



October 7, 2022

Christopher Kirkpatrick,
Secretary of the Commission,
Commodity Futures Trading Commission,
Three Lafayette Centre, 1155 21st Street NW,
Washington, DC 20581

Re: Request for Information on Climate-Related Financial Risk

Dear Mr. Kirkpatrick:

This Comment is being submitted by Climate Advisers, a think tank and advocacy organization that specializes in analyzing climate policy and climate-related financial risks. Although we focus on all aspects of climate policy and climate-related financial risk, we specialize in risks related to global deforestation and land-use change, both of which are leading sources of greenhouse gas emissions globally. Climate Advisers counsels financial institutions and performs sustainability risk analyses for banks, pension funds, and other investors through projects such as Orbitas and Chain Reaction Research.^{1,2,3}

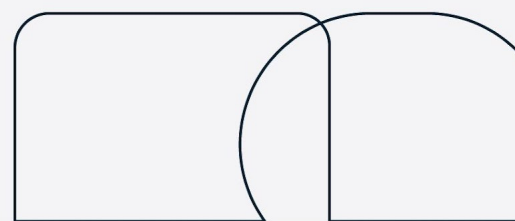
At Climate Advisers, we strongly support efforts by the Commodity Futures Trading Commission (“the Commission”) to expand its “capacities to define, identify, measure, monitor, assess, and report on climate-related financial risks and their effects on financial stability,” as recommended by the 2021 Financial Stability Oversight Council report. This is particularly important in commodity sectors because the sourcing and financing of agricultural commodities produced in tropical regions, such as soy, palm, cocoa, pulp & paper, and cattle represent the largest cause of deforestation and forest degradation, which produces roughly the same amount of climate pollution as the global transportation sector. Since deforestation both generates greenhouse gas emissions in the current year and reduces carbon storage capacity in future years, sectors with high deforestation risk have an outsized impact on climate change. Finally, since the vast majority of tropical commodity greenhouse gas emissions are generated abroad in regions at high risk of deforestation, derivatives in the forest, food, and land sector expose U.S. investors potentially to funding related activities linked to illegality, environmental damage, climate change impacts, human rights abuses, and more.

In response to the Commission’s request for “public feedback on all aspects of climate-related financial risk as it may pertain to the derivatives markets, underlying commodities markets, registered entities, registrants,

¹ Through our work, Climate Advisers has become acutely aware of the material financial risks faced by U.S. and foreign companies importing these commodities given the underlying deforestation issues. Moreover, there is a lack of transparency about deforestation and the challenges facing companies and investors seeking to reduce the financial risks from deforestation in their supply chains and investments. Many U.S. companies across a range of industries face material financial risk from deforestation, including physical risk, transition risk, and liability risk, but that information is not clearly and consistently presented in reliable, comparable formats to investors.

² Orbitas, “Navigating Climate Transition Risks,” <https://orbitas.finance/>

³ Chain Reaction Research, “Sustainability Risk Analysis,” <https://chainreactionresearch.com/>



and other related market participants,” our comment is intended to provide background on the climate-related financial risks in tropical commodity sectors and to advise on the questions posed by the Commission. In particular, Climate Advisers would like to emphasize the following:

1. Incorporate Climate-Related Financial Risks from Deforestation into Risk Management Processes: To reduce future volatility and ensure the longevity of functioning commodities markets, the Commission should endeavor to capture climate-related financial risks from deforestation into stress testing, scenario analysis, and risk management guidance for counterparties. Both physical climate risks and climate transition risks related to deforestation are highly likely to impact the prices of tropical commodity derivatives and the ability of counterparties to fulfill contracts, which may necessitate higher margins to cover potential defaults. Furthermore, these risks are highly geographically concentrated in countries with high deforestation exposure, so the Commission should seek to understand the potential impacts of regional physical climate risks (for example, changes to regional water availability) on volatility within that commodity market. Similarly, as governments announce updated Nationally Determined Contributions and conservation policies that impact countries with high tropical commodity output, the Commission should be prepared to consider how resulting supply changes will impact commodity markets.
2. Require Disclosures from Registrants: The Commission should consider requiring mandatory disclosures from all registrants to better protect investors and decrease information asymmetry in the market. Climate Advisers would like to highlight the following essential disclosures:
 - a. Firstly, the Commission should require that all registrants disclose Scope 1, Scope 2, and Scope 3 emissions and emissions intensity using the Greenhouse Gas Protocol and best available data and methodologies. As climate risks are materializing and the cost of carbon emissions is increasingly internalized on financial statements, understanding the emissions and emissions intensity of a registrant is a necessary part of making an informed investment decision. For the forest, food, and land sector, Scope 3 emissions disclosures are particularly valuable. Scope 3 emissions in the downstream companies dependent on tropical commodities typically comprise upward of 80 percent of total emissions, and Mars Inc. estimated that 29 percent of the company’s total Scope 1, 2, and 3 emissions are generated from deforestation driven by tropical commodities. Given that internationally agreed upon climate change targets are predicated on halting deforestation, these supply chain deforestation practices are unsustainable as governments implement climate policies, and present regulatory and transition risk for investors across the economy. More information on greenhouse gas emissions disclosures is provided in our response to Question 17.
 - b. Secondly, specialized metrics should also apply to registrants that trade tropical commodity derivatives due to their outsized role in climate change through producing emissions in the current year and reducing future capacity to store carbon. Recommended qualitative and quantitative metrics for counterparties in commodity markets with high exposure to deforestation are outlined in response to Question 14 and include disclosures on whether the commodity was produced on recently deforested land and any land disputes with Indigenous Peoples and traditional communities.
3. Regulate Voluntary Carbon Markets: The Commission should consider taking a larger role in the regulation and enforcement of voluntary carbon markets through combatting fraud and market

manipulation, just as it does in other spot commodity markets. Carbon credits are an important instrument for allocating capital to nature-based solutions, placing a monetary value on cost-effective carbon sequestration and storage, and providing a pathway for local communities to realize sufficient economic benefit from standing forests to prevent deforestation. However, evidence of double counting, lack of additionality, and uncertainty around the duration of carbon storage have reduced investors' credibility in these markets. Increased rigor around enforcing contract commitments and accountability in cases of fraud would improve both the integrity of supply and the credibility of company claims. Strict listing standards should also be enforced in the case of derivative carbon markets, but Climate Advisers would advise against forming a derivatives market around carbon credits until prices become less volatile and fraudulent counterparties are thoroughly investigated.

4. Certify Deforestation-Free Derivatives: In commodity markets with high exposure to deforestation, investors face heightened risks around the sustainability of supply and escalating regional and global climate-related financial risk. Typically, commodity markets are based on the premise that the underlying products are identical, highly price elastic, and undifferentiated. In this case, emissions-intensive commodity producers and those that rely on deforestation for expansion are more exposed to climate-related risks than their counterparts, which introduces an element of differentiation for investors. The Commission should explore methods of building that differentiation into commodity markets through deforestation free or 'No Deforestation, No Peat, No Exploitation' certifications.
5. Certify Derivatives that have Free, Prior, and Informed Consent (FPIC): Any efforts to incorporate climate-related risk analysis further into the Commission's work should have a social justice component, including in the forest and land use sector. Receding tropical forests driven by tropical commodity deforestation have led to frequent land disputes between commodity producers and Indigenous Peoples or traditional communities. Impacts on marginalized groups, labor violations, and illegal activity are often obscured by complex commodity supply chains and opaque derivatives markets, leaving investors unable reliably to assess exposure or alignment to personal/institutional values. Land insecurities, along with illegal encroachments into indigenous territories, have also heightened violence against environmental defenders. Investors should be aware of these impacts and should have the option to enter contracts that certify FPIC and that they are not linked to land insecurity issues.

Additional detail on these recommendations and more context around the significance of climate-related risks from commodity-driven deforestation can be found in our attachment to this letter below.

Thank you in advance for considering our comments as you contemplate next steps in incorporating climate change risks. We would be happy to discuss our recommendations further and appreciate the chance to contribute to this process, especially considering our extensive experience assessing and advising on climate-related risk in commodity sectors.

Sincerely,

Climate Advisers

Attachment 1: Climate Advisers Comment on CFTC Request for Information on Climate-Related Risk

October 7, 2022, submitted via the CFTC Comments Portal: <https://comments.cftc.gov>
Commodity Futures Trading Commission,
Three Lafayette Centre, 1155 21st Street NW,
Washington, DC 20581

Section A: Deforestation as a material financial risk

1. WHY DEFORESTATION MATTERS

Climate-related financial disclosures would be ineffective in protecting investors without specific requirements directed to agriculture, forestry, and other land use (AFOLU). Globally, the forest, food, and land sector is responsible for almost a quarter (23 percent) of net anthropogenic greenhouse gas (GHG) emissions, according to the Intergovernmental Panel on Climate Change (IPCC).⁴ Moreover, in the food sector, alone, if activities in the pre- and post-production systems -- such as processing, distribution, consumption, and food waste -- are included, the contribution to net anthropogenic GHG emissions from AFOLU emissions globally could be as high as 37 percent.⁵

A major reason that the forest, food, and land sector contributes so substantially to anthropogenic GHG emissions is deforestation, which alone is responsible for 11 percent of global emissions.⁶ Maintaining healthy forests and reforesting degraded forest land are critical to achieving the goals of the Paris Agreement and the United Nations Sustainable Development Goals. Every IPCC pathway leading to average temperature increases of 1.5 degrees Celsius or less compared to pre-industrial temperatures is premised on no new deforestation after 2030.⁷ In fact, an estimated 16 to 30 percent of climate mitigation needed to limit global emissions to 1.5-2 degrees Celsius is based on halting deforestation by 2030 and a quarter of the 2030 climate mitigation promised in countries' Nationally Determined Contributions comes from land-based mitigation options.⁸

Combatting deforestation is so important that the AFOLU sector is the only economic sector with its own chapter in the Paris Agreement. Political support for conserving and restoring forests globally was also on display in 2021 when President Biden joined more than one hundred and forty world leaders in endorsing the Glasgow Leaders Declaration on Forests and Land Use, which committed nations representing more than 90 percent of the world's forests to ending natural forest loss this decade.⁹

⁴ Intergovernmental Panel on Climate Change, "Special report on climate change and land use," Summary for Policy Makers, A.3, p. 10, 2019, <https://www.ipcc.ch/srccl>.

⁵ *Id.*

⁶ Pendrill, Florence, U. Martin Persson, Javier Godar, Thomas Kastner, Daniel Moran, Sarah Schmidt, et al. (2019). Agricultural and forestry trade drives large share of tropical deforestation emissions. *Global Environmental Change* 56:1-10. <https://doi.org/10.1016/j.gloenvcha.2019.03.002>

⁷ *Id.*, citing Rogelj, J., et al. (2018). Mitigation pathways compatible with 1.5°C in the context of sustainable development. <https://www.ipcc.ch/sr15/chapter/chapter-2/>

⁸ Intergovernmental Panel on Climate Change, "Special report on climate change and land use," Summary for Policy Makers, A.3, p. 10, 2019, <https://www.ipcc.ch/srccl>

⁹ Georgina Rannard & Francesca Gillett, BBC News, "COP26: World leaders promise to deforestation by 2030, Nov. 2, 2021.

