

2023 TCFD Report

for the year ended September 2023



sappi

Climate Action: TCFD disclosure

The Task Force on Climate-related Financial Disclosures (TCFD) reporting plays a pivotal role in fostering financial transparency and resilience in the face of climate change.

As we navigate an era marked by environmental challenges, TCFD reporting provides a framework for us to disclose our climate-related risks, opportunities, and strategies. By doing so, we provide stakeholders with the assurance that we are proactively responding to the evolving landscape of climate-related risks and opportunities and building a more sustainable and resilient business which integrates climate considerations into our decision-making processes as we transition to a low-carbon future.





TCFD recommendations and disclosures

	Disclosure location	Further information links
Governance		2023 Sappi Annual Integrated Report www.sappi.com/annual-reports 
(a) Describe the board's oversight of climate-related risks and opportunities.	pages  2 – 3	Corporate governance pages  148 – 168
(b) Describe management's roles in assessing and managing climate-related risks and opportunities.	pages  2 – 3	2023 Sappi Annual Integrated Report www.sappi.com/annual-reports  Corporate governance pages  148 – 168
Strategy		2023 Sappi Annual Integrated Report www.sappi.com/annual-reports 
(a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	pages  4 – 16	Our strategy and performance pages  10 – 19
(b) Describe the impact of climate-related risks and opportunities on the organisation's business, strategy and financial reporting.	pages  4 – 16	2023 Sappi Annual Integrated Report www.sappi.com/annual-reports  Our strategy and performance pages  10 – 19
(c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios including a 2°C or lower scenario.	pages  4 – 8	2023 Sappi Annual Integrated Report www.sappi.com/annual-reports  Our strategy and performance pages  10 – 19
Risk management		2023 Sappi Annual Integrated Report www.sappi.com/annual-reports 
(a) Describe the organisation's processes for identifying and assessing climate-related risks.	pages  9 – 10	Risk management pages  44 – 51 Separate Risk report on www.sappi.com/annual-reports 
(b) Describe the organisation's processes for managing climate-related risks.	pages  9 – 10	2023 Sappi Annual Integrated Report www.sappi.com/annual-reports  Risk management pages  44 – 51 Separate Risk report on www.sappi.com/annual-reports 
(c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the overall risk management.	pages  9 – 10	2023 Sappi Annual Integrated Report www.sappi.com/annual-reports  Risk management pages  44 – 51 Separate Risk report on www.sappi.com/annual-reports 
Metrics and targets		
(a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	pages  17 – 18	2023 Sappi Group Sustainability Report www.sappi.com/2023GSDR 
(b) Disclose Scope 1, Scope 2 and if appropriate Scope 3 GHG emissions, and related risks.	page  18	2023 Sappi Group Sustainability Report www.sappi.com/2023GSDR 
(c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	page  17	2023 Sappi Group Sustainability Report www.sappi.com/2023GSDR 

Governance

In order to unlock the power of renewable resources to benefit people, communities, and the planet, we need to do so from a foundation of trust. This foundation is reinforced by our robust sustainability governance framework summarised below.

Sappi Sustainability Governance Framework

Sappi board						
Committees	Social, Ethics, Transformation and Sustainability (SETS) Committee	Other board committees		Executive Management Committee (EXCO)	Group Sustainable Development Council (GSDC)	Regional Sustainability Councils
		Audit and Risk	Remuneration and Compensation			
	Chaired by an Independent Non-executive Director (NED)	Chaired by an Independent NED	Chaired by an Independent NED	Chaired by the group CEO	Chaired by the Group Head: Sustainability and Investor Relations	Chaired by regional CEOs and sustainability leads
Purpose	Oversees the group's sustainability strategy, commitments, policies performance	Oversees the group's corporate financial reporting, internal control systems, risk management and relationship with the external auditor	Ensures that incentives drive the appropriate behaviours that deliver our strategy	Management responsibility for execution of sustainability strategy and policies guided by the SETS Committee	Provides expert insights and support to the business on sustainable development matters	Oversees the integration of sustainable development into the operations
Responsibility	Responsible for the governance of matters related to sustainable development including: environment, climate change, biodiversity, product stewardship, labour, human rights, diversity and transformation and ethics. Ensures alignment to best practice and disclosure standards	Oversees the group's corporate financial reporting. Oversees the risk management process including sustainability risks. Monitors effectiveness of internal control systems including hotline reporting platform	Aligns remuneration to performance against key sustainability targets and focus areas	Prioritises capital allocation and ensures business unit line management holds primary responsibility and accountability for sustainability performance	Keeps abreast of best practice and regulatory compliance requirements. Develops sustainability related strategy and policies for the group	Develops action plans aligned with strategy and policies and monitors progress towards sustainability targets and commitments. Ensures integration of sustainability requirements into operational systems and processes
						
