, and particularly the financing of commitments to be sure genuine change is happening. Developed countries will be better equipped to reorient their economies than emerging economies where agriculture and farming constitute larger shares of the economy and where forests sustain many rural communities. Yet, much of the developing world is 'feeding' the developed world through the products of deforestation. Given these dependencies, developed countries have a responsibility to lead a transition to a world which sources the products of deforestation sustainably, and ultimately reduces its consumption of meat, soy and palm oil. The COP26 commitment from developed

countries to fulfil the annual \$100 billion USD climate finance per year pledge to developing countries will be critical to the preservation of forests.

Finally, increasingly sophisticated technological solutions will play a key role. However, technology will prove ineffective without the necessary government support, policy frameworks and international cooperation. Only when governments, regulators, companies, consumers and the investment community prioritise the importance of nature, will systemic change happen. The example of Costa Rica (detailed in the final section) shows us what is possible with genuine commitment.

Investors must accept that deforestation isn't a faraway problem confined to nature documentaries, but that it could well have a direct impact on the long-term value of their portfolios. In our view, investors have a unique opportunity to help preserve and rebuild forests through their capital allocation decisions and active ownership practices.

To benefit from this opportunity, investors should accept that unsustainable deforestation provides for our short-term needs at the expense of the Earth's long-term capability to sustain us. Countless riches have little use on a barren planet. After all, you can't eat money.

## Epilogue

### Costa Rica: An example of what is possible



“ We have learned that the pocket is the quickest way to get to the heart”

**Carlos Manuel Rodríguez, Costa Rica's Minister for Environment and Energy**

A study of history shows that wholesale political and economic change in response to a crisis is possible, indeed, often inevitable. Humanity can reverse course and revive lush forests, ecosystems and diverse wildlife, while still providing for the agricultural needs of an expanding global population.

Costa Rica is a global leader in environmental policy, but it wasn't always so. Between 1940 and 1983, the country lost around half of its forests and by the 1990s had one of the worst deforestation rates in Central America. Recognising the scale of the crisis, the Costa Rican government introduced two radical policies in 1996-7:

- Tree felling without prior government approval was made illegal.
- The Program for Payment of Environmental Services (PPSA)

The PPSA is financial recognition by the government to the owners of forests and forest plantations for the services they provide that protect and improve the environment. These services include mitigation of greenhouse gas emissions, protection of biodiversity and water, and preservation of scenic natural beauty. The PPSA scheme pays a specific amount per hectare per year for basic forest protection and

farmers can generate additional income by selectively harvesting timber from reforested areas.

As a result of these measures, Costa Rica is the only tropical country in the world to have reversed deforestation<sup>21</sup>. Tourists have flocked to the country with over 1.7 million tourists per year in a country of approximately 5 million people. It is estimated that up to 80% of all visitors to the country come for eco-tourism related activities<sup>22</sup>.

While the Costa Rican government's pro-environment strategy could be applied by other countries, certain necessary conditions are required, which the government has recognised for its success. These include strong governance, political will, a long-term environmentally aware strategy, a robust democracy, the absence of corruption and bribery, respect for human rights and a good education system. The absence of some or all of these preconditions in other regions of high deforestation, including Brazil, Borneo and Indonesia could severely hinder the potential of these countries to make progress and realise their COP26 deforestation ambitions without assistance from developed countries.

Each country has a different problem to solve in order to create the right conditions for nature preservation. However, all countries will require the necessary funding. As consumers of a large proportion of the products of deforestation, developed countries have the means and responsibility to support those most affected by deforestation in developing countries.

<sup>21</sup> 'The World Bank in Costa Rica' (World Bank, 2022)

<sup>22</sup> 'About Costa Rica' (Embassy of Costa Rica in Washington DC, 2017). Figures from 2017.



## Glossary

**Carbon market:** A market in which greenhouse gas (GHG) emissions (or emissions reductions) can be exchanged from one entity to another. Some countries, for example, have mandatory carbon markets covering specific industry sectors. Other sectors have followed by pledging to offset their emissions by participating in carbon markets voluntarily.

**Carbon sink:** A reservoir that absorbs and stores more atmospheric carbon than it releases. Plants, soil and the ocean are carbon sinks.

**Degraded land:** Land that has lost some of its natural productivity due to human-caused processes.

**Habitat loss:** The destruction, fragmentation or degradation of the environmental conditions necessary for native species to survive.

**REDD+:** 'Reducing Emissions from Deforestation and Forest Degradation in Developing Countries' with the '+' signifying the role of conservation, sustainable forest management, and the enhancement of forest carbon stocks. REDD+ is a framework created and formalised by the United Nations Framework Convention on Climate Change Conference of the Parties (UNFCCC COP) in 2005 to guide activities in the forest sector that reduces emissions from deforestation and forest degradation, as well as the sustainable management of forests, and the conservation and enhancement of forest carbon stocks in developing countries.

**Soil degradation:** The loss of physical, chemical, and/or biological qualities of soil by natural or human-driven processes, leading to a reduction or complete loss of important ecosystem functions.

**Voluntary carbon market (VCM):** VCMs allow carbon emitters to offset their unavoidable emissions by purchasing carbon credits via projects targeted at removing or reducing GHG from the atmosphere. A carbon credit or carbon offset represents a reduction in greenhouse gas (GHG) emissions – or an increase in carbon storage (for example, through planting of trees) that is used to represent emission reduction of one metric tonne of CO<sub>2</sub>, or an equivalent amount of other greenhouse gases. Within the VCMs carbon credits can be created through the development of environmental projects. These credits can be purchased by companies in order to offset unavoidable emissions and reach their targets.

There are two broad types of carbon credits: avoidance projects (which avoid emitting GHGs completely therefore reducing the volume of GHGs emitted into the atmosphere) and removal (which remove GHGs directly from the atmosphere). Deforestation can be limited by both types of project. Avoidance projects include forestry and farming emissions avoidance projects. Removal projects, or REDD+, prevent deforestation or wetland destruction, or use soil management practices in farming that limit GHG emissions. This includes projects capturing carbon from the atmosphere and storing it. They can be nature-based, using trees or soil to remove and capture carbon. Examples include reforestation and afforestation projects, and wetland management (forestry and farming). They can also include technologies like direct air capture or carbon capture and storage.

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