The impacts of deforestation are diverse and far reaching, and emissions from deforestation have a cascading effect on climate change resilience going forward for the following reasons:

1. **Indigenous Peoples and Local Communities (IPLC):** Displacement of Indigenous Peoples risks the loss of traditional cultures and valuable expertise in maintaining healthy ecosystems that aid in mitigating climate change. Receding tropical forests have already led to frequent land disputes between commodity producers and IPLCs. Illegal encroachment onto Indigenous territories and land insecurity have also heightened violence against environmental defenders defending their homes.¹⁰ IPLCs are the most effective protectors of forest carbon and biodiversity, which is vital for investors given that intact ecosystems are worth \$44 trillion to the global economic sector.¹¹ The traditional knowledge of IPLCs continues to be the basis for medicines and foods of incalculable value. All climate mitigation measures should include these groups as important partners because at least 36 percent of the world's large, unbroken swaths of natural forests, known as "intact forests," are held by Indigenous Peoples, along with about 80 percent of remaining biodiversity.¹²
2. **Carbon storage:** Terrestrial ecosystems release 10 to 20 percent of the total global CO₂ to the atmosphere and sequester 30 percent annually.¹³ Of this, gross emissions and sequestration in the tropics is about four times larger than in temperate and boreal ecosystems combined.¹⁴ If deforestation emissions are conflated with those of other sectors in climate-related financial risk calculations, their role in sequestering carbon in future years will likely be undervalued.
3. **Biodiversity loss:** Habitat loss is causing a biodiversity crisis and threatening valuable ecosystem services. Nowhere is this more apparent than in tropical forests, which are home to more than 80 percent of animal, plant, and fungi biodiversity.¹⁵ Wildlife populations, including mammals, birds, fish, amphibians, and reptiles, have been reduced by 68 percent since 1970 and about one million animal and plant species face the threat of extinction.^{16,17} The agriculture sector is responsible for about 80 percent of deforestation globally, but it is also among the sectors most reliant on ecosystem services, particularly pollination.¹⁸ Pollinator loss is currently placing USD 235 billion to USD 577 billion of annual agricultural production at risk.¹⁹ The economic cost of biodiversity loss is already estimated to be between USD 2.0 trillion and 4.5 trillion per year.²⁰ Loss of ecosystem services on a large scale is likely to exacerbate climate-related financial risks.

¹⁰ Global Witness, "Global Witness records the highest number of land and environmental activists murdered in one year – with the link to accelerating climate change of increasing concern," 29 July 2020, <https://www.globalwitness.org/en/press-releases/global-witness-records-the-highest-number-of-land-and-environmental-activists-murdered-in-one-year-with-the-link-to-accelerating-climate-change-of-increasing-concern/>

¹¹ World Economic Forum, "The Global Risks Report 2020," <https://www.weforum.org/reports/the-global-risks-report-2020/>

¹² Peter G. Veit, "9 Facts About Community Land and Climate Mitigation," October 2021, <https://files.wri.org/d8/s3fs-public/2021-10/9-facts-about-community-land-and-climate-mitigation.pdf>

¹³ Liang Xu et al., "Changes in global terrestrial live biomass over the 21st century," *Science Advances*, Vol. 7, No. 27, <https://www.science.org/doi/10.1126/sciadv.abe9829>

¹⁴ *Id.*

¹⁵ UN Environment Programme, "UNEP and Biodiversity," September 2020, <https://www.unep.org/unep-and-biodiversity>

¹⁶ WWF, *Living Planet Report 2020*, <https://livingplanet.panda.org/en-us/>

¹⁷ UN Sustainable Development Goals, "UN Report: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating,'" 6 May 2021, <https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/>

¹⁸ *Id.* 14

¹⁹ Ceres, PRI, *Climate Action 100+*, "Global Sector Strategies: Recommended Investor Expectations For Food and Beverage," August 2021, <https://www.climateaction100.org/wp-content/uploads/2021/08/Global-Sector-Strategies-Food-and-Beverage-Ceres-PRI-August-2021.pdf>

²⁰ The Sustainable Finance Platform, "Biodiversity Opportunities and Risks for the Finance Sector," June 2020, https://nwbbank.com/download_file/729/783

4. **Soil Degradation:** Soil degradation costs an estimated USD 400 billion every year and has been linked to a potential 12 percent reduction in global food productivity and a 30 percent increase in food prices by 2030.²¹ Degradation is driven by the loss of organic matter and soil erosion, excessive use of fertilizers and pesticides, other types of contamination, salinization, acidification, and a loss of genetic diversity.²² Soil erosion, for example, is a major consequence of tropical deforestation because soil can no longer rely on intricate root structures to hold it in place or canopies to protect it from drying in the sun. Although recently deforested land may support productive agricultural activity, soil fertility decreases over time as topsoil is blown or washed away. For example, a study of deforested land in Iran measured a 70-82 percent drop in soil productivity of cultivated land and a 50 percent drop in organic matter overall.²³
5. **Global water cycles:** As deforestation and land use change lead to the conversion of tropical forests to grasslands or savanna, less moisture is stored and released into the atmosphere. Thus, the hydrological cycle is disrupted with a major ripple effect on precipitation patterns around the world. Some climate scientists have predicted a tipping point when 20–25 percent of the Amazon is cut down, warning that the rainforest’s hydrological cycle will be unable to support itself and the biome will convert to a savanna.²⁴ Since the Amazon provides water to a region in South America responsible for 70 percent of the continent’s GDP, the risk to the continent’s financial sector is sizeable. This problem is not limited to South America.²⁵ Deforestation in the Amazon could lead to a 25 percent reduction in rainfall in Texas, for example.²⁶ Meanwhile, deforestation in Central Africa could reduce rainfall in the U.S. Midwest by 5-35 percent, and deforestation in Southeast Asia can influence rainfall in Europe.²⁷
6. **Clean Drinking Water and Flood Mitigation:** Deforestation and land use change can have devastating implications for the availability and quality of clean drinking water for populations both locally and regionally. Forested land covers about 31 percent of watersheds worldwide and provides essential storage and filtration services.²⁸ By absorbing nutrients and sediment, forests provide clean drinking water to large populations in urban centers downstream and can reduce infrastructure investments and water management costs.²⁹ By storing water in roots, branches, and canopies, forests can also reduce the intensity of flooding and mitigate irregular rainfall patterns. Conversely, deforestation and land use change can lead to devastating floods, an increased need for costly infrastructure, and significant pollution because of the loss of ecosystem services and preventing the runoff of agricultural fertilizers and pesticides previously discussed.

²¹ Peter M. Kopittke et. al. “Soil and the Intensification of Global Agriculture for Global Food Security,” Environment International, <https://www.sciencedirect.com/science/article/pii/S0160412019315855#bbb0055>

²² Id.

²³ Salar Rezapour & O. Alipour, “Effect of deforestation on fertility attributes of Mollisols in the NW of Iran,” 17 August 2016, Chemistry and Ecology, <https://www.tandfonline.com/doi/abs/10.1080/02757540.2017.1288227>

²⁴ The Nature Conservancy, “The Amazon Approaches Its Tipping Point,” August 2020, <https://www.nature.org/en-us/what-we-do/our-insights/perspectives/amazon-approaches-tipping-point/>

²⁵ Id.

²⁶ Greenpeace, “Impacts of Deforestation on Weather Patterns and Agriculture,” October 2013, <https://wayback.archive-it.org/9650/20200430193134/http://p3-raw.greenpeace.org/international/Global/international/publications/forests/2013/JN455-An-Impending-Storm.pdf>

²⁷ Mongabay, “Rainforests Help Maintain the Water Cycle,” July 2020, <https://rainforests.mongabay.com/kids/elementary/404.html>

²⁸ Katie Lyons and Todd Gartner, “3 Surprising Ways Water Depends on Healthy Forests,” World Resources Institute, 21 March 2017, <https://www.wri.org/insights/3-surprising-ways-water-depends-healthy-forests>

²⁹ Suzanne Ozment et. al. “Protecting Drinking Water At The Source,” World Resources Institute, https://wriorg.s3.amazonaws.com/s3fs-public/Protecting_Drinking_Water_at_the_Source.pdf

7. **Pollution:** In addition to absorbing CO₂, trees absorb toxic chemicals and filter the air providing noteworthy benefits to human health. Despite only covering six percent of land, tropical forests produce 40 percent of the world's oxygen alongside the absorption of harmful pollutants.³⁰ Furthermore, particulate matter from fires linked to longer dry seasons and land clearing for agricultural use has been shown to increase pollution-related hospitalizations by 65 percent and to cost the Brazilian public healthcare system the equivalent of USD 660,000 during the 2019 fire season.³¹ With wildfire seasons increasing in severity and longevity, driven by climate change and the effects of global deforestation, a major step in mitigating the potential pollution impacts must include curbing global deforestation.

Furthermore, deforestation and land use change pose of significant risks that go far beyond climate change:

1. **Infectious disease outbreak:** Deforestation and land use change lead to habitat loss and increase the likelihood of zoonotic infectious diseases that result from proximity between humans and animals. Since infectious disease emergence is driven primarily by land use change (31 percent), followed by agriculture (15 percent), commodity-driven deforestation is a primary risk factor for future pandemics.³² According to some studies, 75 percent of emerging infectious diseases are zoonotic compared to 60 percent of all existing infectious diseases, which indicates that habitat loss resulting from land use change is playing an increasing role in the emergence of infectious disease over time.³³ The Covid-19 pandemic has provided some insight into the potential costs of infectious diseases to both humans and the economy. In addition to the millions of lives lost, as early as October of 2020, the International Monetary Fund estimated that the pandemic would cost the global economy USD 28 trillion in lost output.³⁴ Without halting deforestation, the likelihood of people being exposed to more costly zoonotic diseases we are unprepared to manage will continue to increase.
2. **Illegal activity:** The lack of transparency into complex supply chains provides a cover for illegal activities, including deforestation, intentional fires, and human rights abuses. Most deforestation in the developing world that is linked to internationally traded commodities is illegal (violates local law) or is connected to organized crime.³⁵ Corruption, bribery, money laundering, illegal logging, and other illegal acts referred to as "forest crimes" are common in the forest and land use sectors in many developing countries. The potential consequences, which can be widespread, include social conflict, injustice, poverty, economic stagnation, and carbon emissions.

