

# Welcome to your CDP Climate Change Questionnaire 2022

## C0. Introduction

### C0.1

#### **(C0.1) Give a general description and introduction to your organization.**

Sappi Limited is a leading global provider of pulp, paper and biotech solutions manufactured from woodfibre-based renewable resources. As a diversified, innovative and trusted leader focused on sustainable processes and products, we are building a more circular economy by making what we should, not just what we can. Our raw material offerings (such as dissolving pulp, wood pulp, biomaterials and timber) and end-use products (packaging and speciality papers, graphic papers, casting and release papers and forestry products) are manufactured from woodfibre sourced from sustainably managed forests and plantations, in production facilities powered, in many cases, with bio-energy from steam and existing waste streams. Headquartered in Johannesburg, South Africa, we are powered by the expertise of 12,500 people worldwide. We have manufacturing facilities on three continents in ten countries, as well as customers in over 150 countries worldwide. By continent, production facilities are as follows: ten in Europe, four in North America and five in South Africa. Sappi works closely with customers to provide relevant and sustainable dissolving pulp, paper (speciality, packaging and graphic), paper pulp and biomaterial solutions and related services. Sappi drives product innovation and the development of new uses for woodfibre, as well as residues and by-products from our production processes. For example, the field of biomaterials (cellulose composites, nanocellulose and lignins), biochemicals including hemicellulose sugars and bio-energy forest products materials which Sappi believes will play a key role in its future range of products, both as commercial products and for applications within Sappi. Value for Sappi is not only about delivering returns to our shareholders but also about maximising the value of every resource along our value chain to ensure those returns are sustainable. Through this lifecycle approach that harnesses the power of the circular bio-economy, we strive to minimise our negative impacts and increase our positive impacts on people and the planet while securing sustainable profit margins. All woodfibre used at the Sappi mills is either certified (77% in FY2021) or sourced from controlled, non-controversial sources in accordance with the certified FSC™ [FSC™ N003159] and PEFC [PEFC/01-44-43] (incl. SFI®) Chain of Custody systems.

Assets total US\$6.1 billion and in FY2021, sales amounted to US\$5,265 million. Sappi has a primary listing on the JSE Limited and a Level 1 ADR programme that trades in the over-the-counter market in the United States. At the end of FY2021 Sappi had 9,675 public

shareholders. Annual production capacity is: 5.5 million tons of paper; 2.5 million tons of paper pulp; 1.4 million tons of dissolving pulp.

Our value streams include:

- Pulp: Our dissolving (DP) brand, Verve, creates renewable alternatives for raw material feedstock to textiles, pharmaceuticals, foodstuffs, and more. DP is a highly purified form of cellulose extracted from sustainably grown and responsibly managed trees using unique cellulose chemistry technology. Sappi is one of the largest manufacturers of DP with a capacity of 1.4 million tons per annum and a 17% share of the global market
- Packaging and specialty papers: We offer a broad range of paper-based sustainable solutions as an alternative to fossil fuel-based, non-renewable packaging. Applications include: flexible packaging, containerboard and paperboard. The applications for our speciality papers include: label papers and self-adhesives, casting and release papers, dye sublimation papers, digital imaging papers and tissue paper. Sappi casting and release papers serve as moulds to impart textures on other surfaces, ranging from decorative laminates and synthetic leather to engineered films and rubber.
- Graphic papers: The group's market-leading range of coated and uncoated graphic paper products are used magazines, corporate reports and accounts, direct mail, high-quality brochures, catalogues, calendars and books
- Bioproducts: We are unlocking the chemistry of trees and meeting the challenges of a carbon-constrained world by establishing a strong position in adjacent businesses including: nanocellulose, sugars and furfural, lignosulphonates, biocomposites and bio-energy. Extracting more value from each tree is at the core of our core business model.
- Timber: Sappi's FSC and PEFC -certified tree plantations in South Africa give the company a high-quality woodfibre base. We own and lease approximately 394,000 hectares of which 136,000 hectares are maintained by Sappi Forests to conserve the natural habitat and biodiversity found there.

Given that our primary input, woodfibre is a natural resource which is negatively impacted by climate change and that our industry is energy-intensive, we recognise our responsibility in reducing greenhouse gas emissions and striving to mitigate the impacts of climate change throughout our operations.

## C0.2

**(C0.2) State the start and end date of the year for which you are reporting data.**

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	October 1, 2020	September 30, 2021	No

## C0.3

**(C0.3) Select the countries/areas in which you operate.**

Austria

- Belgium
- Canada
- Finland
- Germany
- Italy
- Netherlands
- South Africa
- United Kingdom of Great Britain and Northern Ireland
- United States of America

## C0.4

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

- USD

## C0.5

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

- Operational control

## C-AC0.6/C-FB0.6/C-PF0.6

**(C-AC0.6/C-FB0.6/C-PF0.6) Are emissions from agricultural/forestry, processing/manufacturing, distribution activities or emissions from the consumption of your products – whether in your direct operations or in other parts of your value chain – relevant to your current CDP climate change disclosure?**

	Relevance
Agriculture/Forestry	Both own land and elsewhere in the value chain [Agriculture/Forestry only]
Processing/Manufacturing	Both direct operations and elsewhere in the value chain [Processing/manufacturing/Distribution only]
Distribution	Both direct operations and elsewhere in the value chain [Processing/manufacturing/Distribution only]
Consumption	Yes [Consumption only]

## C-AC0.7/C-FB0.7/C-PF0.7

**(C-AC0.7/C-FB0.7/C-PF0.7) Which agricultural commodity(ies) that your organization produces and/or sources are the most significant to your business by revenue?**

Select up to five.

**Agricultural commodity**

Timber

**% of revenue dependent on this agricultural commodity**

More than 80%

**Produced or sourced**

Both

**Please explain**

Responsibly sourced, renewable woodfibre is a key input. Some revenue is derived from energy sales, but this energy derives from the pulping of woodfibre, meaning that our business is entirely dependent on timber. The wood and pulp needed for products is either grown by Sappi, produced within Sappi or bought from accredited suppliers. Sappi sells almost as much pulp as it buys. To calculate this figure, we have considered all our own pulp sales and purchases, as well as the revenue from timber-derived products.

**C0.8**

**(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?**

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	ZA E000006284

**C1. Governance**

**C1.1**

**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

**C1.1a**

**(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Other, please specify Board-level committee	The Sappi Board of Directors, together with the Audit and Risk Committee and the Social, Ethics, Transformation and Sustainability (SETS) Committee have responsibility for climate-related issues. The Sappi CEO, to whom the regional CEOs report, is a member of the Board and of the SETS Committee. The SETS

	<p>committee monitors compliance with Sappi’s Thrive25 strategy, applicable legal and regulatory requirements, Group Climate Change Policy, the Group Sustainability Charter and the Task force on Climate-related Financial Disclosure (TCFD). The committee reviews and assesses strategic and operational risks and opportunities and their impact on operations and strategy. The Audit and Risk and SETS committees also have responsibility for climate-related issues within the context of Sappi’s environmental management approach of producing more with less — an approach that has obvious economic benefits and which serves to further climate and circularity goals. It involves reducing our use of fossil energy and the associated greenhouse gas emissions across the full life cycle of our products. It also necessitates using less water and improving effluent quality, mitigating our impact on biodiversity and promoting sustainable forestry through internationally accredited, independent forest certification and environmental management systems. The latter include ISO 14001, ISO 9001, ISO 50001 (SEU and SSA) and EMAS (SEU). Enhancing energy self-sufficiency, improving energy-use efficiency and decreasing our reliance on fossil fuels in line with our approved science-based targets, thereby reducing our carbon footprint, are key strategic goals.</p> <p>The chairman of the SETS committee who has ultimate responsibility for climate change issues has served as the President of the International Union for the Conservation of Nature; Chairman of the UN Commission for Sustainable Development; Chairman of WWF(SA) and currently serves as the deputy chair of the South African President’s climate change commission.</p>
<p>Chief Executive Officer (CEO)</p>	<p>The CEO is a member of the Board and of the SETS Committee. The Sappi CEO manages and oversees the company’s day-to-day business operations, the corporate strategy and the work of the three regional CEOs (in Europe, North America, Southern Africa). Having regional CEOs in addition to the group CEO facilitates more detailed oversight of operating issues. The regional CEOs participate and/or chair quarterly sustainability steering committee/council meetings, which follow each Sappi region’s progress and work on the sustainability targets (including renewable energy and emissions reduction), audit results, and other climate related initiatives, amongst other issues.</p>

## C1.1b

**(C1.1b) Provide further details on the board’s oversight of climate-related issues.**

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
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<p>Scheduled – some meetings</p>	<p>Reviewing and guiding strategy</p> <p>Reviewing and guiding major plans of action</p> <p>Reviewing and guiding risk management policies</p> <p>Reviewing and guiding annual budgets</p> <p>Reviewing and guiding business plans</p> <p>Setting performance objectives</p> <p>Monitoring implementation and performance of objectives</p> <p>Overseeing major capital expenditures, acquisitions and divestitures</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>The Social, Ethics, Transformation and Sustainability (SETS) committee has an independent role with accountability to the Board and is comprised of a majority of independent non-executive members, whose duties are delegated to them by the board of directors in compliance with a board-approved terms of reference. The role of the SETS Committee, together with the Audit and Risk Committee, is to assist the Board with the oversight of sustainability issues within the company and to provide guidance to management’s work in respect of its duties. Given that Sappi’s business is almost entirely dependent on woodfibre, a natural resource which is impacted by climate change which is one of Sappi’s top ten risks, climate change-related issues are scheduled at all meetings. The SETS committee regularly reviews our energy usage in our manufacturing process and our performance against targets, including energy and emissions.</p> <p>The Committee’s responsibilities also include monitoring the company’s activities with regard to any relevant climate-related legislation, other legal requirements and prevailing codes of best practice. The Committee receives regular updates on progress towards energy and emissions goals. Such issues also form part of the function of the Regional Sustainability Councils (RSC) in North America, Europe and South Africa. These RSCs feed into the Global Sustainability Council which in turn reports to the SETS Committee.</p> <p>The SETS Committee convened three times in FY21. The reporting structure is as follows: Regional Sustainable Councils (RSCs), in Europe, North America and South Africa, are responsible for establishing and implementing on-the-ground strategy regarding climate change issues. The RSCs report to the Group Sustainable Development Council (GSDC) which is chaired by the Group Head: Investor Relations and Sustainability (who has a direct reporting line to the Group CEO). The GSDC reviews key trends and developments together with strategy and implementation and makes recommendations which are fed through to the SETS committee and ultimately, to the Sappi Limited board.</p>
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		<p>In FY2021, amongst other things, in relation to climate change the SETS Committee reviewed and approved the following: 1) 2030 Scope 1 and Scope 2 science-based decarbonisation target and associated capital plans prior to submission to the SBTi for validation; 2) carbon intensity of Sappi business units and operations against peer group companies 3) global energy intensity profiles, fuel sources and associated carbon emissions</p>
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## C1.1d

**(C1.1d) Does your organization have at least one board member with competence on climate-related issues?**

	<b>Board member(s) have competence on climate-related issues</b>	<b>Criteria used to assess competence of board member(s) on climate-related issues</b>
Row 1	Yes	<p>Given that climate is highly material to Sappi, the criteria used to assess competence of board members on climate-related issues include:</p> <ol style="list-style-type: none"> <li>1) In-depth knowledge of, experience in, as well as expertise and background related to the various local and global impacts of climate change on business (issues, challenges, risks and opportunities), with particular emphasis on the value chain in the forestry industry.</li> <li>2) Technical expertise that facilitates an understanding of 1.5 degree and 2.0 degree warming scenarios, carbon pricing and the requirements of the TCFD as well as the financial and other implications of science-based targets.</li> <li>3) The understanding to ensure climate-related issues are included across the three lines of defence in terms of risk, in all capex decisions and how to incorporate such issues into remuneration.</li> <li>4) As the impacts of climate change are rapidly evolving, we expect board members to keep up to date with trends and developments, with particular emphasis on regulation and consumer trends, as well as being able to robustly assess whether Sappi's response to climate change is aligned to the materiality and proportionality of the issue to the group.</li> </ol>

## C1.2

**(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify Group Head Technology	Both assessing and managing climate-related risks and opportunities <sup>1</sup>	Quarterly

<sup>1</sup>Research and alignment with the TCFD

### C1.2a

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**

The Group Head Technology reports directly to the CEO, sits on the Social, Ethics, Transformation and Sustainability (SETS) committee and is an executive member of Sappi Limited. Responsibility has been allocated to this individual because of their expertise in engineering, research, manufacturing and project execution as well as operational and risk management. This individual is responsible for overseeing:

- Research and development, including climate-change related research, such as the group's tree improvement research which focuses on improving the sustainable supply of woodfibre
- Research related to the reduction of greenhouse gas (GHG) emissions and energy as well as more efficient water usage—particularly important in South Africa, where climate change is putting pressure on freshwater resources
- Capital projects where climate-related issues such as energy efficiency, decreased energy usage and a reduction in GHGs are always a consideration
- The work of the E4 'cluster', a global team tasked with ensuring consistency and accuracy of environmental metrics.
- The work of the 1.5 Future Energy Technologies & Decarbonisation cluster, tasked with exploring and developing novel technologies for fuel shift and deep decarbonisation in terms of Scope 1 & 2 emissions, with a particular emphasis on energy; pulping; papermaking and bleaching.

Sappi has manufacturing operations in three regions: Europe, North America and South Africa. The issues and regulations relating to climate change differ considerably across these regions. In each region, climate change related issues are monitored by the Regional Sustainability Councils (RSCs), managed by the regional Chief Executive Officers and fed through to the Group Sustainable Development Council (GSDC) which is chaired by the Group Head: Investor

Relations and Sustainability, and ultimately to the Social Ethics Transformation and Sustainability (SETS) Board Committee. With the adoption of the TCFD framework and the establishment of climate related risks and opportunities for our mill assets in alignment with the framework, the regional operational risk leads monitor these risks on an ongoing basis, report up to the Group Head of Technology and work closely with the Global Risk Manager.

Should a group response to climate-related issues/ challenges be required, this would be formulated by the GSDC chaired by the Group Head: Investor Relations and Sustainability; with direction given by the Group Head Technology, the SETS Committee and overall responsibility allocated by the Sappi Limited Board. In addition, the Global Risk Manager, who reports to the Chief Financial Officer and Group Head of Technology, presents key risks on at least an annual basis to the Sappi Global Executive Committee for review. In addition, the Group Technology Management Team, the Group Risk Management Teams and the various clusters meet on average every three months to monitor and action specific business needs which may include subjects related to climate change initiatives. The process described above brings together manufacturing and technical expertise, current and future trends and developments, current and potential risks to give an overarching monitoring process for climate-related issues.

### C1.3

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	Our compensation packages are designed to attract, retain and motivate executives and all employees to deliver on performance goals and strategy. Sappi's Thrive25 strategy emphasises the importance of sustainability, including climate change. Examples of personal objectives for executives under the management incentive scheme include the roll out of the Thrive25 strategy, Sappi's annual regional and global 2025 sustainability targets and new products taken into commercialisation in alignment with Thrive25.

### C1.3a

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Corporate executive team	Monetary reward	Emissions reduction target	Our compensation packages are designed to attract, retain and motivate executives and all employees to deliver on performance goals and strategy. Sappi's

		<p>Energy reduction target</p>	<p>Thrive25 strategy emphasises the importance of sustainability, including climate change. Examples of personal objectives for executives under the 2020 management incentive scheme include the roll out of the Thrive25 strategy, Sappi’s annual sustainability targets and new products taken into commercialisation in alignment with Thrive25.</p> <p>Remuneration comprises fixed and variable components (these components are shown in the 2021 annual integrated report on page 155). The variable components are linked to predetermined and measurable performance and results criteria, and maximum levels have been set for their payment.</p> <p>Sustainability targets, including climate and forestry-related issues, form part of the overall business plan for Sappi Limited and globally. The outcomes of the Management Incentive Scheme in relation to all the sustainability targets are contained in the performance objectives of each mill and the personal objectives of all senior management. The personal objectives of the Group Exco are disclosed in the Annual Remuneration report. The payable amounts of incentives are linked to the executive’s position and achievement of annually set business and individual targets.</p>
<p>All employees</p>	<p>Non-monetary reward</p>	<p>Other (please specify)</p>	<p>Launched in 2013, the Group CEO Award recognised staff who demonstrated exemplary leadership, behaviour and value-add in line with the core Sappi values. A total of 33 Sappi staff have received Group CEO Awards over eight years. Since the original launch much has changed. Our strategic path has been guided first by 2020Vision and now by Thrive25. We revised our Value Statement and made our purpose tangible and published our Purpose Statement: "Sappi exists to build a thriving world by unlocking the power of renewable resources to benefit people, communities, and the planet". To ensure close alignment between staff recognition and this strategic journey, a new Group CEO award scheme was launched in 2020, the Group CEO Thrive Award. At Sappi we are committed to creating an environment with a clarity of purpose, a secure vision, and an ambitious but achievable strategy. We work to enable our staff to strive for and</p>

			<p>achieve success by clearly committing to our values and empowering individuals. To this end, the new Group CEO Thrive Award will recognise those individuals from across the group who have demonstrated a clear commitment to and delivery on any of our central tenets: Building OneSappi; Living our Values; Driving our Purpose (Thrive). All Sappi employees are eligible. Nominations are made by his/her regional chief executive officer and/or group functional head. We are looking for people who have taken the lead and shown initiative (beyond the norm) in driving these central principles in the execution of their duties. While this award is focused on individuals, team nominations will be accepted as warranted. One of the first award winners was the Programme Leader Land Management and Wood Properties, Sappi Southern Africa, who spearheaded the carbon calculation and flows methodology related to forests, as well as the quantification and development of mitigating strategies for climate change as related to forests for Sappi. This individual is a member of the World Resources Institute technical working group on Land which is developing new guidance on how companies account for and report land use, land use change, carbon removals and storage, bioenergy and other biogenic products.</p>
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## C2. Risks and opportunities

### C2.1

**(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

#### C2.1a

**(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

	From (years)	To (years)	Comment
Short-term	1	2	In line with immediate risks and opportunities

Medium-term	3	5	In line with management accounting's five-year financial forecast plan and with our Thrive25 strategy, launched in 2020
Long-term	5	30	This timeline is consistent with the SBTi and takes into account the nature of our mill operations and capital investments for long life assets; Sappi Forests' research planning horizons in response to climate change, as well as the EU's plans for carbon neutrality by 2050.

## C2.1b

### (C2.1b) How does your organization define substantive financial or strategic impact on your business?

Sappi uses the risk standards embedded in ISO 31000, as these facilitate continual improvement. Sappi has a board-approved framework for risk appetite and tolerance. Risk appetite is the total quantum to which Sappi wishes to be exposed, based on risk/return trade-offs for one or more desired and expected outcomes. This is the quantum of risk that the board believes will provide an adequate margin of safety within the group's risk capacity while enabling the achievement of strategic objectives. Risk tolerance is the amount of uncertainty Sappi is prepared to accept. This is the maximum level of loss or reduced earnings that can be absorbed without compromising key objectives, for example, return on investment. The risk-rating matrix considers both the likelihood and the magnitude of the impact should the risk event occur. The Board establishes specific risk tolerance levels for each category of risk. The likelihood of occurrence of all identified key risks is categorised as 1) Remote - Could happen once in 10 to 50 years [1]; 2) Unlikely - Could happen once in 2 to 10 years [2]; 3) Possible - Could happen once in 2 years [3]; 4) Likely - Could happen once in 6 months [4]; 5) Almost certain - Could happen once or more a month [5]. The potential monetary value of all identified key risks is categorised as 1) Minor, 2) Significant, 3) Material, 4) Critical, 5) Catastrophic. Sappi calculates risk exposure by multiplying the weighting (in square brackets above) of the likelihood of occurrence of the potential monetary impact. The calculated risk exposure is then displayed graphically in a "heat map" risk matrix. Climate-related risks are the responsibility of the Social, Ethics, Transformation and Sustainability Committee (SETS) and of the Audit and Risk Committee. EBITDA (earnings before interest, taxes, depreciation, and amortization) is considered a key indicator of the underlying profit performance of the group, reflecting both revenues and costs and aligning closely with our strategic goals of achieving cost advantages and growth. We define substantive financial impact as 20-25% of EBITDA, which, in FY2021, was between US\$98 – 130 million, based on overall EBITDA of US\$532 million (excluding special items). This relates to direct operations.

## C2.2

### (C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

**Value chain stage(s) covered**

Direct operations  
Upstream  
Downstream

**Risk management process**

Integrated into multi-disciplinary company-wide risk management process

**Frequency of assessment**

Annually

**Time horizon(s) covered**

Short-term  
Medium-term  
Long-term

**Description of process**

In following the TCFD framework we have a prioritized process that focuses on our assets, i.e., our direct operations - mills and South African plantations. We have immediate control of these assets and these are also where we have our greatest potential risk/reward. Upstream raw materials, timber and water, follow in priority with the caveat that the availability of water is integral to the operation of our mills' woodfibre supply.

Sappi has a well-established risk management process within a formal governance structure. For climate-related risks and opportunities we have leveraged this process. In addition, we have developed a unique approach where we incorporate historical experiences as identified by mill and forestry management teams in light of current short- and medium- term predictions. This is supplemented by our environmental and legal teams' knowledge of emerging regulations and other transitional concerns.

For the long-term time horizon, we have engaged with consultancies and/or academic institutions who have provided us with predictions for the climate variables most applicable to our operations. For transitional risks and opportunities, we again rely on our regional environmental and legal managers as well as the Group Sustainability Council for guidance.

In some instances, where a mill is experiencing more immediate risks as well as long term concerns, we have engaged external consultants to conduct a more detailed assessment as is the case at our Saiccor Mill in South Africa regarding water security. In terms of our plantation assets in South Africa, we have a long-standing approach of measuring and mitigating the impacts of climate change.

This risk approach is supplemented by ongoing review of industry dynamics, particularly risks and opportunities related to single use plastics, lightweighting of products and the transition to a low-carbon economy. This work is captured by regular meetings with our customers together with our global R&D teams.

Once the risks have been identified by the working groups, they go through the review

process of our risk governance structure. This begins with the Group Head Technology, the Group Head: Investor Relations and Sustainability and the Global Risk Manager who review the work of the regional risk management leads to develop a consolidated view. A recommendation is then made to the two Board committees, the Social, Ethics, Transformation and Sustainability (SETS) Committee and the Audit and Risk Committee, both of which share responsibilities associated with climate related risks. These committees are responsible for overseeing Sappi’s combined assurance framework, which also aims to optimise assurance coverage obtained from management, internal assurance providers and external assurance providers (globally: ISO 14 001, 9 0001 and forest certification; Europe and South Africa: ISO 50 0001, Europe: EMAS), on the risk areas affecting the group, including climate change. The Chair of the SETS Committee then presents the findings to the Board for approval.

This risk approach is supplemented by ongoing review of industry dynamics, particularly risks and opportunities related to single use plastics and the transition to a low-carbon economy.

## C2.2a

### (C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	<p>Sappi is exposed to a number of laws and regulations across a wide range of jurisdictions and in three different regions, North America, Europe and South Africa. A legal compliance programme designed to increase awareness of, and compliance with, applicable legislation is in place. The Group Compliance Officer reports twice per annum to the Group Audit and Risk Committee. Our aim is to minimise our impact on the environment, reinforced by five-year 2025 (established in 2020) regional and global targets which are aligned to our priority SDGs. These include SDG6: Renewable and Clean Energy; SDG12: Responsible Production and Consumption; SDG13: Climate Action and SDG15: Life on Land.</p> <p>The principles of ISO 14000, FSC™, SFI®, PEFC™ and other recognised programmes are well entrenched across the group. We have also made significant investments in operational and maintenance activities to reduce air emissions, wastewater discharges and waste generation. We closely monitor the potential for changes in pollution control laws, including GHG emission requirements, and act accordingly across our operations. We invest to maintain compliance with applicable laws and cooperate across regions to apply best practices in sustainability. Regulation is also monitored by the regional</p>

		<p>risk and sustainability managers, as well as by the Group Risk Manager. Developments regarding current regulation such as environmental regulation in each region are regularly presented at management and EXCO meetings, at the quarterly Regional Sustainable Development Council and Group Sustainable Development Council meetings and fed through the Social Ethics Transformation and Sustainability Committee and ultimately, to the board.</p>
<p>Emerging regulation</p>	<p>Relevant, sometimes included</p>	<p>Regarding transitional risks and opportunities, governments around the world are focusing on mitigating Scope 1,2 and 3 carbon emissions through various programmes ranging from carbon trading and taxes – already in place in some regions in which we operate (South Africa and Europe) to actual mandates eliminating the use of coal, for example. Currently in the US, there is no overall policy approach to climate change regulation. Accordingly, we monitor emerging regulation in the states where we have operations, as well as states from which we source woodfibre. In December 2020, the Canadian federal government released A Healthy Environment and a Healthy Economy (Climate Plan), a climate plan to exceed Canada's 2030 emission reduction targets and achieve net-zero greenhouse gas emissions by 2050. The federal government also signed the Glasgow Climate Pact in 2021 and released an updated nationally determined contribution plan (NDC) to match its commitments in the Climate Plan. The province of Quebec, in which our Matane Mill is situated, has its own emissions reduction commitment. While we monitor emerging regulation here, we do not see it as a significant risk, given that Matane Mill uses nearly 100% renewable energy and that electricity in the province is mainly derived from hydropower. However, we do also monitor emerging regulation related to Scope 3 emissions. The potential impacts of emerging regulation such as regulatory changes linked to the EU Green Deal continue to proceed through the European policy process and the Fit for 55 legislative package released in July 2021, as well as proposals to establish a broadened framework for ecodesign requirements for sustainable products. They are monitored by the regional risk and sustainability managers, the group risk manager and regional and group legal departments. We engage with policy development processes to support outcomes that are ambitious but also feasible to implement. In terms of both plantations and mills, we liaise with industry associations to remain informed about emerging regulation and, if necessary, participate in formulating a strategic response. Other regulations, for example, related to single use plastics and extended producer responsibility, are also monitored. Developments regarding emerging regulation are presented at the quarterly RSC and GSDC meetings and fed through</p>

		<p>the Social Ethics Transformation and Sustainability Committee and ultimately, to the board.</p>
<p>Technology</p>	<p>Relevant, sometimes included</p>	<p>Technology is a core pillar of competitive advantage in our industry and represents a risk if we do not make relevant, ongoing technology investments. Our R&amp;D spend in 2021 was US\$43 million, representing 0.82% of sales, which is within the range of similar industries.</p> <p>In terms of plantations, as we experience the impacts of a changing climate on our woodfibre sources, so we are intensifying our focus on climate research. Our world-leading tree improvement programmes which focus, amongst other things, on mitigating the impacts of climate change, are a core pillar of our competitive advantage.</p> <p>In terms of mills and markets Sappi is committed to developing new processes and biomaterials which extract more value from each tree and support our business strategy to move into new and adjacent markets where woodfibre can replace carbon intensive products.</p> <p>Under the umbrella of the 1.5 Future Energy Technologies &amp; Decarbonisation cluster, we are exploring technologies for fuel shift and deep decarbonisation in terms of Scope 1 &amp; 2 emissions, with a particular emphasis on energy; pulping; papermaking and bleaching.</p> <p>In addition, we are leveraging technology to provide customers with products which have enhanced environmental credentials as per the following example: Packaging for the food industry that meets stringent health and safety standards and is also recyclable is a long-standing challenge. Sappi has been working with leading consumer brand owners to develop and supply renewable paper-based packaging solutions by understanding and supporting the goals of making their packaging recyclable without compromising on food protection and shelf life. One example is our Ultracast Viva release paper which won the Green Product Award 2021 jury prize in the fashion category. The award programme recognises companies and start-ups that have distinguished themselves by their sustainable practices and product results. Over a thousand applicants from 51 countries were screened for this year's nomination. An industry breakthrough, Viva is the first premium high-fidelity casting paper compatible with solvent-free systems. This textured release paper is now the new standard for high-fidelity polyvinyl chloride, polyurethane (PU), semi-PU and solvent-free casting systems for high quality coated fabrics and textured materials. There is a global movement to limit or eliminate solvent-based casting systems to reduce chemical waste and pollution with which Viva aligns.</p>

Legal	Relevant, sometimes included	<p>Legal aspects such as our compliance with the US Lacey Act, EU Timber Regulation, Australian Illegal Logging Prohibition Regulation, and other legal requirements are monitored by the investor relations, legal and strategy departments. So too, are current and potential carbon taxes, as well as legal challenges related to the carbon neutrality of biomass which could adversely impact on our GHG reduction goals.</p>
Market	Relevant, sometimes included	<p>Market loss is monitored by the sustainability and risk managers, as well as by the sales teams. Factors considered include current and emerging consumer trends and developments, together with competitor, customer and consumer activity. However, the potential of market loss is mitigated by the fact that consumers are looking for products with lower carbon footprint and sound environmental credentials like those we offer. Ongoing legislative edicts and consumer concerns about fossil fuel-based products mean that companies are rethinking their packaging needs. Governments, retailers and brand owners all over the world are seeking paper-based packaging solutions for their products, and eco-conscious consumers and shoppers are pressuring brand owners for more biodegradable, lightweight, recyclable and compostable packaging, all reflecting a more circular economy.</p> <p>We continue to focus on making everyday products more sustainable. Sappi Symbio, a natural fibre composite material combining high-quality cellulose from woodpulp in a polymer matrix has achieved commercialisation in the automotive industry, due primarily to its strength and lightweight properties. Our Valida fibrillated cellulose pilot plant is running at capacity with repeat orders in diverse application fields, including wound care applications. We are moving ahead with our furfural pilot plant at Saiccor Mill. Established and future market uses for furfural include resins, solvents and as a sustainable platform chemical for the production of a variety of derivatives to replace oil-based chemicals. Our lignin business continued with its expansion trajectory in FY2021 and for the third year in a row, growth exceeded 30%.</p>
Reputation	Relevant, sometimes included	<p>Deforestation is a significant reputational risk as many consumers erroneously equate deforestation and the attendant climate change impacts with pulp and paper companies. We neither harvest nor buy woodfibre which originates from tropical natural forests and our wood sourcing causes zero deforestation. Our commitment to zero deforestation means: knowing the origin of woodfibre; ensuring that suppliers implement practices to promptly regenerate forests post-harvest, which is required under the global forest certification standards that Sappi is committed to upholding; implementing our Supplier Code of Conduct to assess supply chain, ethical and legal risks and not sourcing from suppliers associated with deforestation.</p>