	Oversight		Accountable		Advisory	Execution

Climate Action: TCFD disclosure continued

The **Social, Ethics, Transformation and Sustainability (SETS) Committee** has an independent role with accountability to the board and comprises a majority of independent non-executive members, whose duties are delegated to them by the board in compliance with a board-approved terms of reference. The role of the SETS Committee, is to assist the board with the oversight of sustainability matters within the company, including climate-related issues, and to provide guidance to management's work in respect of its duties. The SETS Committee provides oversight on the group's sustainable development strategies, policies, objectives and targets and public disclosures. The committee addresses issues relating to environmental impact and climate change, corporate social investment, ethical conduct, diversity, transformation and empowerment and ongoing sustainability initiatives. Their responsibilities include monitoring the company's ESG activities, having regard to any relevant legislation, other legal requirements and prevailing codes of best practice.

The SETS Committee meets three times per year and the Chairman of the committee reports back to the board after every meeting. Progress against our **Thrive** sustainability targets is an integral component of the SETS Committee agenda and is reviewed twice per year. Each of the three regions and Sappi Forests presents a detailed report on progress against regional **Thrive** targets as well as feedback on key initiatives, action plans and challenges relating to sustainability and climate-related matters. Additionally, a detailed climate report is presented to SETS annually outlining the company's progress according to the TCFD framework. Further details on the activities of the SETS Committee can be found in our 2023 Sappi Annual Integrated Report www.sappi.com/annual-reports on page 158.

Audit and Risk Committee (ARC) provides additional governance oversight on climate-related matters. The ARC oversees the group's corporate financial reporting and annual planning process, and the group's internal controls and risk assessment process, which includes sustainability and specifically climate-related risks. Further details on the activities of the ARC can be found in our 2023 Sappi Annual Integrated Report www.sappi.com/annual-reports on page 152.

The **Human Resources and Compensation Committee** is responsible for ensuring that incentive schemes drive the appropriate behaviours that deliver our sustainability strategy, including the alignment of remuneration to performance against our key **Thrive** sustainability commitments and targets. Further details on how climate action is incorporated into incentive schemes can be found in our 2023 Sappi Annual Integrated Report www.sappi.com/annual-reports on page 171.

The **Executive Management Committee (EXCO)**, chaired by the group CEO, is accountable for delivery of the sustainability strategy and responsible for ensuring that the strategic objectives and goals of the organisation are achieved. The committee is responsible for ensuring that capital allocation is aligned with business and sustainability objectives and prioritised appropriately to ensure timely

delivery against our public commitments. The EXCO regularly reviews progress against our sustainability and climate commitments and targets. In addition, sustainability matters of a strategic nature, including those relating to climate change, are reviewed and discussed by the EXCO prior to submission to the SETS Committee. This allows the EXCO to provide their strategic input and ensures that there is complete management alignment on sustainability matters.

The **Group Sustainable Development Council (GSDC)** reviews key global and regional trends and developments and makes recommendations on strategy and policy that are fed through to the EXCO, the SETS Committee and ultimately, to the Sappi Limited board of directors. The Group Head of Sustainability and Investor Relations and the Group Head Technology are responsible for coordinating actions related to the group's climate change-related risks and opportunities and providing reports to the EXCO to enable it to discharge its responsibility.