³⁰ Jeri Curley, "How Does Deforestation Affect the Air?" 16 March 2018, Sciencing, <https://sciencing.com/deforestation-affect-air-10632.html>

³¹ Andre Albuquerque Sant Anna & Rudi Rocha, "Health Impacts of Deforestation-Related Fires in the Brazilian Amazon," August 2020, https://www.hrw.org/sites/default/files/media_2020/08/Health%20Impacts%20of%20Deforestation-Related%20Fires%20in%20the%20Amazon_EN_0.pdf

³² Elizabeth Loh et. al. "Targeting Transmission Pathways for Emerging Zoonotic Disease Surveillance and Control," July 2015, <https://www.liebertpub.com/doi/abs/10.1089/vbz.2013.1563>

³³ UNEP, "Emerging Issues of Environmental Concern," 2016, https://wesr.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf

³⁴ The Guardian, "The IMF Estimates Global Covid Cost at USD 28 Trillion in Lost Output," 2020, <https://www.theguardian.com/business/2020/oct/13/imf-covid-cost-world-economic-outlook>

³⁵ Forest Trends, "Illegal agriculture is the main reason we're still losing forests. Is a crackdown coming?" 19 May 2021, <https://www.forest-trends.org/blog/illegal-agriculture-is-the-main-reason-were-still-losing-forests-is-a-crackdown-coming/>

3. **Environmental refugees and local conflict:** By depleting ecosystem services that millions of people rely on for food, clean water, and energy, deforestation and land use change are likely to create climate change refugees and exacerbate geopolitical conflict. The inevitable floods, droughts, and repeated crop failures are likely to destabilize economies as they become unable to support their populations. Over 1.2 billion people could become climate change refugees by 2050.³⁶ The world is already experiencing climate refugees and this tragedy will continue to increase in the near-term. For example, the 90 percent reduction in the size of Lake Chad has provided some insight into the scale of potential migration patterns with 2.4 million displaced people and increased geopolitical conflict in the region.³⁷
4. **Medical Innovation:** Future medical breakthroughs are dependent on the conservation of plant biodiversity today. The market for medicinal plant products is valued at over 100 billion USD and approximately 80 percent of the global population is reliant on botanical drugs.³⁸ Moreover, a quarter of modern medicine originates in tropical forests.^{39,40} Yet, scientists have only scratched the surface of cataloging and understanding the vast biodiversity of the world's forests. It is estimated that up to 100 species of animal and plant species disappear daily as tropical forest habitats are destroyed.⁴¹ A loss of plant biodiversity before medicinal values are understood is likely to lead to adverse impacts on human health and a slowdown in innovation in the pharmaceutical industry globally.

2. MATERIAL CLIMATE-RELATED FINANCIAL RISKS FROM DEFORESTATION AND LAND USE CHANGE

Actors in financial markets have already signaled that they consider deforestation a financially material climate risk. A recent investor initiative with USD \$10 trillion in assets under management, the Investors Policy Dialogue on Deforestation (IPDD), is indicative of investors' growing understanding.⁴² IPDD, established in 2020, consists of 64 financial institutions and investors concerned about the "financial impacts that deforestation and the violation of the rights of indigenous Peoples and local communities may have on their clients and investee companies by potentially increasing reputational, operational and regulatory risks."⁴³ It identifies three channels by which deforestation risks create financial risk for issuers and investors: ESG risks; supply chain risks; and finance sector risks.⁴⁴

³⁶ Tetsuji Ida, "Climate Refugees – the World's Forgotten Victims," 18 June 2021, <https://www.weforum.org/agenda/2021/06/climate-refugees-the-world-s-forgotten-victims/>

³⁷ UN Migration, "Environmental Migration Portal," <https://environmentalmigration.iom.int/country/chad>

³⁸ Abayomi Sofowora, "The Role and Place of Medicinal Plants in the Strategies for Disease Prevention," 12 August 2013, National Library of Medicine, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3847409/>

³⁹ "Ten things you may not know about forests," Food and Agriculture Organization of the United Nations, September 2017, <https://www.fao.org/zhc/detail-events/en/c/1033884/>

⁴⁰ Tuhinadri Sen & Samir Kumar Samanta, "Medicinal Plants, Human Health and Biodiversity: A Broad Review," Biotechnological Applications of Biodiversity, https://link.springer.com/chapter/10.1007/10_2014_273

⁴¹ COP9 Press Kit Forests, "Forest Biodiversity," <https://www.cbd.int/doc/meetings/cop/cop-09/media/cop9-press-kit-forest-en.pdf>

⁴² See IPDD, <https://www.tropicalforestalliance.org/en/collective-action-agenda/finance/investors-policy-dialogue-on-deforestation-ipdd-initiative/>. IPDD has a secretariat established by the World Economic Forum and is supported by PRI (U.N. Principles for Responsible Investment).

⁴³ *Id.*

⁴⁴ *Id.* Among ESG risks, IPDD identifies GHG emissions, biodiversity loss, flood and soil erosion, and rainfall reduction among environmental risks; land rights violations, Indigenous Peoples' rights violations; and health hazards from increased exposure to haze as among social risks of concern; and illegality of the deforestation, bribery to reduce enforcement of limits on permissible forestry or agriculture, and financial crimes, including tax evasion and money laundering, as among governance concerns. Supply chain risks include productivity declines; property damage; increased security staff costs, inability to adapt to changes in regulation, litigation for failure to manage ESG risks, and cancellation of contracts and reduced demand from consumers concerned about deforestation. Finance sector risks include losses to investors from stranded assets or negative returns

These supply chain risks are concentrated in commodities coming from Indonesia and Brazil, which together generate roughly 60 percent of the GHG emissions generated from tropical deforestation.⁴⁵ Although the supply chain risk is concentrated from a country perspective, a broad cross-section of global industrial and retail sectors is directly exposed to tropical commodity supply chain risks. These sectors include food and beverage processing and production, automobile manufacturing, textiles, chemicals, pharmaceuticals, retail, food services, personal care products, print publishing, forestry, construction, energy and biofuels, and finance.⁴⁶ Below is a summary of the types of climate change risks in forest, food, and land, according to TCFD classifications.

Physical climate-related financial risks from deforestation:

1. Deforestation exacerbates the physical risk from climate change by reducing the capacity of carbon sinks, eroding fertile soil, changing local precipitation patterns, and increasing the likelihood of more extreme weather events. These changes are, in turn, likely to lead to lower agricultural yields and stranded assets.⁴⁷
2. We are all reliant on ecosystem services from healthy intact tropical forests to store emissions, regulate precipitation patterns vital to agricultural production, inspire medical breakthroughs, prevent mass migration, and curb the emergence of infectious diseases like Covid-19, and much more.⁴⁸

Transition climate-related financial risks from deforestation:

1. Policy and legal risks result from government policy changes, litigation, or law enforcement.
 - a. The COP26 agreement that resulted in pledges from over 140 countries to halt deforestation by 2030 is likely to accelerate conservation efforts for high conservation value and high carbon stock land.⁴⁹ For example, in Indonesia, as much as 76 percent of unplanted palm oil concessions may experience legal or economic stranding by 2040 due to conservation efforts in line with international pledges and the country's Nationally Determined Contribution.⁵⁰

on investments; banks' losses from nonperforming loans, increased default risk and loss of revenues; regulatory risks from the inability of companies to meet new regulatory requirements, such as due diligence/ESG requirements and risk weightings; failure to disclose ESG risks in portfolios; possible litigation against investors for breach of fiduciary duty due to failure to integrate ESG; increased accountability for ESG impacts under the new OECD guidelines; and reputational risks from damage to brand value and loss of credibility as a responsible investor or bank. *Id.*

⁴⁵ Pendrill, Florence, U. Martin Persson, Javier Godar, Thomas Kastner, Daniel Moran, Sarah Schmidt, et al. 2019. Agri-cultural and forestry trade drives large share of tropical deforestation emissions. *Global Environmental Change* 56:1-10. <https://doi.org/10.1016/j.gloenvcha.2019.03.002>.

⁴⁶ Niamh McCarthy and Matthew Piotrowski, "Climate-Related Forest, Food, and Land Risks Threaten US Financial Stability," *Climate Advisers*, January 2021, <https://www.climateadvisers.org/wp-content/uploads/2022/01/Climate-Advisers-Climate-Related-Forest-Food-and-Land-Risks-Threaten-US-Financial-Stability.pdf>

⁴⁷ Niamh McCarthy and Matthew Piotrowski, "Climate-Related Forest, Food, and Land Risks Threaten US Financial Stability," *Climate Advisers*, January 2021, <https://www.climateadvisers.org/wp-content/uploads/2022/01/Climate-Advisers-Climate-Related-Forest-Food-and-Land-Risks-Threaten-US-Financial-Stability.pdf>

⁴⁸ *Id.* 21

⁴⁹ Jake Spring and Simon Jessop, "Over 100 global leaders pledge to end deforestation by 2030," *Reuters*, November 2021, <https://www.reuters.com/business/environment/over-100-global-leaders-pledge-end-deforestation-by-2030-2021-11-01/>

⁵⁰ Orbitas, "Climate Transition Risk Analyst Brief: Indonesian Palm Oil", August 2021, <https://orbitas.finance/2021/08/27/indonesian-palm-oil-deforestation-climate-transition-risk/>

- b. Orbitas estimates that conservation efforts globally will result in a 52 percent increase in the price of agricultural land, which will increase the cost of agricultural expansion and, in turn, global commodity prices.⁵¹
 - c. International momentum on carbon pricing is estimated further to increase operating costs of emissions-intensive agricultural producers by as much as 14 percent.⁵² Similarly, carbon border adjustments will have ripple effects across supply chains.
 - d. Supply chain due diligence obligations in Europe are also likely to require businesses to prove that their products and services are deforestation-free, which could negatively impact global businesses if they are not prepared or have not developed the resources to do so.⁵³
 - e. Legal actions are increasingly being taken against high-emitting companies that are responsible for escalating climate-related damages.⁵⁴
2. Technology risks originate from disruptive innovations or the rise of substitute products.
- a. In a world with constraints on land availability due to forest conservation, the commodity producers that prioritize emissions reduction technologies and investments that increase productivity will be more resilient in the face of supply chain disruptions.⁵⁵
 - b. Alternatively, a lack of investment into new agroforestry techniques and technologies may lead to lower yields than competitors or reduced resilience to climate change.
3. Market risks arise from quickly changing market dynamics.
- a. Consumer demand for low carbon and deforestation-free sourcing has increased. No Deforestation, No peat, No Exploitation (NDPE) requirements for consumer goods companies, manufacturers, and retailers. In turn, NDPE policies now cover around 83 percent of palm oil refineries.⁵⁶ Companies without effective mechanisms to prevent deforestation in supply chains may see declines in market access as trends in consumer preferences continue.
 - b. As countries committed to halting deforestation, 10 of the largest global agricultural commodity traders, including Cargill, JBS, Bunge, Marfrig, Golden Agri-Resources, and Wilmar International, also announced deforestation pledges.⁵⁷ As the industry moves toward no-deforestation policies and monitoring, climate laggards risk seeing a declining market and rising input costs due to upstream physical and operational risks.

