



A Manulife Investment Management Company

2020 Climate Report

Assessing and managing
climate-related impacts, risks
and opportunities

Introduction

We take climate change seriously. We have a moral responsibility to mitigate it, a business imperative to adapt to it, and a unique opportunity to address it. In this document, we consider what climate change means, as well as our role in assessing and managing climate-related impacts, risks and opportunities.

Hancock Natural Resource Group (HNRG), a Manulife Investment Management Company, is pleased to release our inaugural climate disclosure. This report follows the voluntary disclosure framework developed in 2017 by the Financial Stability Board’s Taskforce for Climate-related Financial Disclosures (TCFD). Though it’s our first disclosure, climate change mitigation and adaptation have been core to our business since our founding in 1985. As managers of timberland and farmland—biological assets subject to a changing climate and capable of helping to stabilize it—the day-to day

reality of running our business means that we witness the impacts of climate change. And we also see opportunities to respond to it.

Focusing exclusively on climate change, this report expands on our annual Sustainability and Responsible Investing (SRI) report released in April 2020. There we outline our management approach to climate stability—one of five pillars of our SRI program—providing numerous examples of the operational actions and business decisions we have taken toward this goal. In this disclosure, we address the risks climate change poses to our timberland and agriculture businesses, the opportunities it presents, and the ways in which we are responding to them.

Our disclosure is structured as per the recommendations of the TCFD, with four key sections addressing eleven topics.

Recommendation and Supporting Recommended Disclosures

Governance	Strategy	Risk Management	Metrics and Targets
<p>Disclose the organization’s governance around climate-related risks and opportunities.</p> <p>Recommended Disclosures</p> <ul style="list-style-type: none"> a) Describe the board’s oversight of climate-related risks and opportunities. b) Describe management’s role in assessing and managing climate-related risks and opportunities. 	<p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material.</p> <p>Recommended Disclosures</p> <ul style="list-style-type: none"> a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. b) Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning. c) Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario. 	<p>Disclose how the organization identifies, assesses, and manages climate-related risks.</p> <p>Recommended Disclosures</p> <ul style="list-style-type: none"> a) Describe the organization’s processes for identifying and assessing climate-related risks. b) Describe the organization’s processes for managing climate-related risks. c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management. 	<p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</p> <p>Recommended Disclosures</p> <ul style="list-style-type: none"> a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Source: Recommendations of the Task Force on Climate-related Financial Disclosures Final Report June 2017.



What is the TCFD?

The Financial Stability Board’s (FSB) Task Force on Climate-related Financial Disclosures (TCFD) issued a set of recommendations to enable capital markets to more effectively identify, assess and manage climate-related risks and opportunities. These recommendations represent industry best practices for climate-related financial disclosures, help to increase transparency and lead to market outcomes aligned with the Paris Agreement goal of limiting the rise of global average temperatures to below 2° C.

1.0 Governance

1.1 Board oversight of climate-related risks and opportunities

HNRG is governed by the Hancock Natural Resource Group, Inc. (HNRGI) Board of Directors comprised of the CEO of HNRG, the President and CEO of Manulife Global Wealth and Asset Management, the Global Head of Private Markets for Manulife Investment Management and the Chief Investment Officer of Manulife. HNRG's Board members collectively execute key determinations on how both HNRG and Manulife integrate climate change into their decision-making.

The Board relies on four management committees to support its work: Conflicts, Ethics, Risk Management, and the Natural Resource Investment Committee (NRIC). The Risk Management Committee and the NRIC in particular are integral to addressing climate change.

The Risk Management Committee:

- Coordinates implementation of an integrated risk management framework to achieve operational excellence and ensure alignment with best practices.
- Enhances management and Board understanding of HNRG's overall risk appetite, as well as enterprise-wide risk management activities and effectiveness.
- Reviews HNRG business area risk frameworks, including climate risks, and provides oversight as to how these frameworks are applied.

The NRIC reviews, recommends, and oversees investments made on behalf of all HNRG client accounts, in accordance with account investment policies, procedures and guidelines. This includes considering relevant climate-related risks and opportunities.