The GSDC meets quarterly and reviews progress against **Thrive** sustainability targets at each meeting. Additionally, other climate-related topics such as regulatory changes and trends, sustainable procurement, SBTi, TCFD, TNFD and forestry related issues are discussed at the majority of the meetings. All climate change-related matters of strategic importance are raised by the Group Head of Sustainability and Investor relations at EXCO meetings for input and guidance. Additionally, the progress against our science-based decarbonisation targets, regional climate transition action plans and capital allocation is reviewed in detail by EXCO annually with the budget setting programme.

The group's **Regional Sustainability Councils (RSCs)**, in Europe, North America and South Africa, are responsible for establishing and implementing our on-the-ground sustainability strategy and action plans. Their work is overseen and reviewed by the GSDC.



Strategy

Sustainability forms the foundation of our **Thrive** strategy and is fully integrated into our operations where the primary focus is on the sustainable management of our operations, increasing efficiency and maximising value from our sustainable natural resources.

As we look to the future, it is clear we have an obligation to play a role beyond making and selling. Policy measures to enable the transition to low-carbon economies, with a general goal for net zero emissions of GHG by 2050 are being rolled out globally. The private sector has a key role to play in this just transition and in line with this obligation, we have set 2030 science-based decarbonisation targets.

The core principles of Sappi's climate strategy are aligned with the overarching **Thrive** strategy as outlined below. Furthermore, detailed strategic objectives and actions aligned with our climate transition plan are disclosed below.

Sappi's climate strategy



Grow our business

What it 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, biobased solutions and accelerate climate action



Sustain our financial health

What it 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



Drive operational excellence

What it means

- 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; protecting biodiversity and promoting the responsible use of scarce water resources



Enhance trust

What it means




- 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 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

Climate Action: TCFD disclosure continued

Sappi's climate transition plan

Account and disclosure	Mitigate and decarbonise	Value and integrate
<p>Objective</p> <p>We will be transparent in our accounting and disclosure of carbon impacts, risks and opportunities.</p> 	<p>Objective</p> <p>We will reduce our own and value-chain emissions in line with science-based decarbonisation pathways towards net zero.</p> 	<p>Objective</p> <p>We will value and integrate carbon into business processes..</p> 
<p>Key actions</p> <ul style="list-style-type: none"> • Use GHG accounting standards to create full account of carbon footprint • Disclose emissions, reduction targets and strategic actions • Externally assure emissions • Use quantitative and qualitative scenario analysis of transition and physical impacts to identify and disclose climate-related risks and opportunities aligned with the TCFD framework. 	<p>Key actions</p> <ul style="list-style-type: none"> • Set 2030 decarbonisation targets for Scope 1, 2 and 3 • Set energy efficiency/renewable energy targets • Align our decarbonisation trajectory where appropriate with market and regulatory expectations • Engage with suppliers and customers to mitigate value-chain emissions and establish a feedback mechanism for determining the success of engagements • Evaluate and implement emerging decarbonisation technologies where appropriate. 	<p>Key actions</p> <ul style="list-style-type: none"> • Utilise an internal price of carbon in capital allocation decision-making processes • Prioritise capex and opex aligned to science-based targets • Invest in innovation/ R&D for own mitigation and new product development for a low-carbon, circular economy • Identify/develop a taxonomy to classify products as low carbon • Leverage public and climate finance to augment mitigation actions • Integrate decarbonisation considerations into R&D and procurement business processes and decisions and establish a mechanism for monitoring progress and compliance.

