



Bruno Fumach
Investment Director



Jessie Sun
Analyst

The Role of Forests Towards a Net Zero Economy



Emission Reduction Alone is Not Sufficient

From severe droughts to ever-powerful hurricanes and typhoons, the large-scale shift in climate patterns caused by the greenhouse gases (“GHG”) has impacted billions around the world. Nations, concerned about the long-term effect of such changes, have decided to take mitigating actions. In 2016, the Paris Agreement was launched and signed by 186 nations across the globe.

The Agreement set a clear target to limit global warming to 1.5°C, and to achieve this, global GHG emissions need to reach net-zero around mid-century. Today, net-zero commitments from countries, corporates and investors are increasing at an unprecedented pace.

In September, the UN’s “Race to Zero” campaign announced that the number of pledges to reach net-zero emissions from local governments and businesses has almost doubled in less than a year, as many prioritize climate action in their recovery from Covid-19.¹

The same month, the EU proposed to raise its 2030 emission reduction target from 40% to at least 55% below 1990 levels. On top of that, it has made climate action one of the three main Covid-19 response

priorities, devoting nearly 550 billion euros over the next seven years for the transition – or 30% of its multi-annual budget and coronavirus recovery fund. Shortly afterwards, China, Japan and South Korea all announced national targets to achieve carbon neutrality.²

“We can’t achieve net zero without nature-based solutions. The pandemic has supercharged the investment case, especially in forestry, and new analysis conducted shows the magnitude of the opportunity”

--- Fiona Reynolds, CEO, UN PRI

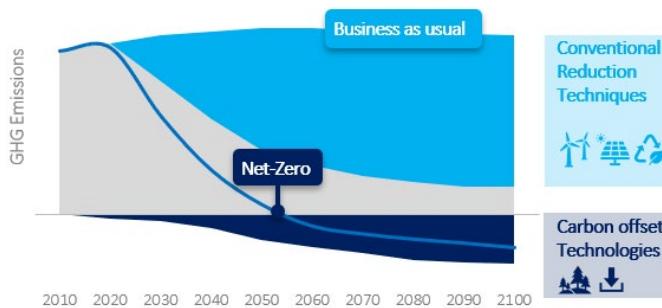
Now with the US potentially returning to the table of the Paris Agreement, we would likely have two-thirds of the global economy, representing half the world's emissions, committed to net zero. Besides, corporates with combined revenues of over US\$11.4 trillion and investors with a combined Asset Under Management (“AUM”) of US\$5 trillion have also joined the cause.³

¹ United Nations Framework Convention on Climate Change, “Commitments to Net Zero Double in Less Than A Year”

² Reuters, “EU makes world's biggest 'green recovery' pledge - but will it hit the mark?”

³ United Nations Environment Program Finance Initiative, “Institutional investors transitioning their portfolios to net zero GHG emissions by 2050”

Figure 1: Two routes towards net-zero work in tandem¹



In achieving net zero, two routes work in tandem:

- Reduce or avoid existing emissions with conventional mitigation techniques, e.g. the transition towards renewable energy, the

enhancement of energy efficiency in heavy-emission sectors, etc.

- Offset the remaining GHGs with Negative Emission Technologies/ projects, e.g. technology solutions such as Carbon Capture and Storage, nature-based solutions such as land, ocean and forests.

As reducing the emissions alone could not bring the world to a complete net-zero, the offsetting solutions will play a vital role. For real asset investors, this translates to several thematic investing opportunities, among which we believe forestry represents a crucial yet largely untapped asset class.

Carbon Sequestration and Circular Economy

Forests sequester carbon dioxide through the photosynthesis process and are one of the most direct negative emission assets. Afforestation and reforestation activities – thanks to their low cost, scalability and direct impacts – are therefore the most viable solutions as compared to the other carbon-negative technologies.