1.2 Management's role in assessing and managing climate-related risks and opportunities

Climate-related risks and opportunities are identified, assessed and managed across the organization, with HNRG senior management ensuring they are addressed at the highest level of the organization. As one of five pillars of HNRG's Sustainability and Responsible Investing (SRI) platform, climate stability is a strategic priority motivating business decisions to both mitigate and adapt to climate change. HNRG's CEO and Board oversee SRI and receive regular updates from the Executive Committee, which includes the CEO and the Chief Sustainability Officer (CSO). The Committee approves significant enterprise-level SRI decisions and delegates implementation of these responsibilities to the CSO, as well as to the heads of HNRG's business areas.

Various internal and external representatives keep the Executive Committee apprised of climate-related risks and opportunities. Internally, HNRG's risk, economic research, operations, and investment teams identify climate-related risks and opportunities, while externally HNRG collaborates on many business initiatives and with academic institutions focused on mitigating and adapting to climate change, including the World Business Council for Sustainable Development's (WBCSD) Forest Solutions Group and Scaling Positive Agriculture, the MIT Joint Program on the Science and Policy of Global Change, and the Climate Smart Land Network.

The CSO also chairs HNRG's Global SRI Advisory Team, a nine-member detail that gathers intelligence into existing and emerging sustainability risks and opportunities, coordinating across all major business functions and geographies to ensure the effective communication of the risks and opportunities throughout the firm, including the Executive Committee.

HNRGI Board Oversight



Meeting Frequency

As required (min. 1x annually)	As required (min. 1x annually)	At least quarterly	Bi-monthly
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Chair

CIO	CEO	CFO	CIO
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For illustrative purposes only.

HNRG Sustainability Management



For illustrative purposes only.

2.0 Strategy

2.1 Climate-related risks and opportunities HNRG has identified over the short, medium, and long term

HNRG is a thematic investment manager, zeroing in on areas where social or environmental objectives can offer commercial investment opportunities across timberland and agricultural assets. When sustainably managed, forests and farms are carbon sinks—they are two of the most effective forms of natural climate solutions as they function to remove carbon dioxide from the atmosphere. Leveraging this function is a strategic priority for HNRG and informs our business planning across multiple time

horizons, with some acquisition target timelines as short as five years, then ranging from 10 to 30 years for agricultural property management objectives (depending on crop type and geography) and up to 50 years or more for timberland.

Climate-related considerations play into our strategy at all levels—asset, client portfolio, and the organization overall. We are working to develop a systematic framework for understanding climate-related risks and opportunities at all these levels, and the table below outlines those we have currently identified as the most relevant for our business.

Identified Climate-related Impacts, Risks and Opportunities

Physical

- | | |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chronic | <ul style="list-style-type: none"> Increased frequency, duration and intensity of droughts may reduce crop yields and/or increase the cost of water and irrigation in certain regions. Increased precipitation leading to prolonged or unusually wet seasons may impact crop planting, harvesting and yields. Changing climatic conditions over the long term may affect growth rates for different tree species and/or crops, with those rates potentially increasing or decreasing depending on specific circumstances. Changing climatic conditions over the long term may affect the geography for growing certain crops, leading to opportunities to expand into new regions while potentially restricting growth in others. Changing climatic conditions over the long term may impact pollinator populations in certain regions, which could reduce crop production. Changing climatic conditions may impact insect populations, either reducing or increasing infestations depending on the region, insect, and crop/tree species. Persistent, extremely warm or cold weather may impact employee working conditions. |
| Acute | <ul style="list-style-type: none"> Increased wildfire risk and associated casualty/loss. Increased severe weather, wind, storms, and flooding may lead to casualty/loss. Increased extreme severe weather, extreme heat, and increasingly unpredictable weather patterns may increase casualty/loss. Increased possibility of pest damage and disease. |