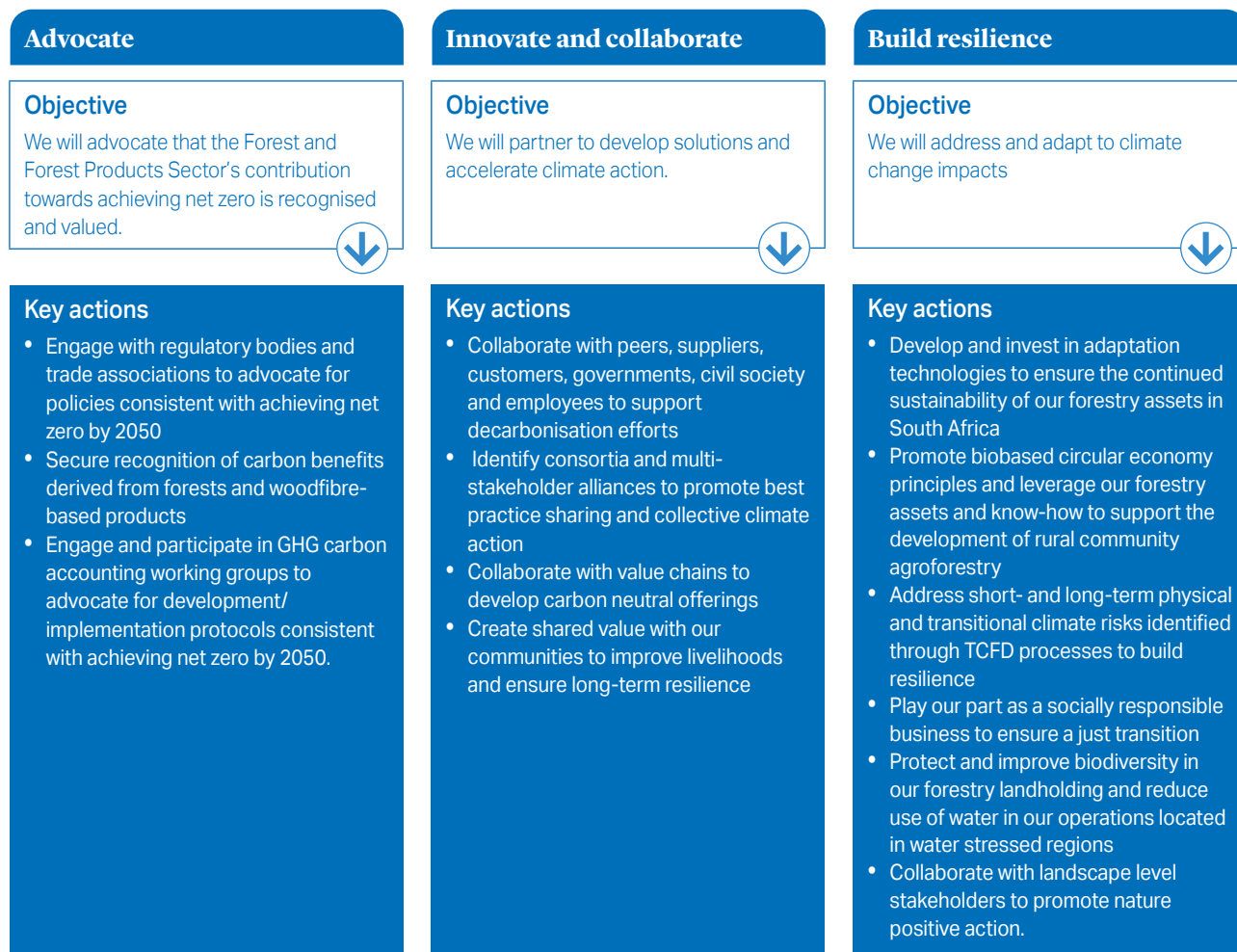
Climate change risks have been identified as one of our strategic principal risks. The group's climate change related risks and opportunities are routinely considered in our strategic and financial planning, our capital allocation and our operational management decision-making processes.

In terms of **climate-related risks**, we recognise that our industry is energy intensive. In addition, our business is dependent on woodfibre and water, both of which are impacted by climate change. Against the backdrop of these transitional and physical risks, we have long recognised our responsibility to be part of the climate solution. We align with climate science and are taking focused action to future-proof our business against the physical and transitional impacts of climate change and be part of the solution. A significant portion of R&D is allocated to decarbonisation. We also focus on increasing pulp backward integration which brings renewable energy opportunities aligned with our strategy as well as fuel swaps and energy mix opportunities balanced with economics. In addition, our Future Energy Technologies and Decarbonisation cluster is exploring novel technologies for deep decarbonisation in terms of Scope 1 and 2 emissions, with a particular emphasis on technologies for renewable power generation, pulping, papermaking, bleaching and carbon capture.