		<p>Responsible sourcing is an important aspect of our reputation and is underpinned by the fact that globally, 77% of fibre supplied to our mills is certified. The balance is procured from known and controlled sources. In South Africa, 100% of Sappi's owned and leased plantations are FSC certified and PEFC certified for Forest Management. In South Africa and North America, Sappi works with landowners to increase certification. In Europe, Sappi benefits from high coverage of forest certification (FY2021: 87%) and works to maintain and expand this through our sourcing practices and by collaborating with the forest certification systems especially PEFC International.</p> <p>We have also participated in efforts to expand sustainable forestry practices and certification: SNA works closely with a variety of programmes dedicated to providing logger education and continuous education, including SFI State Implementation Committees, Maine Forest Products Council, Maine Tree Foundation, and numerous academic programmes (providing financial and in-kind support). In South Africa, we helped to develop the Sustainable African Forest Assurance Scheme (SAFAS) and have also established a group forest certification scheme for small- and medium-sized growers, paying growers in the scheme a premium for certified timber.</p> <p>We partnered with Birla Cellulose, one of the leading viscose manufacturers in the textile value chain, to provide a forest-to-garment traceability solution for 22 global brand owners using blockchain technology. We are also an advisory partner in the development of the Textile Exchange biodiversity module.</p>
<p>Acute physical</p>	<p>Relevant, sometimes included</p>	<p>Plantation risks (direct operations) are monitored by the regional and sustainability managers and by Sappi Forests' planning and research division. Acute physical risks in the form of fire are present in South Africa. Sappi Forests has a comprehensive Risk Management System which comprises risk assessments, monthly compliance checks, management procedures, standards and general back-up information. Prior to each fire season, fire competitions and simulated fire training are conducted at each plantation. Assessments are conducted on all role players, which will highlight any shortcomings. Mitigation takes place to rectify non-conformances that are identified, and the information gathered is used to ensure that all role-players receive the correct training. Fuel load maps are prepared for all districts to assist in the management of fuel loads and identification of major risks. When re-planting, this often involves the prescribed burning of harvest residue, but Sappi Forests is increasingly making use of mulchers as a more expensive but lower risk alternative. Regular weeding helps reduce fuel loads. Integrated weed management planning is done for</p>

		<p>all plantations. The assessment of fuel load status, the age and genus of the crop provides the forester and Incident Commander with a tool to calculate the damage potential at a compartment level. This facilitates an average risk rating per block or cluster of blocks which allows for strategic planning. This enables the forester to focus their resources at the right places. Part of this exercise is to produce risk rating maps at compartment level to enable foresters to plan fire protection systems and execute fire response activities. Each plantation/district has a weather monitoring station that is strategically placed to keep track of the Fire Danger Index (FDI). The FDI data is reported automatically using a cell phone or the camera detection data network to a central database (Vital Fire Weather) where the data of different landowners are consolidated. Vital Fire Weather then sends alerts via SMS and e-mail. When the Fire Danger Index (FDI) goes beyond the yellow class (reaches Orange) all aerial and ground firefighting resources are placed in strategic positions, all airstrips are manned and detection centres are instructed to activate aircraft immediately should a fire be detected within or near our plantations.</p>
<p>Chronic physical</p>	<p>Relevant, always included</p>	<p>In South Africa, there is the potential for our mills and plantations to be impacted by low availability of water due in part to climate change. We monitor the situation on an ongoing basis. Woodfibre is a versatile, renewable, natural resource in high demand from many sectors. High market demand can be risk in that it can at times lead to local competition and short supply especially when woodfibre production has reduced due to climate change-induced events such as fire, insects, drought or disease. Accordingly, availability is assessed as part of an ongoing risk management process. In Europe, we mitigate fibre supply risk through well-established wood sourcing companies (proNARO GmbH in Germany, Sapin S.A in Belgium, Papierholz Austria GmbH in Austria, Metsä Forest in Finland) all of which operate on the ground with an established pool of forest owners and wood suppliers. In North America, our operations do not currently face material risks associated with climate change.</p> <p>A preliminary climate change investigation conducted by Sappi Forests' scientists indicated that climate change is likely to be more significant in Southern Africa compared to the world average. Accordingly, chronic physical risks are a key risk mitigation focus. Health of growing stock is measured through continuous evaluation of trees by growth rate, age, utilisation efficiency, annual measurement programme using a pre-harvest measurement of 20 000 hectares per annum (8%), as well as an airborne laser scan of an entire plantation conducted every second year and using trends and drivers, e.g. permanent sample plot programmes (PSP) and actual versus planned yields per compartment.</p>

		<p>Research and development play a significant role in tree growth and improved supply chain efficiency. Conventional breeding methods are no longer viable as change is rapid, breeding cycles are too long, and species variation is not sufficient to respond to future threats. Molecular technology and biotechnology tools are used to ensure forest sustainability and precision agriculture. Other methods include hybrid varieties where desired traits of two species are combined to increase adaptability to marginal areas; and mulching not burning, as mulched areas hold more soil water and have a positive impact on growth.</p>
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## C2.3

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

## C2.3a

**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

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### Identifier

Risk 1

### Where in the value chain does the risk driver occur?

Upstream

### Risk type & Primary climate-related risk driver

Acute physical  
Drought

### Primary potential financial impact

Increased direct costs

### Company-specific description

Drought adaptability includes the capacity of a plant to adapt to both drought stress and to an increase in water content thereafter. More frequent, longer lasting and more severe droughts are anticipated over the Southern African region due to climate change. This is a significant risk for Sappi, given that we own and lease 394,000 hectares of plantations in this region and that the drought adaptability of our trees will most likely be impacted. As the planet continues to warm, rainfall reductions over the summer rainfall region are expected to become more pronounced, and the rising temperature drives rising evaporation. Accordingly, the 'water balance' is more strongly negative than the decline in rainfall alone. The hydrological cycle acts as an 'amplifier' of climate change. A 10% climatic drying results in about a 30% reduction in river flow (and conversely, an

increase in wetness leads to a disproportionate increase in river flow). Levels of global warming of 2°C or higher are associated with substantial increases in drought risk in the summer rainfall parts of Southern Africa where Sappi's plantations are situated. When several dry years follow directly on one another, the impact on plant production is extremely negative.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

4,700,000

**Potential financial impact figure – minimum (currency)****Potential financial impact figure – maximum (currency)****Explanation of financial impact figure**

It is assumed that the area affected by multi-year droughts will increase from 20,000 ha to 40,000 ha between 2030 to 2080. The growth impact is estimated as a 30%, 40% and 50% reduction in growth for the 2030, 2040 and 2080 periods, respectively, as both the length and severity of the droughts will probably increase. The assumption is also made that most of the trees will survive and that the largest impact will be a reduction in growth over the drought period based on the growth responses observed in the Zululand region during the 2015 to 2018 drought. Thus, volume loss due to drought is predicted to increase to US \$4.7 million in 2030 with further increases to US \$9.2 million and US \$15.7 million in 2050 and 2080, respectively.

**Cost of response to risk**

3,200,000

**Description of response and explanation of cost calculation**

The cost of response is part of R&D costs (US\$3.2 million in 2021) as the Tree Breeding and Tree Biotechnology Research Programmes are developing more drought tolerant genotypes, whilst Land Management is investigating cultural options to reduce the negative impacts of drought, Production losses due to early salvage felling of drought damaged compartments have not been quantified.

## Comment

Southern Africa, being largely a semi-arid region with high inter- and intra-seasonal precipitation variability, is very vulnerable to climate change. Evidence is mounting that changes are occurring in many of the Southern African climate characteristics, such as rising temperatures with indications that the rate of warming has been increasing, especially in the last two decades. Plantation forestry in South Africa is sensitive to climate change as projected increases in temperature and changes in rainfall can result in some areas not being climatically suitable for a specific genotype while some areas might become climatically unsuitable for forestry. Although other areas might become climatically suitable, it is also important to note that expansion of plantation forests is limited in South Africa due to availability of suitable land and water legislation. It is estimated that the impact of climate change will reduce the Gross Domestic Product of South Africa's Forestry Sector by 6.8% and 8.5% on RCP4.5 and RCP8.5 scenarios in 2050, respectively.

Sappi's timber plantations are located in the Mpumalanga and KwaZulu-Natal provinces. The elevation of these areas ranges from sea level to 2,000 metres above sea level. Exotic trees (Pine and Eucalypt) have been planted on previously non-forest ecosystems (predominantly grasslands). All plantation areas are restricted to relatively high rainfall areas (exceeding 750 mm per year). Most of the plantation areas receive summer rainfall (October to March), generally in the form of high intensity thunderstorms. About 11 % of Sappi landholdings are within the sub-tropical zone, with the majority occurring in the warm temperate zone. Across all land holdings, 69% of the area falls in the moist climate category and 31% falls in the dry category where the ratio of Mean Annual Precipitation to Potential Annual Evapotranspiration is less than one.

### Identifier

Risk 2

### Where in the value chain does the risk driver occur?

Direct operations

### Risk type & Primary climate-related risk driver

Chronic physical

Other, please specify

Increased ecosystem vulnerability

### Primary potential financial impact

Increased direct costs

### Company-specific description

Sappi's business is dependent on woodfibre, a renewable natural resource, grown in sustainably managed forests and plantations, including 394,000 ha of owned and leased plantations. As with other agricultural products, trees are susceptible to pests and diseases. Given that insects are poikilothermic (their body temperature depends on

the environmental temperature), temperature is the most important environmental factor affecting insect behaviour, distribution, development and reproduction. The general impact of increased temperature on insect pests might result in: increased reproduction and flight duration; expansion of geographic range (naturally or through severe weather such as storms and strong wind); increased survival rates of overwintering populations; increased risk of introductions of invasive insect species; increased incidence of insect-transmitted plant diseases due to range expansion and rapid reproduction of insect vectors; reduced effectiveness of biological control agents and natural enemies. Thus, the additional temperature and water stress are likely to increase pest and disease-related growth losses. Stricter rules regarding use of pesticides by government and certification bodies will make it more difficult and expensive to control pest and disease outbreaks, as well as invasive plants. A recent outbreak of the fungal pathogen, *Quambalaria eucalypti*, serves as an example. The fungicide successfully used in the past is not registered specifically for control of this fungus on plantation forestry trees. Due to it not being registered for use in forestry, it was removed from the Sappi approved pesticide list. In FY2021, Ngodwana and Clan Nurseries experienced problems with *Quambalaria* leaf and shoot blight. Not being able to treat the outbreak contributed to a ~1.8 million *Eucalyptus grandis* x *E. nitens* hybrid (GN) cutting deficit at Ngodwana and a 1.2 million plant deficit at Clan Nursery.

Time horizon

Long-term

#### **Likelihood**

Very likely

#### **Magnitude of impact**

Medium

#### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

#### **Potential financial impact figure (currency)**

8,300,000

#### **Potential financial impact figure – minimum (currency)**

#### **Potential financial impact figure – maximum (currency)**

#### **Explanation of financial impact figure**

The financial impact figure has several components:

1) A scenario where only one pest or disease affects one genotype in both regions was assumed. Due to the lack of a model linking climate to pest and disease impact, a growth impact of 2.8% reduction in growth in 2030 compared to 1985 was assumed, which was escalated by the mean temperature increase prediction for future periods using a linear relationship. Further assumptions were that one genotype planted over 30% of the landholding (e.g., *E. dunnii* current area) will be affected in both regions

(worst case). Estimates of potential growth loss (excluding pesticide treatment cost) range from US \$1.6 million (the figure assumed here) in 2030 to US \$7.6 million in 2080. It should be noted that multiple pest and diseases could impact multiple genotypes simultaneously and thus the estimated losses could easily double or triple in size.

2) Nursery losses over FY21 as a result of Quambalaria leaf and shoot blight amounted to US \$500,000 (included in the estimated financial impact). Extrapolation of the losses in plants to losses incurred in the plantation easily adds another US \$1.2 million (included in the estimated financial impact), if we assume a loss of 10% by planting a second-choice species.

3) If the risk of losing all 12 million GN plants in the nursery (which is very possible) is considered, the associated financial costs could be at least US \$5 million per annum (included in the US \$8.3 million).

4) 4) Potential impact associated with an increase in invasive plants has not been quantified or included in the estimated impacts.

### **Cost of response to risk**

3,200,000

### **Description of response and explanation of cost calculation**

The cost of response is part of the R&D costs (US \$3.2 million in 2021) as the Tree Breeding and Nursery Technologies Programmes are developing and propagating more pest and disease tolerant genotypes, whilst Land Management together with the Pest and Diseases Programme is investigating cultural options to reduce the negative impacts of pest and diseases. Pest and diseases research is conducted to find alternative chemical, biological and physical control options.

### **Comment**

The spread of invasive plants is likely to increase as these plants are better adapted to drought conditions. Furthermore, the increase in fire frequency can favour invasive plants. According to the Intergovernmental Panel on Climate Change (IPCC), this will result in increased expense on weed control; decrease in volume production; and a further increase in fire risk. Stricter rules regarding use of pesticide by government and certification bodies will make it more difficult and expensive to control pest and disease outbreaks as well as invasive plants.

### **Identifier**

Risk 3

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type & Primary climate-related risk driver**

Acute physical

Cold wave/frost

### Primary potential financial impact

Increased direct costs

### Company-specific description

Due to global warming, there might be a perception that frost frequency will reduce, which in turn will reduce frost risk. However, farmers and foresters might respond to the warming climate, reduced frost frequency and shift in rainfall to late season, by planting outside recommended planting windows or planting less frost tolerant species on sites, which can result in maintaining or increasing the frost risk. For many plants, elevated CO<sub>2</sub> will reduce resistance and tolerance to freezing temperatures as a result of a slowdown in low-temperature acclimation and an increase in ice nucleation temperatures. Under increased CO<sub>2</sub> levels stomatal conductance is reduced, which leads to reduced transpiration, which in turn results in higher daytime leaf temperatures. Elevated CO<sub>2</sub>, alone or interacting with ultraviolet-B rays from the sun, may increase the foliar ice nucleation temperatures, making plants vulnerable to moderately cold conditions. Although temperatures might increase, in general, temperature variability may increase. This can lead to more frequent freeze and thaw fluctuations, which may delay plant hardening and hasten de-hardening. Many plants' tolerance to frost only increases after they have been exposed to low temperatures for a sustained period. The repeated freeze and thaw cycles can also increase the risk of xylem embolism and reduce xylem conductivity, leading to crown dieback. In areas where climate change will result in more frequent drought events, these could limit post-freeze plant regrowth and recovery while freeze damage will weaken the plants' tolerance to drought.

### Time horizon

Long-term

### Likelihood

Likely

### Magnitude of impact

Medium

### Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

### Potential financial impact figure (currency)

312,587

### Potential financial impact figure – minimum (currency)

### Potential financial impact figure – maximum (currency)

### Explanation of financial impact figure

In 2019 and 2020, 310 and 224 hectares, respectively, were lost due to frost damage. Using the total establishment cost per ha of US\$783 and across the 200 hectares damaged area the possible loss through re-planting of frost damaged areas is

US\$154,362 per annum. If the assumption is made that all the frost damage occurs in the first growing season and only one year's growth (average MAI of 15.7 wwt/ha/a) is lost over the 200 ha, the potential loss in timber production is 3,140 wwt/ha/a. Thus, the total direct loss could potentially be US\$312,587.

### **Cost of response to risk**

3,200,000

### **Description of response and explanation of cost calculation**

The cost of response is part of the R&D costs (US \$3.2 m in 2021) as the Tree Breeding and Nursery Technologies Research Programmes are developing and propagating more frost tolerant genotypes. Another response to the problem is to plant less productive species and genera (that are more tolerant to frost) on the sites with a high frost risk, which results in lower timber yields. However, the cost of this response is difficult to calculate.

### **Comment**

Frost-induced pigment loss, structural injuries and impaired light capture by photosystems will be exacerbated by simultaneous exposure to ozone, the level of which is increasing in several developing regions of the world, due to climate change.

### **Identifier**

Risk 4

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type & Primary climate-related risk driver**

Acute physical  
Wildfire

### **Primary potential financial impact**

Decreased revenues due to reduced production capacity

### **Company-specific description**

Due to increasing temperatures, the risk is that the likelihood of wildfires will increase. This could lead to increased fire management expenses; increased growing stock losses; infrastructure damage; increased soil erosion and flooding; negative impacts on human mental and physical health (e.g. smoke pollution); as well as reputational risk through impacts on neighbouring communities. This is important to Sappi given that a) our business is dependent on woodfibre growth in sustainably managed forests and plantations and b) in South Africa we own and lease 394,000 hectares of plantations.

### **Time horizon**

Long-term

### **Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)****Potential financial impact figure – minimum (currency)**

17,200,000

**Potential financial impact figure – maximum (currency)**

126,400,000

**Explanation of financial impact figure**

The minimum figure (which is also the cost of response) represents insurance (US\$805,000 and fire protection costs (US \$16.4 million). The maximum figure is based on an estimated loss of 841,000 white wet tons and represents the replacement value of these tons over and above insurance cover.

**Cost of response to risk**

17,200,000

**Description of response and explanation of cost calculation**

Sappi manages risks via an integrated Fire Risk Management System. In addition, significant investment has improved fire detection, while fire crew training and enhanced equipment has significantly improved response times to fires. Sappi staff play key roles in the provincial and local fire protection associations ensuring better optimal integrated fire risk management, sharing technical knowledge, resources and skills with broader neighbouring communities, and reducing risk more holistically. More specific action: Fire protection (prepare fire-breaks); manage fuel loads; manage open areas and non-commercial areas; networking system to improve response time through strategic placement of water tankers and response vehicle as well as participation in Fire Protection Agencies and use of camera systems to detect fires as soon as possible. In addition, weather forecasting, weather monitoring and prediction of fire danger index (FDI) are conducted. During fire season, activities are managed according to FDI, e.g., when FDI becomes orange and red, field activities are stopped and resources are moved to fire standby positions. Explanation of cost calculation: Insurance costs were US \$748,000 and firefighting costs for the year were US \$16.4 million in FY2021.

**Comment**

It should be noted that if there is an increased demand for timber the external buy-in price of wood is likely to increase substantially, which has not been factored into this calculation.

**Identifier**

Risk 5

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Chronic physical

Changing precipitation patterns and types (rain, hail, snow/ice)

**Primary potential financial impact**

Increased direct costs

**Company-specific description**

In the summer rainfall region in South Africa early spring rainfall (August, September October) is expected to decrease. This could negatively impact re-establishment plantings, by extending the area that is temporarily unplanted by one month or up to a year.

**Time horizon**

Long-term

**Likelihood**

Very likely

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

1,600,000

**Potential financial impact figure – maximum (currency)**

4,800,000

**Explanation of financial impact figure**

If temporarily unplanted areas (TUP) equal to 1/6th of the entire planting programme are extended by one month, growth losses over 3,500 ha for that month could amount to 19,833 white wet tons (wwt) (assuming an average growth rate of 17 wwt/ha). If TUP has to be carried for 12 months, the growth loss over 3,500 ha could be 59,500 wwt.

**Cost of response to risk**

2,220,000

### Description of response and explanation of cost calculation

Sappi replants 21,000 ha, annually, between October and March (summer rainfall period). Future climate modelling predicts reduced rainfall in October and in November (2050 onwards). Thus, it is assumed that in 2030 one month's planting area (3,500 ha) might have to be watered twice every month, in 2050 the area might increase to 5,250 ha and by 2080 it could be 7,000 ha. In addition, the Sappi nurseries are switching over to production of plants in Ellepots (growing media contained in biodegradable sleeve) to produce plants with a more robust root system that will be better suited to tolerate harsh environmental conditions. This additional expense is not included in the cost of response.

### Comment

Sappi is increasingly using mulching to manage post-harvest residue instead of burning the residue. The remaining organic material conserves soil moisture and has a cooling effect on the soil. In 2021 Sappi mulched 4,858 ha at an expense of US \$1.8 million.

### Identifier

Risk 6

### Where in the value chain does the risk driver occur?

Direct operations

### Risk type & Primary climate-related risk driver

Chronic physical

Changing precipitation patterns and types (rain, hail, snow/ice)

### Primary potential financial impact

Increased direct costs

### Company-specific description

Mean annual temperatures are expected to increase by between 3°C and 7°C. This increase in temperature in association with small changes in rainfall as well potential changes in inter-annual rainfall patterns that will extend the annual dry period in the summer rainfall region will increase plant stress and will have a negative impact on tree growth.

### Time horizon

Long-term

### Likelihood

Very likely

### Magnitude of impact

Medium

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

2,700,000

**Potential financial impact figure – maximum (currency)**

9,600,000

**Explanation of financial impact figure**

The relationship between temperature and production of Eucalyptus trees for Brazil was used to estimate possible future temperature increases on tree growth. This work comes with a severe warning that this model was developed for Brazil and not tested in South Africa. Furthermore, it excludes the combined impact of both temperature and rainfall as well as the change in rainfall distribution that can be expected.

The average growth rate of the SSA plantations in 2015 (15.7 wwt/ha/year) was used as a baseline. Based on past and future Mean Annual Temperature (MAT) values the percentage decrease in biomass production was estimated. The initial reduction of 4.1% between 1985 and 2030 was linearly reduced (15/45) to 1.4% to take the 2015 baseline into consideration. It is estimated that the volume production will decrease by 3.9% between 2030 and 2050 and that the reductions will increase further in subsequent intervals to be 5.8% between 2070 and 2090. This will result in a Mean Annual Increment (MAI) reduction from 15.7 in 2015 to 13.3 wwt/ha/year in 2090. Timber production from own land holdings will thus reduce from 3.9 million wwt/year to 3.3 million tons per year. To buy in this timber from external suppliers will cost Sappi US \$2.7 million per year in 2030 and might increase US \$9.6 million in 2080 at current prices. It should be noted that if there is an increased demand for timber the external buy-in price of wood is likely to increase substantially, which has not been factored into this calculation.

**Cost of response to risk**

3,200,000

**Description of response and explanation of cost calculation**

Research and development of genetically improved planting stock has been conducted at Sappi's Shaw Research Centre in Howick for over 25 years. Tree improvement is aimed at increasing pulp yield produced per hectare by testing various species and hybrids across Sappi's diverse landholdings. Besides growth improvements, trees are bred for superior wood properties and resistance to biotic and abiotic threats including frost, drought, pests and diseases. A broad genetic base, acquired over 25 years and a skilled breeding team exploiting new technologies are some of the assets of the programme. Nursery technologies research improve propagation techniques of elite genotypes. Land management and Pest and Disease Programmes conduct research on stress detection, climate change predictions, site classification to improve site-genotype matching, risk mapping, nutritional research, site resilience, biological control measures,

national pest and disease surveys etc. The combined direct R&D expenditure of just the Sappi Nursery Technologies, Land Management, Pest and Diseases and Tree Breeding Programmes was US \$3.2 million in 2021.

### Comment

For the period 2021-2050, relative to the 1961–1990 period, under low mitigation, temperatures are expected to increase by 1 to 2.5°C over the southern coastal regions and increases over the interior are likely to increase by more than 3°C. For the period 2070–2099 the southern coastal regions can expect temperature increases of 2 to 3°C, whilst the interior can expect increases of more than 4°C and the northern interior can expect increases greater than 7°C. For the period 2021–2050 heat-wave days are expected to increase with more than 10 to 20 days per year over most of the country. For the period 2070–2099 heat-wave days are expected to increase drastically with 80 or more days per year being heat-wave days over much of the interior.

## C2.4

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

### C2.4a

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

---

#### Identifier

Opp1

#### Where in the value chain does the opportunity occur?

Direct operations

#### Opportunity type

Products and services

#### Primary climate-related opportunity driver

Shift in consumer preferences

#### Primary potential financial impact

Increased revenues through access to new and emerging markets

#### Company-specific description

Under our Thrive 25 strategy, one of Sappi's key drivers is to grow dissolving pulp (DP) capacity and establish the Verve brand as the industry reference point and Fibre of Choice. This is based on our view that as global textile demand grows, driven by population growth, fashion and rising wealth in developing economies, the need to develop more climate-friendly solutions, derived from renewable materials that are not fossil-fuel based, will drive increasing market share for viscose, which is derived from

dissolving pulp. Our growth ambitions are underpinned by our focus on sustainability (including the aspect of traceability) which, we believe, will become increasingly important as a key differentiator and determinate in defining value for our customers and for Sappi. In addition, the Single-Use Plastics Directive (SUPD), which aims to combat environmental problems caused by single-use plastic products, presents an opportunity for Sappi to capture part of the 500 000 tons of petroleum- based fibres that are used globally each year to produce wipes. Our 110,000 tpa environmental enhancement and capacity expansion project at Saiccor Mill highlights our confidence in the DP market.

**Time horizon**

Medium-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

26,600,000

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

This is based on a conservative growth in the DP market of 5% and represents 5% of EBITDA in FY2021 (US\$532 million in FY21)

**Cost to realize opportunity**

51,600,000

**Strategy to realize opportunity and explanation of cost calculation**

The cost given here is the capacity expansion and environmental improvement project which will increase Saiccor Mill's nameplate capacity by 110,000 tons. Once the expansion is complete and taking into account speciality grade production which reduces the run rate, the net capacity will be 890,000 per annum. The project also involves conversion of the calcium cooking line at Saiccor Mill to the more sustainable magnesium bisulphite technology.

**Comment**

Process improvements at the mill will result in CO2 emissions being halved, water consumption reducing by 5%, water-use efficiency increasing by 17%, energy efficiency

improving by 10% and the mill's use of renewable energy increasing by 20%

---

**Identifier**

Opp2

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of lower-emission sources of energy

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

Sappi has approved an investment in Kirkiniemi Mill in Lohja, Finland which enables a switch in its energy sourcing to renewable bioenergy. Biomass will then be used in Kirkiniemi's multi-fuel boiler, built in 2015. The biomass used will be by-products from the forest-based industry, utilising them for energy production derives further value from the forest resource. The move advances Sappi towards its 2025 targets which include reducing specific greenhouse gas emissions (scope 1 and 2) by 25 percent and increasing renewable energy share to 50 percent in Europe compared to 2019.

**Time horizon**

Short-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

24,200,000

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

The cost given here relates to the anticipated savings by FY2024, depending on the pricing of biomass vs coal.

**Cost to realize opportunity**

11,000,000

**Strategy to realize opportunity and explanation of cost calculation**

The cost given here is the investment required to establish the equipment needed to receive, store and handle woody biomass like the bark, sawdust and wood chips used for biofuel production.

**Comment**

With this investment the mill's direct fossil greenhouse gas emissions will reduce by approximately 90 percent, which is equivalent to 230 000 tons of carbon dioxide annually. The project, set for completion in early 2023, will contribute significantly to Sappi Europe's decarbonisation roadmap by exiting coal at one of its last facilities partially using this fuel type.

---

**Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Markets

**Primary climate-related opportunity driver**

Other, please specify

Increasing consumer awareness of climate change

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

The spotlight on climate change has been intensifying, given the extreme weather events that took place in FY2021: floods in Germany and China; fires in Canada, California and Greece; rain, rather than snow falling in Greenland and a 'heat dome' along the Pacific northwest coast in the USA and Canada, among others. Consumers are already aware of the need for less carbon intensive products. However, as they are exposed to the extreme weather events just described, we expect this focus to gather momentum, accelerated by the increased purchasing power of Millennials and Gen Z-ers for whom environmental principles are just as important as social ones. We have an advantage and an opportunity in that our manufacturing process begins with sustainably harvested, renewable forest resources and we operate according to circular economy principles. We can offer a broad range of products that meet the needs of eco-conscious

consumers.

**Time horizon**

Medium-term

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

112,270,000

**Potential financial impact figure – maximum (currency)**

115,540,000

**Explanation of financial impact figure**

Legislative changes and growing consumer pressure are forcing brands to re-think their packaging choices. Governments, retailers, brand owners and their consumers are demanding paper-based packaging solutions that are biodegradable, lightweight, recyclable, compostable and provide the functionality of plastic-based materials. We estimate that the increasing demand for more sustainable and environmentally friendly packaging solutions will lead to demand growth of 3-6% per year globally. The minimum and maximum estimates given here reflect the anticipated impact of 3% demand growth as the minimum and 6% as the maximum in terms of profitability, based on profit of US\$109 million for packaging and speciality papers in FY2021

**Cost to realize opportunity**

200,000,000

**Strategy to realize opportunity and explanation of cost calculation**

Sappi's evolution within this segment is supported by the suitability of our technically advanced and efficient paper machines for conversion to packaging grades that require a variety of surface treatments or coatings for functionality advantage. We aim to create climate-friendly solutions that solve our customers' most critical challenges, helping them grow their sales, lower costs, improve their sustainability metrics and minimise their risk.