Transition

- | | |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Market | <ul style="list-style-type: none"> Efforts to mitigate climate change may increase the demand for and value of carbon removals, creating new opportunities to develop investment products that enhance the carbon removals in forestry and agricultural assets, and/or ecosystem services that increase resistance to climate change. Growth of carbon markets may increase demand for carbon offset credits, which HNRG can generate for clients. Increased demand for renewable energy could lead to opportunities to develop renewable energy assets (wind, solar) on client-owned assets. Growing demand for biomass wood-based energy may increase demand for forestry products and assets. Market shifts favoring lower-carbon building materials may lead to increased use of wood products in construction, which may drive demand for forestry assets. |
| Policy & Legal | <ul style="list-style-type: none"> New carbon policies may offer opportunities to participate in regulated carbon markets in certain jurisdictions and/or drive demand for carbon removals in forestry and/or agricultural assets. Increased regulation of land use management related to water resources in response to changing climatic conditions may increase operational costs and impact client returns. |
| Reputational | <ul style="list-style-type: none"> A positive reputation for sustainable forestry and agriculture may assist in employee attraction/retention, as well as support better client relations and access to capital. Potential criticism of sector for impacts to climate related to issues such as emissions, water, and land use. Operations in certain jurisdictions could draw criticism—forest operations, for example, might mistakenly be linked to fires and deforestation. |
| Technology | <ul style="list-style-type: none"> Technology improvements enable increased efficiency, including in water and land use. |

2.2 Impacts of climate-related risks and opportunities on HNRG's businesses, strategy, and financial planning

We incorporate the anticipated impacts of the climate-related risks and opportunities outlined above into our business strategy in five key ways:

- Economic research
- Diversification
- High-quality asset management
- Value-added services, and
- Impact-first investments

Economic Research

HNRG recognizes that formulating strategies to address climate risk for our clients and the properties we manage for them requires drawing upon the best science available. To meet this goal, our Economic Research team has worked with leading academics focused on the interface of climate science, agriculture, and forestry. We support and participate in an array of programs affiliated with university and industry-supported forestry and agriculture cooperatives. Of note are our sponsorships and collaboration with the Massachusetts Institute of Technology Joint Program on the Science and Policy of Global Change, the Marine Biological Laboratory Ecosystem Center, and the University of California, Davis Department of Land, Air, and Water Resources. The research arising from these partnerships helps us understand the physical and transition risks and opportunities associated with forestry and agriculture at a more granular level, informing our acquisition, property management, and disposition strategies.

Diversification¹

HNRG's core investment philosophy is to leverage the power of diversification across food and fiber commodity types, geographies, and management approaches. Already invested in the major timberland and farmland regions of Australia, Canada, Chile, New Zealand and the U.S., HNRG continues to expand globally with an emphasis on large, high-quality timberland plantations and high-quality permanent and row crop farmland. Tree species, crop types, weather, water regimes, and markets vary by region and as a result, returns from different regions are not highly correlated. Thus, over time, diversified natural resource portfolios may deliver higher risk-adjusted returns. As climate-induced physical changes shift land arability and climate-related transition impacts influence asset valuations, our diversified global strategy positions us to leverage emerging growth opportunities and improve the risk efficiency of an institutional investor's real assets program.

High-Quality Asset Management

HNRG conducts extensive due diligence prior to acquiring any property. We seek to purchase and manage high-quality timberland and farmland assets that are either less likely to undergo climate-related shocks and stresses (such as flood, drought, wildfire, or pests) or that are more likely to be resistant to them. We then manage these assets sustainably by implementing a stewardship program aligned with third-party



certification standards in sustainable forestry and farming. Our integrated business model combines investment management and property management to align with our clients' interests and provide the level of risk management appropriate for long-duration assets.

Third-party certification helps to ensure that we support the development, management and operation of working lands for producing useful products by committing to soil, air and water quality conservation; biological diversity; wildlife and aquatic habitat preservation; recreational opportunities; and aesthetics. In timberland, we have third-party certified 100% of eligible HNRG-managed forests to sustainability standards advanced by credible standard-setting organizations. Just as we worked together with a broad coalition to address sustainability challenges in the timberland sector, we partnered with colleagues across the agriculture sector to forge a shared standard for farmland management—the Leading Harvest Farmland Management Standard. In agriculture, we are committed to managing 100% of our eligible farmland to performance-based, industry-wide sustainability standards.

¹ Diversification does not guarantee a profit nor protect against loss in any market.

Value-added Services

HNRG gauges the potential for enhancing the value of the properties in its portfolio by assessing opportunities for value-added services—initiating carbon banks, developing ecosystem services or renewable energy projects, administering recreation licenses, and negotiating carbon capture and storage (CCS) agreements, among others. HNRG also actively participates in carbon markets and over the course of its history has sold 6.1 million metric tons of carbon credits. Participating in climate-positive activities that generate secondary revenue streams differentiates HNRG and enhances returns for investors—it is a core part of our property management strategy.