⁵¹ Orbitas, "Agriculture in the Age of Climate Transitions: Stranded Assets. Less Land. New Costs. New Opportunities," December 2020, <https://orbitas.finance/2020/12/03/ag-climate-transitions-risk-opportunities/>

⁵² Id. 66

⁵³ Chain Reaction Research, "The Chain: EU Proposal on Deforestation-Linked Products Poses Risks for Companies, Investors," November 2021, <https://chainreactionresearch.com/the-chain-eu-proposal-on-deforestation-linked-products-poses-risks-for-companies-investors/>

⁵⁴ FP, Climate & Systemic Risk: The financial sector's role in managing risk and accelerating the transition to net-zero," <https://foreignpolicy.com/2021/11/29/global-finance-and-management-of-climate-related-risk/>

⁵⁵ Orbitas, "Agriculture in the Age of Climate Transitions: Stranded Assets. Less Land. New Costs. New Opportunities," December 2020, <https://orbitas.finance/2020/12/03/ag-climate-transitions-risk-opportunities/>

⁵⁶ Chain Reaction Research, "NDPE Policies Cover 83% of Palm Oil Refineries; Implementation at 78%," April 2020, <https://chainreactionresearch.com/report/ndpe-policies-cover-83-of-palm-oil-refineries-implementation-at-75/>

⁵⁷ UN Climate Change Conference 2021, "Agricultural commodities companies corporate statement of purpose," November 2021, <https://ukcop26.org/agricultural-commodity-companies-corporate-statement-of-purpose/>

- c. Over 30 financial institutions with USD 8.7 trillion in assets under management committed to ending investment in deforestation-linked activities, which may jeopardize access to credit and increase the cost of credit for companies that do not mitigate these risks.⁵⁸
4. Reputational risks are driven by actions that damage a company's public image.
- a. These risks are on the rise as investors and consumers alike are demanding that companies align products and services with global emissions-reduction goals and no-deforestation policies.
 - b. Companies face increased scrutiny from NGOs, consumers, and governments if deforestation risk is not disclosed.
 - c. In a world where news of controversies spreads quickly and more than 50 percent of consumers in Western countries are willing to pay a premium for sustainable products, companies risk material financial impacts when links to deforestation and human rights abuses emerge.⁵⁹

Specific climate disclosures related to deforestation risks are increasingly necessary due to the:

- o Systemic economic and financially material physical risks to investors if limiting temperature increases of 1.5 degrees Celsius or less is not achieved; and the
- o Financially material climate transition risks to investors if public and private sectors collaborate to mitigate the worst impacts of climate change.

3. PRIVATE SECTOR STATEMENTS IN FAVOR OF FOREST, FOOD, AND LAND RISK DISCLOSURES

Investors, companies, and asset managers have an extensive track record of calling for climate-related financial disclosures related to deforestation and risk mitigation mechanisms. Below are a few examples of these statements:

1. **Global Canopy's "Financial Sector Commitment Letter on Eliminating Commodity Driven Deforestation," signed by financial institutions that collectively manage over US\$ 8.7 trillion in assets:**⁶⁰ "The conditions for investing in, and providing financial services to, forest-risk agricultural commodities operations and supply chains are increasingly uncertain. We see that weakening environmental and human rights policies and lack of effective enforcement are exposing the sector to growing ESG, market, reputational and litigation-related risks, as well as regulatory uncertainty. We believe these risks should be addressed."

⁵⁸ Global Canopy, "Thirty financial institutions commit to tackle deforestation," November 2021, <https://globalcanopy.org/press/thirty-financial-institutions-commit-to-tackle-deforestation/>

⁵⁹ Accenture Chemicals, Global Consumer Sustainability Survey, 2019: <https://www.slideshare.net/accenture/accenture-chemicals-global-consumer-sustainability-survey-2019>; Toluna, 2019 Sustainability Report: Consumers Hold Brands Responsible: <http://go.toluna-group.com/l/36212/2019-10-30/5p7ppd>; First Insight, The State of Consumer Spending 2020: <https://www.firstinsight.com/white-papers-posts/gen-z-shoppers-demand-sustainability>.

⁶⁰ UNFCCC, "Financial Sector Commitment Letter on Eliminating Commodity Driven Deforestation. This statement is endorsed by over 30 financial institutions representing c. (US) \$8.7 trillion in assets" <https://racetozero.unfccc.int/wp-content/uploads/2021/11/DFP-Commitment-Letter-.pdf>

2. **Ceres’ “Investor Statement on Deforestation and Forest Fires in the Amazon,” endorsed by 230 investors, collectively representing approximately US \$16.2 trillion in assets:**⁶¹ “As investors, who have a fiduciary duty to act in the best long-term interests of our beneficiaries, we recognize the crucial role that tropical forests play in tackling climate change, protecting biodiversity and ensuring ecosystem services As investors, we see deforestation and the associated impacts on biodiversity and climate change as systemic risks to our portfolios and see the reduction of deforestation as a key solution to managing these risks and contributing to efficient and sustainable financial markets in the longer term. Considering the growing risks due to increased deforestation in Brazil, Bolivia, and other Amazonian countries, we therefore urgently request companies to redouble their efforts and demonstrate clear commitment to eliminating deforestation within their operations and supply chains, including by:
 - a. Publicly disclosing and implementing a commodity-specific no deforestation policy with quantifiable, time-bound commitments covering the entire supply chain and sourcing geographies.
 - b. Assessing operations and supply chains for deforestation risk and reducing this risk to the lowest possible level, disclosing this information to the public.
 - c. Establishing a transparent monitoring and verification system for supplier compliance with the company’s no deforestation policy.
 - d. Reporting annually on deforestation risk exposure and management, including progress towards the company’s no deforestation policy.”
3. **Amanda Blanc, Group CEO, Aviva Plc:**⁶² “Protecting our forests and their biodiversity is fundamental to the fight against climate change ... Aviva is proud to sign the commitment to end deforestation, helping build a critical mass for change. Together we can reduce risk to the planet and the financial markets and capitalize on the opportunities that come from more sustainable investment.”
4. **Emine Isciel, Head of Climate and Environment, Storebrand Asset Management:**⁶³ “Deforestation is not only a risk to climate and biodiversity, but it can pose financial risks to our portfolios. A huge number of economic sectors are exposed to increasing physical and regulatory risks associated with deforestation.”
5. **Hubert Keller, Senior Managing Partner of Lombard Odier Group:**⁶⁴ “Today, some of the most convincing opportunities for growth and returns come from a transition to a more sustainable economic model that both harnesses and preserves Nature. At Lombard Odier, we continue to develop solutions that allow mainstream investors to position capital across asset classes to benefit from this largely untapped investment opportunity.”
6. **Lauren Compere, Managing Director, Boston Common Asset Management:**⁶⁵ “Addressing agricultural commodity-driven deforestation is absolutely crucial if we are to achieve net zero emissions by 2050. We see a pressing need for the realignment of finance from companies that do

⁶¹ Ceres, “Investor statement on deforestation and forest fires in the Amazon. This statement is endorsed by 230 investors representing approximately US \$16.2 trillion in assets.”

<https://www.ceres.org/sites/default/files/Investor%20statement%20on%20deforestation%20and%20forest%20fires%20in%20the%20Amazon.pdf>

⁶² Race to Zero, “Leading Financial Institutions Commit to Actively Tackle Deforestation,” 2 November 2021,

<https://climatechampions.unfccc.int/leading-financial-institutions-commit-to-actively-tackle-deforestation/>

⁶³ Id.

⁶⁴ Id.

⁶⁵ Id.

not meet reduction criteria to companies that are addressing these risks strategically and supporting the required transition in the sector. This has long been a focus of Boston Common’s approach to investing in and engaging with our portfolio holdings across sectors, including the financial sector.”

7. **Blackrock Statement in Response to a Procter & Gamble Shareholder Resolution:** It is particularly notable that in 2020, BlackRock voted in favor of a shareholder resolution requesting an assessment report to identify further opportunities to combat deforestation and degradation of intact forests in Procter & Gamble (P&G) supply chains.^{66,67} After the resolution passed by 67 percent, BlackRock released a statement with its rationale for supporting the proposal: “As a long-term investor, the reputational and operational risks faced by companies being implicated in deforestation allegations is concerning to us.”^{68,69} BlackRock’s statement also highlighted an opportunity for P&G further to align its responsible forestry disclosures with the Task Force on Climate-Related Financial Disclosures framework and Sustainability Accounting Standards Board standards.

Section B: Answers to Questions Posed by the Commission

1. DATA

Question 1. What types of data would help the Commission evaluate the climate-related financial risk exposures of registered entities, registrants, and other participants in the derivative markets that the Commission oversees? Are there data sources that registered entities, registrants, and/or other market participants currently use to understand and/or assess climate-related financial risk? What steps should the Commission consider in order to have better access to consistent and reliable data to assess climate-related financial risks?

It is important to reiterate that commodities produced on deforested land are often associated with illegality, and producers increasingly are incentivized to keep supply chains opaque as climate transition risks escalate with changing consumer preferences, government action, and private sector policies. As a result, the data landscape for understanding climate-related financial risks from deforestation is complex and quickly evolving.

Access to high quality satellite imagery has spurred a wave of deforestation monitoring tools that can be used to understand where deforestation is taking place. Furthermore, useful tools are available to assess the quality of deforestation mitigation policies as well as the financial risks associated with exposure to deforestation in commodities. The data sources below, although not all encompassing, would provide a useful starting point for better understanding tropical commodity deforestation as the Commission works to build up a more effective toolkit.⁷⁰

⁶⁶ “Voting Bulletin: The Procter & Gamble Company,” Blackrock Investor Stewardship Group, 2020, <https://www.blackrock.com/corporate/literature/press-release/blk-vote-bulletin-procter-and-gamble-oct-2020.pdf>

⁶⁷ P&G 2020 Proxy Statement, 2020, https://s1.q4cdn.com/695946674/files/doc_financials/2020/ar/PG-Bookmarked-Proxy-Statement.pdf

⁶⁸ “P&G Shareholders Deliver Overwhelming Vote for Better Forest Sourcing,” NRDC, October 2020, <https://www.nrdc.org/media/2020/201013>

⁶⁹ Id. 15

⁷⁰ Chain Reaction Research, 2020, “Financial, Political Decision Makers Accelerate Construction of Information Toolkit on Deforestation,” <https://chainreactionresearch.com/the-chain-financial-political-decision-makers-accelerate-construction-of-information-toolkit-on-deforestation/>

The following data sources track deforestation through satellite monitoring:

- WRI Global Forest Watch⁷¹
- Satelligence⁷²
- Planet⁷³
- Orbital Insight⁷⁴
- Sarvision⁷⁵
- 20Tree⁷⁶
- AidEnvironment⁷⁷
- Mapbiomass⁷⁸
- Monitoring of the Andean Amazon Project⁷⁹