The figure given here is the cost of the comprehensive rebuild of Paper Machine 1

(PM1) at our Somerset Mill in Skowhegan, Maine. In 2018, we began the project, launching a broad range of high-quality paperboard products. The project was completed within 26 months, with the mill ramping up from producing zero tons of paperboard to over 300,000 tons a year of high-quality paperboard for folding carton, food service, and commercial printing applications. The mill generated record sales volumes and EBITDA in 2021 while achieving the full run rate.

**Comment**

SNA offers a range of lightweight papers and offers consumers a carbon calculator which enables them to determine the carbon footprint of the products they're selecting from the mill in relation to the industry average.

---

**Identifier**

Opp4

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of lower-emission sources of energy

**Primary potential financial impact**

Returns on investment in low-emission technology

**Company-specific description**

Sappi Southern Africa holds a 30% stake in Ngodwana Energy, a 25 MW biomass energy plant at Ngodwana Mill. The plant, which came on stream in March 2022, uses biomass recovered from surrounding plantations and screened waste material from the mill production process. Up to 35 tonnes an hour of biomass is burned in a boiler to generate steam and drive a turbine to generate electricity which is fed into the national grid.

**Time horizon**

Medium-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)****Potential financial impact figure – minimum (currency)**

1,680,000

**Potential financial impact figure – maximum (currency)**

15,000,000

**Explanation of financial impact figure**

The financial range assumes the displacement of 200 000 tons of fossil CO<sub>2</sub> for Ngodwana Energy. The minimum figure represents the South African government's carbon tax of US\$8.40 per ton of CO<sub>2</sub>, the maximum figure represents the global tax of US\$75 per ton of CO<sub>2</sub> that the IMF is recommending should be implemented by 2030 to limit the planet's warming to below 2 degrees Celsius.

**Cost to realize opportunity**

0

**Strategy to realize opportunity and explanation of cost calculation**

The opportunity cost is considered confidential.

The project aligns with Sappi's commitment to UN SDG7: Renewable and Clean Energy and falls under the South African Government's Renewable Energy Independent Power Producer Programme. (This programme is the result of the national need to increase energy capacity and reduce carbon emissions.)

**Comment**

The process of biomass removal to supply the biomass boiler is not compromising soil fertility because harvesting procedures that utilise additional woody biomass (large branches, stem tops, non-utilisable wood such as broken trees or non-commercial species) while minimising nutrient removal by leaving nutrient-rich leaves and needles behind, are being used wherever practical. Sappi Forests has estimated that the harvest residue comprises 74% woody material (branches, broken stems and tops), 22% bark and 4% foliage. In addition, timber trees are not heavy feeders and in the case of eucalypts, are only harvested once every 10 to 12 years. This means that even with more intensive biomass removal, the nutrient export would still be much less compared to that of agricultural crops. Nutrient budgets comparing the balance between input and output fluxes provide useful information on long-term nutrient supply. Generally, deposition of nutrients, the large buffering capacity of the soils and the rate of resupply through weathering of parent material exceeds the rate of nutrient removal by plantation trees in South Africa. Advantages of the project include: 1) The removal of additional biomass reduces the risk of wildfire, as well as the associated negative environmental and soil impacts associated with high-intensity uncontrolled burns. 2) The project is generating income for the individuals – mostly youth and women – involved in biomass collection.

## C3. Business Strategy

### C3.1

**(C3.1) Does your organization’s strategy include a transition plan that aligns with a 1.5°C world?**

Row 1

**Transition plan**

Yes, we have a transition plan which aligns with a 1.5°C world

**Publicly available transition plan**

No

**Mechanism by which feedback is collected from shareholders on your transition plan**

We have a different feedback mechanism in place

**Description of feedback mechanism**

In FY2021, the Social, Ethics, Transformation and Sustainability (SETS) committee committed to providing oversight of the following strategic business areas in 2022 1) TCFD developments 2) Implementation of science-based targets 3) climate change strategy (page 144, 2021 Sappi annual report).

Feedback from shareholders on these issues is obtained in the following manner and then fed through to the SETS Committee:

- 1) Joint visits with the Chairmen of Committees and management to investors
- 2) Ongoing interaction between Board and management, company secretary and investor relations

**Frequency of feedback collection**

Annually

**Attach any relevant documents which detail your transition plan (optional)**

### C3.2

**(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?**

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

## C3.2a

**(C3.2a) Provide details of your organization's use of climate-related scenario analysis.**

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios Customized publicly available physical scenario	Company-wide	Unknown	Each country in which we have manufacturing operations, as well as the EU region, has submitted nationally determined contributions (NDCs) to the UNFCCC. Transition risk is assessed in terms of scenarios involving these NDCs and the associated time frames. Various scenarios within the parameters of key regulatory developments are also assessed against the backdrop of various issues (eg Sappi's own decarbonisation plans and possible carbon taxes to drive behavioural change, reputational impact if site emissions reduction plans do not align with the relevant NDC) and the related opportunities (health benefits).
Physical climate scenarios RCP 2.6	Company-wide		Within the context of the TCFD, in FY2021 we focused on scenario planning for our primary assets. This included 18 of our mills covering all three regions, as well as all our plantations in South Africa. Over 60 employees participated in the initiative. Leveraging the operational risk teams from each region, they documented past climatic events, costs and mitigation strategies in order to understand the physical and transitional risk more fully. External consultants helped us conduct scenarios for our mills, with data from Global Climate Change Institute (GCI) at the University of the Witwatersrand in Johannesburg also being used. Our baseline was 2020, with scenarios to 2030 and 2050. The climate hazard indicators we used were water stress, flood, heatwave, coldwave, hurricane, wildfire and sea level rise. Under RCPs 2.6 (low), 4.5 (moderate) and 8.5 (high), each indicator was then assigned a risk rating. This has helped to embed climate change aspects into our current risk register methods, thereby improving our overall approach to risk. Overall, the scenarios helped us to

			<p>establish that in terms of our mills, Sappi faces moderate risk, with the greatest exposure to water stress and coldwave. The latter is set to decline over time due to climate change, but risks are more pronounced for individual sites.</p> <p>RCP 2.6 is a Low Climate Change Scenario, involving aggressive mitigation actions to halve emissions by 2050. This scenario is likely to result in warming of less than 2 degree Celsius by 2100.</p>
<p>Physical climate scenarios RCP 4.5</p>	<p>Company-wide</p>		<p>Within the context of the TCFD, in FY2021 we focused on scenario planning for our primary assets. This included 18 of our mills covering all three regions, as well as all our plantations in South Africa. Over 60 employees participated in the initiative. Leveraging the operational risk teams from each region, they documented past climatic events, costs and mitigation strategies in order to understand the physical and transitional risk more fully. External consultants helped us conduct scenarios for our mills, with data from Global Climate Change Institute (GCI) at the University of the Witwatersrand in Johannesburg also being used. Our baseline was 2020, with scenarios to 2030 and 2050. The climate hazard indicators we used were water stress, flood, heatwave, coldwave, hurricane, wildfire and sea level rise. Under RCPs 2.6 (low), 4.5 (moderate) and 8.5 (high), each indicator was then assigned a risk rating. This has helped to embed climate change aspects into our current risk register methods, thereby improving our overall approach to risk. Overall, the scenarios helped us to establish that in terms of our mills, Sappi faces moderate risk, with the greatest exposure to water stress and coldwave. The latter is set to decline over time due to climate change, but risks are more pronounced for individual sites.</p> <p>RCP 4.5 is a moderate Climate Change Scenario involving strong mitigation actions to reduce emissions to half of current levels by 2080. This scenario is more likely than not to result in warming in excess of 2 degrees Celsius by 2100.</p>

<p>Physical climate scenarios RCP 8.5</p>	<p>Company-wide</p>		<p>Within the context of the TCFD, in FY2021 we focused on scenario planning for our primary assets. This included 18 of our mills covering all three regions, as well as all our plantations in South Africa. Over 60 employees participated in the initiative. Leveraging the operational risk teams from each region, they documented past climatic events, costs and mitigation strategies in order to understand the physical and transitional risk more fully. External consultants helped us conduct scenarios for our mills, with data from Global Climate Change Institute (GCI) at the University of the Witwatersrand in Johannesburg also being used. Our baseline was 2020, with scenarios to 2030 and 2050. The climate hazard indicators we used were water stress, flood, heatwave, coldwave, hurricane, wildfire and sea level rise. Under RCPs 2.6 (low), 4.5 (moderate) and 8.5 (high), each indicator was then assigned a risk rating. This has helped to embed climate change aspects into our current risk register methods, thereby improving our overall approach to risk. Overall, the scenarios helped us to establish that in terms of our mills, Sappi faces moderate risk, with the greatest exposure to water stress and coldwave. The latter is set to decline over time due to climate change, but risks are more pronounced for individual sites.</p> <p>RCP 8.5 is a High Climate Change Scenario representing continuation of business as usual with emissions at current rates. This scenario is expected to result in warming in excess of 4 degrees Celsius by 2100.</p>
<p>Physical climate scenarios Bespoke physical scenario</p>	<p>Country/area</p>	<p>Unknown</p>	<p>Our most vulnerable assets to physical climate change are our plantations in South Africa. Our scientists have developed a high level of expertise in assessing physical climate change impacts. Their knowledge is supplemented by our strong partnership with the Global Climate Change Institute (GCI) at the University of the Witwatersrand in Johannesburg. In FY2021, we continued our work on a project with other industry members and the WITS GCI in South Africa. Phase 1, which began in 2020, involved the generation of raster climate surfaces for the entire</p>

			<p>forestry domain of South Africa, at 8 km resolution, with monthly time resolution, for the years 2020, 2030 and 2040 to 2100. Global Climate Models were regionally downscaled using a conformal-cubic atmospheric model. Raster climate surface data for the entire forestry domain of South Africa, at 9 x 11 km resolution, with monthly and daily time steps from 1961 to 2100 was supplied. Each dataset contained several climatic variables, including temperature, rainfall, humidity, wind speed, heatwave, cold, fire danger days and drought. In terms of Phase 2, a proposal has been made for further support to the WITS GCI to continue climate modelling activities and develop downscaled products (possibly using two or more future scenarios such as RCP 4.5 and RCP 8.5) while simultaneously maintaining underlying climate projections; to enhance knowledge and insight on impacts of climate change specific to forestry and to develop human capacity for the generation and interpretation of regional downscaled climate surfaces.</p>
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## C3.2b

**(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.**

### Row 1

#### Focal questions

- 1) In terms of transition risk, our use of NDCs for each country/region where we operate seems to be the most logical, while recognising that NDCs are subject to change – depending on regulatory, administrative and political developments – and are neither legally binding nor enforceable
- 2) In terms of mills and physical risks, the focal questions we wanted to address were to understand more fully the risks involved in various climate hazard indicators including water stress, flood, heatwave, coldwave, hurricane, wildfire and sea level rise. These indicators were selected after carefully analysing the historical risks of each mill in each country. We used a range of climate change scenarios – low, medium and high – in the understanding that this would allow us to understand a broad range of risks across all eventualities, enhance our understanding of the particular climate-related risks at each site and facilitate the compilation of mitigation plans.
- 3) In terms of our plantations and physical risks, South Africa has already been

impacted by climate change and our scientists have already implemented several mitigation measures such as the deployment of more drought-resistant species and the development of hybrids suited to a wide range of climatic conditions. Our work with the Wits Global Climate Change Institute has been a focus as it allows for highly detailed, more accurate analysis of the impacts of climate change.

### **Results of the climate-related scenario analysis with respect to the focal questions**

1) Under our science-based targets which were approved by the SBTi in June 2022, Sappi Limited commits to reduce scope 1 and scope 2 GHG emissions by 41.5% per ton of product by 2030 from a 2019 base year. Sappi Limited also commits that 44% of its suppliers (by spend) will have science-based targets by 2026.

2) Overall, the scenarios helped us to establish that in terms of our mills, Sappi faces moderate risk, with the greatest exposure to water stress and coldwave. The latter is set to decline over time due to climate change, but risks are more pronounced for individual sites. The results were as follows:

- Our exposure to wildfire (with the exception of our plantations), is low across all scenarios.
- Coldwave risk exposure is generally low on average and declines over time in the transition from the low to high climate scenario.
- Heatwave exposure is generally low for all sites, with the sites having the highest exposure in Italy, South Africa and the USA. However, the risk rises for all sites over time and the various scenarios
- Across all scenarios used, water stress exposure is low moderate over time, however risks for specific sites could rise sharply by 2050. Under RCP 4.5, two mills could expect high levels of water stress by 2050, while seven could experience moderate water stress within the same time period. These mills are in Belgium, Germany, Italy, South Africa and The Netherlands.
- Flood risks are low across all sites, declining over time for RCP 2.6 and RCP 4.5.
- Across all scenarios, sea level rise and hurricane risks are very low for all sites

3) Our work with the Wits Global Climate Change Institute allows us to anticipate climate changes – drought, frost etc and respond through detailed planning in terms of planting maps, site species selection etc

## **C3.3**

**(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.**

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>While Sappi's reduction of exposure to graphic papers has been influenced to some extent by digitisation, the strategic shift towards packaging and speciality papers has also been strongly driven by consumer concerns about fossil-based plastic packaging and a changing climate, as well as their preference for renewable paper-based packaging. Our US\$200 million strategic investment to expand into the packaging business at our Somerset Mill in Maine, is one example of how we are capitalising on this opportunity.</p> <p>In the light of concerns about global warming and deforestation, consumer preferences have shifted away from fossil fuel-based fabrics cellulosic fibres manufactured from renewable resources, like viscose staple fibre (V SF) and Lyocell. The bulk of the Verve dissolving pulp (DP) we produce is used for VSF and Lyocell. Against this backdrop, we have continued to invest in expanding DP capacity. As an example, our capacity expansion project at Saiccor Mill, due for completion in FY2022, will increase the mill's nameplate capacity by 110,000 tons. Once the expansion is complete and taking into account speciality grade production which reduces the run rate, the net capacity will be 890,000 tons per annum.</p>
Supply chain and/or value chain	Yes	<p>Sappi's business is dependent on woodfibre, which, as a natural resource, is impacted by climate change. In terms of supply chain, the risks and opportunities inherent in this have influenced our focus on our plantations in South Africa (394,000 hectares of owned and leased plantations), where our focus on climate change mitigation is giving us significant competitive advantage. In Europe and North America, our strategic approach is to establishing strong relationships with wood sourcing partners.</p> <p>In terms of value chain, our strategic approach is to be involved in organisations with a focus on climate change, including the Sustainable Apparel Coalition, the WBCSD's Forest Solutions Group, the Circular Bioeconomy Alliance; as well as industry initiatives such as the Forest Molecular Genetics programme at the University of Pretoria in South Africa and the Global Climate Change Institute at the University of the Witwatersrand in South Africa.</p>

Investment in R&D	Yes	<p>Under Sappi's Thrive25 strategy, we are committed to making the most out of every tree harvested. This means investing in innovation and R&amp;D in order to develop new processes and biomaterials which extract more value from each tree, within the context of a climate-constrained goals, our own climate-related goals and our alignment with certain priority UN SDGs.</p> <p>Sappi R&amp;D efforts in this space involves various strategic partnerships. In FY21, we invested US\$43 million in R&amp;D. A large portion of R&amp;D spend was allocated to:</p> <ul style="list-style-type: none"> <li>a. The development of adjacent markets such as nanocellulose, furfural, lignin and biocomposites.</li> <li>b. Initiatives aimed at progressing our tree improvement programmes (higher yields with higher resistance to disease and pests and new nursery techniques)</li> <li>c. Decarbonisation – for example pulp backward integration which brings green energy opportunities aligned with our strategy; energy swaps and energy change opportunities balanced with economics.</li> </ul> <p>Our overarching aim is for both Sappi and our customers to become more resilient to climate change impacts and to work in alignment with SDG13: Climate Action.</p>
Operations	Yes	<p>Our strategy is based on four key fundamentals:</p> <ul style="list-style-type: none"> <li>a. Drive sales growth</li> <li>b. Enhance trust</li> <li>c. Sustain our financial health</li> <li>d. Grow our business</li> </ul> <p>Our climate strategy is aligned with these pillars in the following manner:</p> <p>1) Drive sales growth: This means committing to core business segments while investing in innovation, growth opportunities and ongoing customer relationships. Climate relevancy: Purposeful innovation and collaboration to provide low-carbon, bio-based solutions and accelerate climate action.</p> <p>2) Enhance trust: Improving our understanding of, and proactively partnering with clients and communities, driving sustainability solutions, and meeting the changing needs of every employee at Sappi. Climate relevancy: Being a transparent, proactive and</p>

		<p>responsible company and partner with a long-term, solutions-oriented approach to address climate change mitigation, adaptation and resilience. Playing our part to ensure a socially inclusive just transition.</p> <p>3) Sustain our financial health: This means reducing and managing our debt, growing EBITDA, maximising product value, optimising processes globally and strategically disposing of non-core assets. Climate relevancy: Optimise allocation of capital for profitable growth while ensuring that it reduces our impact on climate change and positions us competitively for a low-carbon future</p> <p>4) Grow our business: Strengthening our safety-first culture and reducing resource use while enhancing efficiency and making smart data investments. Climate relevancy: Continual focus on reducing our own and value-chain emissions; protect biodiversity and promote responsible use of scarce water resources.</p>
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### C3.4

**(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

	Financial planning elements that have been influenced	Description of influence
Row 1	Capital expenditures	One of the key elements of our Thrive 25 strategy is to Sustain our financial health. This means reducing and managing our debt, growing EBITDA, maximising product value, optimising processes globally and strategically disposing of non-core assets. In terms of climate relevance, this means optimising allocation of capital for profitable growth while ensuring that it reduces our impact on climate change and positions us competitively for a low-carbon future.

### C3.5

**(C3.5) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s transition to a 1.5°C world?**

Yes

## C3.5a

**(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's transition to a 1.5°C world.**

### Financial Metric

CAPEX

**Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)**

10

**Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)**

50

**Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)**

100

**Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world**

Sappi's "well below 2-degree" decarbonisation target approved by the Science Based Targets Initiative (SBTi) is for Sappi Limited's scope 1 and 2 carbon intensity pathway to decrease by 41.5% per ton of product by 2030 against a 2019 base. A capital plan has identified capital projects within the existing 5-year plan as well as further suggested interventions, which would facilitate the required emission reduction. The capital expenditure between FY2021 - 2030 required to achieve the targets is estimated to be in the region of US\$570 million or annualised US\$60-65 per annum. We recognise that the SBTi protocols dictate that any significant changes to the company structure (ie. acquisition or divestment) would require a re-validation of targets against a revised baseline (excluding or including assets as appropriate), which would trigger a shift to the new 1.5-degree methodology and that we would be required to realign to the new 1.5-degree methodology either by 2026 or earlier in the case of a significant change to our asset base.

## C4. Targets and performance

### C4.1

**(C4.1) Did you have an emissions target that was active in the reporting year?**

Intensity target

## C4.1b

**(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

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**Target reference number**

Int 1

**Year target was set**

2021

**Target coverage**

Company-wide

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Market-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

kg CO<sub>2</sub>e per metric ton of product

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

0.66

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.22

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.88

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

100

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

100

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

100

**Target year**

2025

**Targeted reduction from base year (%)**

18

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

0.7216

**% change anticipated in absolute Scope 1+2 emissions**

-16.4

**% change anticipated in absolute Scope 3 emissions**

0

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

0.68

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.16

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.84

**% of target achieved relative to base year [auto-calculated]**

25.2525252525

**Target status in reporting year**

Underway

**Is this a science-based target?**

No, but we are reporting another target that is science-based

### **Target ambition**

#### **Please explain target coverage and identify any exclusions**

This is a company-wide target for Sappi. This intensity target is a 18% reduction from base year 2019 to 2025, for Scope 1 + Scope 2 emissions in units of CO<sub>2</sub>e/adt (air dried tons of saleable production). This target includes Sappi's 19 production facilities. The target does not include offices, warehouses, research facilities, nurseries or outside mill premises as these emissions are immaterial compared to production facilities.

#### **Plan for achieving target, and progress made to the end of the reporting year**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further medium-term interventions, which would facilitate the required emission reduction through a variable progress curve toward 2025 and 2030 for our science-based targets. Good progress was made in FY21, staying below the curve. This was achieved by the following:

- Increased biomass utilisation.
- Decreased natural gas and coal burning.
- Scope 2 emissions decreased due to increased process efficiencies resulting in decreased purchased power.
- Power suppliers supplied power with lower emission factors, burning less fossil fuel, resulting in lower Scope 2 emissions.
- SEU reduced Scope 2 emission by purchasing Guarantees of Origin (GoO).
- SNA reduced Scope 2 emissions by Emissions Free Energy Certificates (EFECs) purchases.

#### **List the emissions reduction initiatives which contributed most to achieving this target**

---

#### **Target reference number**

Int 2

#### **Year target was set**

2021

#### **Target coverage**

Country/region

#### **Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Market-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

kg CO2e per metric ton of product

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)**

0.49

**Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)**

0.21

**Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)**

0.7

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

36.2

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

45.1

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

38.4

**Target year**

2025

**Targeted reduction from base year (%)**

25

**Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]**

0.525

**% change anticipated in absolute Scope 1+2 emissions**

-28.9

**% change anticipated in absolute Scope 3 emissions**

0

**Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)**

0.51

**Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)**

0.13

**Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)****Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)**

0.64

**% of target achieved relative to base year [auto-calculated]**

34.2857142857

**Target status in reporting year**

Underway

**Is this a science-based target?**

No, but we are reporting another target that is science-based

**Target ambition****Please explain target coverage and identify any exclusions**

This is a regional target for Sappi Europe. This intensity target is a 25% reduction from base year 2019 to 2025, for Scope 1 + Scope 2 emissions in units of CO2e/adt (air dried tons of saleable production). This target includes Sappi's 10 European production facilities. This regional target supports the global emissions target.

**Plan for achieving target, and progress made to the end of the reporting year**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further suggested interventions, which would facilitate the required emission reduction through a variable progress curve toward 2025. Four of the five major projects outlined in the plan have been approved and are in the implementation process. The CO2 saving impacts of these major projects come to realisation in late FY22 and FY23. Good progress was made in the reporting year, staying below the curve.

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Int 3

**Year target was set**

2021

**Target coverage**

Country/region

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Market-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

kg CO<sub>2</sub>e per metric ton of product

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

0.3

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.09

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.38

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

11.3

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

9.9

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

10.9

**Target year**

2025

**Targeted reduction from base year (%)**

5

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

0.361

**% change anticipated in absolute Scope 1+2 emissions**

2.8

**% change anticipated in absolute Scope 3 emissions**

0

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

0.27

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.05

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.32

**% of target achieved relative to base year [auto-calculated]**

315.7894736842

**Target status in reporting year**

Achieved

**Is this a science-based target?**

No, but we are reporting another target that is science-based

### **Target ambition**

#### **Please explain target coverage and identify any exclusions**

This is a regional target for Sappi North-America. This intensity target is a 5% reduction from base year 2019 to 2025, for Scope 1 + Scope 2 emissions in units of CO<sub>2</sub>e/adt (air dried tons of saleable production). This target includes Sappi's 4 North American production facilities. This regional target supports the global emissions target.

#### **Plan for achieving target, and progress made to the end of the reporting year**

#### **List the emissions reduction initiatives which contributed most to achieving this target**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further suggested interventions, which would facilitate the required emission reduction through a variable progress curve toward 2025. This target was achieved in FY21, but we are continuing to work towards emission reduction to support Sappi's global goal.

---

#### **Target reference number**

Int 4

#### **Year target was set**

2021

#### **Target coverage**

Country/region

#### **Scope(s)**

Scope 1

Scope 2

#### **Scope 2 accounting method**

Location-based

#### **Scope 3 category(ies)**

#### **Intensity metric**

Other, please specify

kg CO<sub>2</sub>e per metric ton of product

#### **Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

1.33

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.38

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

1.71

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

52.5

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

45.1

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

50.7

**Target year**

2025

**Targeted reduction from base year (%)**

20

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

1.368

**% change anticipated in absolute Scope 1+2 emissions**

-12.7

**% change anticipated in absolute Scope 3 emissions**

0

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

1.45

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.35

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

1.8

**% of target achieved relative to base year [auto-calculated]**

-26.3157894737

**Target status in reporting year**

Underway

**Is this a science-based target?**

No, but we are reporting another target that is science-based

**Target ambition**

**Please explain target coverage and identify any exclusions**

This is a regional target for Sappi South Africa. This intensity target is a 20% reduction from base year 2019 to 2025, for Scope 1 + Scope 2 emissions in units of CO<sub>2</sub>e/adt (air dried tons of saleable production). This target includes Sappi's 5 South African production facilities. This regional target supports the global emissions reduction target.

**Plan for achieving target, and progress made to the end of the reporting year**

This is a regional target for Sappi South Africa. This intensity target is a 20% reduction from base year 2019 to 2025, for Scope 1 + Scope 2 emissions in units of CO<sub>2</sub>e/adt (air dried tons of saleable production). This target includes Sappi's 5 South African production facilities. This regional target supports the global emissions reduction target.

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Int 5

**Year target was set**

2021

**Target coverage**

Company-wide

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Market-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

Metric tons CO<sub>2</sub>e per metric ton of product

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

0.67

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.22

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.89

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

100

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

100

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

100

**Target year**

2030

**Targeted reduction from base year (%)**

41.5

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

0.52065

**% change anticipated in absolute Scope 1+2 emissions**

40

**% change anticipated in absolute Scope 3 emissions**

0

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

0.68

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

0.16

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.84

**% of target achieved relative to base year [auto-calculated]**

13.5372952484

**Target status in reporting year**

Underway

**Is this a science-based target?**

Yes, and this target has been approved by the Science Based Targets initiative

**Target ambition**

Well-below 2°C aligned

**Please explain target coverage and identify any exclusions**

This is a company-wide target for Sappi and is a science-based target approved by the SBTi. This intensity target is a 41.5% reduction from base year 2019 to 2030, for Scope 1 + Scope 2 emissions in units of CO<sub>2</sub>e/adt (air dried tons of saleable production). This target includes all Sappi facilities in the pulp and paper production category.

**Plan for achieving target, and progress made to the end of the reporting year**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further medium-term interventions, which would facilitate the required emission reduction through a variable progress curve toward 2030. The scope 1 and 2 decarbonisation of the business can be achieved through a combination of capital

investments in our assets; through fuel conversions from coal/gas to biomass in some of our own power generation facilities; new investments in renewable energy; increased generation from own black liquor in pulping operations and general efficiency investments in our assets and through the purchase of renewable energy.

**List the emissions reduction initiatives which contributed most to achieving this target**

## C4.2

**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Target(s) to increase low-carbon energy consumption or production  
Other climate-related target(s)

## C4.2a

**(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.**

---

**Target reference number**

Low 1

**Year target was set**

2021

**Target coverage**

Company-wide

**Target type: energy carrier**

All energy carriers

**Target type: activity**

Consumption

**Target type: energy source**

Renewable energy source(s) only

**Base year**

2019

**Consumption or production of selected energy carrier in base year (MWh)**

76,499,348.7

**% share of low-carbon or renewable energy in base year**

51.6

**Target year**

2025

**% share of low-carbon or renewable energy in target year**

59.6

**% share of low-carbon or renewable energy in reporting year**

52.4

**% of target achieved relative to base year [auto-calculated]**

10

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Emissions reduction target Reference number: Int1.

Yes, this target is part of an emissions target as % renewable energy consumption directly relates to Scope 1 and 2 emissions. An increase in renewable energy consumption will result in a decrease in fossil fuel consumption, resulting in a decrease in Scope 1 & 2 emissions.

**Is this target part of an overarching initiative?**

Science Based Targets initiative

**Please explain target coverage and identify any exclusions**

No exclusions. This company wide target is based on Sappi's financial year which is from 1 October 2020 the to 30 September 2021. Renewable energy usage is measured in GJ in (units of GJ/adt). The target is to increase % renewable and clean energy by 8% points by the year 2025, with base year 2019. Renewable and clean energy consumption directly relates to emissions in Scope 1 and Scope 2 categories as an increase in % renewable energy will result in a decrease in Scope 1 and 2 emissions. The target has been converted to MWh for CDP input.

**Plan for achieving target, and progress made to the end of the reporting year**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further medium-term interventions, which would facilitate emission reduction. This plan includes projects and initiatives that will lead to an increase of renewable energy consumption.

**List the actions which contributed most to achieving this target**

---

**Target reference number**

Low 2

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: energy carrier**

All energy carriers

**Target type: activity**

Consumption

**Target type: energy source**

Renewable energy source(s) only

**Base year**

2019

**Consumption or production of selected energy carrier in base year (MWh)**

5,856,824.7

**% share of low-carbon or renewable energy in base year**

39.9

**Target year**

2025

**% share of low-carbon or renewable energy in target year**

50.3

**% share of low-carbon or renewable energy in reporting year**

39.1

**% of target achieved relative to base year [auto-calculated]**

-7.6923076923

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Emissions reduction target Reference number: Int2.