It is estimated that US forests store c.a. 14% of all annual CO₂ emissions from its national economy², and the forest biomass in the EU27 countries contains 9.8 billion tons of carbon³. While for Latin America, where approximately 22% of the existing forest in the world are growing, the total carbon stored is estimated at around 104 gigatons.⁴

In a new study commissioned by the UN-supported investor body, it is estimated that corporate demand for forest-related carbon removal could generate US\$800bn in annual revenues by 2050, amounting to a market capitalisation of US\$1.2 trillion today and surpassing that of oil & gas majors.⁵

"We should think of forests as the most proven technology for carbon removal"

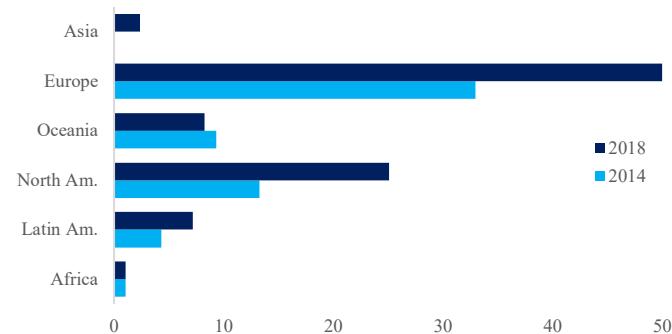
--- Dr. Stavros Siokos,
Managing Partner

Historically, forest finance has been small and largely the purview of the public sector. But policy

and business momentum have now advanced to a critical mass for forests to emerge as a new asset class. With more and more companies setting net-zero targets, investors can act now to unlock investment opportunities and to take an increasingly leading role in financing.

A recent survey conducted by PRI shows that 93 PRI signatories reported forestry investments in 2018, compared to 60 signatories in 2014. The growth has largely concentrated in Latin America, North America and Europe.⁶

Figure 2: Number of UNPRI members with forestry investments, by region⁶



Yet still, more capital and efforts are needed to tackle the rapid deforestation around the world - particularly

¹ World Resources Institute, "What Does "Net-Zero Emissions" Mean"

² American Forests, "Forests as Carbon Sinks"

³ United Nations Economic Commission for Europe, "Carbon Sinks and Sequestration"

⁴ Food and Agriculture Organization, "Sustainable forest management in Latin America and the Caribbean"

⁵ United Nations Principles for Responsible Investment, "New investor guide to negative emission technologies and land use"

⁶ United Nations Principles for Responsible Investment, "An introduction to responsible investment in forestry"

in South America, South East Asia and central Africa, where the loss of forests is mainly a result of human activities. Forests occupy approximately 22% of South America and represent about 27% of the world's global forest coverage.¹

Nevertheless, the region has suffered one of the most severe forestry losses in the last decades, mainly as a result of commodity and mining-related activities. Similar trends were seen in South East Asia, while agriculture activities are the main cause for deforestation in central Africa.

Figure 3: If tropical deforestation were a country, it would rank third in CO₂ emissions²

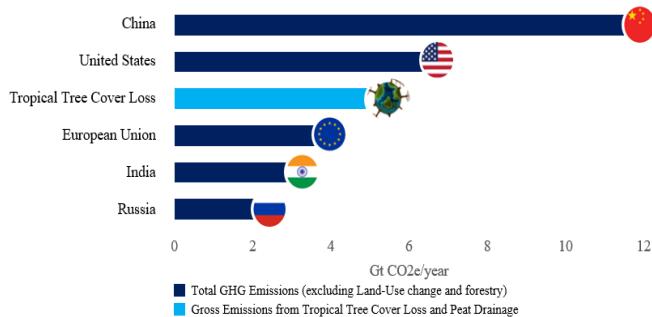
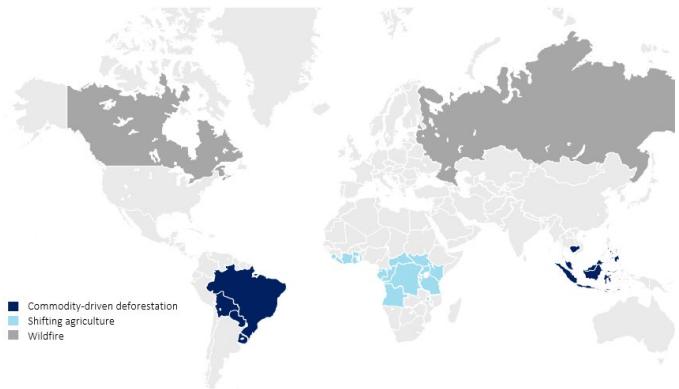