The following data sources assess financial risk associated with tropical commodities:

- Trase Finance⁸⁰
- Orbitas⁸¹
- Chain Reaction Research⁸²
- Forests & Finance⁸³

The following data sources assess trade flows of tropical commodities:

- Trase Earth⁸⁴
- Green Jurisdictions Database⁸⁵
- International Trade Administration⁸⁶

The following data sources assess the policies and practices of tropical commodity companies/financiers:

- Forest500⁸⁷
- Zoological Society of London SPOTT Tool⁸⁸
- Forest Trends Supply Change⁸⁹
- Mighty Earth Deforestation Tracker⁹⁰

The following ESG data providers incorporate some data on deforestation in their datasets:

⁷¹ Global Forest Watch. <https://www.wri.org/initiatives/global-forest-watch>

⁷² Satelligence. <https://satelligence.com/>

⁷³ Planet. <https://www.planet.com/markets/forestry/>

⁷⁴ Orbital Insight. <https://orbitalinsight.com/>

⁷⁵ Sarvision. <https://www.sarvision.nl/category/forest-monitoring/>

⁷⁶ 20Tree. <https://www.overstory.com/>

⁷⁷ AidEnvironment. <https://aidenvironment.org/>

⁷⁸ Mapbiomass. <https://mapbiomas.org/en>

⁷⁹ MAAP. <https://www.amazonconservation.org/monitoring-of-the-andean-project-maap/>

⁸⁰ Trase Finance. <https://trase.finance/>

⁸¹ Orbitas. <https://orbitas.finance/>

⁸² Chain Reaction Research. <https://chainreactionresearch.com/>

⁸³ Forests & Finance. <https://forestsandfinance.org/>

⁸⁴ Trase Earth. <https://www.trase.earth/>

⁸⁵ Green Jurisdictions Database. <https://greenjurisdictions.org/about>

⁸⁶ International Trade Administration. <https://www.trade.gov/>

⁸⁷ Forest500. <https://forest500.org/>

⁸⁸ ZSL SPOTT. <https://www.zsl.org/sustainable-business-finance/spott-transparency-toolkit>

⁸⁹ Supply Change. <https://www.forest-trends.org/who-we-are/initiatives/supply-change/>

⁹⁰ Mighty Earth Deforestation Tracker. <https://www.mightyearth.org/soy-and-cattle-tracker/>

- Sustainalytics⁹¹
- MSCI⁹²
- ISS ESG⁹³
- Vigeo Eiris⁹⁴

The following data source monitors violence against environmental defenders:

- Global Witness⁹⁵

These lists do not cover the entire data landscape, and there is a vast network of organizations that frequently release groundbreaking reports on deforestation and encroachment into the territories of indigenous Peoples and traditional communities. However, the Commission may need to employ a multifaceted approach to incorporating climate-related financial risks from deforestation into its products and practices.

Question 2. Would it help the Commission, registered entities, registrants, market participants and/or the public to understand and/or to manage climate-related financial risk if Commission reporting requirements included information about climate-related aspects of listed derivatives products, reported transactions, and/or open positions? Are there data standards or definitions that the Commission should consider incorporating into any such reporting?

Absolutely. Commodities are by nature undifferentiated from one another and extremely price elastic. This incentivizes low-cost production and potentially unsustainable practices, especially when this information is obscured from investors in derivatives markets. For example, including the emissions-intensity of production would provide investors with decision-useful information to mitigate exposure to climate-related financial risk.

Similarly, differentiating commodities produced on deforested land from those with more sustainable practices would allow investors to allocate capital toward derivatives with lower climate-related financial risks from deforestation. A deforestation-free certification could include policies like 'No Deforestation, No Peat, No Exploitation,' and 'Free, Prior, and Informed Consent' for production that takes place on disputed lands.

This would be necessary to break out as a separate category because emissions from deforestation not only contribute to annual global emissions, but they also diminish global capacity to store carbon in the future. Furthermore, these issues are of particular interest to derivatives traders because deforestation both contributes to physical climate risks that create price instability and leaves producers extremely exposed to climate transition risks as governments, consumers, and the private sector respond to climate change.

Finally, the Commission could enhance its regulatory role in these sectors through governance enhancements because most deforestation violates local laws.

⁹¹ Sustainalytics. <https://www.sustainalytics.com/>

⁹² MSCI. <https://www.msci.com/>

⁹³ ISS. <https://www.issgovernance.com/esg/>

⁹⁴ Vigeo Eiris. <https://esg.moody's.io/>

⁹⁵ Global Witness. <https://www.globalwitness.org/en/>

Question 3. What steps should the Commission consider to better inform the public of its efforts to assess and address climate-related financial risks? What information could the Commission publish that would be useful in this regard? What steps should the Commission consider to make climate-related data more available to registrants, registered entities, other market participants, and/or the public (as appropriate and subject to any applicable data confidentiality requirements) in order to help understand and/or manage climate-related financial risk?

From an educational perspective, the commission should publish commodity-specific reports outlining the major physical and transition risks associated with climate change, with a particular emphasis on the elevated risk that deforestation presents in some commodities. For each of these reports, the commission should recommend metrics and policies for mitigating exposure, as well as an explanation of the commission's own efforts to regulate this. Most importantly, however, the Commission should require climate-related financial disclosures from registrants to ensure that investors have access to the information needed to make informed decisions.

2. SCENARIO ANALYSIS AND STRESS TESTING

Question 4. Are there any climate forecasts, scenarios, or other data tools that would be useful to the Commission, registered entities, and/or registrants to better understand the exposure of any registered entities or registrants to climate-related financial risk and how those risks translate to economic and financial impacts?

Orbitas: Through our Orbitas project, Climate Advisers has led economic and financial modeling of climate transition risks in tropical commodity markets by combining global agricultural modeling software with domestic scenario analysis aligned to various degrees of warming in countries with high deforestation risk.⁹⁶ This work is intended to combine global macroeconomic modeling with predicted changes in forest cover, domestic policies, and company asset information to enable financial analysis of a specific commodity and to make concrete recommendations.

- For example, economic and financial modeling done by Orbitas estimates that climate transitions will lead to a 52 percent reduction in agricultural land globally by 2050, partially driven by government moratoriums on deforestation as a part of Nationally Determined Contributions.⁹⁷ As a result, agricultural expansion will become more expensive, while commodity prices are estimated to rise due constraints on land availability and a growing global population. Further commodity price fluctuations are likely as countries around the world put a price on carbon emissions. Based on modeling from Orbitas, emission-intensive palm oil producers with high energy and fertilizer usage are estimated to see emissions cost rise to up to 14 percent of operating costs, which will have downstream price impacts in low margin commodity markets.⁹⁸

⁹⁶ Orbitas' Publications on Climate Risk, <https://infogram.com/orbitas-publications-1h7g6k0qokzpo2o?live>. For more information, see <https://orbitas.finance/>

⁹⁷ Orbitas, "Agriculture in the Age of Climate Transitions: Stranded Assets. Less Land. New Costs. New Opportunities," December 2020, <https://orbitas.finance/2020/12/03/ag-climate-transitions-risk-opportunities/>

⁹⁸ Orbitas, "Climate Transition Risk Analyst Brief: Indonesian Palm Oil", August 2021, <https://orbitas.finance/2021/08/27/indonesian-palm-oil-deforestation-climate-transition-risk/>

- For companies reliant on land-intensive imports, the risk of extreme commodity price fluctuations and supply chain disruptions has the potential to threaten the profitability of entire product lines.⁹⁹ However, if downstream companies work with suppliers to reduce emissions and increase the productivity of land currently under cultivation now, they can mitigate these risks in the future and may even benefit financially. In an analysis of the Indonesian palm oil sector, Orbitas modeling predicts that if companies respond optimally, the industry could gain up to USD 9 billion from climate transition opportunities.¹⁰⁰ An optimal response in the Indonesian palm oil sector would include productivity increases, planting more efficient varieties with lower fertilizer dependence, and investment in emissions reduction technologies like biogas capture and cogeneration.

World Business Council for Sustainable Development (WBCSD): The WBCSD is currently also using global macroeconomic modeling software (MAGPIE) to develop standardized global scenarios aligned with the Task Force on Climate-Related Financial Disclosures (TCFD) for forest, food, and agriculture sectors. The tool is currently in its beta mode and will be released in the coming months. Furthermore, the WBCSD has consulted with a team of advisers, including Orbitas, to come up with these global scenarios aligned with various degrees of warming. This tool will be a valuable resource for quickly understanding global macroeconomic impacts of climate transition risks in various commodity markets.

Question 5. Are there any common scenarios, in addition to the scenarios developed by the Network for Greening the Financial System 30 and/or the Financial Stability Board,31 that the Commission should consider incorporating into its oversight, and/or consider for registered entities and/or registrants?

The WBCSD project mentioned in Question 4 will likely become the standard climate transition risk scenarios for analysis in global food, agriculture, and forest sectors. These efforts are aligned with the TCFD framework, which has been incorporated into climate-related financial risk disclosures around the world. The Inevitable Policy Response forecasts developed by a consortium commissioned by the Principles of Responsible Investing (PRI) are also widely used.

Question 6. Is a long-term (e.g., 30-year or 50- year) stress testing scenario relevant for derivatives markets subject to CFTC oversight? Is there a more relevant set of forward-looking climate relevant scenarios? Should these scenarios account for geographical stress? Should these scenarios try to target certain asset types? Can scenarios be customized to be more relevant for certain types of derivatives markets or registered entities?

The climate transition risk macroeconomic modeling tool above can be customized by commodity, although it would likely be relevant also to layer in domestic policy scenarios in countries with high exposure to deforestation risk. Similarly, it would be helpful to customize the timeframe of the risk better to inform investors. It is important to note, however, that tools that assess climate transition risk do not necessarily cover exposure to physical risks, which can be significant in agriculture, food, and forestry sectors.

⁹⁹ Chain Reaction Research, "Chain Reaction Research Applies TCFD-aligned Framework to Assess Deforestation Risks," January 2021, <https://chainreactionresearch.com/report/chain-reaction-research-applies-tcf-aligned-framework-to-assess-deforestation-risks/>

¹⁰⁰ Orbitas, "Climate Transition Risk Analyst Brief: Indonesian Palm Oil", August 2021, <https://orbitas.finance/2021/08/27/indonesian-palm-oil-deforestation-climate-transition-risk/>

Finally, nature-related financial risks also have the capacity to increase both physical climate risks and climate transition risks. Because deforestation accelerates the collapse of vulnerable ecosystems, it has the potential significantly to increase both regional and global greenhouse gas emissions, and thus, climate-related financial risks for investors. For example, if rising deforestation rates result in exceeding a tipping point in the Amazon rainforest, scientists estimate that the majority of the ecosystem would gradually collapse and turn into a Savannah-like ecosystem, releasing up to 90 billion metric tons CO₂, equivalent to seven years of global emissions, as the forest dies off.¹⁰¹ The impact on agricultural supply chains would be substantial as a result of reduced rainfall for irrigation and rising temperatures.