Impact-first Investment

The most beneficial climate-related opportunity for HNRG is carbon removal and sequestration. HNRG sees considerable upside in low-warming scenarios where the government policy response to climate change begins to price carbon more comprehensively. Forests and farms are both natural climate solutions, removing carbon from the atmosphere and storing it in trees and soils. Traditionally we have managed timberland and farmland for our investors in order to achieve market-rate returns, while also generating positive environmental and social outcomes. We now see the opportunity to manage investments primarily to remove carbon from the atmosphere, and we plan to offer “impact-first investments”—investments that optimize and prioritize carbon sequestration.

2.3 Resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

HNRG conducted its first qualitative climate-related scenario analyses in 2020. These analyses examined potential transition and physical impacts under a high-carbon scenario and a low-carbon scenario. The transition component of the analysis used the International Energy Agency (IEA) 2019 World Energy

Outlook (WEO) scenarios, while the physical component used the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathways (RCP). The high-carbon scenario accentuated physical impacts with RCP 8.5 and used the IEA WEO Stated Policies Scenario (STEPS) for transition elements. The low-carbon scenario accentuated transition-related impacts under the IEA WEO Sustainable Development Scenario (SDS) and used RCP 4.5 for physical elements.

Comprehensive, portfolio-wide scenario analysis for our farmland and timberland assets requires accurate, long-term, site-specific data and sector-specific transition models. Currently, globally recognized and peer reviewed data for timberland and agriculture assets is limited. We are exploring ways to obtain or develop information tailored to sector-relevant scenarios to achieve fuller results in future years.

Our scenario analysis for this year involved two business case studies: agriculture in California and timberland in New Zealand. Both analyses focused on downscaled high-carbon physical impacts and low-carbon transition elements. We selected our California agriculture assets and New Zealand timber assets because we believe our asset classes in these regions provide a reasonable approximation for the breadth of potential climate scenario impacts on our business until we complete a full portfolio-wide scenario analysis.

- These regions represent the highest concentrations of assets under management per square kilometer for each of our asset classes.
- California and New Zealand allowed us to examine scenario analysis in two different countries (and include both the Northern and Southern Hemisphere in our assessment). This provided insights into national, regional, and global differences particularly relevant for transition scenarios.
- California agricultural assets allowed us to explore water risk under different scenarios, which is among the most significant climate-related impacts facing our agricultural assets.

Forest fire risk is among the most significant climate-related risks facing our timberland assets under both high and low carbon scenarios. This risk is greater in the western US and Australia than in New Zealand, and we plan to explore this risk in greater detail in future scenario analysis work.

The results of the scenario analysis case studies are found in the tables below, highlighting physical impacts in the high-carbon scenario and transition impacts in the low-carbon scenario.



Case Study Scenario Analysis Insights: California Agriculture

High-Carbon Scenario

Physical Impacts

Increased average temperatures (global mean increase of 3.7°C by 2100)

Business Impact

- The impact of warmer winters on bee colonies to be monitored.
- The greatest potential impact of increased average temperatures is on chill hours. Increased warming and fewer chill hours may require moving northward.

Increased wildfire risk

- Risk of smoke-tainted vineyards.
- Risk of smoke blocking out sunlight and impacting almond drying rates.

Changes to natural areas and biome shift

- Risk of biome shift is more likely to be felt by the ecosystem surrounding farmland, rather than directly on the assets. These impacts would need to be monitored.

Changes in precipitation, water availability and quality

- Increased variability in availability
- Earlier snowpack melt
- Aquifer depletion
- Increased precipitation
- Increase in the intensity of rainfall

- Crops will require increased amounts of water. Snowpack is an important natural water reservoir that may become depleted.
- More intense storms may result in precipitation being washed out to sea rather than seeping into the ground, thus preventing aquifer replenishment.
- Water stress is likely to increase. In severe cases, insufficient water may require transitioning some assets to areas with more water.

Mean global sea level rise of 0.63 m by 2100

- Little to no impact on current assets; may increase salination of some aquifers. To be monitored.

Transition Impacts

Increased likelihood of regulatory developments affecting water use.

Business Impact

- Water regulation will likely become prevalent in California over the coming decades. This may increase operational costs but may also present water banking opportunities.