Figure 4: Global forest cover loss by types, 2001-2019³



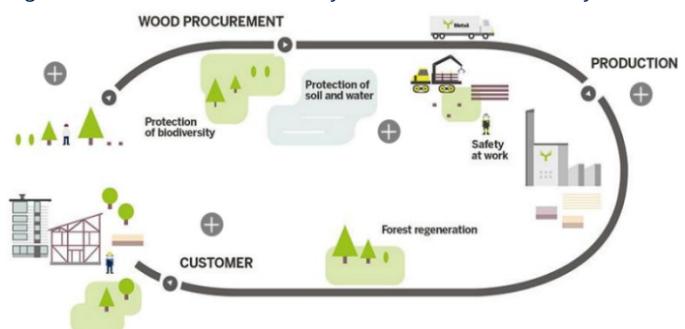
On the flip side, these regions are also among the areas with the highest forest productivity worldwide. Hardwood like eucalyptus grows 4 times faster in the subtropical climate of Paraguay compared to Europe - thanks to the warm climate and sufficient rain which allow the root system to expand quickly.⁴ In Indonesia, hardwood productivity is on average 25 m³/ha/yr, much higher than that in the US (15 m³/ha/yr) and Scandinavia (6 m³/ha/yr).⁵

Commercial Forestry and Circular Economy: The Case of Pulp and Paper Producers

For investors, there is more than just carbon sequestration. Commercial forestry could drive the circular economy by providing sustainably sourced pulp and wood-based materials. The latter, using wood-based products instead of carbon-intensive materials such as plastics, steel, and concrete, has gained growing popularity among businesses and consumers as more become environmentally conscious.

One example is the paper and pulp industry which is, surprisingly, one of the trailblazers in building circular economies. Today, major players in this sector are pioneering the transition in integrating multi-stage sustainability targets throughout their operation cycle. From transforming degraded pastureland through forest plantation, to applying harvested and processed materials for biofuel or fibre production, there are many more potentials to be unlocked while preserving these nature's treasures.

Figure 5: Commercial forestry and circular economy⁶



In a recent featured case on UN SDG's partnership platform, leading South American paper producers are striking a blow for sustainability. By interspersing commercial eucalyptus plantations with native forests, leading players launched land restoration plans to transform degraded pastureland into regenerative vegetation. This helps to create a balanced ecosystem

¹ International Union for Conservation of Nature, "Forests in South America"

² World Economic Forum, "Chart of the day: What if deforestation were a country?"

³ Global Forest Watch, "Interactive World Forest Map"

⁴ TreeCoin, "How eucalyptus trees could save the native forest in Paraguay"

⁵ IBÁ, "Brazilian Tree Industry"

⁶ Metsaboard, "We bring the forest to you"

that allows flora and fauna to move freely, and thus encourages biodiversity.

In nearly a decade, 10.7 million native seedlings were planted in 31,200 hectares of degraded land and soil across Bahia and Espírito Santo, the south-eastern states of Brazil where the Atlantic Forest once thrived. It is estimated that after 30 years, these areas will contribute to climate change by removing approximately 22 million tCO₂ (~709.29 tCO₂/ha) from the atmosphere.¹

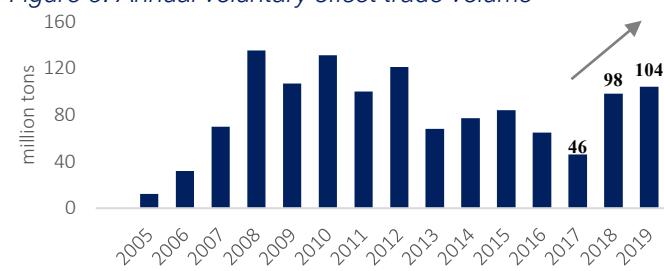
Carbon Credit and the Voluntary Offset Market

Carbon Credit is a permit that allows companies to emit one metric ton of carbon dioxide or an equivalent amount of other GHGs. It was initially created to limit companies' emissions under the "Cap-and-Trade System" regulated by regional or national authority. Since then, it has rapidly expanded into what is called the "Voluntary Market", where companies voluntarily commit to enhance their green agenda and purchase carbon credit to reach their emission goals.

The first boom came in the early 2000s, when the market surged after the Kyoto Protocol² prompting hopes of a standardised global market for trading carbon credits. Transactions peaked in 2008 with total value reaching US\$790m. However, after the collapse of the climate talks in Copenhagen the following year, the market crashed with many offset projects being shelved.

Today, the Voluntary Market is on a rapid re-bounce with the advance of the Paris Agreement. The growth is expected to continue with voluntary net-zero pledges from airlines, oil majors, car makers and big tech companies continuing to fuel the demand for carbon credit.