Achieving our science-based decarbonisation trajectory will be a key enabler for future-proofing our business as we focus our growth strategy on circular, nature-based solutions for a low-carbon economy. In the long term, we anticipate that decarbonisation investments will reduce costs, spur innovation, provide resilience against regulation and boost investor confidence. We have developed a clear climate transition roadmap and capital allocation strategy to achieve our 2030 targets and we have also committed to using our influence to encourage our major suppliers to set their own science-based targets. The capital expenditure between FY2021 – 2030 required to achieve the targets is estimated to be in the region of US\$60 to US\$70 million per annum. Decarbonisation projects include process efficiency improvements, transitioning to low-carbon energy generation as well as upgrading of certain plants which allow for fuel switching from fossil to biogenic fuels and increased purchases of renewable energy.

We acknowledge that **decarbonisation of our South African assets will be challenging**. Our mills in this region are still reliant on coal-based power for a significant proportion of their energy requirements. The South African energy landscape is heavily dependent on coal, which is an abundant resource in the country. While Sappi has a relatively high level

Sappi's climate transition plan



of renewable energy integration within the context of the region due to our black liquor and biomass fuel sources, we are not fully self-reliant. We thus need to purchase energy from the national utility provider, Eskom, which is predominantly based on coal. There is currently very little renewable energy available for purchase within the country and therefore our decarbonisation roadmap for the region assumes that we will have to invest in our own renewable energy assets. We are investigating opportunities for investment in solar, wind and biomass power assets. Furthermore, we are actively collaborating and exploring opportunities for purchasing renewable energy from new independent power producers that are being established within the country. Within the context of the national dependency on coal and high levels of unemployment and social inequality, we recognise that a just transition is critical for South Africa. We will therefore use our influence to collaborate with other business leaders, communities and Government stakeholders to advocate for a just transition where no-one is left behind.

Climate change is having a significant impact on our **woodfibre supply**. In both Europe and Southern Africa, the changing climate is impacting the health and resilience of the forests and plantations from which we source woodfibre.

Increased drought, floods, wind, pest and disease outbreaks and wildfires are all accelerating forestry risks and could potentially significantly increase our wood costs.

Temperatures over the South African interior are projected to rise at about 1.5 to 2 times the global rate, with significant implications for our plantations. In addition to hotter, drier conditions, we expect shifting seasons with later summer rainfall, which will make our planting season shorter. We also anticipate that weather will become more extreme and that drought and floods, as well as wind, snow and hail will intensify. In response, we have developed climate smart forest management practices. Our Sappi Forests' scientists have developed high levels of expertise in assessing the impact of climate change on our plantations in South Africa. Their knowledge is supplemented by our strong partnership with the Global Change Institute (GCI) at the University of the Witwatersrand in Johannesburg. Recognising that there is a lack of data and expertise within South Africa for climate modelling, we launched the Sappi Chair in Climate Change and Plantation Sustainability at the University of the Witwatersrand in Johannesburg. The Research Chair will identify critical research needs and develop research outputs related to climate change and will also develop capacity in South Africa to manipulate and interpret climate modelling data. For more details see page [8](#).

Climate Action: TCFD disclosure continued

Research and development (R&D) 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. In addition to these initiatives and programmes, we also maintain a solid base of permanent sample and long-term soil monitoring plots, with the plot coordinates stored on our GIS database. These help us to monitor climate change based on geology, temperature zone and water availability. This enables us to keep track of forest litter, soil physical and chemical properties, allowing for early detection of site changes.

In terms of **climate-related opportunities**, we recognise that our sector is uniquely positioned to produce circular and low-carbon products, which can offer consumers alternatives to fossil-based products. There is a significant opportunity for Sappi to accelerate the transition to the circular biobased economy our planet demands.