Regional Sappi Europe target. Yes, this target is part of an emissions target as % renewable energy consumption directly relates to Scope 1 and 2 emissions. An increase in renewable energy consumption will result in a decrease in fossil fuel consumption, resulting in a decrease in Scope 1 & 2 emissions

**Is this target part of an overarching initiative?**

Science Based Targets initiative

**Please explain target coverage and identify any exclusions**

This is a regional Sappi Europe target. This target is based on Sappi's financial year which is from 1 October 2020 to 30 September 2021. Renewable energy usage is measured in GJ in (units of GJ/adt). The target is to increase % renewable and clean energy by 11% points by the year 2025, with base year 2019. Renewable and clean energy consumption directly relates to emissions in Scope 1 and Scope 2 categories as an increase in % renewable energy will result in a decrease in Scope 1 and 2 emissions. The target has been converted to MWh for CDP input

**Plan for achieving target, and progress made to the end of the reporting year**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further suggested interventions, which would facilitate emission reduction. This plan includes projects and initiatives that will lead to an increase of renewable energy consumption. During FY2021 the major projects that will eventually increase share of renewable energy were approved and construction commenced. We will see significant increase in share of renewable energy only after the projects have been completed in FY2023.

**List the actions which contributed most to achieving this target**

---

**Target reference number**

Low 3

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: energy carrier**

All energy carriers

**Target type: activity**

Consumption

**Target type: energy source**

Renewable energy source(s) only

**Base year**

2019

**Consumption or production of selected energy carrier in base year (MWh)**

8,656,178.8

**% share of low-carbon or renewable energy in base year**

79.1

**Target year**

2025

**% share of low-carbon or renewable energy in target year**

79.1

**% share of low-carbon or renewable energy in reporting year**

80.7

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Emissions reduction target Reference number: Int3.

Regional Sappi North America target. Yes, this target is part of an emissions target as % renewable energy consumption directly relates to Scope 1 and 2 emissions. An increase in renewable energy consumption will result in a decrease in fossil fuel consumption, resulting in a decrease in Scope 1 & 2 emissions.

**Is this target part of an overarching initiative?**

Science Based Targets initiative

**Please explain target coverage and identify any exclusions**

This is a regional Sappi North America target. This target is based on Sappi's financial year which is from 1 October 2020 to 30 September 2021. Renewable energy usage is measured in GJ in (units of GJ/adt). This target is to maintain share of renewable and clean energy within 5% of baseline or higher, until the target year, 2025, with base year 2019. Renewable and clean energy consumption directly relates to emissions in Scope 1 and Scope 2 categories as an increase in % renewable energy will result in a decrease in Scope 1 and 2 emissions. The target has been converted to MWh for CDP input.

**Plan for achieving target, and progress made to the end of the reporting year**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further suggested interventions, which would facilitate emission reduction. This plan includes projects and initiatives that will lead to an increase of renewable energy consumption.

**List the actions which contributed most to achieving this target**

**Target reference number**

Low 4

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: energy carrier**

All energy carriers

**Target type: activity**

Consumption

**Target type: energy source**

Renewable energy source(s) only

**Base year**

2019

**Consumption or production of selected energy carrier in base year (MWh)**

6,736,815.6

**% share of low-carbon or renewable energy in base year**

44.1

**Target year**

2025

**% share of low-carbon or renewable energy in target year**

51.1

**% share of low-carbon or renewable energy in reporting year**

43.8

**% of target achieved relative to base year [auto-calculated]**

-4.2857142857

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Emissions reduction target Reference number: Int4.

Regional Sappi South Africa target. Yes, this target is part of an emissions target as % renewable energy consumption directly relates to Scope 1 and 2 emissions. An increase in renewable energy consumption will result in a decrease in fossil fuel consumption, resulting in a decrease in Scope 1 & 2 emissions.

**Is this target part of an overarching initiative?**

Science Based Targets initiative

**Please explain target coverage and identify any exclusions**

This is a regional Sappi South Africa target. This target is based on Sappi's financial year which is from 1 October 2020 to 30 September 2021. Renewable energy usage is measured in GJ in (units of GJ/adt). The target is to increase % renewable and clean energy by 7% points by the year 2025, with base year 2019. Renewable and clean energy consumption directly relates to emissions in Scope 1 and Scope 2 categories as an increase in % renewable energy will result in a decrease in Scope 1 and 2 emissions. The target has been converted to MWh for CDP input.

**Plan for achieving target, and progress made to the end of the reporting year**

A capital plan with various projects was presented and approved by the SETS committee and Sappi Board, which identified capital projects within the existing 5-year plan as well as further suggested interventions, which would facilitate emission reduction. This plan includes projects and initiatives that will lead to an increase of renewable energy consumption.

**List the actions which contributed most to achieving this target**

## C4.2b

**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

**Target reference number**

Oth 1

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency

GJ

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

22.1

**Target year**

2025

**Figure or percentage in target year**

21

**Figure or percentage in reporting year**

22.4

**% of target achieved relative to base year [auto-calculated]**

-27.27272727

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Yes. The decrease of energy consumption or increased energy efficiency directly relates to decreased emissions in Scope 1 and Scope 2.

[Emissions reduction target ID]

Int1.

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

No exclusions. This company wide target is based on Sappi's financial year which is from 1 October 2020 to 30 September 2021. Total energy usage is measured in GJ. The target is the decrease in energy consumption per air dried ton of saleable production (units of GJ/adt) of 5% by the year 2025, with base year 2019. The decrease of energy consumption or increased energy efficiency directly relates to decreased emissions in Scope 1 and Scope 2.

**Plan for achieving target, and progress made to the end of the reporting year**

The actions and plans listed in the regional targets relate to the Group target.

**List the actions which contributed most to achieving this target**

---

**Target reference number**

Oth 2

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency

GJ

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

15.6

**Target year**

2025

**Figure or percentage in target year**

15.6

**Figure or percentage in reporting year**

14.8

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Yes. The decrease of energy consumption or increased energy efficiency directly relates to decreased emissions in Scope 1 and Scope 2.

[Emissions reduction target ID]

Int2

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

No exclusions. This company wide target is based on Sappi's financial year which is from 1 October 2020 to 30 September 2021. Total Energy usage is measured in GJ in (units of GJ/adt). The target is the decrease in energy consumption per air dried ton of saleable production of 5% by the year 2025, with base year 2019. The decrease of energy consumption or increased energy efficiency directly relates to decreased emissions in Scope 1 and Scope 2.

### Plan for achieving target, and progress made to the end of the reporting year

Every year capex plans include projects and investments to enable the replacement or upgrade of equipment with state-of-the-art technologies with improved efficiencies. Over time this increases our energy efficiency. As this is an intensity target however, equally production heavily influences our performance of this target. In FY21 this was influenced by complex market dynamics, supply chain/ logistics complexities and material shortages.

A wide range of energy efficiency projects were implemented in FY21 across our mills. They are listed in section C4.3a. The projects contributing the most were focused in our pulp mills, debottlenecking processes to drive increased efficiency, insulating or improving processes to reduce the loss of steam/heat/energy.

### List the actions which contributed most to achieving this target

---

#### Target reference number

Oth 3

#### Year target was set

2021

#### Target coverage

Country/region

#### Target type: absolute or intensity

Intensity

#### Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

GJ

#### Target denominator (intensity targets only)

metric ton of product

#### Base year

2019

#### Figure or percentage in base year

25.7

#### Target year

2025

#### Figure or percentage in target year

24.41

#### Figure or percentage in reporting year

23.8

**% of target achieved relative to base year [auto-calculated]**

147.2868217054

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

Yes. The decrease of energy consumption or increased energy efficiency directly relates to decreased emissions in Scope 1 and Scope 2.

[Emissions reduction target ID] Int3

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

This is a regional target for Sappi North America.

**Plan for achieving target, and progress made to the end of the reporting year**

**List the actions which contributed most to achieving this target**

Please refer to Energy Efficiency projects listed in Section C4.3b for SNA.

---

**Target reference number**

Oth 4

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency

GJ

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

30.9

**Target year**

2025

**Figure or percentage in target year**

28.1

**Figure or percentage in reporting year**

32.2

**% of target achieved relative to base year [auto-calculated]**

-46.4285714286

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Yes. The decrease of energy consumption or increased energy efficiency directly relates to decreased emissions in Scope 1 and Scope 2.

[Emissions reduction target ID] Int4

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

This is a regional target for Sappi South Africa.

**Plan for achieving target, and progress made to the end of the reporting year**

Many energy efficiency projects and initiatives at the mills as well as a focus on steam usage per ton of paper produced.

**List the actions which contributed most to achieving this target**

---

**Target reference number**

Oth 5

**Year target was set**

2021

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Waste management  
Other, please specify  
kg

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

65.9

**Target year**

2025

**Figure or percentage in target year**

56

**Figure or percentage in reporting year**

52.8

**% of target achieved relative to base year [auto-calculated]**

132.3232323232

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Yes, this target is part of an emissions target because methane emissions from waste that goes to landfill directly relates to Scope 1 emissions that are included in our GHG inventory. Landfilled solid waste relates to CO<sub>2</sub>e emissions. Methane emissions from the waste are included in Scope 1 emissions that is part of our Science Based target.

[Emissions reduction target ID]

Int1

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

This target is for Sappi Group. Landfilled solid waste relates to CO<sub>2</sub>e emissions. Methane emissions from landfilled solid waste sent to Sappi owned landfills are included in Scope 1 total emissions. The following Sappi mills have owned landfills: Cloquet, Ngodwana, Matane, Somerset and Tugela. The methane emissions from the waste are included in Scope 1 emissions.

**Plan for achieving target, and progress made to the end of the reporting year**

The actions and plans listed in the regional targets relate to the Group target.

**List the actions which contributed most to achieving this target**

---

**Target reference number**

Oth 6

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Waste management

Other, please specify

kg

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

76

**Target year**

2025

**Figure or percentage in target year**

12.9

**Figure or percentage in reporting year**

10.9

**% of target achieved relative to base year [auto-calculated]**

103.1695721078

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

Yes, this target is part of an emissions target because methane emissions from waste that goes to landfill directly relates to Scope 1 emissions that are included in our GHG inventory. Landfilled solid waste relates to CO<sub>2</sub>e emissions. Methane emissions from the waste are included in Scope 1 emissions that is part of our Science Based target.

[Emissions reduction target ID]  
Int2

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

This is a regional target for Sappi Europe. Landfilled solid waste relates to CO<sub>2</sub>e emissions. Methane emissions from the waste are included in Scope 1 emissions.

**Plan for achieving target, and progress made to the end of the reporting year**

**List the actions which contributed most to achieving this target**

At Condino Mill we found a new market for sludge to avoid sending it to landfill. At Gratkorn Mill, our emission reduction project results in the eliminating the burning of coal so we reduce ash to landfill. Mills that have waste to landfill are working to reduce waste especially through beneficiating waste, with considerable success. During FY21 we exceeded our 2025 target for waste reduction. However, performance and initiatives to drive further reduction will continue to advance.

---

**Target reference number**

Oth 7

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Waste management  
Other, please specify  
kg

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

75.99

**Target year**

2025

**Figure or percentage in target year**

68.4

**Figure or percentage in reporting year**

68.5

**% of target achieved relative to base year [auto-calculated]**

98.6824769433

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Yes, this target is part of an emissions target because methane emissions from waste that goes to landfill directly relates to Scope 1 emissions that are included in our GHG inventory. Landfilled solid waste relates to CO<sub>2</sub>e emissions. Methane emissions from the waste are included in Scope 1 emissions that is part of our Science Based target.

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

This is a regional target for Sappi North America.

**Plan for achieving target, and progress made to the end of the reporting year**

Reductions in waste to landfill will be achieved through waste minimization and increased beneficial use of solid waste materials. Improvements achieved in FY21 include a successful Lean Six Sigma project at Somerset Mill increasing waste treatment sludge burning, lower waste generation at Westbrook Mill resulting from ceasing to burn solid fuels (no more boiler ash) and increase utilization of the beneficial reuse systems for boiler ash and lime at Cloquet Mill.

**List the actions which contributed most to achieving this target**

---

**Target reference number**

Oth 8

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Waste management

Other, please specify

kg

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

153

**Target year**

2035

**Figure or percentage in target year**

116.3

**Figure or percentage in reporting year**

112.1

**% of target achieved relative to base year [auto-calculated]**

111.4441416894

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

Yes, this target is part of an emissions target because methane emissions from waste that goes to landfill directly relates to Scope 1 emissions that are included in our GHG inventory. Landfilled solid waste relates to CO<sub>2</sub>e emissions. Methane emissions from the waste are included in Scope 1 emissions that is part of our Science Based target.

[Emissions reduction target ID]

Int3

**Is this target part of an overarching initiative?**

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

This is a regional target for Sappi South Africa.

**Plan for achieving target, and progress made to the end of the reporting year**

**List the actions which contributed most to achieving this target**

Subsequent to setting the target there was a shift in strategic thinking and efforts were intensified to reduce or beneficiate waste. We also had a change in legislation where we were again allowed to sell some of our waste through the waste exclusion regulations. Significant amounts of waste diverted from landfill at Saiccor and Tugela Mills due to increase in beneficiation.

**Target reference number**

Oth 9

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Fossil fuel reduction target

Other, please specify

GJ

**Target denominator (intensity targets only)**

metric ton of product

**Base year**

2019

**Figure or percentage in base year**

17.3

**Target year**

2025

**Figure or percentage in target year**

13.7

**Figure or percentage in reporting year**

18

**% of target achieved relative to base year [auto-calculated]**

-19.4444444444

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

Yes. The decrease of fossil energy consumption directly relates to decreased emissions in Scope 1 and Scope 2.

[Emissions reduction target ID]

Int4

**Is this target part of an overarching initiative?**

Science Based Targets initiative – approved supplier engagement target

Science Based targets initiative - other

**Please explain target coverage and identify any exclusions**

This is a regional target for Sappi South Africa.

**Plan for achieving target, and progress made to the end of the reporting year**

Solar and fuel switching projects are being investigated as well as many ongoing energy efficiency projects.

**List the actions which contributed most to achieving this target**

---

**Target reference number**

Oth 10

**Year target was set**

2021

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Absolute

**Target type: category & Metric (target numerator if reporting an intensity target)**

**Target denominator (intensity targets only)**

**Base year**

2019

**Figure or percentage in base year**

0

**Target year**

2025

**Figure or percentage in target year**

44

**Figure or percentage in reporting year**

0

**% of target achieved relative to base year [auto-calculated]**

0

**Target status in reporting year**

New

**Is this target part of an emissions target?**

Yes, this target is part of our SBT which includes this supplier engagement target stating that Sappi Limited commits that 44% of its suppliers (by spend) will have science-based targets by 2026.

[Emissions reduction target ID]

Int5

**Is this target part of an overarching initiative?**

Science Based Targets initiative – approved supplier engagement target

**Please explain target coverage and identify any exclusions**

This is a new target for Sappi, which was approved by the SBTi in June 2022. This KPI will be tracked from now onwards per region and for the Group. This target is part of our science-based target under which in Sappi Limited commits that 44% of its suppliers (by spend) will have science-based targets by 2026.

This target covers 67.6% of our Total Scope 3 emissions.

**Plan for achieving target, and progress made to the end of the reporting year**

This is a new target for Sappi, which was approved by the SBTi in June 2022. This KPI will be tracked from now onwards per region and for the Group. This target is part of our SBT under which Sappi Limited commits that 44% of its suppliers (by spend) will have science-based targets by 2026.

This target covers 67.6% of our Total Scope 3 emissions. This target is aligned with our Thrive25 supplier engagement target and related sustainable procurement advancements and will focus on upstream suppliers in the following scope 3 categories:

- Cat1 Purchased Goods & Services
- Cat3 Emissions from Fuel and Energy
- Cat4 Upstream Transportation & Distribution

Our Thrive25 supplier engagement target is to have 80% share of procurement spend in declared compliance with our Supplier Code of Conduct. This is a new target for Sappi, it has been approved by SBTi in June 2022. This KPI will be tracked from now onwards per region and for the Group. It is a further evolution of our sustainable procurement programme, which includes supplier-self declarations for compliance with our Code of Conduct; utilisation of the EcoVadis platform to assess ESG (including climate)

performance of our suppliers; and direct engagement with suppliers to discuss decarbonisation strategies, plans, progress and product innovation for lower carbon alternatives.

This target is a further evolution of our sustainable procurement programme, which includes supplier-self declarations for compliance with our Code of Conduct; utilisation of the EcoVadis platform to assess ESG (including climate) performance of our suppliers; and direct engagement with suppliers to discuss decarbonisation strategies, plans, progress and product innovation for lower carbon alternatives.

### List the actions which contributed most to achieving this target

## C4.3

**(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes

## C4.3a

**(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO<sub>2</sub>e savings.**

	Number of initiatives	Total estimated annual CO <sub>2</sub> e savings in metric tonnes CO <sub>2</sub> e (only for rows marked *)
Under investigation	7	600,000
To be implemented*	0	0
Implementation commenced*	5	407,000
Implemented*	28	748,805
Not to be implemented	0	0

## C4.3b

**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

### Initiative category & Initiative type

Energy efficiency in production processes  
 Fuel switch

### Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)

100,000

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

2,304,250

**Investment required (unit currency – as specified in C0.4)**

4,295,302

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

This is an SSA project that has been implemented - Saiccor Mill conversion from calcium to magnesium pulping. The technology used means fossil fuel emissions are cut in half, gas emissions reduced by 40%, water efficiency increased by 17% and waste to landfill reduced by about 50%.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Fuel switch

**Estimated annual CO2e savings (metric tonnes CO2e)**

400,000

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

22,170,022

**Investment required (unit currency – as specified in C0.4)**

30,201,342

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

This is an SSA project that has been implemented at Saiccor Mill – capacity expansion and energy efficiency project.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Other, please specify

Various small projects

**Estimated annual CO2e savings (metric tonnes CO2e)**

24,530

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

935,123

**Investment required (unit currency – as specified in C0.4)**

5,610,738

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

This is a SSA project where implementation has commenced. Various energy efficiency projects across all SSA mills.

---

**Initiative category & Initiative type**

Low-carbon energy generation

Solar PV

**Estimated annual CO2e savings (metric tonnes CO2e)**

105,120

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

10,536,912

**Investment required (unit currency – as specified in C0.4)**

52,684,563

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

This is a SSA project that has been implemented. Solar power production.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

50

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

84,599

**Investment required (unit currency – as specified in C0.4)**

24,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Installation of online PH measurement in the broke control system to reduce broke.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

435

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

219,351

**Investment required (unit currency – as specified in C0.4)**

90,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Exchange the non-efficient dosing system of retention agents for paper machines with a new state of the art equipment to increase quality and save broke

---

**Initiative category & Initiative type**

Fugitive emissions reductions

Other, please specify

Low-carbon electricity mix

**Estimated annual CO2e savings (metric tonnes CO2e)**

203,151

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

236,036

**Payback period**

No payback

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Purchased green power for German mills. Previously the purchased power from Verbund had a CO<sub>2</sub>-content of 585 kg/MWh. With an upcharge of ~0,70 €/MWh this was reduced to 290 kg/MWh.

**Initiative category & Initiative type**

Energy efficiency in production processes  
Waste heat recovery

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

1,005

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

302,841

**Investment required (unit currency – as specified in C0.4)**

88,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Reduction of steam condensate losses in Alfeld's pulp mill's fibre line. Reduction of steam condensate losses by renewal of heat exchanger and condensate flow setting

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

6,878

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Mandatory

**Annual monetary savings (unit currency – as specified in C0.4)**

3,304,504

**Investment required (unit currency – as specified in C0.4)**

5,200,000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Debottlenecking of Alfeld's Pulp Mill: Rebuild of evaporation plant from a 5 stage concept to a state of the art 6 stage evaporation facility handling the increased wash water flow and reducing specific steam demand. Installation of an additional anaerobic stage in the waste water treatment plant.

Accompanying measures in pulp mill and power house.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

99

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

429,000

**Investment required (unit currency – as specified in C0.4)**

750,000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. PM 2 Reduction broke with Profilmatic at Alfeld Mill

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

18

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1  
Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

49,500

**Investment required (unit currency – as specified in C0.4)**

21,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. PM 1 Optimization press section doctoring at Alfeld Mill. Saving downtimes and broke by optimization of press section doctoring in 3rd press of PM

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Smart control system

**Estimated annual CO2e savings (metric tonnes CO2e)**

240

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1  
Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

480,174

**Investment required (unit currency – as specified in C0.4)**

250,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. PM 2 BTG Measuring equipment

At Alfeld Mill we installed additional measuring and control equipment. Installation of additional measuring systems (whiteness and b\* value, ash and consistency, pH in reject line B123 and multi-stage, controlled dosing system for impurity fixative depending on charge and turbidity) will reduce production losses, complaints, unplanned grade changes and increase productivity.

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

3,101

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

145,227

**Investment required (unit currency – as specified in C0.4)**

150,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Insulation of steam valves and pipes at Gratkorn Mill mainly in pulp and utilities documented during energy audit 2019

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

409

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

90,874

**Investment required (unit currency – as specified in C0.4)**

410,000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. K13-15: boiler control of steam-blocks (PART 1) at Gratkorn Mill switch from const. air/fuel ratio to a controlled operation, renewal of blowers, CAPEX including BAT and MC

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Machine/equipment replacement

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

6,844

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

539,043

**Investment required (unit currency – as specified in C0.4)**

280,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Gratkorn mill's steam and condensate system.  
Programme to fix the findings from energy audit 2019 (broken condensate traps, steam leakages, etc.). Additional costs: manpower to prevent same losses after several years needed

**Initiative category & Initiative type**

Energy efficiency in production processes  
Machine/equipment replacement

**Estimated annual CO2e savings (metric tonnes CO2e)**

3,889.99

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

666,676

**Investment required (unit currency – as specified in C0.4)**

270,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. At Gratkorn Mill, optimisation of soot blower control of liquor boiler (cooling losses), additional pulp production possible (included in savings, about 2000 to of extra liquor burning in the liquor boiler)

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Waste heat recovery

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

1,735

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Mandatory

**Annual monetary savings (unit currency – as specified in C0.4)**

10,423

**Investment required (unit currency – as specified in C0.4)**

1,000,000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. At Maastricht Mill in order to meet the meet the needs and goals as set in global energy agreement the Dutch authorities we have defined and executed smart CO<sub>2</sub> reduction projects. Together with authorities it was agreed to re-use the waste heat from the paper machine to heat up the inlet air of gas turbine 6.

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Wastewater treatment

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

138

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

35,000

**Investment required (unit currency – as specified in C0.4)**

20,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. At Maastricht Mill, the project focused on wastewater treatment plant - optimization sludge drying

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Waste heat recovery

**Estimated annual CO2e savings (metric tonnes CO2e)**

2,380

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

145,436

**Investment required (unit currency – as specified in C0.4)**

50,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. PM1 warm water for PM1 spray tub at Stockstadt Mil: The spray tubes for the press section of the pm1 are supplied by unheated fresh water. The fresh water can be very cold during winter. This cold water will be preheated by an effluent heat exchanger.

**Initiative category & Initiative type**

Energy efficiency in production processes  
Waste heat recovery

**Estimated annual CO2e savings (metric tonnes CO2e)**

2,905

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

131,837

**Investment required (unit currency – as specified in C0.4)**

60,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Enhanced capacity for warm water at Stockstadt Mil: The pulp mill doesn't have enough warm water, so it needs to refill the water tank with unheated fresh water. Additional warm water from another department will be used in pulp mill, so less steam will be needed to heat the water to the desired temperature.

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Waste heat recovery

**Estimated annual CO2e savings (metric tonnes CO2e)**

9,226

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

526,070

**Investment required (unit currency – as specified in C0.4)**

400,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Stockstad Mill's Heat Recovery (HC) press: In the high consistency press a lot of hot filtrate is being removed from the bleached pulp. This project will enhance the capacity of the existing heat recovery to preheat the fresh water for the bleaching plant before heating it with steam.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

406

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

29,560

**Investment required (unit currency – as specified in C0.4)**

13,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU: FIN: FU for P761 and P760 @ Disp.

At the moment the pumps P760 and P761 are running continuously at 100%, the amount of moved pulp into the subsequent tanks is regulated via the valve positions. The pumps should be equipped with a frequency converter to pump only the needed amount into the tanks.

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

2,000

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

62,816

**Investment required (unit currency – as specified in C0.4)**

66,000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU. Project Nereda at Lanaken Mill: Anti-scaling Acid dosing Nereda membranes indirect CO<sub>2</sub> compensation. Exchange aerator elements of the 3 Nereda aerators. Currently they block maximum production of the pulp plant

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Electrification

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

22,000

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

2,395,765

**Investment required (unit currency – as specified in C0.4)**

7,671,170

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU project. Installation of a 20 MW E-Boiler in Maastricht (equal to 30 t/h steam production).

The use of electricity as energy source leads to a decreasing overall demand of natural gas, which results in a lower CO2 footprint of Maastricht's energy park.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

130,000

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Mandatory

**Annual monetary savings (unit currency – as specified in C0.4)**

34,886

**Investment required (unit currency – as specified in C0.4)**

29,560

**Payback period**

No payback

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU project. Taurus Boiler 11 in Gratkorn: Fuel switch B11 from coal to biomass and natural gas. Replacement of 100,000 tons of coal.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

125,000

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

1,841

**Investment required (unit currency – as specified in C0.4)**

5,051

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SEU project. Step 1 – Steam block replacement in Stockstadt Mill: Due to installation of steam blocs as back up for gas boiler 8, hard coal boiler 9 can shut down and gas boiler 8 will deliver steam demand which can not covered by black liquor boiler 6. CO<sub>2</sub> reduction results due to lower emission by gas firing and possible lower basis load of gas boiler 8.

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**Initiative category & Initiative type**

Energy efficiency in production processes

Fuel switch

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

1,286

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

527,000

**Investment required (unit currency – as specified in C0.4)**

1,420,000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

SNA project. Cloquet Mill - recovery boiler feedwater pump change from turbine to motor), PM12 dryer system steam modifications (Reduce 160lb steam consumption), Ozone Mixer (Reduce energy consumption going from two Andritz mixers down to one Valmet mixer) – annualized savings shown

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

134

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

19,000

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SNA project. Cloquet Mill - digester steam Lean Six Sigma project

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

546

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

72,000

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SNA project. Cloquet Mill - RB10 sootblower quadrant control Lean Six Sigma project

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

310

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

99,000

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SNA project. Somerset Mill – Millwide condensate return Lean Six Sigma project

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**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

114

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

16,000

**Investment required (unit currency – as specified in C0.4)**

54,000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SNA project. Somerset Mill – PM1 chiller replacement (annualized savings shown)

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

232

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

309,000

**Investment required (unit currency – as specified in C0.4)**

400,000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SNA project. Somerset Mill – PM1 flash steam recovery (annualized savings shown)

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

1,273

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

102,402

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

<1 year

**Estimated lifetime of the initiative**

Ongoing

**Comment**

SNA project. Westbrook Mill – Reduce consumption of purchased electricity Lean Six Sigma project

**C4.3c**

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Other Decarbonisation capital plan	Compliance with regulatory requirements is considered under our decarbonisation capital plan which is coordinated across the regions and reviewed annually as appropriate to align with Thrive25 strategic plans to determine the most carbon efficient and cost-effective abatement route to achieve targets. We are using an internal carbon price (within the capital evaluation process) to ensure that the impact of carbon for all capital investments is understood.

Dedicated budget for energy efficiency	Sappi's science- based targets have been approved by the SBTi and are focused on implementing projects that would support the initiative to keep global warming to WB2D. Our annual budget includes energy efficiency projects as well as a 5-year capital plan with large projects focused on significant CO2 reduction. These decarbonisation projects include transitioning to low carbon energy generation as well as upgrading of certain plants which allow for fuel switching from fossil to biogenic.
Employee engagement	<p>Sappi North America (SNA) has a Sustainability Ambassador programme that helps to support communications, training and education on environmental issues including energy savings and greenhouse gas reductions. SNA's online GHG calculator helps allay concerns about carbon. It enables our salesforce and customers to calculate the carbon savings achieved by buying graphic and packaging products from SNA. It also provides indisputable evidence of the superior carbon footprint of SNA's products when compared with the competition.</p> <p>Sappi Europe engages all employees through its Sappi Performance Engine and Eco-Effectiveness approach which involves all employees in continuous improvement activities.</p> <p>Sappi SA engages with and raises awareness of issues aligned to the UN SDGs through its annual corporate citizenship report.</p>
Financial optimization calculations	Profit Improvement Plans (PIPs) are managed at mill level by each section. These are smaller scale improvements/projects which require no or very little capital spend and can be implemented in a short period of time. In the last couple of years, the focus in all regions has been on energy efficiency, energy self-sufficiency as well as water savings. We have established energy platforms in each region tasked with sharing knowledge on how to improve efficiency and drive the energy strategy at each region.
Internal incentives/recognition programs	Sustainability targets, including climate-related issues, form part of the overall business plan for Sappi Limited and globally. The outcomes of the Management Incentive Scheme in relation to all the sustainability targets are contained in the performance objectives of each mill and the personal objectives of all senior management.
Partnering with governments on technology development	In 2018, SSA reached financial close with the Department of Energy to build a renewable energy plant at Ngodwana Mill in Mpumalanga province. Sappi has a 30% stake in the project, construction of which was delayed in FY20 because of the Covid-19 pandemic, but which was commissioned after year-end.
Other	In North America, Sappi has utilised PINCH technology and Lean Six Sigma techniques to optimize energy usage in the mills. Several

	investments in boiler technology, such as over-fire air modifications and allowance for higher utilisation of bio-fuels in boilers have been made.
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## C-AC4.4/C-FB4.4/C-PF4.4

**(C-AC4.4/C-FB4.4/C-PF4.4) Do you implement agriculture or forest management practices on your own land with a climate change mitigation and/or adaption benefit?**

Yes

## C-AC4.4a/C-FB4.4a/C-PF4.4a

**(C-AC4.4a/C-FB4.4a/C-PF4.4a) Specify the agricultural or forest management practice(s) implemented on your own land with climate change mitigation and/or adaptation benefits and provide a corresponding emissions figure, if known.**

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### Management practice reference number

MP1

### Management practice

Low tillage and residue management

### Description of management practice

Plantation residue – bark, foliage, branches – is generated during the harvesting process. Burning of post-harvest residue (slash) is a common practice, as it reduces fuel load and the risk of wildfire. It also facilitates pre-planting, planting and post-planting activities. However, burning reduces the content of soil organic matter (SOM). Burning can also increase the risk of soil erosion. Studies on nutrition of trees have shown that nutrient loss during burning followed by wind erosion is a concern with sensitive soils. Although we still practice burning, because of the benefits we have observed, mulching is being rolled out to more of our plantations each year. The area mulched annually increased from 4,304 ha in 2020 to 4,858 ha in 2021.