Figure 6: Annual voluntary offset trade volume³



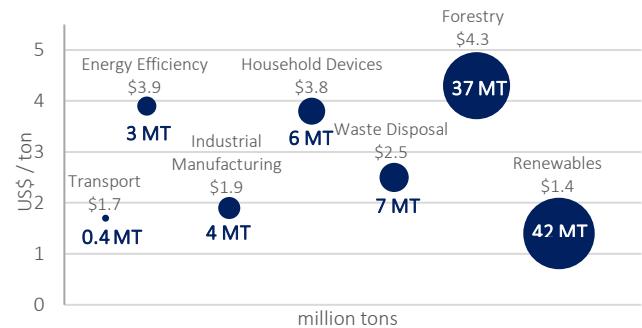
When the commercial eucalyptus is harvested and processed, they are separated into pulp and lignin. The latter has traditionally been burned in power stations, but more firms are now researching and testing its use in resins, thermoplastics and even carbon fibre. Several partnerships are seen between tech start-ups and pulp producers to develop wool-like fibres that can be produced mechanically from pulp without the need for chemicals - a process that is believed to require far less water than cotton production.

From 2017 to 2019, transaction volume has more than doubled, reaching a 7-year high of 104 million tons (mt) in 2019. A substantial part of the demand growth has been driven by carbon offsets from forestry projects, which recorded a 264% surge in trading volume from 13.9mt in 2016 to 50.7mt in 2018.³

Companies' race to net-zero has fueled the rapid expansion of voluntary carbon credit market. Transaction volume more than doubled from 2017-19, with forestry projects accounted for c.37% of the total trades.

Among seven major types of carbon offset projects⁴, Forestry and Land Use (FLU) projects achieved the highest offset price and ranked the 2nd in terms of transaction volume in 2019.³ According to a recent report published by *Ecosystem Marketplace*, strongest demand arises from forestry projects that cover afforestation and forest management activities in developing countries - thanks to their co-social benefits such as ecosystem conservation and social heritage protection.

Figure 7: 2019 transaction volume & price, by type³



¹ Sustainable Development Goals Partnerships Platform, "How Suzano's Restoration Program transforms degraded, pastureland into regenerative, native Brazilian vegetation"

² The predecessor of Paris Agreement; It established legally binding emissions reduction targets for developed nations only and was ended in 2012.

For the same reason, offset prices are much higher: US\$4.3/ton as compared to US\$1.4/ton from Renewables projects, where carbon credits are

generated from the avoided emissions as compared to the sequestration.¹

It is Time for Investors to Act

Leading airlines, technology firms and oil majors have taken their first moves. Amazon launched the US\$100 million Right Now Climate Fund last year in support of its net-zero target. In April, it invested US\$10 million to restore 4 million acres of forest, which will help remove over 18 million metric tons of carbon dioxide from the atmosphere. Apple, having made several forestry investments, recently revealed another plan to invest in a 27,000-acre mangrove forest in Colombia, helping to capture an estimated 1 million metric tons of CO₂ emissions over its lifetime.²

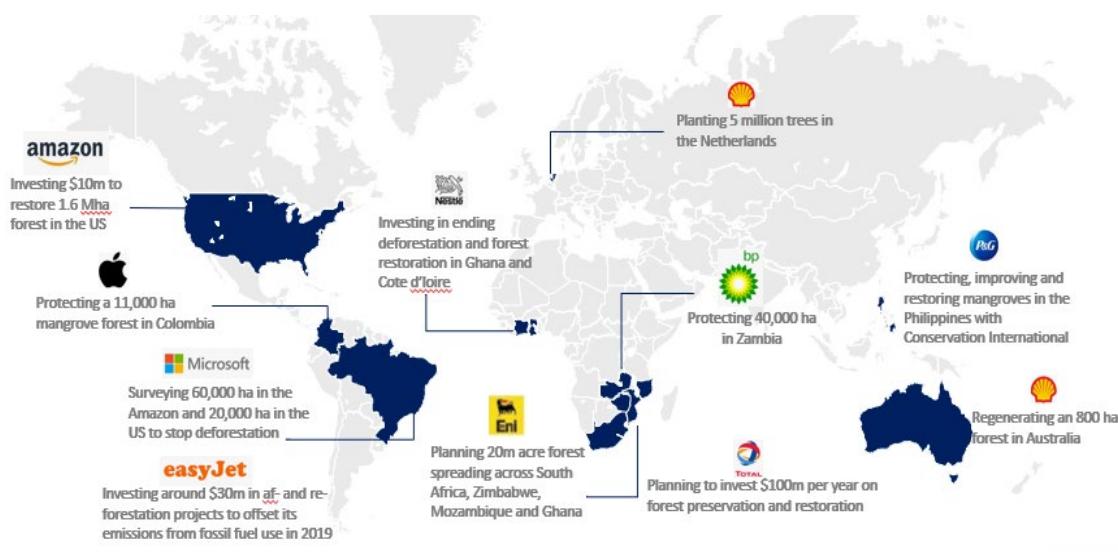
"This is not philanthropy, it's about investing in the medium and long-term", said Patrick Pouyanne, the chief executive of the French energy giant Total, who announced a US\$100 million annual forestry investment plan last year.