Through our continued focus on innovating **packaging and speciality papers solutions**, we remain committed to partnerships with customers, who are increasingly focused on the social and environmental credentials of our products. We are committed to embracing the circular economy using sustainable materials based on certified woodfibre and replacing fossil-based chemistry and to working on new technologies that support transformation in Sappi and across our value-chain partners to reduce GHG emissions. There is significant potential to expand and unlock revenue streams with our paper-based packaging solutions to replace petroleum-based packaging in many sectors including the food and beverage, cosmetics, pharmaceuticals and electronics industries.

The majority of **dissolving pulp (DP)** is consumed in the textile industry where pulp is converted through the value chain to yarn and ultimately textiles providing soft, breathable fabrics (eg. viscose and lyocell) which hold colour well and drape beautifully. The global textile fibre industry is facing unprecedented sustainability challenges. Issues such as a rising population, climate change, water scarcity, land use (food vs. fibre), deforestation and loss of biodiversity, plastic waste and marine pollution have combined to question the long-term credentials of the industry and its attempts to create a sustainable circular economy. Textile fibres derived from natural cellulose (DP) are therefore gaining interest and have been the fastest growing textile fibre over

the last 10 years. With increasing concerns about microplastic pollution in the oceans, petroleum-based textile fibres will continue to come under pressure and cotton cannot expand its area any further, meaning cellulosic fibres remain at an advantage and their market share will continue to expand. Lyocell represents the next generation of cellulose textile fibres. With its sustainable DP raw material, reduced chemical processing and closed-loop systems, lyocell continues to be the most sustainable wood-based cellulosic fibre and is the fastest growing textile fibre group. Sappi is uniquely positioned as the world's largest non-integrated DP producer and largest supplier to the lyocell sector to benefit from the growth in cellulosic textiles.

Traditionally the papermaking process has only used approximately half of the raw wood material to manufacture pulp and paper products. The balance of the wood raw material is used to generate energy to power the mill or to sell into the electricity grid. Sappi is, however, developing new processes and **biomaterials** which extract more value from each tree and supports our business strategy to move into new and adjacent markets. Sappi's innovative technology enables us to derive specialty biobased chemicals from the parts of the tree which are not used for pulp and paper making. These high-performance products often displace non-sustainable petroleum-based alternatives. There is significant opportunity to unlock further revenue streams through commercialisation of these biomaterials.

Our Exciter R&D programme is fully aligned with our **Thrive** strategy. The focus of the projects, which are global and based on the OneSappi approach, has shifted to emphasise sustainability, together with a focus on our segments with significant growth opportunity ie, packaging and speciality papers, DP and biomaterials.

Our commitments to **zero deforestation** and wood sourcing from sustainably managed, healthy working forests with a high level of forestry certification enables us to offer products to our customers around the world that carry no risk of deforestation or forest degradation. Deforestation negatively impacts ecosystem services and climate. It also increases the transmission risk of zoonotic diseases. In addition to helping to respond to climate change and protect soils and water, forests hold more than three-quarters of the world's terrestrial biodiversity. This means that deforestation has serious negative impacts on biodiversity and climate change.

Trees and forests play an integral role in the global carbon cycle. Through sequestering carbon dioxide from the atmosphere and storing it in forest biomass and soils, forests store vast amounts of carbon and release oxygen back into the atmosphere. Recent studies point to the further contribution that trees and forests could deliver to mitigate climate change if afforestation, reforestation, and restoration efforts were scaled up substantially. Managing forests for wood production can help to maximise their contribution to carbon sequestration. Forest management practices which rely on scientific knowledge of silvicultural best practices applicable in respective vegetation zones, promote growth and carbon sequestration. In our plantations in South Africa



and in the managed forests from which we source wood raw material, the cycle of regeneration, growing, thinning and harvesting is actively managed to enhance biodiversity, resilience, and maintain functional ecological condition.