### Primary climate change-related benefit

Increase carbon sink (mitigation)

### Estimated CO<sub>2</sub>e savings (metric tons CO<sub>2</sub>e)

33,477

### Please explain

The non-CO<sub>2</sub> emissions as a result of harvest residue burning has been estimated at 6.08 tons CO<sub>2</sub>e ha<sup>-1</sup> burnt. However, the harvest residue decomposition of mulched areas (assuming 142 tons dry matter ABG + BGB prior to harvesting and 53 tons dry matter remaining above ground as harvest residue per hectare) will emit direct N<sub>2</sub>O emissions of 3.73 tons CO<sub>2</sub>e ha<sup>-1</sup>. The remaining harvest residue after burning

proportion (1- 0.62) will also emit N<sub>2</sub>O emissions of 1.42 tons CO<sub>2</sub>e ha<sup>-1</sup>. Thus, burning will result in a total of 7.5 tons CO<sub>2</sub>e ha<sup>-1</sup> emissions and no-burn in 3.73 CO<sub>2</sub>e ha<sup>-1</sup>. The difference of 3.8 tons CO<sub>2</sub>e ha<sup>-1</sup> between these values was used to estimate total avoided non-CO<sub>2</sub>e emissions associated with the annual mulched area of 4858 ha. To calculate the net avoided emissions associated with mulching the fossil fuel emission 1 409 t CO<sub>2</sub>e was deducted from the avoided emissions 18 312 tons CO<sub>2</sub>e to yield 16 903 tons CO<sub>2</sub>e. If the assumption is made that mulching improves tree growth by 5% (less than half of increase observed by Crous 2016 across four trials), the additional carbon sequestration can be calculated as 16574 t CO<sub>2</sub>e/year [5.528 t C/ha/year growth rate x 16354 ha cumulatively mulched from 2017 x 0.05 (%) x 44/12 (conversion from C to CO<sub>2</sub>) ] 33477 = 16 903 avoided emissions + 16 574 additional sequestration due to improved growth

**Management practice reference number**

MP2

**Management practice**

Fire control

**Description of management practice**

Sappi is annually increasing expenditure on fire prevention and control to limit fire related losses.

**Primary climate change-related benefit**

Emission reductions (mitigation)

**Estimated CO<sub>2</sub>e savings (metric tons CO<sub>2</sub>e)**

718,345

**Please explain**

Each hectare not destroyed by wildfire saves on average 157.5 t CO<sub>2</sub>e (direct CO<sub>2</sub>) emissions and 3.7 t CO<sub>2</sub>e (non-CO<sub>2</sub>) = total of 161.1 tCO<sub>2</sub>e ha<sup>-1</sup>. Very difficult to calculate what percentage of land holdings could have been destroyed by fire without current level of control. Sappi's average loss of 0.8% is less than the average of 1.9% SA industry loses annually. Thus, Sappi could have lost 4906ha per annum based on the industry norm [258227ha x 1.9/100]. In 2021 Sappi reported 447 ha wildfire damage. Accordingly, the avoided emissions over 4459 ha less burnt is estimated at 718 345 tCO<sub>2</sub>e per year for 2021.

**Management practice reference number**

MP3

**Management practice**

Selecting species to maximize carbon capture

### Description of management practice

Sappi's breeding programme has seen an important shift from planting pure species to more productive, better adapted, and more pest and disease resistant hybrids of both hardwood and softwood trees grown in Sappi's South African plantations. This change in strategy is being driven by the need to respond more rapidly to the combined challenges of increased globalization and changing weather patterns (driven by climate change) that are resulting in significant increases in pest and diseases in the tree crop. The benefit of developing new hybrids is that breeders can additively combine the benefits from two or more species and develop varieties that have improved fibre yield and quality as well as better disease / pest tolerance. Annual round-the-table site-genotype matching meetings are held between Planning, Land management and operational personnel to identify the most suitable genotype for each compartment to be established (over a three-year planning horizon).

### Primary climate change-related benefit

Increasing resilience to climate change (adaptation)

### Estimated CO<sub>2</sub>e savings (metric tons CO<sub>2</sub>e)

340,282

### Please explain

A reduction in 1% of growth rate will result in the annual decrease in sequestration of 52 351 t CO<sub>2</sub>e over 258 277 ha area. Although it is almost impossible to estimate how much growth will be lost by selecting sub-optimal genotypes, limited information suggest planting of a second-choice Eucalypt genotype could result in a production decrease of 13% (Crous et al. 2019). Using a conservative estimation of half of this value as only 60% of land is currently planted to Eucalypts, preventing a 6.5% reduction in growth rate will avoid emissions of 340 282 tCO<sub>2</sub>e (very high uncertainty).

$[5.528 \text{ (tC/ha/year growth rate)} \times 258\,227 \text{ (ha)} \times 0.01 \text{ (\%)} \times 44/12 \text{ (conversion from C to CO}_2\text{)} = 52\,351 \text{ t CO}_2\text{e/year}] \times 6.5$

### Management practice reference number

MP4

### Management practice

Integrated pest management

### Description of management practice

Sappi Forests is striving to reduce the use of pesticides through Integrated Pest Management (IPM), which is based on an ecosystem and economic threshold approach. Depending on the impact and threshold level concerned a decision is made to take no action or to take remedial action. If remedial action is required preference is given to non-chemical methods over chemical pesticides. If pesticides are used, preference is given to those with the lowest risk.

**Primary climate change-related benefit**

Reduced demand for pesticides (adaptation)

**Estimated CO2e savings (metric tons CO2e)**

205,914

**Please explain**

Temperature is the most important environmental factor affecting insect behaviour, distribution, development and reproduction. The increase in temperature and water stress in future are likely to increase pest and disease growth losses. Due to the lack of a model linking climate to pest and disease impact a growth impact of 2.8% reduction in growth in 2030 compared to 1985 was assumed. Further assumptions were that one genotype planted over 30% of the landholding will be affected in both regions.

Preventing a 2.8% reduction in growth rate over 30% of landholdings will increase sequestration by 48 861 tCO<sub>2</sub>e [5.528 (tC/ha/year growth rate) x 258 227 (ha) x 0.01 (%) x 44/12 (conversion from C to CO<sub>2</sub>) = 52 351 t CO<sub>2</sub>e/year x 2.8 x 1/3] Poor weed management can easily reduce tree growth by 3% over the entire rotation. Such a growth reduction can result in reduced annual sequestration of 52 351 x 3(%) = 157 053 t CO<sub>2</sub>e/year

Total = 48 861 (P&D control) + 157053 (weed control)

**Management practice reference number**

MP5

**Management practice**

Fertilizer management

**Description of management practice**

Fertiliser quantities used in South African plantation forestry are very low compared with other agricultural land uses. It is generally only applied at planting when Eucalyptus trees are planted (Pine trees are not normally fertilised) with the aim of stimulating early seedling growth. The small quantities applied do not alter site nutrition but rather provide limited localised nutrition. This assists with rapid establishment of seedlings and early canopy closure resulting in weed suppression and increased tree growth. Preference is given to LAN based fertilisers to limit volatilization losses associated with urea- based fertilisers. Fertiliser is locally placed next to each tree and covered by soil to limit losses.

**Primary climate change-related benefit**

Reduced demand for fertilizers (adaptation)

**Estimated CO2e savings (metric tons CO2e)**

91,760

**Please explain**

Use of urea can result in volatilization losses of up to 80%. These losses can result in a reduction of tree growth and increased use of pesticides. Limited research has shown

that the application of fertiliser to Eucalyptus can increase volume production at rotation age by at least 5% (Crous et al. 2019). Assuming a 3% growth reduction if fertiliser is not applied to 60% of area planted to Eucalyptus can result in a reduced annual sequestration of 94 231 t CO<sub>2</sub>e compared to emissions of 2472 t CO<sub>2</sub>e associated with fertiliser application in 2021. Thus, the net increase in sequestration is estimated at 91 760 t CO<sub>2</sub>e (high uncertainty). [52 351 (from MP3 calculation above) x 3 (%) x 0.6 (% of area planted to Eucalyptus)]

## C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?**

Yes

## C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.**

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### Level of aggregation

Group of products or services

### Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

Internally developed GHG calculator

### Type of product(s) or service(s)

Other

Other, please specify

Everyday materials made from woodfibre-based renewable resources

### Description of product(s) or service(s)

The majority of Sappi's products are based on woodfibre, a renewable natural resource grown in sustainably managed forests and plantations which sequester carbon.

### Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

### Methodology used to calculate avoided emissions

Other, please specify

GHG Protocol – Land Sector and Removals Guidance

### Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Cradle-to-cradle/closed loop production

### Functional unit used

CO<sub>2</sub>eq/adt

**Reference product/service or baseline scenario used**

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

Cradle-to-gate

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

**Explain your calculation of avoided emissions, including any assumptions**

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

100

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**Level of aggregation**

Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

Other, please specify

Internally developed GHG calculator

**Type of product(s) or service(s)**

Other

Other, please specify

Sappi's range of packaging papers

**Description of product(s) or service(s)**

We offer a broad range of paper based sustainable solutions as an alternative to fossil fuel-based, non-renewable packaging in many of our product segments. These solutions include:

- Flexible packaging: innovative paper-based solutions with integrated functionalities such as barrier technology from water, oxygen and grease as well as sealing properties are suitable for various applications, notably in packaging for food as well as non-food markets.
- Label papers and self-adhesives: label papers are used for both wet glue and wet strength labels processes in the beverage, food and packaging applications. Our clay coated kraft and glassine release liners provide solutions not only for labels but applications such as self-adhesive tapes, medical and industrial applications.
- Containerboard: includes liners and fluting, for corrugated boxes. Sappi's products are found in applications like consumer packaging,

shelf-ready packaging and transport packaging for agricultural and industrial uses.

- Paperboard: high-quality coated boards for use in luxury packaging applications that require functionality and superior graphics across a range of market segments, including health and beauty, confectionery, premium beverages and food packaging.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

Yes

**Methodology used to calculate avoided emissions**

Other, please specify

Short communication on the role of cellulosic fiber-based packaging in reduction of climate change impacts available at:

<https://www.sciencedirect.com/science/article/pii/S0144861720314211>

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

Cradle-to-gate + end-of-life stage

**Functional unit used**

CO<sub>2</sub>eq/kg

**Reference product/service or baseline scenario used**

Comparison between cellulosic fibre materials and plastic-based solutions. The focus was on solutions that have a high Technological Readiness Level (TRL) allowing implementation in industrial applications today or in coming years.

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

Cradle-to-gate + end-of-life stage

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

1.5

**Explain your calculation of avoided emissions, including any assumptions**

The environmental performance of packaging materials is compared on an equal weight basis, acknowledging that real packaging solutions will use different amounts of different materials (due to differences in density, oxygen or water vapor transmission rates, or other material properties). The assumption was made that the amount of material required for both packaging materials is the same.

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

40.2

**Level of aggregation**

Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

No taxonomy used to classify product(s) or service(s) as low carbon

**Type of product(s) or service(s)**

Other

Other, please specify

Biofuel – black liquor

**Description of product(s) or service(s)**

Black liquor (dissolved organic compounds from wood) created during pulp manufacturing, is a biofuel and primary source of renewable fuel for power production.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

Yes

**Methodology used to calculate avoided emissions**

Other, please specify

GHG Protocol for Stationary Combustion

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

Use stage

**Functional unit used**

Per annum

**Reference product/service or baseline scenario used**

Comparison with coal

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

Use stage

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

3,075,837

**Explain your calculation of avoided emissions, including any assumptions**

The assumption was made that emissions were avoided by substituting coal usage with company own black liquor (BL). Only the emissions during the use phase, combustion, were considered as avoided emissions. The amount of BL consumed during FY21 was considered. Scope 1 emissions were calculated using the GHG Protocol and IPCC emission factors were used to calculate coal Scope 1 emissions and BL Scope 1 emissions. Boiler efficiencies of the coal-fired boilers and BL recovery boilers were considered.

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

2

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**Level of aggregation**

Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

No taxonomy used to classify product(s) or service(s) as low carbon

**Type of product(s) or service(s)**

Other

Other, please specify

Biofuel - biomass

**Description of product(s) or service(s)**

Sappi Southern Africa holds a 30% stake in Ngodwana Energy, a 25 MW biomass energy plant at Ngodwana Mill in Mpumalanga province. The plant uses biomass recovered from surrounding plantations and screened waste material from the mill production process. Ngodwana Energy is the first biomass project under the South African Government's Renewable Energy Independent Power Producer Programme which is aimed at moving the country's economy away from coal. This in turn aligns with Sappi's decarbonisation journey and commitment to UN SDG7: Renewable and Clean Energy and UN SDG12: Responsible Consumption and Production.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

Yes

**Methodology used to calculate avoided emissions**

Other, please specify

GHG Protocol

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

Use stage

**Functional unit used**

CO<sub>2</sub>e/adt

**Reference product/service or baseline scenario used**

Comparison with fossil energy

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

Cradle-to-cradle/closed loop production

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

200,000

**Explain your calculation of avoided emissions, including any assumptions**

Displacing 200,000 MWh of coal- generated Eskom electricity (third-party supplier) with electricity generated by Ngodwana Energy that only uses biomass for electricity generation.

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

0

**Level of aggregation**

Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

No taxonomy used to classify product(s) or service(s) as low carbon

**Type of product(s) or service(s)**

Other

Other, please specify

Renewable electricity

**Description of product(s) or service(s)**

Ten of Sappi's mills sell power. Power is generated on site using renewable sources and then power is exported. Emissions are avoided by using renewable fuel energy sources instead of using electricity from the local grid. 77% of Sappi's renewable energy consumption is from own black liquor and own biomass.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

Yes

**Methodology used to calculate avoided emissions**

Other, please specify

GHG Protocol

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

Other, please specify

Not applicable

**Functional unit used**

Emission avoided in one financial year by producing electricity onsite using renewable sources vs. using electricity from the grid.

**Reference product/service or baseline scenario used**

Local grid for every operation.

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

Other, please specify  
Not applicable

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

112,220

**Explain your calculation of avoided emissions, including any assumptions**

Ten of Sappi's mills sell power. Power is generated on site using a % of renewable sources. Emissions are avoided by using a high % of renewable fuel energy sources instead of using electricity from the local grid. In some instances, Sappi's emission factor is lower than the emission factor of the local grid. The emissions avoidance was calculated by taking each mill's local power utility's emission factor and comparing it with Sappi's own internal power generation emission factor. The difference between the two factors indicates that for some instances Sappi power generation is less carbon intensive than using power from the local grid, thereby avoiding carbon emissions using Sappi's electricity.

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

1

## C5. Emissions methodology

### C5.1

**(C5.1) Is this your first year of reporting emissions data to CDP?**

No

### C5.1a

**(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?**

Row 1

**Has there been a structural change?**

No

### C5.1b

**(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?**

**Change(s) in methodology, boundary, and/or reporting year definition?**

Row 1	No
-------	----

## C5.2

### (C5.2) Provide your base year and base year emissions.

#### Scope 1

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

4,425,322.6

**Comment**

The base year is Sappi's 2019 financial year.

#### Scope 2 (location-based)

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

1,519,207.5

**Comment**

The base year is Sappi's financial year 2019.

#### Scope 2 (market-based)

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

1,482,328.5

**Comment**

The base year is Sappi's 2019 financial year.

#### Scope 3 category 1: Purchased goods and services

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

1,828,665.5

**Comment**

The base year is Sappi's financial year 2019

**Scope 3 category 2: Capital goods**

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

11,180.4

**Comment**

The base year is Sappi financial year 2019.

**Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)**

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

696,933.9

**Comment**

The base year is Sappi financial year 2019.

**Scope 3 category 4: Upstream transportation and distribution**

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

1,112,646.1

**Comment**

The base year is Sappi financial year 2019.

### **Scope 3 category 5: Waste generated in operations**

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO2e)**

81,053.9

**Comment**

The base year is Sappi financial year 2019.

### **Scope 3 category 6: Business travel**

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2018

**Base year emissions (metric tons CO2e)**

16,843

**Comment**

The base year is Sappi financial year 2019.

### **Scope 3 category 7: Employee commuting**

---

**Base year start**

October 1, 2018

**Base year end**

September 30, 2019

**Base year emissions (metric tons CO2e)**

12,539.3

**Comment**

The base year is Sappi financial year 2019.

### **Scope 3 category 8: Upstream leased assets**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 9: Downstream transportation and distribution**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 10: Processing of sold products**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 11: Use of sold products**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 12: End of life treatment of sold products**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 13: Downstream leased assets**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 14: Franchises**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 15: Investments**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3: Other (upstream)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3: Other (downstream)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

## **C5.3**

**(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

Defra Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance, 2019

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

The Greenhouse Gas Protocol: Scope 2 Guidance

## **C6. Emissions data**

### **C6.1**

**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO<sub>2</sub>e?**

**Reporting year**

---

**Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)**

4,273,188.9

**Comment**

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) guidelines was used to calculate Scope 1 emissions.

IPCC Fourth Assessment Report was used for GWP factors for all combusted fuel sources.

These Scope 1 emissions were emitted during Sappi's financial year 2021.

## C6.2

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Row 1**

**Scope 2, location-based**

We are not reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

Market-based total Scope 2 figure reported. (ten out of nineteen Sappi operations report market-based Scope 2 figure)

## C6.3

**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?**

**Reporting year**

**Scope 2, market-based (if applicable)**

1,022,586.3

**Comment**

Market-based total Scope 2 figure reported. (ten out of nineteen Sappi operations report market-based Scope 2 figure)

## C6.4

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

Yes

### C6.4a

**(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

**Source**

Offices, warehouses, research facilities, nurseries, outside mill premises.

**Relevance of Scope 1 emissions from this source**

No emissions from this source

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why this source is excluded**

In our GHG inventory, Sappi includes emissions from production facilities. The excluded Scope 2 emissions are not from production facilities, i.e., Scope 1 emissions are not applicable. The power consumption (Scope 2 emissions) has been evaluated and relative to Sappi’s production facilities these emissions are immaterial and therefore not relevant.

**Estimated percentage of total Scope 1+2 emissions this excluded source represents**

2

**Explain how you estimated the percentage of emissions this excluded source represents**

An investigation was done a few years ago where the Scope 2 emissions were calculated for Sappi offices, warehouses, research facilities, nurseries, and outside mill premises. Scope 1 emissions are not relevant for these facilities. The conclusion of this project was that the Scope 2 emissions were immaterial compared to emissions from production facilities.

**C6.5**

**(C6.5) Account for your organization’s gross global Scope 3 emissions, disclosing and explaining any exclusions.**

**Purchased goods and services**

---

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

1,516,373

**Emissions calculation methodology**

Average data method  
Spend-based method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard is used to calculate Scope 3 emissions. This category includes all upstream emissions from the production of purchased goods purchased in the reporting year. Sappi SA and Sappi EU calculate emissions from this category using the average data method. Source data is collected from the procurement department. The source data is converted to the relevant unit, and then multiplied with a secondary emission factor (EF). The secondary emission factors are mainly obtained from the EcoInvent CITPA database. The EF is a CO<sub>2</sub> equivalent value, including all GHGs. Sappi NA uses the spend-based method where economic value of the purchased goods is used to multiply with a relevant EF to determine the Scope 3 emissions for this category.

**Capital goods****Evaluation status**

Not relevant, explanation provided

**Please explain**

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard is used to calculate Scope 3 emissions. This category includes all upstream emissions from the production of capital goods purchased by Sappi in the reporting year. Capital goods are final products that have an extended life and are used by Sappi to manufacture products.

In Sappi FY18 and FY19 the Scope 3 emissions for Capital Goods were calculated. DEFRA 2018 conversion factors were used to convert the mass of capital goods to GHG emissions. It was concluded that these emissions are immaterial, as for both years these emissions were less than 1% of Total Scope 3 emissions. This category is only relevant to Sappi if a major or capital project has been done during the reporting year. During normal operating years, this category is not material for Sappi.

**Fuel-and-energy-related activities (not included in Scope 1 or 2)****Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO<sub>2</sub>e)**

705,498.8

**Emissions calculation methodology**

Average data method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard is used to calculate Scope 3 emissions.

This category includes emissions related to the production of fuels and energy purchased and consumed by Sappi in the reporting year that are not included in scope 1 or scope 2. Sappi includes all purchased fuels (Renewable and Non-Renewable), as well as Upstream emissions for purchased electricity including transmission and distribution losses.

DEFRA fuels conversion factors were used to account for the upstream Scope 3 emissions associated with extraction, refining and transportation of the raw fuel sources to Sappi's site prior to combustion. The purchased fossil and renewable fuel quantities are obtained directly from the mill's actual purchases. DEFRA emission factors were used for upstream purchased electricity for mills in 9 different countries. These emissions include the extraction, refining and transportation of primary fuels before their use in the generation of electricity.

DEFRA emission factors were used for upstream purchased electricity transmission and distribution losses.

Scope 3 emissions associated with grid losses (the energy loss that occurs in getting the electricity from the power plant to the organisations that purchase it). The imported electricity was obtained directly from the mill's actual purchases and then multiplied with the DEFRA emission factor corresponding to the country that the mill is located in.

## Upstream transportation and distribution

---

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

965,218

**Emissions calculation methodology**

Distance-based method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

2.4

**Please explain**

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard is used to calculate Scope 3 emissions.

This category includes transportation and distribution of products purchased in the reporting year, between a company's tier 1 suppliers and its own operations in vehicles

not owned or operated by the reporting. The distances between the supplier and Sappi mill is determined for road, rail and marine transport. DEFRA emission factors are used to convert from distances by mode of transport to GHG emissions. Following the GHG Protocol principles, outbound transportation and distribution services that are paid for by Sappi are included in category 4 (Upstream transportation and distribution). Primary emission factors are obtained for outbound transportation services for SSA.

## Waste generated in operations

---

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

71,607.8

### Emissions calculation methodology

Waste-type-specific method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

Scope 3 landfill emissions emitted from waste generated in Sappi's operations are applicable to all mills, as all mills deposit to third party landfills. Tugela, Ngodwana, Cloquet, Somerset and Matane additionally have owned landfills which are accounted for in Scope 1 emissions. We calculate emissions using IPCC Guidelines (2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 5). The source data is the weight of the waste in the different categories, generated by the mills and is sent to 3rd party landfills. The actual waste data is obtained directly from the mills. The source data is inputted into the IPCC Waste Model (MS Excel) to determine Scope 3 landfill emissions.

## Business travel

---

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

8,909

### Emissions calculation methodology

Supplier-specific method

Distance-based method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0.02

**Please explain**

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard is used to calculate Scope 3 emissions.

This category includes emissions from the transportation of Sappi employees for business related activities in vehicles owned or operated by third parties. Distances, mode of transport and emissions are obtained directly from the service providers.

GHG emissions data is obtained directly from the travel agent Air emissions reports and car renting companies. These Scope 3 emissions are primary carbon emissions for SSA.

**Employee commuting**

---

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

10,725.5

**Emissions calculation methodology**

Distance-based method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard is used to calculate Scope 3 emissions.

Sappi includes emissions for the transportation of employees between their homes and their worksites. The employee numbers were obtained from HR department. The average data method was used based on average national data on commuting patterns. To convert from distances to GHG emissions, DEFRA emission factors for the different modes of transport were used.

**Upstream leased assets**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

This category includes emissions from the operation of assets that are leased by the reporting company in the reporting year and not already included in scope 1 or scope 2.

All operating units where we have operational over control are included into scope 1 and 2 regardless of if they are leased or not.

Therefore this category is not considered a relevant category for Sappi.

## Downstream transportation and distribution

---

### Evaluation status

Not relevant, explanation provided

### Please explain

According to the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, the outbound transportation and distribution services that are paid for by the reporting company should be included in Category 4 (Upstream transportation and distribution) because the reporting company purchases a service. The assumption is made that Sappi pays for all outbound transportation, and therefore these emissions are included in Category 4: "Upstream transportation and distribution" category.

## Processing of sold products

---

### Evaluation status

Not relevant, explanation provided

### Please explain

Paper and packaging produced by Sappi are used directly by our customers where minimal further processing is required and is therefore considered immaterial in terms of Scope 3 emissions in this category. For other intermediate products, Sappi does not have line of sight to what the end product will be. Sappi is unable to reasonably estimate the downstream emissions associated with the various end uses.

## Use of sold products

---

### Evaluation status

Not relevant, explanation provided

### Please explain

When a company sells an intermediate product that directly emits GHGs in its use phase, it is required to account for direct use-phase emissions of the intermediate product by the end user (i.e., emissions resulting from: the use of the sold intermediate product that directly consumes fuel or electricity during use; fuels and feedstock; GHG's released during product use). This category is not considered as a relevant category for Sappi in terms of emissions.

## End of life treatment of sold products

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Sappi is unable to reasonably estimate the End-of-Life Scope 3 emissions associated with the various end uses of our intermediate products. We do not have visibility of how our intermediate products are used and what the end of life of our products are.

**Downstream leased assets**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

This category includes emissions from the operation of assets that are owned by Sappi and leased to other entities in the reporting year, not already included in scope 1 or scope 2. This category is applicable to lessors (i.e., companies that receive payments from lessees). Sappi has no downstream leased assets, and therefore this is not considered as a relevant category for Sappi in terms of emissions.

**Franchises**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

This category includes emissions from the operation of franchises not included in scope 1 or scope 2. A franchise is a business operating under a license to sell or distribute another company's goods or services within a certain location. This category is not applicable to Sappi as we do not franchise our business.

**Investments**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Not applicable. No investments with emissions not already included in scopes 1 and 2.

**Other (upstream)**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

No other upstream emissions to be considered.

**Other (downstream)**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

No other downstream emissions to be considered.

## C-AC6.8/C-FB6.8/C-PF6.8

**(C-AC6.8/C-FB6.8/C-PF6.8) Is biogenic carbon pertaining to your direct operations relevant to your current CDP climate change disclosure?**

Yes

## C-AC6.8a/C-FB6.8a/C-PF6.8a

**(C-AC6.8a/C-FB6.8a/C-PF6.8a) Account for biogenic carbon data pertaining to your direct operations and identify any exclusions.**

### CO2 emissions from land use management

---

**Emissions (metric tons CO2)**

0

**Methodology**

Default emissions factors

**Please explain**

As a stock-change methodology is used to calculate annual emissions/removals associated with the biogenic carbon stock change (above-ground and below-ground living biomass in plantation forests), the gross emissions cannot be reported. As there has been a net increase in carbon stocks during FY2021, the net change has been reported as a removal.

### CO2 removals from land use management

---

**Emissions (metric tons CO2)**

33,390

**Methodology**

Other, please specify  
LIDAR surveys

**Please explain**

To maintain a National Greenhouse Gas Inventory in order to fulfil reporting obligations under the United Nations Framework Convention on Climate Change, the Department of Environmental Affairs has introduced mandatory reporting. Sappi SA annually calculates GHG emissions for living biomass stocks on Sappi Forests' land holdings, starting from 2016.

The stock-difference method (carbon stock change as an annual average difference between estimates at two points in time) was used to calculate 2021 biogenic GHG

emissions/ removals. The annual carbon stock change was calculated using Equation 2.5 (IPCC 2006, Volume 4, Chapter 2, P2.9) by subtracting the total carbon stocks in 2020 from the stocks in 2021, based on living carbon stocks within each of the more than 15 000 compartments (stands). The methodology was largely based on Tier 1 (default) conversion factors. However, country-specific biomass conversion and expansion factors (Dovey et al 2021) have been used to estimate total above-ground biomass from inventory data. Inventory data are based on field measurements and LiDAR measurements with empirical modelling to estimate annual growing stock in compartments that were not enumerated.

The carbon stock change was only calculated for above- and below- ground biomass. These values exclude the following pools: soil organic carbon, dead organic matter, litter layer and harvested wood products (HWP). The HWP carbon has been assumed to be emitted to the atmosphere at time of harvesting as per current GHG Protocol Agricultural Guidance.

In total, Sappi Forests reported 33,390 tons biogenic CO<sub>2</sub> removals for 2021 from its own managed forest lands. The removal could have been larger, if there had not been an emission of 35,714 tons CO<sub>2</sub>e due to natural disasters.

Dovey, S., du Toit, B. and Crous, J., 2021. Tier 2 above-ground biomass expansion functions for South African plantation forests. *Southern Forests: a Journal of Forest Science*, 83(1): 69-78.