Low-Carbon Scenario

Transition Impacts

Carbon pricing
(\$100/tCO₂ by 2030 and \$140/tCO₂ by 2040 in advanced economies)

Business Impacts

- Risk of higher operational costs from carbon pricing, which may be passed onto consumers, depending on price pressures (e.g. substitution-related price ceilings).
- Opportunity for monetizing soil carbon sequestration as carbon prices rise.

Renewable energy (increased deployment, including of bioenergy)

- Increased biofuels demand presents opportunity to expand into new crops and serve a new market.
- Projected reduction in renewable energy prices could present opportunity to install on-site microgrids to reduce energy costs.





Case Study Scenario Analysis Insights: New Zealand Timberland

High-Carbon Scenario

Physical Impacts

Increased average temperatures

- Global mean temperature increase of 3.7°C by 2100
- Higher elevation warming relatively more than lower elevation

Changes to natural areas

- Rise in snowline
- Biome shift

Changes in precipitation and storms

- Increased flood damage
- Increased risk from hurricanes/cyclones

Mean global sea level rise of 0.63 m by 2100

Business Impact

- Opportunity for gaining increased share of China's timber market as European timber regions may be subject to more extreme climate changes with attendant impacts on their productivity.
- Increased average temperatures may extend range for pine to higher altitudes, should land ownership opportunities become available.
- Most of HNRG's New Zealand plantation forests are Radiata pine, which is fairly resilient to biome shift.
- Risk of heavy rainfall, wind, and cyclones, leading to forest loss and possible debris wash out.
- Rising temperatures and sea levels are unlikely to impact New Zealand Radiata pine.

Low-Carbon Scenario

Transition Impacts

Carbon pricing and growth of the carbon market (increasing carbon pricing to \$100/tCO₂ by 2030 and \$140/tCO₂ by 2040 in advanced economies)

Increased bioenergy (grows to 7% of power generation by 2050)

Renewable energy (increased deployment of wind and solar)

Business Impacts

- Higher carbon prices would increase shipping costs, which may be offset by a projected increase in global demand for lumber.
- HNRG has monetized most carbon offsets available for its New Zealand properties and afforestation opportunities are currently scarce, making generation of new carbon offsets unlikely.
- Industrial shift toward biofuels may provide an opportunity if demand for wood pellets increases, although growing fiber demand for newer uses and in building materials may offer a higher price point.
- Carbon pricing may increase the costs for fossil fuels, making biofuels more attractive and potentially an opportunity for HNRG.
- There is likely little opportunity to provide new renewable energy capacity due to the New Zealand energy grid's low emissions profile.

3.0 Risk management

3.1 HNRG's processes for identifying and assessing climate-related risks

HNRG's process for identifying and assessing climate-related risks is grounded in our acquisition due diligence, which we conduct extensively prior to acquiring any asset. In this process, we adhere to the United Nations Principles for Responsible Investment (UN PRI) and the International Finance Corporation's (IFC) Equator Principles. We also conduct comprehensive environmental, biological and social reviews of all targets and require all reviews to highlight variance from U.S. standards, even when the relevant local standards are less stringent. Our due diligence process screens for climate-related risks and opportunities, as identified in Section 2.1 above. In particular, we appraise physical risks to an asset (such as drought, flood, wildfire, disease, or pest infestation), as well as opportunities (potential for cultivating different or higher-value crops under changing climate conditions). Our process also involves determining how a property might be managed to achieve climate-related goals, such as carbon sequestration or ecosystem preservation.

A major risk for forestry and agriculture is deforestation, a significant driver of land use-related GHG emissions. HNRG follows a strict zero-deforestation commitment, and as a signatory to the 2019 "Investor statement on deforestation and forest fires in the Amazon", we fully participate in the global effort to halt deforestation. HNRG ensures that investments we make do not contribute, directly or indirectly, to deforestation—we would not encourage, for example, clearing forested areas in anticipation of a land transaction to which we are a party. Our commitment further aligns with globally accepted biome- and geography-specific deforestation protocols.