In August 2020, a coalition of more than 70 pension funds and investment managers representing assets of US\$16tn designed a net-zero framework, aiming to

decarbonize their existing portfolios while increasing investment in climate solutions. Defensive strategies would not be sufficient to drive the transition – there is a need for the rapid redeployment of capital. Assets with negative carbon footprint would therefore offer new thematic investing opportunities. Among various natural and technology-based solutions, we believe forestry would likely emerge as the most viable solution investment opportunity, thanks to its low cost, scalability and direct impacts.

With responsible management, forestry assets not only offer great carbon sequestration potential, but also could support a circular economy which brings much more societal and environmental benefits to the local community. On top of that, the rapid development of the voluntary carbon credit market offers additional incentives - for corporate and institutional investors who seek to align their financial goals with sustainability commitments.

Figure 8: Companies have already started to channel their resources to forest-related NBS projects³



¹ Ecosystem Marketplace, "Demand for Voluntary Carbon Offsets Holds Strong as Corporates Stick With Climate Commitments"

² Amazon, "As Part of Its Plan to be Net Zero Carbon by 2040, Amazon Commits \$10

Million to Restore and Conserve 4 Million Acres of Forest in the Appalachians and other U.S. Regions in Partnership with The Nature Conservancy"

³ United Nations Principles for Responsible Investment

About Us:

Astarte Capital Partners LLP is a global co-investment asset management firm with projects and investor base spread across Australia, Europe, the Americas and the Middle East.

Astarte's mission is to provide institutional capital access to non-traditional real asset strategies that offer long term opportunities. The firm's strategy is to partner with experienced real asset operators in order to establish specialist asset management platforms in different sub-sectors.

Astarte focuses on value-add real asset opportunities, within natural resources, infrastructure and thematic types of real estate, that are supported by underlying macroeconomic mega trends.

Contact Us:

Website: www.astartecp.com

Email: info@astartecp.com

Tel: +44 203 761 4300

Address: Michelin House, 81 Fulham Road London SW3 6RD, United Kingdom

Important Notice:

This presentation (the "Presentation") is intended for professional investors only and is made available by Astarte Capital Partners LLP ("Astarte"). This material is intended to be for information purposes only and is not intended as promotional material in any respect. The material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. It is not intended to provide and should not be relied on for accounting, legal or tax advice, or investment recommendations. Reliance should not be placed on the views and information in this document when taking individual investment and/or strategic decisions. Past performance is not a reliable indicator of future results. The value of an investment can go down as well as up and is not guaranteed. All investments involve risks including the risk of possible loss of principal. Information herein is believed to be reliable but Astarte does not warrant its completeness or accuracy. Some information quoted was obtained from external sources we consider to be reliable and is clearly referenced. No responsibility can be accepted for errors of fact obtained from third parties, and this data may change with market conditions. This does not exclude any duty or liability that Astarte has to its customers under any regulatory system. Regions/ sectors shown for illustrative purposes only and should not be viewed as a recommendation to buy/sell. The opinions in this material include some forecasted views. We believe we are basing our expectations and beliefs on reasonable assumptions within the bounds of what we currently know. However, there is no guarantee than any forecasts or opinions will be realised. These views and opinions may change. The content is issued by Astarte Capital Partners LLP, 81 Fulham Road, London, SW3 6RD. Registered No. OC399991 England. Authorised and regulated by the Financial Conduct Authority FRN 812389.