### Sequestration during land use change

---

#### Emissions (metric tons CO<sub>2</sub>)

0

#### Methodology

Other, please specify  
Forest management system

#### Please explain

No significant afforestation has taken place in the past 20 years to claim sequestration due to increase in biogenic carbon stocks.

### CO<sub>2</sub> emissions from biofuel combustion (land machinery)

---

#### Emissions (metric tons CO<sub>2</sub>)

0

#### Methodology

Other, please specify  
Not applicable

#### Please explain

Sappi Forests is currently investigating feasibility of using biofuel, but in 2021 no biofuel was used for plantation activities.

### **CO2 emissions from biofuel combustion (processing/manufacturing machinery)**

---

**Emissions (metric tons CO2)**

**Methodology**

**Please explain**

### **CO2 emissions from biofuel combustion (other)**

---

**Emissions (metric tons CO2)**

**Methodology**

**Please explain**

## **C-AC6.9/C-FB6.9/C-PF6.9**

**(C-AC6.9/C-FB6.9/C-PF6.9) Do you collect or calculate greenhouse gas emissions for each commodity reported as significant to your business in C-AC0.7/FB0.7/PF0.7?**

---

#### **Agricultural commodities**

Timber

**Do you collect or calculate GHG emissions for this commodity?**

Yes

**Please explain**

The most important emission sources from Sappi's own forestry operations were identified and the associated emissions were calculated. A "cradle-to-gate" system boundary was used, that covered the establishment activities, forest management, fire prevention, harvesting and transport to the mill gate. The emissions reported for this year are not entirely complete and exclude minor emissions such as those from maintenance of vehicles and machinery and transport of some materials, to name a few.

## **C-AC6.9a/C-FB6.9a/C-PF6.9a**

**(C-AC6.9a/C-FB6.9a/C-PF6.9a) Report your greenhouse gas emissions figure(s) for your disclosing commodity(ies), explain your methodology, and include any exclusions.**

## Timber

---

### Reporting emissions by

Unit of production

### Emissions (metric tons CO<sub>2</sub>e)

0.075

### Denominator: unit of production

Other, please specify

m<sup>3</sup>

### Change from last reporting year

About the same

### Please explain

System boundary: cradle to mill gate. Limited to timber production from own land. Scope 1 emissions reported in C-7.4b were converted to an emission per m<sup>3</sup> of timber produced. Total fossil-fuel based emission was divided by total timber production. This value excludes emissions from externally sourced timber and emissions/ removals associated with biogenic carbon.

## C6.10

**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO<sub>2</sub>e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

---

### Intensity figure

0.001005845

### Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)

5,295,775.2

### Metric denominator

unit total revenue

### Metric denominator: Unit total

5,265,000,000

### Scope 2 figure used

Market-based

### % change from previous year

11.5

### Direction of change

Decreased

**Reason for change**

Sappi had a 14% increase in sales revenue, and only a 1.2% increase in gross global combined Scope 1 + 2 emissions, this results in a 11.5% decrease in intensity figure compared to the previous year. A better year financially for Sappi compared to the previous year as well as lower carbon emission intensity. Increased Saleable production contributed to increased process efficiency resulting in decreased carbon emissions.

**Intensity figure**

423.9

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

5,295,775.2

**Metric denominator**

full time equivalent (FTE) employee

**Metric denominator: Unit total**

12,492

**Scope 2 figure used**

Market-based

**% change from previous year**

3.7

**Direction of change**

Increased

**Reason for change**

The number of full-time employees decreased by 2.4%, and the gross global combined Scope 1 + 2 emissions increased by 1.2%. Both of these shifts contributed to the increase in the intensity figure of gross global Scope 1 + 2 emissions over full time employees compared to the previous year.

**Intensity figure**

0.84

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

5,295,775.2

**Metric denominator**

metric ton of product

**Metric denominator: Unit total**

6,297,483

**Scope 2 figure used**

Market-based

**% change from previous year**

1

**Direction of change**

Decreased

**Reason for change**

This intensity figure of Scope 1 + 2 emissions over metric ton of product decreased by 1 %. The decrease is attributed to an increased process efficiency as Saleable production increased during FY21. Saleable production increased due to return to normal operation after the Covid-19 impact during FY20.

## C7. Emissions breakdowns

### C7.1

**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

### C7.1a

**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO <sub>2</sub> e)	GWP Reference
CO <sub>2</sub>	3,964,839.5	IPCC Fifth Assessment Report (AR5 – 100 year)
CH <sub>4</sub>	254,831.5	IPCC Fifth Assessment Report (AR5 – 100 year)
N <sub>2</sub> O	53,517.9	IPCC Fifth Assessment Report (AR5 – 100 year)

### C7.2

**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO <sub>2</sub> e)
Africa	2,316,630.4
EU15	1,474,765.7
United States of America	435,443.3
Canada	46,349.5

## C7.3

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

- By business division
- By facility
- By activity

### C7.3a

**(C7.3a) Break down your total gross global Scope 1 emissions by business division.**

Business division	Scope 1 emissions (metric ton CO2e)
Sappi Southern Africa	2,316,630.4
Sappi Europe	1,474,765.7
Sappi North America	481,792.8

### C7.3b

**(C7.3b) Break down your total gross global Scope 1 emissions by business facility.**

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Ngodwana Mill (SA)	1,277,417.8	-25.57803	30.66549
Saiccor Mill (SA)	534,695.8	-30.18078	30.77091
Stanger Mill (SA)	167,012.1	-29.36743	31.28908
Tugela Mill (SA)	335,822.2	-29.15216	31.40536
Alfeld Mill (Germany)	122,222.2	51.98592	9.82076
Ehingen Mill (Germany)	45,576.1	48.26766	9.72712
Gratkorn Mill (Austria)	444,695	47.13333	15.33333
Kirkniemi Mill (Finland)	237,193	60.18815	23.94212
Lanaken Mill (Belgium)	95,614.5	50.877	5.6427
Maastricht Mill (Netherlands)	152,461.6	50.85857	5.69457
Stockstadt Mill (Germany)	265,401.9	49.80421	8.46762
Cloquet Mill (Minnesota USA)	180,690	46.72288	-92.4384
Somerset Mill (Maine USA)	232,070.5	44.70652	-69.63782
Westbrook Mill (Maine USA)	22,682.8	43.68397	-70.35211
Lomati Mill SA	1,682.5	-25.7726	31.0402
Carmignano (Italy)	60,002.4	45.6311	11.7111
Condino (Italy)	49,866.5	45.8802	10.5934
Rockwell Solutions (UK)	1,732.4	56.4762	-3.05171
Matane Mill (Canada)	46,349.5	48.8334	-67.5567

## C7.3c

**(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

Activity	Scope 1 emissions (metric tons CO2e)
Stationary Combustion (Fossil Fuel)	3,945,373.9
Stationary Combustion (Renewable Fuel)	57,523.5
Process activities - make-up Chemicals	16,434.1
Mobile combustion	16,361.5
Waste management - Owned landfill emissions	237,495.9

## C-AC7.4/C-FB7.4/C-PF7.4

**(C-AC7.4/C-FB7.4/C-PF7.4) Do you include emissions pertaining to your business activity(ies) in your direct operations as part of your global gross Scope 1 figure?**

Partially

## C-AC7.4a/C-FB7.4a/C-PF7.4a

**(C-AC7.4a/C-FB7.4a/C-PF7.4a) Select the form(s) in which you are reporting your agricultural/forestry emissions.**

Emissions disaggregated by category (advised by the GHG Protocol)

## C-AC7.4b/C-FB7.4b/C-PF7.4b

**(C-AC7.4b/C-FB7.4b/C-PF7.4b) Report the Scope 1 emissions pertaining to your business activity(ies) and explain any exclusions. If applicable, disaggregate your agricultural/forestry by GHG emissions category.**

### Activity

Agriculture/Forestry

### Emissions category

Non-mechanical

### Emissions (metric tons CO2e)

179,762

### Methodology

Default emissions factor

### Please explain

The majority of emissions from own landholdings associated with harvest residue burning have been quantified, 81,165 tCO<sub>2</sub>e [Non-CO<sub>2</sub>: mass of fuel available for combustion was taken as 53 t dm ha<sup>-1</sup>. At a combustion factor of 0.62 (IPCC, 2019b, Table 2.6 (Updated) "Other temperate forests – Post logging slash burn") the biomass

burnt was calculated as 32.9 t dm ha<sup>-1</sup>], natural grassland management (burning) 39,410 tCO<sub>2</sub>e [Non-CO<sub>2</sub>: 69,780 ha burnt was split into 50,328 ha within the “Grassland” subcategory and 19,453 ha within the “Savanna” subcategory of the “Savanna Grasslands/Pastures (mid/late dry season burns)”. Mass of fuel available for burning was obtained from Table 2.4 and emissions factors for each GHG from Table 2.5 (IPCC 2019)], natural disasters 1,638 tCO<sub>2</sub>e [Non-CO<sub>2</sub>: The quantity of material consumed by the fire over 447 ha, affected, was taken from the updated Table 2.4 (IPCC, 2019b) for the category, “Other temperate forests – Wildfire” at 19.8 t dm ha<sup>-1</sup>], nursery heating 52 tCO<sub>2</sub>e [CO<sub>2</sub> and non-CO<sub>2</sub>: total weight of gas purchases was converted into emissions values based on default emissions by fuel type], fertiliser emissions 2,472 tCO<sub>2</sub>e [Non-CO<sub>2</sub>: Quantity of different fertiliser formulations were summarised separately in order to calculate the total tons of nitrogen applied per annum. Direct and indirect N<sub>2</sub>O emissions were calculated using IPCC default Tier 1 emissions factors] and harvest residue decomposition 55,025 tCO<sub>2</sub>e [Non-CO<sub>2</sub>: Tier 1 methodology (Equation 11.1) and default Emission Factor values supplied by IPCC (2019d) was used to calculate N<sub>2</sub>O emissions from harvest (crop) residue remaining on-site converted to tons of CO<sub>2</sub>e emissions].

### Activity

Agriculture/Forestry

### Emissions category

Land use change

### Emissions (metric tons CO<sub>2</sub>e)

32,127

### Methodology

Field measurements

### Please explain

Land-use change occurs where plantation areas next to riverine areas and wetlands are taken out of production (due to legislative and environmental considerations) to restore natural habitat (grasslands) in these areas or secondly for economic reasons, such as poor growth or expensive harvesting on very steep slopes. The calculation of carbon loss associated with land use change from forest land to grassland (31,346 tCO<sub>2</sub>e) was based on Tier 1 guidelines provided in Equation 2.15 and 2.16 (IPCC 2006). The biomass before conversion was back-calculated from the 2020 carbon stock calculations in stands of harvestable age. The carbon increase in the year of conversion was calculated as 1.9 t C ha<sup>-1</sup>. This was based on grassland biomass totals reported in Table 6.4 (IPCC, 2006) and weighted on a proportional basis depending on the ecological zone, based on an assumption of achieving maximum biomass after a period of three years. Litter values were based on country-specific data. Carbon stock reduction was converted to CO<sub>2</sub>e values. Non-CO<sub>2</sub>: Post logging slash burning was calculated using a combustion of 0.62 in “Other temperate forests”. Direct N<sub>2</sub>O emissions from managed soil (781 tCO<sub>2</sub>e) was calculated for the 231 ha converted to

grassland using Tier 1 methodology (IPCC - Equation 11.1) and default Emission Factor values IPCC (2019).

---

**Activity**

Agriculture/Forestry

**Emissions category**

Mechanical

**Emissions (metric tons CO<sub>2</sub>e)**

129,646

**Methodology**

Empirical models

**Please explain**

Scope 1, cradle to mill-gate system boundary. Fossil-fuel related emissions were calculated for the following activities: Residue mulching 1,409 tCO<sub>2</sub>e, mechanical weeding 39 tCO<sub>2</sub>e, aerial firefighting and pesticide application 157 tCO<sub>2</sub>e, soil preparation (ripping, pitting) 527 tCO<sub>2</sub>e, semi-mechanical planting 34 tCO<sub>2</sub>e, fire break preparation (mowing, grading, mulching) 595 tCO<sub>2</sub>e, harvesting of timber 50,797 tCO<sub>2</sub>e, transport of timber (short-haul, rail and road) 64,971 tCO<sub>2</sub>e, road maintenance 6,313 tCO<sub>2</sub>e and management vehicles 4,802 tCO<sub>2</sub>e. Total quantity of calculated fuel usage was converted into emissions values based on default emissions by fuel type.

---

**Activity**

Agriculture/Forestry

**Emissions category**

Total

**Emissions (metric tons CO<sub>2</sub>e)**

341,534

**Methodology**

Default emissions factor

**Please explain**

The total emissions figure (Scope 1, cradle to mill-gate system boundary) combines the disaggregated categories listed above as per GHG Protocol Agricultural Guidance (non-mechanical: emissions from biological processes as well as the burning of timber residues, fire breaks and conservation areas; land use change: land use change from plantation area to natural grassland that resulted in reduction of carbon stocks; and mechanical: emissions from equipment or machinery operated on plantations and transport of roundwood to processing plants.)

## C7.5

**(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

Country/Region	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)
Africa	554,213	554,213
EU15	573,190	383,500
United States of America	71,933	84,873
Canada	0	0

## C7.6

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By business division

By facility

### C7.6a

**(C7.6a) Break down your total gross global Scope 2 emissions by business division.**

Business division	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)
Sappi Southern Africa	554,213	554,213
Sappi Europe	573,190	383,500
Sappi North America	71,933	84,873

### C7.6b

**(C7.6b) Break down your total gross global Scope 2 emissions by business facility.**

Facility	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)
Ngodwana Mill (SA)	15,916	15,916
Saiccor Mill (SA)	254,868	254,868
Stanger Mill (SA)	116,921	116,921
Tugela Mill (SA)	157,136	157,136
Alfeld Mill (Germany)	93,169	81,126
Ehingen Mill (Germany)	54,576	47,521
Gratkorn Mill (Austria)	16,975	0

Kirkniemi Mill (Finland)	168,060	168,060
Lanaken Mill (Belgium)	215,130	41,083
Maastricht Mill (Netherlands)	2,682	1,738
Stockstadt Mill (Germany)	19,990	39,980
Cloquet Mill (Minnesota USA)	19,440	19,440
Somerset Mill (Maine, USA)	49,971	60,527
Westbrook Mill (Maine, USA)	2,522	4,906
Lomati Mill (South Africa)	9,372	9,372
Carmignano (Italy)	1,650	2,594
Condino (Italy)	364	562
Rockwell (UK)	594	834
Matane Mill (Canada)	0	0

## C7.9

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Increased

## C7.9a

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.**

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption				
Other emissions reduction activities				

Divestment				
Acquisitions				
Mergers				
Change in output	60,296.2	Increased	1.2	<p>An increase in saleable production resulted in a 1.2% increase in Gross Global Scope 1 + 2 CO<sub>2</sub>e emissions (metric tons CO<sub>2</sub>e). Saleable production increased due to return to normal operation after Covid Impact during FY20.</p> <p>Sappi Group increased gross Scope 1 + 2 emissions by 60296.2 tons CO<sub>2</sub>e. Sappi's Gross Global Scope 1 + 2 emissions in the previous year (FY20) were 5,235,479 tons CO<sub>2</sub>e.</p> <p>The following calculation was done to determine the increased emissions:</p> <p>Change in Scope 1 + 2 emissions due to Change in output = 60296.2 tons CO<sub>2</sub>e.</p> <p>Previous year Scope 1 + 2 emissions = 5,235,479 tons CO<sub>2</sub>e</p> <p><math>[(\text{Change in Scope 1 + 2 emissions}) / (\text{Previous year Scope 1 + 2 emissions})] * 100</math></p> <p><math>(60296.2 / 5,235,479) * 100 = 1.2\%</math>.</p>
Change in methodology				
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

## C7.9b

**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Market-based

## C8. Energy

### C8.1

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 5% but less than or equal to 10%

### C8.2

**(C8.2) Select which energy-related activities your organization has undertaken.**

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

### C8.2a

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	18,183,285.9	14,070,035.4	32,253,321.3

Consumption of purchased or acquired electricity		999,802.4	2,039,604.7	3,039,407.1
Consumption of self-generated non-fuel renewable energy		69,811.7		69,811.7
Total energy consumption		19,252,900	16,109,640.1	35,362,540.1

## C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

## C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

### Sustainable biomass

#### Heating value

LHV

#### Total fuel MWh consumed by the organization

18,261,767.7

#### MWh fuel consumed for self-generation of electricity

6,161,816.1

#### MWh fuel consumed for self-generation of heat

#### MWh fuel consumed for self-generation of steam

## **MWh fuel consumed for self- cogeneration or self-trigeneration**

### **Comment**

The biomass fuel sources included in this category are: biogas, black liquor, liquid biofuel, pelletised biomass, combusted sludges, waad waste, saw dust, paper, board, hog fuel, bark. All of these fuel sources are derived from renewable sustainable sources.

2006 IPCC Guidelines for National Greenhouse Gas Inventories was used. Default Emission Factors were used for Stationary Combustion in Manufacturing industries, Table 2.3.

IPCC Fifth Assessment Report (AR5) was used for GWP.

## **Other biomass**

---

### **Heating value**

### **Total fuel MWh consumed by the organization**

0

### **MWh fuel consumed for self-generation of electricity**

### **MWh fuel consumed for self-generation of heat**

### **MWh fuel consumed for self-generation of steam**

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

### **Comment**

## **Other renewable fuels (e.g. renewable hydrogen)**

---

### **Heating value**

LHV

### **Total fuel MWh consumed by the organization**

999,802.4

### **MWh fuel consumed for self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

Renewable portion of purchased power.

**Coal**

---

**Heating value**

LHV

**Total fuel MWh consumed by the organization**

7,585,316.2

**MWh fuel consumed for self-generation of electricity**

2,426,558.32

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

The fuel sources in this category include A, B and D grade coal. 2006 IPCC Guidelines for National Greenhouse Gas Inventories was used. Default Emission Factors were used for Stationary Combustion in Manufacturing industries, Table 2.3.

IPCC Fifth Assessment Report (AR5) was used for GWP.

**Oil**

---

**Heating value**

LHV

**Total fuel MWh consumed by the organization**

502,668.3

**MWh fuel consumed for self-generation of electricity**

160,804.64

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

## **MWh fuel consumed for self- cogeneration or self-trigeneration**

### **Comment**

The fuel sources in this category include No2 Fuel oil and No6 Fuel oil.

2006 IPCC Guidelines for National Greenhouse Gas Inventories was used. Default Emission Factors were used for Stationary Combustion in Manufacturing industries, Table 2.3.

IPCC Fifth Assessment Report (AR5) was used for GWP.

## **Gas**

---

### **Heating value**

LHV

### **Total fuel MWh consumed by the organization**

5,581,117.3

### **MWh fuel consumed for self-generation of electricity**

1,785,410.96

### **MWh fuel consumed for self-generation of heat**

### **MWh fuel consumed for self-generation of steam**

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

### **Comment**

The fuel sources in this category include natural gas.

2006 IPCC Guidelines for National Greenhouse Gas Inventories was used. Default Emission Factors were used for Stationary Combustion in Manufacturing industries, Table 2.3.

IPCC Fifth Assessment Report (AR5) was used for GWP.

## **Other non-renewable fuels (e.g. non-renewable hydrogen)**

---

### **Heating value**

LHV

### **Total fuel MWh consumed by the organization**

2,431,868.1

**MWh fuel consumed for self-generation of electricity**

777,959.63

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

The fuel sources in this category include transport fuel, tyre derived fuel, paraffin and kerosene, as well as the non-renewable fuel for purchased power.

2006 IPCC Guidelines for National Greenhouse Gas Inventories was used. Default Emission Factors were used for Stationary Combustion in Manufacturing industries, Table 2.3.

IPCC Fifth Assessment Report (AR5) was used for GWP.

**Total fuel**

---

**Heating value**

LHV

**Total fuel MWh consumed by the organization**

35,362,540.04

**MWh fuel consumed for self-generation of electricity**

11,312,549.65

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

2006 IPCC Guidelines for National Greenhouse Gas Inventories were used. Default Emission Factors were used for Stationary Combustion in Manufacturing industries, Table 2.3.

IPCC Fifth Assessment Report (AR5) was used for GWP.

## C8.2d

**(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	4,152,970.51	3,599,917.65	2,177,663.3	1,887,662.95
Heat	0	0	0	0
Steam	22,697,134.32	22,697,134.32	11,901,533.2	11,901,533.2
Cooling	0	0	0	0

## C8.2e

**(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.**

### Sourcing method

Default delivered electricity from the grid (e.g., standard product offering by an energy supplier) from a grid that is 95% or more low-carbon and where there is no mechanism for specifically allocating low-carbon electricity

### Energy carrier

Electricity

### Low-carbon technology type

Renewable energy mix, please specify  
Wind and hydro

### Country/area of low-carbon energy consumption

Canada

### Tracking instrument used

Contract

### Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

470,175.4

### Country/area of origin (generation) of the low-carbon energy or energy attribute

Canada

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

The power supplier, Hydro-Quebec, supplies 100% hydropower to Sappi Matane Mill in Quebec, North America. The low-carbon technology type is a combination of renewable energy, wind and large hydropower (<25 MW) supply.

---

**Sourcing method**

Green electricity products from an energy supplier (e.g. green tariffs)

**Energy carrier**

Electricity

**Low-carbon technology type**

Large hydropower (>25 MW)

**Country/area of low-carbon energy consumption**

Austria

**Tracking instrument used**

Contract

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

97,046.93

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Austria

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

The power supplier, Verbund Sales GmbH, supplies 100% hydropower from large hydropower plants (>25 MW) to Sappi Gratkorn Mill in Austria.

---

**Sourcing method**

Green electricity products from an energy supplier (e.g. green tariffs)

**Energy carrier**

Electricity

**Low-carbon technology type**

Low-carbon energy mix, please specify  
Hydro, wind, biomass

**Country/area of low-carbon energy consumption**

Austria

**Tracking instrument used**

GO

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

132,323.4

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Austria

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

Sappi Alfeld purchased Guarantees of Origin certificates for 50% of its imported power. The low carbon technology types include large hydropower capacity of more than 25 MW, wind and other biomass fuel sources.

---

**Sourcing method**

Green electricity products from an energy supplier (e.g. green tariffs)

**Energy carrier**

Electricity

**Low-carbon technology type**

Low-carbon energy mix, please specify  
Hydro, wind, biomass

**Country/area of low-carbon energy consumption**

Germany

**Tracking instrument used**

GO

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

78,477.9

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Germany

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

Sappi Ehingen Mill purchased Guarantees of Origin certificates for 50% of its imported power. The low carbon technology types include large hydropower capacity of more than 25 MW, wind and other biomass fuel sources.

---

**Sourcing method**

Green electricity products from an energy supplier (e.g. green tariffs)

**Energy carrier**

Electricity

**Low-carbon technology type**

Low-carbon energy mix, please specify  
Hydro, wind, biomass

**Country/area of low-carbon energy consumption**

Germany

**Tracking instrument used**

GO

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

65,541.5

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Germany

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

Sappi Stockstadt Mill purchased Guarantees of Origin certificates for 50% of its imported power. imported power. The low carbon technology types includes large hydropower capacity of more than 25 MW, wind and other biomass fuel sources.

---

**Sourcing method**

Other, please specify  
Nuclear

**Energy carrier**

Electricity

**Low-carbon technology type**

Nuclear

**Country/area of low-carbon energy consumption**

United States of America

**Tracking instrument used**

Other, please specify

Emission free credits

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

90,000

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

United States of America

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

Sappi Somerset Mill in Sappi North American region purchased 90,000 Emission Free Energy Credits (EFECs) in FY21. These are nuclear certificates tracked by NEPOOL registry.

**C8.2g**

**(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.**

---

**Country/area**

South Africa

**Consumption of electricity (MWh)**

100,948.1

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

100,948.1

---

**Country/area**

United States of America

**Consumption of electricity (MWh)**

247,481.7

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

247,481.7

---

**Country/area**

Canada

**Consumption of electricity (MWh)**

470,175.4

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

470,175.4

---

**Country/area**

Germany

**Consumption of electricity (MWh)**

153,261.6

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

153,261.6

---

**Country/area**

Italy

**Consumption of electricity (MWh)**

3,016.3

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

3,016.3

---

**Country/area**

Austria

**Consumption of electricity (MWh)**

87,891.9

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

87,891.9

---

**Country/area**

Finland

**Consumption of electricity (MWh)**

406,635.2

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

406,635.2

---

**Country/area**

Belgium

**Consumption of electricity (MWh)**

153,032.9

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

153,032.9

---

**Country/area**

Netherlands

**Consumption of electricity (MWh)**

0

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

0

**Country/area**

United Kingdom of Great Britain and Northern Ireland

**Consumption of electricity (MWh)**

1,079.9

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

1,079.9

## C9. Additional metrics

### C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

**Description**

**Metric value**

**Metric numerator**

**Metric denominator (intensity metric only)**

**% change from previous year**

**Direction of change**

**Please explain**

---

**Description**

**Metric value**

**Metric numerator**

**Metric denominator (intensity metric only)**

**% change from previous year**

**Direction of change**

**Please explain**

---

**Description**

**Metric value**

**Metric numerator**

**Metric denominator (intensity metric only)**

**% change from previous year**

**Direction of change**

**Please explain**

---

**Description**

**Metric value**

**Metric numerator**

**Metric denominator (intensity metric only)**

**% change from previous year**

**Direction of change**

**Please explain**

## **C10. Verification**

### **C10.1**

**(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

	<b>Verification/assurance status</b>
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No third-party verification or assurance

### **C10.1a**

**(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.**

---

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Sappi FY2021 Assurance Report Final.pdf

**Page/ section reference**

Pages 1 - 4

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

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**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

High assurance

**Attach the statement**

**Page/ section reference**

N/A

**Relevant standard**

European Union Emissions Trading System (EU ETS)

**Proportion of reported emissions verified (%)**

35

## C10.1b

**(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.**

---

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Sappi FY2021 Assurance Report Final.pdf

**Page/ section reference**

Pages 1 - 4

**Relevant standard**

ASAE3000

**Proportion of reported emissions verified (%)**

100

## C10.2

**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

## C10.2a

**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Energy consumption	ISO50001	Sappi SA and Sappi Europe are ISO50001 certified.
C0. Introduction	Other, please specify Financial figures	International Standards on Auditing	Financial figures have been verified by KPMG

## C11. Carbon pricing

### C11.1

**(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

Yes

### C11.1a

**(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.**

EU ETS  
 Finland carbon tax  
 Netherlands carbon tax  
 South Africa carbon tax

## C11.1b

**(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.**

### EU ETS

---

**% of Scope 1 emissions covered by the ETS**

34.5

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

October 1, 2021

**Period end date**

December 31, 2021

**Allowances allocated**

878,095

**Allowances purchased**

697,580

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

1,517,439

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

We have 37258 t EUAs surplus from the previous year. we use this surplus to cover the following year's shortage..

## C11.1c

**(C11.1c) Complete the following table for each of the tax systems you are regulated by.**

### Finland carbon tax

---

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**% of total Scope 1 emissions covered by tax**

5.6

**Total cost of tax paid**

13,379,955.4

**Comment**

Finland introduced a carbon tax in 1990, based on the carbon content of the fossil fuel, becoming the first country to use a carbon tax as an instrument for climate change mitigation. Total tax paid was US\$ 13379955.4 in FY21, but we have requested a refund of US\$11313953.1.

**Netherlands carbon tax**

---

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**% of total Scope 1 emissions covered by tax**

3.6

**Total cost of tax paid**

0

**Comment**

The so-called dispensation rights are higher than the industrial rights. This means that the tax of US\$412.50 per right is negative or the tax that must be paid is US\$0

**South Africa carbon tax**

---

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**% of total Scope 1 emissions covered by tax**

54.2

**Total cost of tax paid**

104,412

**Comment**

Carbon tax rate for 2021 is US\$9 per ton excluding allowances. This carbon tax needs to be paid at the end of June 2022. We are expecting to pay US\$1,658 million but this

may be zero if the Department of Forestry, Fisheries and the Environment (DFFE) allows for carbon sequestration.

## C11.1d

### **(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?**

Sappi aligns with the climate science and actively recognises the role that industry needs to fulfil to be part of the solution to mitigating climate change. Accordingly, we have been placing increased strategic focus on decarbonization. Each region has established decarbonization plans and our mills are heavily invested in implementing projects like our capacity expansion and environmental project at Saiccor Mill, due for completion in FY22, and in analysing and preparing projects, plans and pathways to further reduce emissions. Sappi's Thrive25 sustainability targets include emissions targets which have now been given impetus by the Science Based Target initiative's (SBTi's) acceptance of our science-based targets. Related to climate action, we have globally committed to a 17% reduction in specific GHG emissions (scope 1 & 2 combined), the first time that we have established a group wide GHG emissions reduction target. Under our science-based targets which were approved by the SBTi in June 2022, we committed to reduce scope 1 and scope 2 GHG emissions 41.5% per ton of product by 2030 from a 2019 base year and have also committed that 44% of our suppliers (by spend) will have science-based targets by 2026. Reducing our emissions also plays a critical role in futureproofing our business. For example, if Sappi were charged a carbon price of US\$50 per ton of CO<sub>2</sub> on direct emissions generated by our operations (Scope 1 emissions), our group EBITDA could be significantly reduced.