In this way, it is important for scenario analysis to consider the relationship between nature-related risks and climate-related risks, especially in vulnerable ecosystems or those experiencing a significant loss in resilience. More than 50 percent of the world’s economic output – USD 44 trillion – is “moderately or highly dependent on nature and its services, and is therefore exposed to nature loss,” according to a 2020 report by the World Economic Forum and PwC.¹⁰² The research underlying the report was conducted by assessing the reliance on natural capital assets of 163 economic sectors and examining them at an industry and regional level.¹⁰³ As that report states, “[p]rimary industries such as food and beverages, agriculture and fisheries, and construction exhibit the highest nature dependency.”¹⁰⁴ They rely directly on extracting resources from forests or oceans, or they rely on the provision of other natural services such as healthy soils, clean water, pollination, and a stable climate.¹⁰⁵

Question 7. Should registered entities and registrants be required to incorporate climate stress tests into their risk management processes? Do registered entities and registrants have the capability currently to conduct climate-related stress tests? If not, what would be needed in order to achieve this capability and on what timeline?

Yes. Based on our Orbitas analysis, tropical commodity producers that do not mitigate climate transition risks or lean into climate transition opportunities will face higher operating costs and stranded assets in the future, which is decision-useful information for investors. Investors have seen material impact from company connections to deforestation. For example,

- Companies that operate in tropical forest commodities have experienced suspensions from sustainability organizations, loss of buyers for their products, divestment by investors, substantial reputation risk, and loss in equity value; and
- Consumer-facing downstream companies that source from tropical commodity supply chains must contend with reputation risks, changing consumer demand, and increasing risk of supply chain disruptions.

A detailed list of physical and transition risks in the forest, food, and land sector is included in Section A2. Below are a few examples of companies that have experienced significant financial impacts as a result of deforestation risks:

¹⁰¹ Principles for Responsible Investment, UNEP Finance Initiative, & UN Global Compact, “The Amazon: A Critical Tipping Point,” https://www.unpri.org/Uploads/s/h/b/pri_theamazon_acriticalclimatetippingpoint_2019_659012.pdf

¹⁰² World Economic Forum and PwC, *Nature Risk Rising: Why the Crisis Engulfing Nature Matters to Business and the Economy* (2020), p.8, https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf.

¹⁰³ *Id.*, at 13.

¹⁰⁴ *Id.*, at 7.

¹⁰⁵ *Id.*, at 13.

1. *Palm Oil Companies Suspended From Sustainability Markets.* From 2015-2019, the equity value of four palm oil companies fell by \$1.1 billion due to suspensions from No Deforestation, No Peat, No Exploitation (NDPE) supply chains.¹⁰⁶ The four palm oil companies, Sawit Sumbermas Sarana (SSMS), Austindo Nusantara Jaya (ANJ), Tunas Baru Lampung, and Indofood Agri Resources, were suspended for deforestation, peatland clearing, or worker abuses. Under NDPE supply chain rules, buyers and sellers commit to sustainability standards or risk being suspended. Analysis from Chain Reaction Research shows that the four companies saw \$8 million to \$50 million in quarterly revenues, gross profit, EBITDA, and net profit per company decline[?], while also experiencing higher receivables, inventories, and net debt.¹⁰⁷ The suspensions cut the companies off from selling to market actors – such as Unilever, Nestle, and Wilmar – with strict sustainability criteria, limiting their options and market access.
2. *IOI Corporation.* IOI Corporation, a Malaysian palm oil company, saw material impact after being suspended from the Roundtable on Sustainable Palm Oil (RSPO) for illegally clearing forested land. After the RSPO suspended IOI Corporation, its share price fell by 18 percent and 27 companies – including major commodity traders and large food companies -- like Mondelez, Procter & Gamble, and Kellogg – halted purchases of IOI Corporation’s palm oil.¹⁰⁸ Once IOI Corporation addressed its deforestation-related sustainability issues in its supply chains, it regained its RSPO membership, saw its equity value recover, and re-established its relationship with its buyers.
3. *JBS.* Brazilian meatpacker JBS has seen repeated material impacts from its ties to deforestation in the Amazon rainforest. In 2020, Nordea Asset Management sold its shares in JBS over ESG concerns, including deforestation. The action by Nordea reflected longstanding concerns that NGOs and financiers have had over the company’s corruption and environmental record. These reputation risks have also contributed to increased scrutiny, which have undermined JBS’ multiple attempts to launch an initial public offering in the United States. JBS had initially wanted to launch the U.S. IPO in 2017.¹⁰⁹ But scandals prompted the company to drop its plans.¹¹⁰ JBS revived its plans in late 2019 with the anticipation of launching the IPO in 2020 but it remains delayed in large part because of the combination of COVID-19 and NGO pressure on the company and its investors due to ESG violations.¹¹¹

3. RISK MANAGEMENT

Question 9. Are there ways in which the Commission’s existing regulations and/ or guidance could better address climate-related financial risk, including credit risks, market risks, counterparty risks, and other financial and operational risks? Are there ways in which the Commission’s regulations and/or guidance

¹⁰⁶ Chain Reaction Research, “Palm Oil Growers Suspended Over Deforestation Lose USD 1.1B in Equity Value,” August 2019, <https://chainreactionresearch.com/report/palm-oil-growers-suspended-over-deforestation-lose-usd-usd-1-1b-in-equity-value/>

¹⁰⁷ Id.

¹⁰⁸ Chain Reaction Research, “The Chain: IOI Corporation Commits to Improving its Supply Chain Risk Management,” May 2017, <https://chainreactionresearch.com/2278-2/>

¹⁰⁹ United States Securities and Exchange Commission, “JBS Foods International B.V., 2011, <https://www.sec.gov/Archives/edgar/data/1691004/000119312516785274/d304020df1.htm>

¹¹⁰ Chain Reaction Research, “The Chain: JBS Cancels 2018 subsidiary IPO, Suspends Slaughter at 7 Locations while Investigations Continue,” October 2017, <https://chainreactionresearch.com/the-chain-jbs-cancels-2018-subsiary-ipo-suspends-slaughter-at-7-locations-while-investigations-continue/>

¹¹¹ Forests & Finance, “Beefing Up Risk: The Exposure Of JBS’ Financiers To Financial, Regulatory And Reputational Risks,” February 2021, <https://forestsandfinance.org/news/beefing-up-risk-the-exposure-of-jbs-financiers-to-financial-regulatory-and-reputational-risks/>

relating to risk management, system safeguards, business continuity, governance, recordkeeping, and/or internal audit could better address such risk?

Market Risk Advisory: Both physical and transition risk modeling should be incorporated into market risk assessments, including through commodity-specific analysis, since climate-related financial risk qualifies as a systemic issue that threatens the stability of derivatives markets. Recent analysis from investors highlights that warmer global temperatures are likely to eliminate 20 percent of the global value of beef production and seven percent of dairy production by the end of the century. It also stresses that 10 percent of land currently suitable for major crops and livestock will be unsuitable by mid-century under some warming scenarios.¹¹² Furthermore, the Amazon rainforest is a key source of precipitation for key U.S. agricultural areas in the Midwest. Were the Amazon to experience mass ecosystem collapse, it would have drastic knock-on effects for global agricultural production that feeds billions of people and supports the global economy.¹¹³ Investors who recognize these risks from deforestation will benefit from understanding the extent to which their investments are resilient to climate-related financial risks.

Deforestation-free certification: The Commission should differentiate products that have no exposure to deforestation, land use change, and human rights abuses from their risky counterparts. By certifying that a class of derivatives is deforestation-free, the Commission would allow investors to make informed decisions about the level of climate-related financial risks they are willing to accept.

Enforcement: Since deforestation is often connected to illegal activity, the Commission could enhance efforts to combat illegality in derivatives markets. In addition to providing decision-useful information for investors, disclosures would partially mitigate the risk of illegality and aid the Commission in investigating counterparty makes fraudulent claims.

Question 10. Could the Commission's existing regulations and guidance better clarify expectations regarding management of climate risks, taking into account a registered entity's or registrant's size, complexity, risk profile, and existing enterprise risk management processes? Would it be helpful for the Commission to promulgate regulations or issue guidance for registrants and/or registered entities regarding the implementation of policies and procedures to measure, track, and account for physical and transition risk?

Yes, Climate Advisers strongly supports the Commission issuing guidance around recommended risk management practices, in addition to specific climate risk disclosure requirements, that would better protect investors, reduce volatility, and mitigate some of the systemic risks posed by climate change.

4. DISCLOSURE

Question 13. The Commission staff is evaluating the Commission's public disclosure, including public information, requirements to assess whether existing requirements need to be updated to effectively provide decision-useful, consistent, and comparable information on climate-related risks. Are there ways in which updated disclosure requirements could aid market participants in better assessing climate-related risks?

¹¹² Eline Reintjes, "Food Systems and Livestock Production Under Climate Change: The IPCC's Sixth Assessment", FAIRR, 3 May, 2022, <https://www.fairr.org/article/food-systems-and-livestock-production-under-climate-change/>.

¹¹³ American Geophysical Union, "Water scarcity predicted to worsen in more than 80% of croplands globally this century", 5 May, 2022, <https://www.eurekalert.org/news-releases/951856>.

Yes. As governments and consumers respond to the risks of climate change, the lack of disclosure means that investors are unable to discern which counterparties are best positioned to weather these changes. For example:

- Policies to keep global warming below 2 degrees may mean that up to 10 percent of agricultural land could revert to forests.¹¹⁴
- Consumers are increasingly willing to purchase less emissions-intensive products like alternative proteins or products utilizing certified deforestation-free commodities.
- Private sector actors are increasingly adopting policies that restrict market access and increase the cost of capital for producers that contribute to deforestation or encroach onto Indigenous territories.

Requiring climate-related financial disclosures, including greenhouse gas emissions and exposure to deforestation, would show investors which investments have business strategies and operations that are able to contend with these changes that could mitigate the risk of increased operating costs, stranded assets, and profitability shortfalls.

Question 14. A goal of climate-related financial disclosure is to offer meaningful information about climate-related financial risks, and to foster increased transparency into those risks. In connection with any assessment of whether updated requirements are needed, what specific disclosures, building on the Task Force on Climate-Related Financial Disclosures' ("TCFD") four core elements of governance, strategy, risk management, and metrics and targets,³² would be most helpful for the Commission to consider?

Climate Advisers supports the use of the TCFD framework as a structure for the qualitative disclosure of issuers' analysis and governance of climate risks and, as appropriate, opportunities. The framework has been developed by global companies, including accounting firms, financial institutions, and operating companies, and has been widely adopted both by issuers and regulators. It is also a framework that can provide structured qualitative disclosure of how companies and investors are evaluating and governing climate risk, and so has the potential to encourage companies to avoid boiler-plate disclosures.