The pulp and paper industry provides dependable markets for responsibly-grown woodfibre, thereby incentivising long-term forest management. This assurance of financial returns enables and encourages landowners to manage their forestlands as working forests, instead of selling the land for development or converting it to non-forest uses. Furthermore, the pulp and paper industry typically utilises different species and/or smaller diameter trees or portions of trees that are not desirable in the solid wood industry. By providing this market and revenue stream, the industry is supporting necessary holistic forest stand-improvement activities that are essential for maintaining and restoring forest health, species and age-class balance, wildlife habitat and biodiversity, wildfire mitigation and hazardous fuels reduction, watershed protection, soil conservation and carbon sequestration. By ensuring forests and plantations are sustainably managed through high levels of certification and prioritising traceability, we can help to combat climate change and enhance the ecosystems services that contribute to greater levels of economic and environmental wellbeing. Our opportunity is to invest in and promote healthy forests both for our benefit and the myriad of benefits they deliver to the planet.

There are many uncertainties around the potential impacts of climate change, and we therefore continue to enhance the quality of our scenario modelling to further understand these impacts.

In terms of **physical climate risks**, Sappi Forests has worked with the Global Change Institute (GCI) at the University of the Witwatersrand in Johannesburg and other industry members to identify six representative climate change models and downscaled these to local conditions at a finer resolution for years between 1960 and 2100. The data was processed to various beneficial data products to inform on a range of factors, including drought, heat and fire risk. Sappi further processed the forecast climate data in-house by algebraically adjusting the basic weather forecasts to a year 2,000 baseline.

To conduct physical climate change scenarios in our mills, we used Representative Concentration Pathways (RCPs):

- 2.5 (a low climate change scenario, involving aggressive mitigation actions to halve emissions by 2050)
- 4.5 (a moderate climate change scenario involving strong mitigation actions to reduce emissions to half of current levels by 2080)
- 8.5 (a high climate change scenario representing continuation of business as usual with emissions at current rates).

Climate transition risk is assessed in terms of scenarios involving nationally determined contributions (NDCs) and their associated time frames. Each country in which we have manufacturing operations, as well as the EU region, has submitted NDCs to the United Nations Framework Convention on Climate Change (UNFCCC). Various scenarios within the parameters of key regulatory developments are also assessed against the backdrop of various issues (for example: our 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 market expectations).

We have also implemented an internal carbon price (within the capital evaluation process) to ensure that the impact of carbon for all large capital investments is understood. The internal carbon price is embedded in our cost calculations of capex and opex projects as a financial indicator.

Sappi's international revolving credit facility (RCF) of EUR515 million, which matures in 2027, is linked to the group's sustainable financing framework. The RCF is structured with a margin adjustment mechanism, linked to progress in achieving the framework KPIs. The framework defines four material sustainability KPIs and provides a basis for future KPI-linked credit and capital market activities of the group. The KPIs focus on specific GHG (Scope 1 and 2) emissions; certified fibre supplied to Sappi mills, solid waste to landfill the safety of our employees. This is an important strategic step for Sappi and supports our long-term vision to be a sustainable business and demonstrates that we are committed to delivering our ambitious sustainability strategy.

Risk management

Sappi has a well-established risk management process within a formal governance structure. The risk evaluation process is run annually, with comprehensive discussions which include climate change (led by regional risk managers) with each mill and central function. 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.

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.

Sappi's climate-related physical risks

Risk		Description
Physical risks	South African plantation losses	Acute physical Increased severity and frequency of extreme weather events may results in damage to our standing forests and nurseries and disruptions to harvesting operations in our managed plantations in South Africa. Extreme weather event could be flooding, frost/snow, heatwave.
		Acute physical More frequent, longer lasting and more severe droughts are anticipated over the Southern African region due to climate change. As the planet continues to warm, rainfall reductions over the summer rainfall region are expected to become more pronounced, and the rising temperature drives evaporation. Accordingly, the 'water balance' is more strongly negative than the decline in rainfall alone. Levels of global warming of 2°C or higher are associated with substantial increases in 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.
		Chronic physical 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 as 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. In addition, extension of the dry season or changes to rainfall seasonality could negative impact re-establishment plantings, by extending the area that is temporarily unplanted by one month or up to one year.
		Higher temperatures and changing climatic conditions may increase vulnerability to pests and diseases . Given that 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 evidence of insect-transmitted plant disease due to range expansion and rapid reproduction of insect vectors and 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.