3.2 HNRG's processes for managing climate-related risks

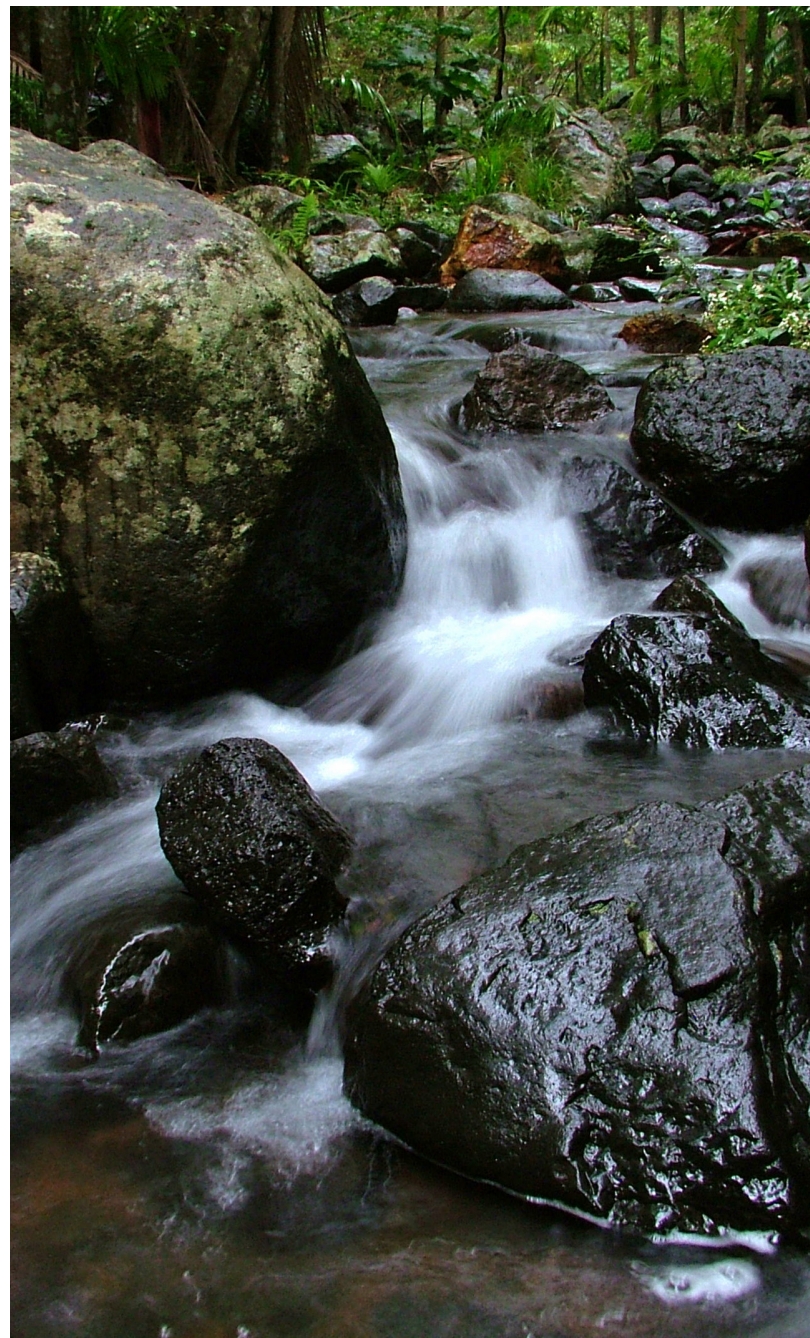
By adhering to our core investment philosophy of portfolio diversification across food and fiber commodity types, geographies, and management approaches, we are able to mitigate the risk of adverse climate-related physical and transition impacts. Once an acquisition has been made, the management of risks and opportunities, including those related to climate as well as safety, financial, market, and regulatory changes, shifts to HNRG's forest and farm property management teams. Both businesses maintain extensive risk frameworks that identify and monitor risks and put controls in place to manage them. For each risk, the framework assesses probability of occurrence, severity, and value potential. The frameworks are maintained by Chief Operating Officers with input from local operations staff, and when the frameworks are updated (on a regular basis), they are advanced to HNRG's Risk Management Committee for discussion and evaluation.

HNRG also manages risk through implementation of a uniform set of Stewardship Principles. These principles are developed and reviewed by regional Stewardship Teams as well as HNRG's

Global Stewardship Team—collectively providing stewardship guidance. By following this guidance, we manage our properties to independent sustainability standards, which can then be verified by a third party to achieve certification.