However, in agricultural commodity industries, information like which certification procedures a company uses to ensure deforestation-free supply chains, what percentage of its supplies are certified deforestation-free, from what countries and regions it sources its commodities, whether suppliers are involved in land disputes with Indigenous Peoples or traditional communities, and what "know your supplier" monitoring systems are in place are decision-useful data for investors. For these reasons, the Commission should require specific deforestation disclosures that could be integrated as key performance indicators into the TCFD metrics section. Climate Advisers has procured a list of recommended metrics below, largely from CDP Forests, which has produced the clearest decision-useful metrics that are already used by companies for voluntary disclosures. The disclosures are targeted toward commodities and countries at high risk of deforestation, and the scope is clearly defined.

The following industry-specific metrics for companies in the forest, food, and land sector would provide investors with material information:

¹¹⁴ Orbitas, "Agriculture in the Age of Climate Transitions: Stranded Assets. Less Land. New Costs. New Opportunities." 3 December, 2020, <https://orbitas.finance/2020/12/03/ag-climate-transitions-risk-opportunities/>.

- Company policy around supply chain deforestation, including any NDPE and FPIC policies for suppliers.
- What processes are in place for implementing NDPE and FPIC policies and how the company monitors its supply chain to verify compliance to these policies.¹¹⁵
- A time-bound plan for eliminating deforestation and progress toward that plan.
- What grievance mechanisms are in place to report supplier non-compliance.
- Procedures in place to address grievances and resolve non-compliance.
- A publicly available supplier list for high-risk tropical commodity suppliers (many companies already publish this).
- Any history of land conflicts with Indigenous Peoples or traditional communities resulting from high tenure insecurity.
- Specific reference to a company's plan for mitigating deforestation risk in the company's overall TCFD analysis.

Industry-specific quantitative disclosures for companies in the forest, food, and land sector should include:

- Scope 3 emissions, if not already required for all industries.
- Volume sourced or produced for any high deforestation risk commodities.
- High deforestation risk commodities as a percentage of total procurement.
- Percentage of a company's revenue dependent on this high deforestation risk commodities
- Procurement by country/region/subnational jurisdiction of origin, if available. If not, a time-bound plan for attaining this information.
- Percentage of high deforestation risk commodity sourcing that is traceable and to what supply chain level.
- Percentage of total volume in compliance with relevant commodity certifications.

Industry-specific disclosures for financial institutions with holdings in the forest, food, and land sector should include:

- Scope 3 emissions, if not already required for all industries.
- Engagement strategy, if any, to drive action on eliminating deforestation from company supply chains.
- Value of investments in companies that operate in commodities in countries with high deforestation risk.
- Specific reference to a financial institution's plan for mitigating deforestation risk in the company's overall TCFD analysis, including clear targets and progress toward meeting them.

Industry-specific disclosures for companies with direct ownership or control of forested land should include:

- Country in which forest investments are located.
- Area of land owned by land type (For example, forest, savannah, agricultural land, etc.)¹¹⁶

¹¹⁵ Types of monitoring include, but are not limited to geospatial monitoring tools, ground-based monitoring systems, community-based monitoring, first-party verification, second-party verification, third-party verification, or no monitoring and verification approach. These categories are currently used by CDP in company disclosures.

¹¹⁶ Land types include, but are not limited to, set-aside land, natural ecosystems with potential to be legally converted for forest risk commodity production or degraded/abandoned area with potential for forest risk commodity production. These categories are currently used by CDP in company disclosures.

- Percentage of land covered by natural forests.
- Percentage of land covered by relevant certification schemes.
- Area of land converted from natural ecosystems during the reporting year.

To ensure consistency with current reporting methods, Climate Advisers recommends using the following classifications of high deforestation risk countries and high deforestation risk commodities:

1. Forest risk countries defined by CDP Forests: Angola, Argentina, Australia, Brazil, Bolivia (Plurinational State of), Cambodia, Cameroon, Central African Republic, Colombia, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Ecuador, Gabon, Guatemala, Guinea, Honduras, India, Indonesia, Kenya, Lao People's Democratic Republic, Liberia, Madagascar, Malaysia, Mexico, Mozambique, Myanmar, Nicaragua, Nigeria, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Thailand, United Republic of Tanzania, Venezuela (Bolivarian Republic of), Viet Nam, Zambia, and Zimbabwe.
2. Forest risk commodities defined by CDP Forests: timber products, palm oil, cattle products, soy, rubber, cocoa, and coffee.

These classifications may change over time based on data-driven assessments conducted by CDP.

Question 16. Are there any standardized data formats, such as structured data, that the Commission should consider for public climate-related data disclosures? Would the use of complementary protocols, where applicable, be helpful for comparability across other regulatory agencies?

In addition to the TCFD and CDP Forests, Climate Advisers recommends use of the Greenhouse Gas Protocol to increase consistency with other regulators and provide a standardized framework through which to analyze greenhouse gases. Since commodity-driven deforestation has a nature-based component to climate-related financial risks, the emerging framework of the Task Force on Nature-related Financial Disclosures (TNFD) will likely also be relevant. It measures nature-related financial risks, including those that exacerbate climate-related financial risks, and it also aligns closely with the TCFD in its coverage of strategy, governance, risk management, metrics, and targets when assessing the potential impact of nature-related financial risks.

Question 17. FSOC Report Recommendation 3.4 33 suggests that FSOC members issuing requirements for climate-related disclosures consider whether such disclosures should include GHG emissions, as appropriate and practicable, to help determine exposure to material climate-related financial risks. Should registered entities and registrants be required to disclose information relating to GHG emissions?

Disclosing GHG emissions data based on the procedures developed in the GHG Protocol would provide quantitative metrics by which the efficiency of registrants can be compared. A recent empirical analysis of the 2020 GHG disclosures of a randomly-selected subset of 200 of the S&P 500 largest companies in the United States shows that 81 percent are already reporting emissions for Scopes 1 and 2 using the GHG Protocol standards, even though they have no legal obligation to do so.¹¹⁷ The analysis also showed that of the companies reporting GHG emissions, 59 percent included data subject to some version of third-party assurance.¹¹⁸ These data suggest that for many large companies, systems are already in place to produce these data and for many to have them attested. Thus, the costs of disclosure would likely not be prohibitive,

¹¹⁷ Lynn M. LoPucki, *Corporate Greenhouse Gas Disclosures*, 56 U.C. Davis L. Rev. (Forthcoming 2022).

¹¹⁸ *Id.*

particularly considering the benefits of mitigating climate-related financial risks and improving the information available to investors.

It is also important to note that we would support requiring registrants to disclose Scope 3 emissions, using the best available data and methodologies. There are several reasons we support mandatory Scope 3 disclosure with available data and methodologies:

- First, for many industries with significant climate and transition risk, including forest, agriculture, food, other land use, Scope 3 emissions are the most significant sources of risk. The food sector and fast moving consumer goods companies, for example, often see 83 and 90 percent of their total GHG emissions in the Scope 3 classification respectively.¹¹⁹ For a company like Nestlé, requiring only Scope 1 and 2 emissions would mean that investors see only 5 percent of the company's total GHG emission footprint.¹²⁰ If the goal is to provide investors with insight into the financial risk related to a company's or industry's exposure to climate change risks, transparency for around only 5 percent of emissions would not effectively achieve this goal. It should be noted that we are able to see the scale of this issue due to Nestlé's leadership in disclosing its emissions voluntarily. However, many companies do not voluntarily disclose these data, and we should not assume that current laggards will voluntarily share these critical data with investors in the future. Furthermore, advocates for investor protection argue that disclosing Scope 3 emissions provides insight into a company's supply chain and the impact of products and services after the point of sale. This is vital for better understanding a registrant's exposure to both physical impacts of climate change and transition risks, such as new government policies to address emissions, market access and financing risk, reputation risk, and changing consumer demand. In 2022, investors representing USD 4.7 trillion in assets under management stated that "As the financial system moves to address climate risk, the lack of adequate data is increasingly clear. Reporting of Scope 1 and 2 emissions leaves gaping information holes that banks, insurance companies, asset managers, governments, investors, and innovators must traverse, impeding action and sound decision making."¹²¹
- Second, as governments and consumers respond to the risks of climate change, the lack of Scope 3 emissions disclosure means investors are unable to discern which registrants are best positioned to weather these changes. Scope 3 emission disclosures would show investors which companies have business strategies and operations that are able to contend with these changes that could have major impacts on costs, create stranded assets, and threaten profitability.
- Finally, non-disclosure of Scope 3 emissions by one registrant based on that registrant's materiality assessment may leave investors with a false sense of an investment's risk/return profile. It may become far more difficult to compare risks and potential returns between registrants within the same industries where materiality determinations differ, particularly since it would increase the burden on the investor to understand and compare the basis for those materiality determinations. The lack of required disclosure similarly poses additional risk to responsible leaders in the corporate

¹¹⁹ World Economic Forum and Boston Consulting Group, "Net-Zero Challenge: The supply chain opportunity," January 2021, https://www3.weforum.org/docs/WEF_Net_Zero_Challenge_The_Supply_Chain_Opportunity_2021.pdf.

¹²⁰ According to Nestlé's 2020 disclosure to CDP, publicly available via: <http://www.cdp.net>.

¹²¹ As You Sow, "75 Investors With \$4.7 Trillion AUM Weigh in on Upcoming SEC Climate Disclosure Rulemaking", March 8, 2022, <https://www.asyousow.org/press-releases/2022/3/8/sec-climate-disclosure-rulemaking>.

sector. Companies that do disclose Scope 3 may face a disadvantage as their emission profiles may look drastically different than those who do not disclose if investors are not well versed in emissions terminology. Investors will not have the necessary data to accurately compare the risks of investing in similar companies within an industry if emissions data is not standardized.

The World Economic Forum and the Boston Consulting Group recognized that Scope 3 disclosures are critical for understanding material climate risks in many industries in a recent report, concluding that “[a]ddressing Scope 3 emissions is fundamental for companies to realize credible climate change commitments.”¹²² To ease the transition burden, disclosure according to Scope 3 could be phased in based on the size of the registrant and the materiality of Scope 3 emissions to specific industries’ climate change risk profile. The Science Based Targets Initiative suggests Scope 3 disclosures in industries in which over 40 percent of a total emissions fall under Scope 3. Such an approach to phasing in Scope 3 disclosure based on specific industry characteristics is consistent with developments in voluntary disclosures, which have emphasized sector-specific disclosure based on an understanding of varying material challenges that are industry-specific.

6. VOLUNTARY CARBON MARKETS

Question 22. Are there ways in which the Commission could enhance the integrity of voluntary carbon markets and foster transparency, fairness, and liquidity in those markets?