Our reasons for implementing science-based targets include:

- Market pressure is mounting for our products to have an improved carbon footprint. Science based targets build trusts with our customers and provides assurance on our commitment to continuous improvement on our existing performance
- Strengthened brand reputation
- Enhanced investor confidence in our business
- Driver of innovation
- Ensures that our operations remain lean and efficient and we build resilience against a future where resources, particularly those derived from fossil fuels, will become increasingly scarce and expensive
- Increased innovation, reduced uncertainty, strengthened investor confidence and improved profitability, will enable Sappi to compete in the low carbon economy.

Throughout Sappi there is a strong focus on climate action and decarbonization across all aspects of our business. One example is Cluster 1.5 (so called because of the need to limit global warming to below 1.5o C) which bring experts together across the group to focus on identifying, scanning or developing future and new technologies required to dramatically reduce energy requirements in pulp and papermaking processes and energy supplies.

## C11.2

**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

Yes

### C11.2a

**(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

---

**Credit origination or credit purchase**

Credit origination

**Project type**

Energy efficiency: industry

**Project identification**

Somerset Mill in SNA produces and sells Renewable Energy Certificates (RECs). These credits are sold in energy units of MWhs. Our customer uses these credits as part of their Scope 2 renewable and lower emissions strategy. We sold 295,271 RECs in FY21.

**Verified to which standard**

VER+ (TÜV SÜD standard)

**Number of credits (metric tonnes CO<sub>2</sub>e)**

**Number of credits (metric tonnes CO<sub>2</sub>e): Risk adjusted volume**

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

## C11.3

**(C11.3) Does your organization use an internal price on carbon?**

Yes

### C11.3a

**(C11.3a) Provide details of how your organization uses an internal price on carbon.**

### **Objective for implementing an internal carbon price**

- Navigate GHG regulations
- Change internal behavior
- Drive energy efficiency
- Drive low-carbon investment
- Stress test investments
- Identify and seize low-carbon opportunities

### **GHG Scope**

- Scope 1
- Scope 2

### **Application**

Our Internal Carbon price (ICP) is used to quantify the capital investment required to reach our science-based targets for Scope 1 & 2 emissions.

It is used as a tool to achieve our climate-related goals. Our ICP is used in our capital project assessments and expenditure by embedding it in our cost calculations as financial indicator

### **Actual price(s) used (Currency /metric ton)**

58

### **Variance of price(s) used**

Differentiated pricing is used in Sappi where the internal price on carbon varies per region. This actual price is for SEU. The cost of carbon abatement varies in the different regions. Technical analysis was done to determine the Implicit price per region. The ICP is reviewed annually.

### **Type of internal carbon price**

- Shadow price
- Implicit price

### **Impact & implication**

Previously, a shadow price was used per region which created awareness of carbon impact across the business and focus was successfully drawn to prioritising low-carbon initiatives to reach carbon emission targets. An Implicit price is now being implemented as our objective has changed and our decarbonisation efforts have accelerated. We are now using an ICP in capital investment decision making. The full impact will be assessed after a full year. The ICP will be reviewed annually.

---

### **Objective for implementing an internal carbon price**

- Navigate GHG regulations
- Change internal behavior
- Drive energy efficiency
- Drive low-carbon investment
- Stress test investments
- Identify and seize low-carbon opportunities

### **GHG Scope**

- Scope 1
- Scope 2

### **Application**

Our Internal Carbon price (ICP) is used to quantify the capital investment required to reach our science-based targets for Scope 1 & 2 emissions.

The ICP is used as a tool to achieve our climate-related goals and is used in our capital project assessments and expenditure by embedding it in our cost calculations as financial indicator.

### **Actual price(s) used (Currency /metric ton)**

43

### **Variance of price(s) used**

Differentiated pricing is used in Sappi where the internal price on carbon varies per region. This actual price is for SSA. The cost of carbon abatement varies in the different regions. Technical analysis was done to determine the Implicit price per region. The ICP will be reviewed annually.

### **Type of internal carbon price**

- Shadow price
- Implicit price

### **Impact & implication**

Previously, a shadow price was used per region which created awareness of carbon impact across the business and focus was successfully drawn to prioritising low-carbon initiatives to reach carbon emission targets. An Implicit price is now being implemented as our objective has changed and our ambition to climate change has increased. We are now using an ICP in capital investment decision making. The full impact will be assessed after a full year's assessment and will be reviewed annually.

---

### **Objective for implementing an internal carbon price**

- Navigate GHG regulations
- Change internal behavior
- Drive energy efficiency
- Drive low-carbon investment
- Stress test investments
- Identify and seize low-carbon opportunities

**GHG Scope**

Scope 1

Scope 2

**Application**

Our Internal Carbon price (ICP) is used to quantify the capital investment required to reach our Science Based Targets for Scope 1 & 2 emissions.

The ICP is used as a tool to achieve our climate-related goals. Our ICP is used in our capital project assessments and expenditure by embedding it in our cost calculations as financial indicator.

**Actual price(s) used (Currency /metric ton)**

30

**Variance of price(s) used**

Differentiated pricing is used in Sappi where the internal price on carbon varies per region. This actual price is for SNA. The cost of carbon abatement varies in the different regions. Technical analysis was done to determine the Implicit price per region. The ICP will be reviewed annually.

**Type of internal carbon price**

Implicit price

**Impact & implication**

Previously, a shadow price was used per region which created awareness of carbon impact across the business and focus was successfully drawn to prioritising low-carbon initiatives to reach carbon emission targets. an implicit price is now being implemented as our objective has changed and our ambition to climate change has increased. We will are now using an ICP in capital investment decision making. The full impact will be assessed after a full year's assessment and the ICP will be reviewed annually.

## C12. Engagement

### C12.1

**(C12.1) Do you engage with your value chain on climate-related issues?**

Yes, our suppliers

Yes, our customers/clients

Yes, other partners in the value chain

### C12.1a

**(C12.1a) Provide details of your climate-related supplier engagement strategy.**

---

**Type of engagement**

Other, please specify

Supplier Code of Conduct including climate change KPIs

**Details of engagement**

Other, please specify

Climate related information sharing

**% of suppliers by number**

9.3

**% total procurement spend (direct and indirect)**

60.1

**% of supplier-related Scope 3 emissions as reported in C6.5**

0.13

**Rationale for the coverage of your engagement**

Our assessment of our carbon footprint shows a proportion of our carbon emissions lie in our supply chain. In 2021 we continued to roll-out our Supplier Code of Conduct which includes expectations around reducing emissions and increasing energy efficiency. We are requesting our suppliers to declare compliance with our Code of Conduct either in renewed contracts or in signed declarations.

**Impact of engagement, including measures of success**

Currently we are focused on data collection from suppliers and declaration of compliance with our Code of Conduct, which includes climate related aspects. At this stage it is too early to measure an impact. However, in the next phases of implementing our Code and engaging with suppliers more measures of success will be possible.

**Comment**

We are meeting regularly with key suppliers to discuss strategies for decarbonisation, expectations and to discuss developments around new or alternative materials and innovation that could support reduced carbon footprints. We also communicate minimum expectations for reducing climate impacts.

---

**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

5.2

**% total procurement spend (direct and indirect)**

50.2

## **% of supplier-related Scope 3 emissions as reported in C6.5**

0.13

### **Rationale for the coverage of your engagement**

In 2020 we initiated a membership with EcoVadis to support our supplier assessment programme. During 2021, we initiated our first campaign to onboard suppliers onto EcoVadis. Approximately 100 priority suppliers were contacted directly and invited to share an EcoVadis scorecard. Our suppliers' EcoVadis scorecards enable us to actively evaluate their climate performance and identify risk and priority areas where further improvements are needed. The partnership reinforces the expectations we set out in our Supplier Code of Conduct and provides a platform to build transparency. For our pulp suppliers specifically, in addition to EcoVadis we have a long-standing process in place to collect data and ensure responsible practices.

### **Impact of engagement, including measures of success**

From EcoVadis, we can report that suppliers being re-evaluated improved from an average score of 62 in 2020 to 63 in 2021. Overall (including suppliers disclosing on EcoVadis for the first time), Sappi's suppliers have an average score of 61.6 compared to the EcoVadis average of 44.3.

With regard to climate related KPIs, 88% of our suppliers disclosing on EcoVadis have action on energy consumption & GHGs, 69 % use renewable energy, 66% report on CO2 emissions, 45% disclose to CDP, 39% report scope 3 emissions 28% are part of SBTi and 23% have ISO 50001 certification. These are KPIs that we will track annually so this first year is a baseline. With our new Scope 3 SBTi target (Engage with 44% of our suppliers based on spend, representing approximately two-thirds of our Scope 3 emissions and advocate that they set science-based emission reduction targets by 2026), we will be engaging with our suppliers further and tracking their commitment to SBTi.

### **Comment**

We are meeting regularly with key suppliers to discuss strategies for decarbonisation, expectations and to discuss developments around new or alternative materials and innovation that could support reduced carbon footprints.

By the end of FY2021, 90 suppliers were sharing their scorecards with us and another 19 were in progress to disclose on the platform. This equates to 33% of Sappi's global procurement spend.

### **Type of engagement**

Information collection (understanding supplier behavior)

### **Details of engagement**

Collect climate change and carbon information at least annually from suppliers

### **% of suppliers by number**

0.3

**% total procurement spend (direct and indirect)**

14

**% of supplier-related Scope 3 emissions as reported in C6.5**

0.13

**Rationale for the coverage of your engagement**

Sappi is engaging with our pulp suppliers in EU and SA to collect environmental data annually to ensure responsible practices and include emissions from the entire value chain. This data is used in our Paper Profiles which is shared with our customers upon request. In SNA, we engaged 33 raw material vendors who supplied 201 unique, non-wood, non-fuel products. The supplier engagement was in the form of a "GHG Survey". The survey requested GHG emissions factors for the product(s) and details on the transportation of those products. This survey will continue in 2022 and will include Matane Mill suppliers. In SEU, in FY2021 we further engaged with a number of non-fibre suppliers to our European mills, to encourage them to collect and share primary emissions data with us and to discuss their sustainability strategy in general.

**Impact of engagement, including measures of success**

Too early to measure impact.

**Comment**

Sappi is planning to further intensify our efforts to engage with more suppliers, collecting primary environmental data to increase Scope 3 accuracy and ensure responsible practices in our supply chain.

**C12.1b****(C12.1b) Give details of your climate-related engagement strategy with your customers.****Type of engagement & Details of engagement**

Education/information sharing

Share information about your products and relevant certification schemes (i.e. Energy STAR)

**% of customers by number**

0

**% of customer - related Scope 3 emissions as reported in C6.5**

0

**Please explain the rationale for selecting this group of customers and scope of engagement**

We have given the percentage of customers-related emissions as 0, as we do not measure these. This group of customers represents our packaging and specialty customers which include brand owners, converters, printers, designers and communications agencies. Legislative changes and growing consumer pressure are forcing brands to re-think their packaging choices. Governments, retailers, brand owners and their consumers are demanding paper-based packaging solutions that are biodegradable, recyclable, compostable and provide the functionality of plastic-based materials. We meet the need for increasing demand for more sustainable and environmentally friendly packaging solutions with a wide range of products.

Customers generally approach us for information about the fibre sourcing and production processes behind our brands, including carbon footprint. In response to these requests, in Europe and South Africa, we publish Paper Profiles, CO2 footprint sheets and information sheets for our papers. We also respond to many questionnaires from our customers that collect data on our emissions, CO2 reduction plans and performance. In Europe we regularly meet different customers to explain our decarbonisation roadmap. Customers want to better understand where and when the CO2 reductions will take place and how these reductions will affect their products' CO2 footprints over the coming years. Often our technical inputs inform the development of our customers' policies and programmes. In North America, we hold Customer Council meetings where we discuss sustainability initiatives relevant to both Sappi and our customers. In this region, we have also developed our own GHG emissions calculator that quantifies the amount of emissions associated with a customer order and how those emissions compare against the industry average. At the request of our customers, we participate in EcoVadis (all regions) and Sedex (SSA and SEU), both of which include climate-related questions. We also publish as FAQs covering topics like climate change, as well as forest and energy certification.

### **Impact of engagement, including measures of success**

An increasing number of our target market are shifting from plastics to paper in various packaging and speciality paper packaging, indicated that volumes in FY2021 were 21% higher than in the previous year. We estimate that the increasing demand for more sustainable and environmentally friendly packaging solutions will lead to demand growth of 3-6% per year globally, across the spectrum of our products.

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### **Type of engagement & Details of engagement**

Collaboration & innovation  
 Other, please specify  
 Science based targets

### **% of customers by number**

80

**% of customer - related Scope 3 emissions as reported in C6.5**

0

**Please explain the rationale for selecting this group of customers and scope of engagement**

We have given the percentage of customers-related emissions as 0, as we do not measure these. The figure of 80% relates to our dissolving pulp (DP) business, not our total business. DP is a very important part of Sappi's business, which is why we have selected this group of customers. Our Verve brand is a significant player in the DP market, with capacity of 1.4 million tons per annum and 17% of the DP market.

Our (DP) business is engaging with four customers on climate related topics. These customers are headquartered in Austria, India, Japan and China. Together they take up approximately 80% of dissolving pulp supply from South Africa and North America. Engagement involves sharing our scope 1 /2 and 3 emissions for dissolving pulp i.e. their scope 3 emissions. We report progress against targets annually to these customers. The DP business has also used the services of an LCA consultant to calculate category 12 end of life emissions in the textile value chain and is engaging with customers on the way forward. Due to the high level of uncertainty with this data, these emissions have not been included in Sappi's scope 3 estimates.

Project Vulindlela, our capacity expansion and energy efficiency project at Saiccor Mill, is a key capital project undertaken and serves to reduce GHG emissions in line with the ambitious decarbonisation pathway set by the textile value chain (45% reduction by 2030).

Besides reporting GHG emissions through direct engagement with customers, the GHG emissions for each of Sappi's operations that produce dissolving pulp, are shared via the Higg Facility Environment Module (Higg FEM) on an annual basis. The Higg Index suite of tools developed by the Sustainable Apparel Coalition (SAC) to enable the apparel industry to measure their sustainability performance and drive supply chain transparency and decision making. By standardising the process of measuring supply chain impacts in the textile industry, the index helps suppliers, manufacturers, brands, and retailers to evaluate materials, products, facilities, and processes based on environmental performance, social labour practices, and product design choices. It is utilised by over 250 brands and manufacturers.

**Impact of engagement, including measures of success**

The engagement and collaboration related to science-based targets helps our customer measure their scope 3 emissions and to set long term targets to reduce them.

The Vulindlela project undertaken by Saiccor mill will help customers significantly reduce their Scope 3 emissions.

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**Type of engagement & Details of engagement**

Collaboration &amp; innovation

Other, please specify

Development of a technology-based framework

**% of customers by number**

0

**% of customer - related Scope 3 emissions as reported in C6.5**

0

**Please explain the rationale for selecting this group of customers and scope of engagement**

We have given the percentage of customers-related emissions as 0, as we do not measure these. We have indicated 0 for the % of customers by number for the Dissolving Pulp (DP) is a very important part of Sappi's business, which is why we collaborated with this particular customer. Sappi Verve (our DP brand) partnered with Birla Cellulose, one of the leading viscose manufacturers in the textile value chain, to provide a forest-to-garment traceability solution for brand owners. To provide this brand-owner traceability solution, Sappi coupled its comprehensive database on wood origin for its dissolving pulp operations in South Africa and the United States with the use of Birla's pioneering GreenTrack™ blockchain technology. Blockchain is a system that employs distributed ledger technology to record, duplicate, and distribute information to an entire network of computer systems, which then makes it difficult or impossible to change, hack, or cheat the system

**Impact of engagement, including measures of success**

More than 250 supply chain partners, including Walmart and Marks & Spencer, now use GreenTrack to verify the sustainability of the apparel they sell. The efforts have been recognized by Forbes magazine's "Blockchain 50" list, which features companies that lead in employing distributed ledger technology and have revenue or a valuation of at least \$1 billion. Twenty-one newcomers, including Sappi, were recognized for 2021.

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**Type of engagement & Details of engagement**

Collaboration &amp; innovation

Other, please specify

To address our clients' needs for sustainable alternatives,

**% of customers by number**

0

**% of customer - related Scope 3 emissions as reported in C6.5**

0

**Please explain the rationale for selecting this group of customers and scope of engagement**

We have given the percentage of customers-related emissions as 0, as we do not measure these. Flexible packaging is essential to protect foods from air and moisture during transportation and storage. Traditionally, heat sealing laminates comprising paper and a polyethylene (PE) sealing layer have been the standard materials to keep food unspoiled and fresh. However, this kind of flexible packaging requires the additional converting step of applying a PE layer to the paper. Generally, these synthetic polymers coated paper products are neither recyclable nor compostable.

### **Impact of engagement, including measures of success**

Engagement with our customers has led Sappi to develop paper-based packaging solutions which offer a safe, sustainable alternative to laminate constructions in food packaging. One such solution is Sappi Seal, which incorporates an integrated sealable layer. The integrated barrier eliminates the need to apply any other PE extrusion coatings. Designed to be heat sealable and moisture resistant, Sappi Seal is the first paper-based solution with dispersion technology competing with extrusion/lamination in the market. Another product with similar attributes is Sappi Guard Gloss Nature 4-OHG, a one-side coated glossy paper with functional high barrier coating and heat sealability that is suitable for both food and non-food applications. The product incorporates a new base paper architecture, modified coating recipes and a unique drying process. We have filed a patent application for the latter. The packaging can be heat sealed without the need for additional sealants because of its unique barrier coating. The product is safe to use for direct food contact and protects the contents from oxygen, water vapour and grease. Its integrated barrier ensures a long shelf life of the end product, an essential food packaging requirement. Furthermore, Guard Gloss fulfils the high market demands for excellent printability and good converting performance

## **C12.1d**

### **(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.**

Sappi engages on climate-related issues throughout the value chain, including those set out below:

- 1) As the forest sector lies at the heart of the transition to a low-carbon, circular bio-economy due to the ability of forests and forest products to capture and store carbon, Sappi is a project member of WBCSD Forest Solutions Group. The 2022 work priorities for the group include: Nature Positive, GHG Protocol, TCFD Reference Scenarios and phase 2 of the Net Zero Roadmap in the later part of the year.
- 2) The Greenhouse Gas Protocol launched a process to develop new standards and guidance on how companies account for and report the following activities in their greenhouse gas inventories:
  - Carbon removals and storage
  - Land use
  - Land use change
  - Bioenergy

A member of the Sappi Forests Research team has been working with the World Resources Institute on the GHG Protocol Carbon Removals and Land Sector Initiative Project. The land sector technical working group is developing guidance on:

- Types of emissions, removals and sequestration within the land sector
  - Carbon emissions and removals from land use (e.g., forest management, crop and livestock production, bioenergy feedstock production, soil carbon, etc.)
  - Carbon emissions and removals from land use change (e.g., deforestation, afforestation, wetland conversion, etc.)
  - Direct and indirect land use change and related impacts from changes in production
  - Agricultural GHG emissions (e.g., livestock methane emissions, soil nitrous oxide emissions, etc.)
  - Biogenic removals and temporary to long-term storage in biogenic products/materials (e.g., furniture, building materials, etc.)
  - Biogenic carbon dioxide emissions and removals from bioenergy production and consumption (e.g., biomass, biofuels, biogas)
- Land sector accounting approaches
  - Use of land-based vs. activity-based accounting methods
  - Addressing the timing of removals and emissions
  - Separate biogenic carbon emissions and removals accounting vs. bringing biogenic emissions and removals into scopes 1, 2 and 3
- Quantification methods and data sources; reporting requirements; target setting and tracking changes over time; alignment with or revisions to other GHG Protocol standards and guidance.

The first draft document was completed in Q3 2021 and reviewed by the Technical Working Group (TWG) and the Advisory Group (AG) members. The GHG Protocol received approximately 3,000 individual comments across the various chapters from 68 TWG and AC members in Q4 2021. The Secretariat team members compiled all the comments by chapter, and reviewed them to identify key issues to raise with the TWG and AC. The key issues for Draft 2 were discussed with the TWG during Q1 and Q2 2022. Certain issues were flagged for discussion with the Advisory Committee on 18 May 2022. The second draft is scheduled for completion by the end of Q2 2022. The Pilot Testing Group (PTG) will apply the Draft 2 guidance to their GHG inventory calculations and reporting and provide feedback to GHG Protocol (Q3 to Q4 2022). The Review Group (RG) will provide feedback on Draft 2 during Q3 2022. The TWG will discuss PTG and RG feedback and develop revisions for final publication Q4 2022. Thereafter the AC will provide strategic guidance for final publication which is currently expected Q1 2023.

Sappi Forests will pilot test Scope 1 emissions reporting from own land holdings in South Africa using a cradle to mill-gate system boundary.

3)Sappi is the co-lead of the committee operating under the auspices of the Alliance for Pulp and Paper Technology Innovation (APPTI) to demonstrate and deploy membrane-based technology for black liquor. Other members of the committee include the Georgia Institute of Technology (Georgia Tech), members of the US forest products industry and membrane system/ process developers. We continue our involvement with APPTI on this technology for membrane use as a way to reduce energy intensity on our chemical recovery systems. The work has progressed to mill scale trials and we continue to help fund patent protection for the invention.

4) The Textile Exchange (TE) launched their Climate+ Strategy in 2019, with a goal to reduce GHG emissions in the textile value chain by 45% by 2030, while addressing other climate-related impact areas, like water, biodiversity and soil health. To accelerate progress towards the Climate+ objective and to drive collective action, Sappi was one of 40 global brands that participated in a discussion with the Climate Board. The latter was appointed by the TE to uncover industry best practice in terms of reducing GHG emissions. Sappi is also a member of the TE man-made cellulosic fibre roundtable and climate sub-committee, aimed at supporting and is being developed alongside the Science Based Targets Network in order to reinforce consistency in language, frameworks and measurements.

## C12.2

**(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?**

No, but we plan to introduce climate-related requirements within the next two years

## C-AC12.2/C-FB12.2/C-PF12.2

**(C-AC12.2/C-FB12.2/C-PF12.2) Do you encourage your suppliers to undertake any agricultural or forest management practices with climate change mitigation and/or adaptation benefits?**

Yes

## C-AC12.2a/C-FB12.2a/C-PF12.2a

**(C-AC12.2a/C-FB12.2a/C-PF12.2a) Specify which agricultural or forest management practices with climate change mitigation and/or adaptation benefits you encourage your suppliers to undertake and describe your role in the implementation of each practice.**

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### Management practice reference number

MP1

### Management practice

Practices to increase wood production and forest productivity

### Description of management practice

Assistance to outgrowers and land reform beneficiaries in South Africa.

### Your role in the implementation

Financial

Knowledge sharing

Operational

Procurement

### Explanation of how you encourage implementation

On-the-ground assistance: We employ qualified extension officers, training facilitators and managers who assist Sappi Khulisa growers in selecting the most appropriate areas for planting trees. The extension officers also offer advice and assist in preparing, fertilising and planting. They visit the growers frequently, after the trees have been established, to provide assistance with weed control and the preparation of fire breaks. Our extension officers work with growers to ensure that their plantings do not impact negatively on environmentally sensitive areas and that planted areas are economically sustainable.

Khulisa Ulwazi: To further assist with the development of small growers and other forestry value chain participants, in South Africa we have established training centres known as Khulisa Ulwazi ('Growing Knowledge') and developed training material in conjunction with the Institute of Natural Resources. Training, which is offered to all value chain participants including small growers, land reform beneficiaries and small-scale contractors, and covers all aspects of forestry, including the core operational skills as well as safety, legal compliance and running a business. A mobile grower app assists Khulisa growers in accessing their plantation information, financial statements and training material. Growers can also send Sappi requests or submit documents through the app.

### **Climate change related benefit**

Increasing resilience to climate change (adaptation)

Other, please specify

Sustainable silvicultural and harvesting practices

### **Comment**

In the past 10 years, we have settled land claims involving 40,697 hectares of which claimants took ownership of 8,151 hectares and claims for 11, 271 hectares in which claimants preferred to seek compensation. Many of these properties previously belonged to commercial farmers who had supply agreements with Sappi. For many of the land claims in which we have been involved, and where there has been a change in ownership, we continue to buy the timber and help to manage those plantations sustainably. Land reform beneficiaries also benefit from our Khulisa Ulwazi training centres.

### **Management practice reference number**

MP2

### **Management practice**

Other, please specify

Certification

### **Description of management practice**

1) In South Africa, we have established a group certification scheme for small- and medium growers. There are currently of 42 members representing a total of 41,000 planted hectares. We pay growers in this scheme a premium for certified timber.

2) While our own plantations in South Africa are 100% FSC and PEFC-certified, we recognised that we needed to obtain certification over and above the FSC group scheme certification, based on the difficulty of getting small growers certified and on customers' requests for PEFC labelled products. PEFC endorses national certification schemes, which meant South Africa had to develop a new certification scheme including a forest management standard. Sappi participated in the development of this scheme now known as the Sustainable African Forestry Assurance Scheme (SAFAS). As SAFAS is directly relevant to a range of South African conditions and flexible with respect to group schemes, we hope that this move will facilitate the full involvement of small-scale growers, improve the sustainability of the forestry industry and contribute towards climate change mitigation.

### **Your role in the implementation**

Financial  
Knowledge sharing  
Operational

### **Explanation of how you encourage implementation**

Samples will be collected for identification (if the problem cannot be identified in-field).  
Growers are advised on management strategies to minimise loss through control methods or species choice for new plantings

### **Climate change related benefit**

Increasing resilience to climate change (adaptation)  
Increase carbon sink (mitigation)

### **Comment**

We have launched two pilot projects to test PEFC and FSC group scheme platforms for micro growers. These projects will be concluded by the end of FY2022 and will set the base for increasing certification targets from the current level to a potential of 85% over time (The target in South Africa is for certified fibre supplied to be mills to be greater than 82%).

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### **Management practice reference number**

MP3

### **Management practice**

Other, please specify  
Provision of planting material

### **Description of management practice**

Traditional tree breeding is a relatively slow process and in order to keep up with environmental changes, Sappi Forests' tree breeding programme is producing and selecting the most optimally suited hybrid varieties for each climatic zone.

### **Your role in the implementation**

Financial  
Knowledge sharing  
Procurement

### **Explanation of how you encourage implementation**

We provide sponsored seedling to Sappi Khulisa growers. We also provide advice to other growers on which species to plant through field days and individual consultations.

### **Climate change related benefit**

Increasing resilience to climate change (adaptation)  
Increase carbon sink (mitigation)

### **Comment**

Our tree breeding division has a target of developing a hybrid varietal solution for all our sites by 2025. We are also making use of genetic tools, like DNA fingerprinting, to enhance and accelerate their breeding and selection process. In addition, as pine and eucalypt hybrids are more successfully propagated through rooted cuttings rather than seed, a strategy is being rolled out to meet future requirements. In addition to construction of Clan Nursery and the rebuild of the Ngodwana Nursery, we plan to upgrade Richmond Nursery in 2023 to enable the production of additional hybrid cuttings in addition to seedlings.

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### **Management practice reference number**

MP4

### **Management practice**

Pest, disease and weed management practices

### **Description of management practice**

Pest and disease management experts will visit any private grower that reports pest and disease issues to Sappi North America.

### **Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Samples will be collected for identification (if the problem cannot be identified in-field).  
 Growers are advised on management strategies to minimise loss through control methods or species choice for new plantings

**Climate change related benefit**

Increasing resilience to climate change (adaptation)  
 Increase carbon sink (mitigation)

**Comment**

In North America, our stumpage and wood supply agreements include requirements to comply with applicable laws, including the use of Best Management Practices (BMPs) to ensure that wood procurement operations adapt appropriately to seasonal adverse weather conditions and other weather events to ensure that soil productivity and water quality resources are protected. A key procurement provision is to build inventory at mills during the winter months to avoid logging activities during the spring breakup / mud season. We specify that wetlands and other wet areas should be logged when soils are in a frozen condition and that BMP guidelines appropriate to the site should be adhered to. We also identify, mitigate and avoid adverse impacts on Forests with Exceptional Conservation Value (FECV), which includes areas identified by NatureServe with a G1 (Globally Critically Imperilled) or G2 (Globally Imperilled) ranking for species and native plant communities.

**C-AC12.2b/C-FB12.2b/C-PF12.2b**

**(C-AC12.2b/C-FB12.2b/C-PF12.2b) Do you collect information from your suppliers about the outcomes of any implemented agricultural/forest management practices you have encouraged?**

Yes

**C12.3**

**(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?**

Row 1

**Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate**

Yes, we engage indirectly through trade associations  
 Yes, we engage indirectly by funding other organizations whose activities may influence policy, law, or regulation that may significantly impact the climate

**Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?**

Yes

**Attach commitment or position statement(s)**

<https://www.sappi.com/sappi-commits-to-setting-science-based-emission-reduction-targets>

 sappi FY2020 science based targets.docx

**Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy**

Sappi's engagement activities are guided by the TCFD, our support of the Paris Agreement since it was first drawn up, our commitments to the SBTi, the priority targets we have established in alignment with climate-relevant UN SDs, including SDG7: Renewable and Clean Energy and SDG13: Climate Action, as well as with our Climate Policy. The Group Heads of Investor Relations and Sustainability; Corporate Affairs and Strategy and Legal, liaise with the regional CEOs and sustainability heads regarding direct activities that influence policy. At the Regional Sustainable Development Councils (Europe, North America and South Africa), Global Sustainable Development Council, as well as the SETS and Risk and Audit committee meetings, policy and legislative items that can or do affect the sustainability of Sappi's business, including climate change, are discussed and appropriate actions are agreed with management and EXCO to ensure our positions are consistent with our overall climate strategy. All public statements that influence policy have to be approved by the Group Head: Corporate Affairs, who also reviews public statements to ensure that they remain consistent with our overall climate change strategy. Climate change related information is made available to the entire organisation via the various internal communication channels (eg FAQs and carbon calculators). In 2021, two of our forestry experts presented at COP26.