3.3 HNRG's processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management

HNRG considers climate-related risks and opportunities fundamental and core to its business, with climate-related risk management fully integrated into normal risk management functions—from investment acquisition (through due diligence) and portfolio construction (through diversification) to property management (through risk frameworks and our Risk Management Committee).



4.0 Metrics and targets

4.1 Metrics used by HNRG to assess climate-related risks and opportunities in line with its strategy and risk management process

We use a variety of metrics to measure the success of our climate-related efforts, beginning with our clients' risk-adjusted returns, which provide the most comprehensive measure of our success in managing client assets—including how effective we are at managing climate-related risks and opportunities. Ultimately, our performance against these metrics reflects our fiduciary role in managing assets according to our investors' objectives—for example, the quantity of carbon sequestered on our land is determined by how we manage it. We can offer investors the opportunity, through our Impact-first Investment initiative, to give carbon sequestration priority over financial returns, and as a result sequestration rates for these investors would differ from rates on properties optimized for financial return.

HNRG prioritizes and incentivizes climate stewardship. Stewardship performance comprises 20% of annual employee incentive plan compensation, and is based on third-party sustainability certification audits, as well as the integration of ESG considerations into acquisition due diligence (see Section 3.1). While we report on various metrics in our annual SRI report, scientific information on how climate change affects biological assets—as well as how these assets impact climate change and our ability to quantify that impact—has historically lagged other sectors due to its complexity. We are, therefore, closely following discussions in multiple global forums that would provide the guidance needed to more comprehensively assess climate-related risks and opportunities in our asset classes.

4.2 HNRG's Scope 1, Scope 2, and Scope 3 greenhouse gas (GHG) emissions, and the related risks

The table below presents HNRG's GHG emissions and removals, by scope, from 2017 to 2019. These results have been prepared based on the World Resource Institute's Greenhouse Gas Protocol Agricultural Guidance, and the IPCC Guidelines for National Greenhouse Gas Inventory Volume 4—Agriculture, Forestry and Other Land Use. Note that given certain gaps and limitations in the inventory at present, we do not claim strict conformance to these standards and guidelines.

Climate Stability	2017	2018	2019
Total scope 1 emissions (MtCO ₂ e)	38 K	38 K	65 K
Total scope 2 emissions (MtCO ₂ e)	17 K	16 K	41 K
Total scope 3 emissions (MtCO ₂ e)	320 K	328 K	426 K
Total GHG removals (MtCO ₂ e, 5-year trailing average)	-8.2 M	-6.0 M	-3.1 M

Source: HNRG. As of December 31, 2019.



New standards for corporate GHG accounting in the land use sector are currently being developed by the WRI/WBCSD GHG Protocol. We are actively following these developments and expect to disclose our GHG emissions based on the new standards once they've been completed. We are also closely following developing GHG emissions guidance from the Partnership for Carbon Accounting Financials (PCAF) to ensure that our emissions metrics are compatible with the standards of financed emissions quantification methodologies. Harmonizing our measurement methodologies ensures our clients can realize the benefit of forestry and agricultural asset carbon removals within their own emissions reporting, based on the same rigorous and globally recognized standards-aligned emissions quantification approach we apply in our management operations.

4.3 Targets used by HNRG to manage climate-related risks and opportunities, and performance against targets

While we await guidance to inform establishing our own quantitative climate-related targets, we remain committed to third-party sustainable management certification and have set a goal to have our GHG inventories third-party verified. We are also committing to other climate-related measures, including those relevant to the investment process, as well as the launch of a new climate-focused investment product designed to enable investors to meet their own net zero targets. The following are short-term targets we hope to achieve while awaiting development and finalization of the guidance and standards required for long-term target-setting.

- Continue to offset Scope 1 and 2 GHG emissions from HNRG office space and Scope 3 emissions from HNRG employee travel.
- Third-party verification of material aspects (Scope 1, 2; direct removals) of GHG inventory by 2021.
- Third-party verification of all material aspects (including Scope 3; indirect removals) of GHG inventory by 2022.
- Completion of SRI scorecard for every acquisition by 2021.
- Launch carbon sequestration-focused impact investment product by 2022.

Important Information

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