Yes. Carbon markets are an important instrument for allocating capital toward conserving primary forests, which provide perhaps the most cost-effective form of carbon capture and sequestration. However, the credibility of carbon markets has been damaged by evidence of fraudulent carbon credits, which were found to have not led to lasting carbon sequestration, were not truly additional, or were otherwise inaccurately represented. By increasing the Commission’s role in regulating voluntary carbon market contracts for immediate delivery, the consistency and integrity of claims would improve, increasing credibility in the market’s ability to fulfil claims of carbon sequestration and scaling the availability of capital allocated to climate solutions. The Commission should consider:

- Investigating suppliers that misrepresent the ability of projects to achieve contract claims;
- Building up or supporting better monitoring mechanisms to ensure that carbon credits are authentic;
- Holding fraudulent suppliers accountable; and
- Supporting standardized disclosures among registrants.

Question 23. Are there aspects of the voluntary carbon markets that are susceptible to fraud and manipulation and/or merit enhanced Commission oversight?

Promote Integrity Among Carbon Credit Suppliers: Suppliers of carbon credits have been under pressure after evidence surfaced that some suppliers were double counting carbon captured, falling short on promises around how long the carbon would be stored, and inauthentic in promises that the carbon stored was truly additional. Although the integrity of voluntary carbon credits has improved in recent years, it would significantly benefit from the Commission’s enforcement investigate fraudulent transactions and to improve confidence that carbon credits fulfill promised commitments. Similarly, more standardization is needed to

¹²² World Economic Forum and Boston Consulting Group, “Net-Zero Challenge: The supply chain opportunity,” p.5, January 2021, https://www3weforum.org/docs/WEF_Net_Zero_Challenge_The_Supply_Chain_Opportunity_2021.pdf.

avoid potential price manipulations from buyers seeking low-cost carbon credits and to ensure a more equitable distribution of risks.

Authenticity of Buyer Commitments: Companies are increasingly buying carbon credits to fulfill their net-zero commitments, but there have been concerns around the lack of transparency provided around achieving these goals, the quality of carbon credits used, and the level of commitment to internal carbon reductions. After a consultation process with stakeholders from civil society, the private sector, Indigenous Peoples' groups, governments, businesses, and others in 2021, the Voluntary Carbon Markets Initiative (VCMI) put together a framework for how carbon credits can be voluntarily used and claimed by businesses as part of credible net-zero strategies.¹²³ These recommendations come with strict transparency and reporting requirements, as well as requirements that the credits used are of high integrity. If the Commission were to use its regulatory and enforcement power around spot commodity markets to improve the integrity of carbon markets, it would further contribute to the authenticity of net zero claims and prevent allegations of greenwashing for companies that follow VCMI guidelines on transparency.

Question 24. Should the Commission consider creating some form of registration framework for any market participants within the voluntary carbon markets to enhance the integrity of the voluntary carbon markets? If so, what would a registration framework entail?

Yes. All key stakeholders in carbon markets would benefit from increasing standardization of contract and disclosure requirements. As integrity, credibility, and standardization of voluntary carbon markets improve, so too will the scale of capital allocated to climate solutions.

8. FINANCIALLY VULNERABLE COMMUNITIES

Question 26. Consistent with the CFTC's statutory mandate and regulatory authority, what factors are important, when the Commission analyzes climate-related financial risks, to better understand the impacts on households and communities?

In addition to contributing close to one-quarter of all global GHG emissions and weakening future efforts to mitigate climate risks, agriculture, forestry, and other land use emissions also often come with significant social risks.¹²⁴ These include most notably:

1. Most deforestation in the developing world linked to internationally traded commodities is illegal (violates local law).
2. Impacts on marginalized groups, labor violations, and illegal activity are often obscured by complex commodity supply chains, leaving investors unable reliably to assess exposure or alignment to personal/institutional values. In Brazil, alone, 55 companies received allegations of human rights abuses related to deforestation between 2017 and 2019.¹²⁵

¹²³ Voluntary Carbon Market Integrity Initiative, "Code of Practice," 2022, <https://vcmintegrity.org/vcmi-claims-code-of-practice/>

¹²⁴ Intergovernmental Panel on Climate Change, "Special report on climate change and land use," Summary for Policy Makers, A.3, p. 10, 2019, <https://www.ipcc.ch/srccl>.

¹²⁵ Business and Human Rights Resource Center, "Brazil: NGO report alleges companies complicit in deforestation & human rights abuses in the Amazon," June 2019, <https://www.business-humanrights.org/en/latest-news/brazil-ngo-report-alleges-companies-complicit-in-deforestation-human-rights-abuses-in-the-amazon/>

3. Receding tropical forests have led to frequent land disputes between commodity producers and Indigenous Peoples or traditional communities.
4. Land insecurities, along with illegal encroachments into indigenous territories, have heightened violence against environmental defenders. In 2020, Global Witness recorded 227 deaths among environmental defenders, 70 percent of which were related to protecting forested land.¹²⁶
5. Loss of native lands risks a loss of indigenous culture, traditions, and knowledge. One study found that forest management by Indigenous Peoples reduced both deforestation and forest greenhouse gas emissions.¹²⁷

Question 27. Consistent with the CFTC’s statutory mandate and regulatory authority, are there any climate-related financial impacts or potential policy solutions addressed to climate-related financial impact that the Commission should consider as it pertains to financially vulnerable populations in particular? Are there any steps that the Commission should consider when assessing how the impact of climate change on the derivatives markets and/or underlying commodities markets, or proposed policy solutions to address such impact, may affect financially vulnerable populations?

Yes. The Commission should ensure that investors are informed when commodities are produced with the ‘Free, Prior, and Informed Consent’ (FPIC) certification. This would show that production did not take place as a result of encroachment onto the territories of Indigenous Peoples or traditional communities, and that there were no disputes around the ownership of the land.

9. PUBLIC-PRIVATE PARTNERSHIPS/ENGAGEMENT

Question 29. Are there experts with whom it would be useful for Commission staff to collaborate to identify climate forecasts, scenarios, and other tools necessary to better understand the exposure of registered entities and registrants to climate-related financial risks and how those risks translate into economic and financial impacts?

Climate Advisers would be happy to provide further guidance to the Commission as it incorporates climate-related financial risks, particularly in the forest, food, and land sectors. We would also recommend engaging with the groups we mentioned in our response to Question 1.

Question 30. What specific literature and research should the Commission review and consult related to climate risks as applicable to the derivative markets, underlying commodities markets, registrants, registered entities, or other derivatives market participants?

Climate Advisers has published the following material on this topic:

- Agriculture in the Age of Climate Transitions: Stranded Assets. Less Land. New Costs. New Opportunities.¹²⁸ Orbitas has released the findings of the world’s first scenario analysis of climate

¹²⁶ Global Witness, “Last line of defense,” September 2021, <https://www.globalwitness.org/en/campaigns/environmental-activists/last-line-defence/>

¹²⁷ Allen Blackman & Peter Veit, “Titled Amazon Indigenous Communities Cut Forest Carbon Emissions,” *Ecological Economics*, Vol. 153, pp. 56-67 (2018). Blackman and Veit found statistically significant reductions in deforestation and forest GHG emissions from Indigenous community management of forests in Bolivia, Brazil, and Columbia in a study based on data from 2001-2013; no statistically significant reductions were observed in Ecuador from Indigenous community management.

¹²⁸ <https://orbitas.finance/2020/12/03/ag-climate-transitions-risk-opportunities/>

transitions for this sector in this report. We find that climate transition risks are material for financiers of tropical agriculture, just as they are for energy or transport investors.

- Climate Transition Risk Analyst Brief: Indonesian Palm Oil.¹²⁹ As climate transitions accelerate, from policies to consumer sentiments, we see material risks that threaten the predominant business models in Indonesian palm oil. Orbitas has produced an analyst brief on the sector to demonstrate how companies in the oil palm supply chain will fare under this new reality.
- Climate Transition Risk Analyst Brief: Colombian Cattle.¹³⁰ For the sector to navigate climate transitions and align itself with the government's goals of 30% reduction in emissions by 2030, concrete actions can be taken to ensure that Colombia's climate commitments are met.
- Climate Transition Risk Analyst Brief: Peruvian Palm Oil.¹³¹ Peru's palm oil industry is small relative to major producers like Malaysia and Indonesia. But climate transitions will impact nascent and mature industries, even if the impacts vary. Orbitas' analyst brief on Peruvian palm oil explores how climate transitions will affect the industry in the coming decades.
- Climate Transition Risk Survey: Capital Providers for Tropical Soft Commodities.¹³² The Orbitas-PwC Climate Transition Risk Survey demonstrates the need for more systematic analysis by financial actors of the risks and opportunities that climate transitions will create. This includes Orbitas scenario analysis, access to more specific climate data, and improved traceability for soft commodity supply chains.
- Climate-Related Deforestation Risks Threaten US Financial Stability.¹³³ With 40% of US GDP exposed to climate-related risks from the land use sector, this report analyzes the source of these risks and shares recommendations for the federal government to protect US financial stability.
- Tackling Deforestation and Protecting Investors.¹³⁴ The US imported \$618 billion in tropical commodities in 2020 (\$76 billion in tropical agricultural commodities). Here's why that matters as the Securities and Exchange Commission (SEC) deliberates on climate-related financial disclosures.
- Climate Advisers is also part of the Chain Reaction Research consortium, which has been writing reports and articles about investor risks from deforestation since 2013 and has a wealth of helpful material.¹³⁵

We would also encourage the Commission to engage with the platforms mentioned in our answer to Question 1 better to understand and monitor climate-related financial risks from deforestation. Similarly, organizations like Ceres, the Center for American Progress, and Green Century Capital Management all have extensive experience engaging the financial community on climate-related risks.

34. How should the Commission coordinate its efforts with international groups and other regulatory bodies and supervisors? Are there standards, definitions, or metrics that could facilitate the sharing of relevant climate-related information amongst regulatory bodies and supervisors, and/or their analyses and

¹²⁹ <https://orbitas.finance/2021/08/27/indonesian-palm-oil-deforestation-climate-transition-risk/>

¹³⁰ <https://orbitas.finance/2021/04/07/climate-transition-risk-colombian-cattle/>

¹³¹ <https://orbitas.finance/2021/12/14/climate-transition-risk-analyst-brief-peruvian-palm-oil/>

¹³² <https://orbitas.finance/2020/12/07/climate-transition-risk-survey-capital-providers-for-tropical-soft-commodities/>

¹³³ <https://www.climateadvisers.org/insightsfeed/climate-related-forest-food-and-land-risks-threaten-us-financial-stability/>

¹³⁴ <https://www.climateadvisers.org/insightsfeed/tackling-deforestation-and-protecting-investors-material-financial-risks-from-tropical-commodities/>

¹³⁵ <https://chainreactionresearch.com/>

aggregation of climate-related data? Are there specific steps that could be taken to enhance global coordination and regulatory comity?

The Commission should coordinate with the U.S. Securities and Exchange Commission and international regulatory bodies like the International Sustainability Standards Board to improve the consistency of climate-related financial disclosures and to prevent rework for registrants.