## C12.3b

**(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.**

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**Trade association**

Other, please specify  
Business Unity South Africa

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

In South Africa, the Carbon Tax Act came into effect on 1 June 2019. The first phase from 1 June 2019 to 31 December 2022 applies to activities that directly emit greenhouse gas emissions. The tax includes various allowances in the first phase, including a 100% allowance for forestry. In relation to the issue of carbon sequestration, it is proposed to limit the deduction for forestry management and harvested wood product sequestration activities to only those activities within the operational control of the taxpayer conducting paper and pulp activities. This follows amendments made in 2021 to expand the scope of the carbon sequestration deduction to include emissions sequestered in harvested wood products for the paper and pulp activities under IPCC code 1A2D (referred to in the Schedule to the Carbon Tax Act). While Sappi recognises the need to reduce fossil fuel usage in South Africa, the country urgently needs to promote socio-economic development and enhance competitiveness.

Through Business Unity South Africa, we worked with the Department of Forestry, Fisheries and the Environment (DFFE) regarding the carbon benchmark methodology and mitigation plans. This work informs regulations going forward. We also successfully engaged with the DFFE regarding sequestration guidelines that impact carbon tax liability.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

14,000

**Describe the aim of your organization's funding**

While Sappi recognises the need to reduce fossil fuel usage in South Africa, the country urgently needs to promote socio-economic development and enhance competitiveness. Funding aims to achieve the promotion of socio-economic development and enhancement of competitiveness.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

**Trade association**

Other, please specify

Confederation of European Paper Industries

**Is your organization's position on climate change consistent with theirs?**

Mixed

**Has your organization influenced, or is your organization attempting to influence their position?**

We are attempting to influence them to change their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

The European Green Deal aims to lead the world in achieving climate neutrality under the Fit for 55 legislative package. Our industry supports the objectives of the Green Deal and is leading the way in taking concrete actions to achieve deep emissions reductions. Our main position in the context of EU policy related to decarbonisation is to ensure a predictable and enabling policy framework for EU Industry. Our investments and associated technological developments require a stable long-term time horizon to navigate the transition. Therefore, we call for predictable measures and realistic timelines so that EU industry can lead the way towards a low-carbon economy. We also need to consider the competitiveness of our Industry within a global marketplace. Higher climate ambition needs to be achieved cost effectively and be accompanied by strengthened carbon leakage protection on EU and export markets against both direct and indirect carbon costs. The overall objective should be to make Europe more attractive for investments that can secure high quality jobs and contribute to a successful transition to climate neutrality. Given that the Fit for 55 legislation is still going through the legislative proposal, there is still not a fixed policy that we can respond to with regards to specific exceptions. Our policy requests ask for:

- 1) Secure and competitive access to sustainable energy and feedstocks with a strong focus on increasing the independence from third-country supplies;
- 2) Financing support to research, development and upscale of breakthrough technologies through a frontloading of financing for ready-to-go first-of-a-kind projects;
- 3) Focus on material and technology neutral policies to develop lead markets for climate neutral products bridging the initial cost gap with conventional ones.
- 4) Effective measures levelling the playing field with international competition where their home markets do not share the same climate ambition. We engage through the Confederation of European Paper Industries (CEPI). Through our membership in the CEPI Committees we support the development of position papers and participate in the impact assessment processes. Through our representation in the CEPI Board of Directors, we engage in high-level dialogue with both policy makers and industry peers.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

27,500

**Describe the aim of your organization's funding**

In all our engagement we look to support the development of policies that are ambitious yet also feasible for a thriving manufacturing industry in EU.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

American Forest & Paper Association (AF&PA)

**Is your organization's position on climate change consistent with theirs?**

Unknown

**Has your organization influenced, or is your organization attempting to influence their position?**

We are not attempting to influence their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Our approach to evolving U.S. climate policy is presently guided by the AF&PA trade association position which is unclear as there is still no federal regulatory proposal related to climate policy. Noteworthy since the last update was a recent announcement by the United States Securities and Exchange Commission (SEC) of a proposed rule on mandatory climate-related financial disclosure. If adopted as written, companies will have to disclose their greenhouse gas emissions, including scope 3, as well as speak to material financial risks related to climate change. The Biden administration is supportive of such an initiative. If adopted, the current timetable is late 2024 at the earliest. The work we have done to adopt the framework created by the Task Force for Climate-Related Financial Disclosure (TCFD), as well as to participate in the Science-Based Targets initiative should position Sappi well should we be bound by the SEC requirements.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

480,000

**Describe the aim of your organization's funding**

To secure a fair and equitable deal for our industry.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

American Forests and Paper Association

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Extended Producer Responsibility legislative activity in the USA is accelerating. It involves shifting the responsibility to manufacturers for managing their products and packaging at the end of their useful lives. We are engaging through the American Forest & Paper Association (AF&PA) and support their view that members of our industry have a measurable record of success in making paper and paper-based packaging more sustainable and circular through market-based approaches and that our industry has achieved a consistently high paper recycling rate. The legislation does not recognise the material recovery and market development achievements of the paper industry, and it should be based on sound policy that benefits the environment, consumers and reflects best practices for doing business and creating jobs.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

480,000

**Describe the aim of your organization's funding**

We aim to promote the understanding that members of our industry have a measurable record of success in making paper and paper-based packaging more sustainable and circular through market-based approaches and that our industry has achieved a consistently high paper recycling rate.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

Confederation of European Paper Industries

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

CEPI's position on climate change is aligned with the Paris Agreement and the EU Green Deal working towards heightened ambition by 2030 and climate neutrality by 2050. Since 2005 the EU paper Industry has reduced emissions by 36%. The industry leads the way on decarbonisation and is well on the way towards the 2030 climate targets. We are fully aligned with CEPI's position.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

27,500

**Describe the aim of your organization's funding**

Participate to help articulate practical perspectives to elaborate the positions.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify  
Sustainable Apparel Coalition

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Sappi is a member of the Sustainable Apparel Coalition's (SAC) policy advocacy task team responsible for providing commentary on the development of the EU textile strategy and associated policies, in line with the EU Green deal directive. One of the key aims is to ensure that virgin wood based raw materials are recognised as a sustainable option. This advocacy group is supported by the Federation of European Sporting Goods Industry and Global Fashion Agenda. Our aim is to provide input into position papers.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

40,000

**Describe the aim of your organization's funding**

To promote woodfibre as a climate-friendly resource and one, when derived from sustainably managed, certified forests, that is not associated with deforestation.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify  
Textile Exchange

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

The Textile Exchange (TE) is positively impacting the climate through accelerating the use of preferred materials across the global textile industry. To maintain healthy ecosystems – estimated to hold the key to one third of the climate solution – we need to stay below a 2°C global temperature rise. The Textile Exchange recently launched its biodiversity benchmarking module. Sappi was an advisory partner in the development of the biodiversity module and has participated in the pilot launch of the tool. Sappi is participating in the TE climate sub-committee and to share best practices on how corporate goals are set, status of climate journey and how natural climate solutions are accounted for in the goal setting process. The results of the study, which includes 38 other companies will articulate the status of the fashion industry as well as highlight gaps to reach the value chain goal of reducing greenhouse gas emissions by 45% by 2030.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

10,000

**Describe the aim of your organization's funding**

Participate in the textile industry's value chain goal of reducing greenhouse gas emissions by 45% by 2030.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

Forest Solutions Group of the World Business Council for Sustainable Development

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

WBCSD brings together over 200 companies to help accelerate towards vision 2050 – a zero carbon world, where nature has recovered and social inequality been addressed. We strongly support the WBCSD's position on climate change and need for business ambition. We participate in the Forest Solutions Group to support the development of Net Zero and Nature Positive Roadmaps for the Forest Sector. This collaborative platform enables forest companies from across the sector to contemplate and articulate how we best contribute to providing solutions to climate change.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

31,000

**Describe the aim of your organization's funding**

We work together to share approaches, best practice and knowledge.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

American Forests & Paper Association

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

In North America, the regional sustainability director sits on the Environmental Policy Committee which addresses Climate Policy amongst other environmental matters. The Committee is working to update the AF&PA's Principles for Sustainable Climate Policies. The Environment Policy Committee has met with new administration officials to discuss the importance of establishing regulatory certainty on the carbon neutrality of biomass. The association is urging the Biden Administration to support policies that recognise that our industry is one based on a renewable and recyclable resource, that our products are manufactured using renewable bioenergy, and after use, are widely and highly recycled. Public policies are most effective when they meet the economic needs, environmental concerns and societal expectations of our diverse communities. Our progress in renewable energy and sustainability goals demonstrates that a balance is both possible and necessary.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

480,000

**Describe the aim of your organization's funding**

To support policies that recognise that our industry is one based on a renewable and recyclable resource,

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

## C12.3c

**(C12.3c) Provide details of the funding you provided to other organizations in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.**

**Type of organization**

Other, please specify  
For profit certification body

**State the organization to which you provided funding**

SFI – Sustainability Forestry Initiative

**Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)**

147,000

**Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate**

Promotes certification and climate-smart forestry

**Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Type of organization**

Other, please specify

Trade association

**State the organization to which you provided funding**

Minnesota Forest Industries

**Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)**

158,200

**Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate**

Promotes sustainable forest management

**Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Type of organization**

Other, please specify

Trade association

**State the organization to which you provided funding**

Paper Manufacturers' Association of South Africa (PAMSA)

**Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)**

309,000

**Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate**

The aim of the funding this trade association is to support PAMSA in its work to promote forests as part of the climate solution, particularly regarding negotiations with Treasury and carbon tax

**Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Type of organization**

Other, please specify  
Business association

**State the organization to which you provided funding**

Business Leadership South Africa

**Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)**

77,181

**Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate**

Promotes the interest of South Africa's largest corporations, major multinational companies and businesses and advocates for the diversification of energy sources

**Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

## C12.4

**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

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**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

 Sappi 2021 Group Sustainability Report.pdf

**Page/Section reference**

Pages 12,16, 120 - 132

**Content elements**

Governance  
Strategy

Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

### Comment

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### Publication

In voluntary communications

### Status

### Attach the document

 sappi 2021 planet indicators.pdf

### Page/Section reference

Pages 1 - 7

### Content elements

Emissions figures  
Other, please specify  
Energy

### Comment

This document accompanies our group sustainability report.

## C13. Other land management impacts

### C-AC13.1/C-FB13.1/C-PF13.1

(C-AC13.1/C-FB13.1/C-PF13.1) Do you know if any of the management practices implemented on your own land disclosed in C-AC4.4a/C-FB4.4a/C-PF4.4a have other impacts besides climate change mitigation/adaptation?

Yes

### C-AC13.1a/C-FB13.1a/C-PF13.1a

(C-AC13.1a/C-FB13.1a/C-PF13.1a) Provide details on those management practices that have other impacts besides climate change mitigation/adaptation and on your management response.

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Management practice reference number

MP1

**Overall effect**

Positive

**Which of the following has been impacted?**

Biodiversity

Soil

Water

Yield

**Description of impact**

Started in 1983, Sappi Khulisa is a tree-farming scheme. The project (initially known as Project Grow) focused on supporting subsistence farmers who had access to 1-20 hectares of land on which to grow trees. In the years leading up to celebrating its 30th anniversary in 2013, Sappi Khulisa expanded to include community forestry projects and forestry projects handed to land-reform beneficiaries. The programme is structured as follows: Growers make their land available for planting eucalyptus trees. Sappi provides growers with: 1) Sponsored seedlings 2) Technical advice and training 3) Guaranteed access to market 4) Loans.

The total area managed under this scheme is currently 34,755 hectares. • Since 1995, a total volume of 4,731,488 tons of woodfibre to the value of US\$195 million (ZAR2,9 billion) has been purchased from small growers under this programme. • In 2021, under this programme, 225,509 tons of woodfibre (2020: 284, 038 tons) worth some US\$13.9 million (2020: US\$15.6 million) was delivered to our operations. • A mobile app assists growers in accessing their plantation information, financial statements and training material. Growers can also send Sappi requests or submit documents through the app.

**Have you implemented any response(s) to these impacts?**

Yes

**Description of the response(s)**

Sappi Khulisa employs qualified extension officers, training facilitators and managers who assist the growers in selecting the most appropriate areas for planting trees. A site selection check-sheet focusing on the growth potential of the land, climatic conditions and distance from the mill, needs to be completed for each site before planting can take place. The extension officers also offer advice and assist in preparing, fertilising and planting. They visit the growers frequently, after the trees have been established, to provide assistance with weed control and the preparation of fire breaks. Our extension officers work with growers to ensure that their plantings do not impact negatively on environmentally sensitive areas and that planted areas are economically sustainable.

Sappi increased its interest free loan allocation to growers by 23% in FY21.

Recognising that Sappi Khulisa labour is characterised by poor efficiencies and a large

turnover, we have established Khulisa Ulwazi (meaning “Growing Knowledge”) training centres and developed training material in conjunction with the Institute of Natural Resources, to address this need. The objective of training is to develop growers’ and contractors’ skills so that they can conduct silviculture operations economically and to a good standard. Training is offered to all value chain participants and covers all aspects of forestry including core operational skills such silviculture operations and harvesting operations, as well as safety, fire management, human resource management, entrepreneurship, leadership and business management.

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**Management practice reference number**

MP2

**Overall effect**

Positive

**Which of the following has been impacted?**

Biodiversity

**Description of impact**

The Sustainable Forestry Initiative (SFI) requires landowners and companies certified to SFI to actively participate in and support SFI Implementation Committees (SICs) organised at a state or provincial scale. Certificate holders like Sappi pay dues to SFI Inc. that in part are used to support collaborations. These committees respond to local needs and priorities related to implementation of SFI standards, conservation, community, and education work.

1) The Maine SIC, to which SNA financially contributes and participates, has helped to fund the Maine Cooperative Forestry Research Unit (CFRU), part of the Center for Research on Sustainable Forests (CRSF) at the University of Maine. Enabled by Maine SIC funding in 2020, CFRU deployed trail cameras (31 study areas to date) to survey carnivore species in areas across the state of Maine to assess, among other things, how timber harvesting may influence carnivore distributions of conservation interest.

2) The Maine SIC was also instrumental in supporting a thirteen-year effort to develop and complete a comprehensive survey of every road-stream crossing in the state, the first in the nation. This database, managed by The Nature Conservancy (TNC) and known as the Fisheries Improvement Network (FIN), is not only the first in the country but also one of the largest in the world. FIN, as an up-to-date database, will be critical in allocating limited funding to the most important places on public and private lands and help managers target the best opportunities for improving fish habitat.

**Have you implemented any response(s) to these impacts?**

Yes

**Description of the response(s)**

The Umbagog National Wildlife Refuge was established in 1992 with the primary purposes of protecting wetlands and wetland-associated wildlife as well as migratory birds. Today, the refuge spans over 30,000 acres of forests that serve as important breeding grounds for migrating landbirds. It straddles the border between New Hampshire and Maine, and it has often been called a national treasure. Sappi North America was selected by the US Fish and Wildlife Service to lead their timber harvest in this biodiversity-rich area. Fostering biodiversity and climate adaptation are important aspects of the forestry programme at the refuge. Sustainable timber harvesting is essential for maintaining and restoring resilient and sustainable forests. When planned and supervised by qualified foresters, responsible timber harvesting supports—and can enhance—fish and wildlife habitats, improved water quality, reliable water supplies, and recreation. The timber harvest in the Umbagog Refuge is designed to promote the US government's long-term goal of multi-aged, mixed-species, closed-canopy forests (more than 70%) that provide breeding habitat for the black-throated green and blackburnian warblers. This management will also benefit a variety of wildlife, such as white-tailed deer, moose, and black bears, as well as promote plant, lichen, amphibian, and other late-successional biota that contribute to biological diversity. Sappi has assisted with the first in a series of harvests scheduled to occur in 15-year increments. Our harvesting procedures will create age diversity by promoting and releasing red spruce, sugar maple, white ash, and yellow birch regeneration. A variety of forest products will be produced. Harvest trees include red maple, white birch, sugar maple, and American beech. Revenue from the harvest will contribute to the local economy, support logging and trucking companies, and provide an important source of income for local and state governments.

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**Management practice reference number**

MP3

**Overall effect**

Positive

**Which of the following has been impacted?**

Biodiversity

**Description of impact**

The Sustainable Forestry Initiative (SFI) requires landowners and companies certified to SFI to actively participate in and support SFI Implementation Committees (SICs) organised at a state or provincial scale. Certificate holders like Sappi pay dues to SFI Inc. that in part are used to support collaborations. These committees respond to local needs and priorities related to implementation of SFI standards, conservation, community, and education work.

In May 2021, the Minnesota SFI Implementation Committee as the 2021 winner of the SFI Implementation Committee Achievement Award. This award recognises the exceptional work done by the grassroots network of 34 SFI Implementation Committees across the U.S. and Canada.

The Minnesota SFI Implementation Committee was selected for successfully connecting the efforts of teachers and youth to Indigenous cultures and sustainability and for working with partner organizations to build bat-boxes that help battle white-nose syndrome, a disease caused by a fungus that affects hibernating bats., SFI's President and CEO said "The Minnesota SFI Implementation Committee is being recognized for its commitment to broadening awareness of Indigenous cultural values and species at risk."

**Have you implemented any response(s) to these impacts?**

Yes

**Description of the response(s)**

The Minnesota SFI Implementation Committee partnered with SFI-certified organisations Boy Scouts and West Fraser along with Bat Conservation International and Minnesota Power to build 70 bat boxes using wood from SFI certified forests. The project supports SFI's focus on building youth forest literacy by making connections to forests and biodiversity. Several forest bat species are affected by white-nose syndrome, and up to 90% of some populations have disappeared in Minnesota. Bats are now being considered for the endangered species list. Youth learned how bats can raise their young safely in these boxes so they can repopulate the skies of Minnesota.

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**Management practice reference number**

MP4

**Overall effect**

Positive

**Which of the following has been impacted?**

Water

**Description of impact**

The Sustainable Forestry Initiative (SFI) requires landowners and companies certified to SFI to actively participate in and support SFI Implementation Committees (SICs) organised at a state or provincial scale. Certificate holders like Sappi pay dues to SFI Inc. that in part are used to support collaborations.

**Have you implemented any response(s) to these impacts?**

Yes

**Description of the response(s)**

Forest to Tap (F2T) is a non-profit based, free programme planned and supported by a diverse group of natural resource interests (including the Minnesota SFI SIC) whose common denominator is the knowledge that good forest management – including planting, harvesting, and stewardship – results in clean water for wildlife, communities,

businesses, and ultimately great beer. The programme is focused on providing information about how good forest management practices provide clean water by reaching targeted audiences through local community breweries. Through increased community understanding and acceptance, F2T partners hope for increased knowledge of, and continued support for responsible forest management throughout the region. Nine breweries located throughout the Mississippi Headwaters basin launched the F2T programme in 2019. The programme anticipates expansion to include additional breweries in Minnesota, including those within the Lake Superior Watershed. The programme is currently rural-focused and is concentrated within those counties with a predominantly forested landcover. The Forest to Tap Program utilises the strong connection between great forests, great water, and great beer to educate the public on the importance of responsibly managed forests.

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**Management practice reference number**

MP5

**Overall effect**

Positive

**Which of the following has been impacted?**

Other, please specify

Invasive Species Treatment / Prevention

**Description of impact**

The Sustainable Forestry Initiative (SFI) requires landowners and companies certified to SFI to actively participate in and support SFI Implementation Committees (SICs) organised at a state or provincial scale. Certificate holders like Sappi pay dues to SFI Inc. that in part are used to support collaborations.

**Have you implemented any response(s) to these impacts?**

Yes

**Description of the response(s)**

One such collaboration is related to invasive species which have the potential to kill thousands of acres of forest, reduce productivity, inhibit reforestation and reduce stocking rates. The Minnesota, Michigan and Wisconsin SICs, in conjunction with the parent organization, are working to create a pocket-sized field guide to identifying common invasive species and practices to prevent their spread. When completed it will be available to foresters and loggers, and included in the Minnesota Logger Education Program curriculum.

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**Management practice reference number**

MP6

**Overall effect**

Positive

**Which of the following has been impacted?**

Other, please specify

Community Outreach and Education

**Description of impact**

The Sustainable Forestry Initiative (SFI) requires landowners and companies certified to SFI to actively participate in and support SFI Implementation Committees (SICs) organised at a state or provincial scale. Certificate holders like Sappi pay dues to SFI Inc. that in part are used to support collaborations. These committees respond to local needs and priorities related to implementation of SFI standards, conservation, community, and education work.

**Have you implemented any response(s) to these impacts?**

Yes

**Description of the response(s)**

1) Education: The Minnesota SFI Implementation Committee saw an opportunity to adapt Project Learning Tree (PLT) lessons to help engage Indigenous youth by including educational perspectives that affirm and value their unique cultural identities. Project Learning Tree, an SFI initiative, advances environmental literacy, stewardship, and career pathways using trees and forests as windows on the world. After consulting the Office of American Indian Education, the committee hired a Native American educator, to adapt six Project Learning Tree lessons to better relate to Indigenous people, and to educate non-Indigenous people about Indigenous perspectives. The revised lessons reflect Indigenous culture, language, values, and ways of learning. The completed lessons are posted on the state's PLT website and are available to all Minnesota teachers. These lessons help serve state teaching standards that require Indigenous curriculum.

2) Tours educate Maine teachers about sustainable forestry and the logging industry. The Maine Timber Research and Environmental Education Foundation (Maine TREE Foundation) has been hosting tours for educators in the state's northern forests for more than 20 years, showing teachers how to promote the forest products industry. The four-day Forests of Maine Teachers' Tour is a professional development programme focused on immersing Maine educators in the northern forests of the state. The tours open with the Project Learning Tree workshop, an award-winning, standards-aligned curriculum that uses forests as a teaching tool. Educators then explore sustainable forest management through the eyes of many stakeholders, including landowners, foresters, loggers, mills, and community members. Twenty-one teachers attended the 2021 Moosehead Lake tour. Teachers are asked to encourage students as early as the third grade to learn about the forest products industry and the many opportunities it can provide. The tours prepare participants to return to the classroom with stimulating approaches to share knowledge about forests and to develop ideas on how to bring the

classroom to the forest. Sappi provided scholarships for two teachers who attended. Founded in 1989, Maine TREE Foundation's mission is to educate and advocate for the sustainable use of the forest, as well as the ecological, economic and social health of Maine's forest community.

## C-AC13.2/C-FB13.2/C-PF13.2

**(C-AC13.2/C-FB13.2/C-PF13.2) Do you know if any of the management practices mentioned in C-AC12.2a/C-FB12.2a/C-PF12.2a that were implemented by your suppliers have other impacts besides climate change mitigation/adaptation?**

Yes

## C-AC13.2a/C-FB13.2a/C-PF13.2a

**(C-AC13.2a/C-FB13.2a/C-PF13.2a) Provide details of those management practices implemented by your suppliers that have other impacts besides climate change mitigation/adaptation.**

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### Management practice reference number

MP1

### Overall effect

Positive

### Which of the following has been impacted?

Biodiversity

Soil

Water

Other, please specify

Ecosystem services

### Description of impacts

South Africa's diverse topography, climate and geology results in extremely high species diversity, rate of endemism and ecosystem diversity. It is one of the world's mega-diverse countries having three of the Critical Ecosystem Partnership Funds (a fund established by civil society to protect biodiversity hotspots) biodiversity hotspots within its borders. However, this biodiversity is highly threatened by human development resulting in habitat loss and degradation. All forestry occurs in the highly productive wetter southern and eastern seaboard and associated escarpment areas which are also rich in biodiversity. Over a third of forestry land is unplanted, much of which is in a natural state and managed with conservation objectives. The result is that forestry estates contain some of the finest examples of a number threatened vegetation types and provide significant ecosystem services: 1) Provisioning services: the products obtained from ecosystems such as food, fresh water, wood, fibre, genetic resources and medicines.2) Regulating services are those that regulate processes such as climate,

natural hazards, water purification, waste management, pollination and pest control. 3) Support services include the essential factors necessary for maintaining ecosystem functioning, such as soil formation, nutrient cycling, primary production. 4) Cultural services include recreational, aesthetic, spiritual or educational benefits.

**Have any response to these impacts been implemented?**

Yes

**Description of the response(s)**

Sappi participated in the development of the PEFC-endorsed Sustainable African Forest Assurance Scheme (SAFAS), which is directly relevant to a range of South African conditions. One of the driving forces behind the development of SAFAS is its suitability for small growers, and their incorporation into forest certification systems from which they were previously excluded, primarily because of the high cost of certification.

The SAFAS standard incorporates criteria directed at the maintenance of ecosystem services and sets out clear pragmatic criteria for biodiversity management. In addition, the SAFAS values-based platform assists in identifying which are the most important services and the management activities that impact or enhance them.

**Management practice reference number**

MP2

**Overall effect**

Positive

**Which of the following has been impacted?**

Biodiversity

Water

**Description of impacts**

In North America, written stumpage and wood supply agreements include requirements to comply with applicable laws, including the use of Best Management Practices (BMPs) to ensure that wood procurement operations adapt appropriately to seasonal adverse weather conditions and other weather events to ensure that soil productivity and water quality resources are protected.

**Have any response to these impacts been implemented?**

Yes

**Description of the response(s)**

A key procurement provision is to build inventory at the mill during the winter months to avoid logging activities during the spring break-up / mud season. SNA also specifies that wetlands and other wet areas be logged when soils are in a frozen condition. Stipulations include: 1) Supervision, inspection and adequate documented occurs on all Sappi stumpage operations, including monitoring and enforcement of BMP guidelines appropriate to the site. Similar inspections are conducted on a risk-based sampling of open-market sales from which SNA procures wood/chips. 2) Action to protect

threatened and endangered species, as required by state and federal law. SNA goes further to identify and mitigate or avoid adverse impacts on Forests with Exceptional Conservation Value (FECV), which includes areas identified by NatureServe with a G1 (Globally Critically Imperilled) or G2 (Globally Imperilled) ranking for species and native plant communities. SNA also utilises regional risk assessment and site-specific data from credible scientific agencies/organisations to identify and mitigate for broader biodiversity risks in sourcing activities

## C15. Biodiversity

### C15.1

**(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?**

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, both board-level oversight and executive management-level responsibility	Under our Thrive25 strategy, Sappi has established several global and regional priority targets which are aligned with the United Nations Sustainable Development Goals (UN SDGs), including SDG15: Life on Land. Stable, resilient ecosystems are important to Sappi given that our primary input – woodfibre – is a renewable natural resource and depends on ecosystem services such as healthy soils, clean water, pollination and a stable climate. Safeguarding and restoring biodiversity is important for our business, our stakeholders and the Planet. Biodiversity indicators are incorporated into the internationally acknowledged, independent forest certification systems we use, including the Forest Stewardship Council™ (FSC™ N003159); the Programme for the Endorsement of Forest Certification™ (PEFC/01-44-43) and the Sustainable Forestry Initiative (SFI). One of our 2025 global targets under SDG15 is that the share of certified fibre supplied to our mills should be greater than 75%. In FY2021 we exceeded this, achieving 77%. The other target is specific to Sappi Southern Africa (SSA). It stipulates that SSA should enhance biodiversity in conservation areas on its plantations by 10% by 2025. The first step in this process was to assess all Important Conservation Areas on our land. We were slightly behind on this target in FY2021, achieving 100% and 90% assessment rates for our plantations in the provinces of

		<p>Mpumalanga and KwaZulu-Natal respectively.</p> <p>These targets are reported on quarterly to the Regional Sustainability Councils, to the Group Sustainability Council and fed through to the SETS Committee and ultimately, the Sappi Limited Board.</p>
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## C15.2

**(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?**

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to no conversion of High Conservation Value areas Commitment to secure Free, Prior and Informed Consent (FPIC) of Indigenous Peoples Commitment to no trade of CITES listed species	SDG Other, please specify Textile Exchange Biodiversity Module • South African National Biodiversity Institute • WWF/ Sappi Water Stewardship programme

## C15.3

**(C15.3) Does your organization assess the impact of its value chain on biodiversity?**

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	Yes, we assess impacts on biodiversity in our upstream value chain only

## C15.4

**(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?**

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management

		Species management Education & awareness Livelihood, economic & other incentives
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## C15.5

**(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?**

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Other, please specify  Criteria that are used include the presence of both plant and animal red data species, the threat status of the ecosystem, the size, connectedness, condition and aesthetic and recreational value of the area.

## C15.6

**(C15.6) Have you published information about your organization’s response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Details on biodiversity indicators Biodiversity strategy	Page 17, page 141 - 145  1
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Details on biodiversity indicators Biodiversity strategy	 2

 <sup>1</sup>Sappi 2021 Group Sustainability Report.pdf

 <sup>2</sup>sappi 2022 faq biodiversity.pdf

## C16. Signoff

### C-FI

**(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

### C16.1

**(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

	<b>Job title</b>	<b>Corresponding job category</b>
Row 1	Group Head: Investor Relations and Sustainability	Chief Sustainability Officer (CSO)