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: Sustainability and Investor Relations and the Global Risk Manager who review the work of the regional risk management leads in order to develop a consolidated view. A recommendation is then made to the two board committees, the SETS Committee and the ARC, both of which share responsibility for 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 50001 (energy management), Europe: EMAS), on the risk areas affecting the group, including climate change.

We have identified seven material physical risks associated with our South African plantations, mill operations and supply chains and one material transition risk. In terms of opportunities, we have identified two transitional opportunities and one operational opportunity. We define our timeframes for assessment as follows.

Timeframe:

Short term **1-2 years**, Medium term **3-5 years**, Long term **5-30 years**

	Timeframe	Financial impact (p.a.)	Mitigation	Financial cost of mitigation
	Medium term	US\$0.5 to US\$1 million	<p>R&D 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 exploring new technologies are some of the assets of the programme. Nursery technologies research improve propagation techniques of elite genotypes.</p> <p>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.</p>	<p>US\$3 to US\$5 million</p> <p>The combined direct annual R&D expenditure p.a. of the Sappi Nursery Technologies, land management, pest and diseases and tree breeding programmes.</p>
	Medium term	US\$5 to US\$20 million		
	Long term	US\$5 to US\$10 million		
	Long term	US\$2 to US\$10 million		

	Risk	Description	
Physical risks	<p>South African plantation losses</p>	<p>Fire remains a high risk to our plantations and is exacerbated by periods of drought.</p>	
	<p>Interruptions to mill operations and supply chains</p>	<p>Acute physical Increased severity and frequency of extreme weather events may result in damage to our infrastructure and that of our supply chain partners. Extreme weather events could be flooding, hail of frost/snow.</p>	
		<p>Chronic physical More frequent, longer lasting and more severe droughts are anticipated over the Southern African region due to climate change. As the planet continues to warm, rainfall reductions of the summer rainfall region are expected to become more pronounced and the rising temperature drives rising evaporation. 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 operations are situated. When several dry years follow directly on each other, the impact on available ground water in the water river basins that serve our operations could be severely impacted. Our pulp and paper operations are water intensive and any reduction in water availability could result in extended water shortages which could disrupt our operations.</p>	

	Timeframe	Financial impact (p.a.)	Mitigation	Financial cost of mitigation
	Short to long term	US\$15 to US\$130 million	Sappi Forests has a comprehensive risk management system which comprises risk assessments, monthly compliance checks, management procedures, standards and general back-up information. Fuel load maps are prepared for all districts to assess in the management of fuel loads and identification of major risks. When re-planting, Sappi is increasingly making use of mulchers as a more expensive but lower risk alternative to burning of harvest residue. Regular weeding helps reduce fuel loads. 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 – VFW) which sends alerts via SMS and email. When the FDI reaches a pre-determined level, all aerial and ground firefighting resources are strategically located, all airstrips are manned and detection centres are instructed to activate aircraft immediately should a fire be detected within or near plantations.	US\$15 to US\$20 million (Plantation insurance and fire protection costs p.a.)
	Medium term	US\$10 to US\$50 million	Sappi has comprehensive insurance coverage in place which covers both our assets and business interruption.	US\$35 to US\$45 million (General insurance costs p.a.)
	Medium term	US\$10 to US\$50 million	Sappi has water management plans for each operation in South Africa which focus on implementing water efficiency projects and implementing closed-loop and water recycling initiatives to reduce water intensity of our operations. We also engage local authorities, other industrial users and local communities within critical water basins to identify solutions and enhance water stewardship.	US\$1 to US\$3 million (Estimated SSA capital requirement p.a.)

Sappi's climate-related transition risks

Risk		Description
Transition risk	GHG regulatory changes and changing downstream requirements for low-carbon products	<p>Sappi's European operations fall under the EU ETS. As EU ETS allowances decrease over time and if our decarbonisation efforts do not keep pace with the required trajectory there is potential that some operations may have deficits which will require purchasing of ETSS. Similarly SSA's operations are subject to carbon taxes which are anticipated to increase steadily over time. Currently there are no carbon tax regulations in North America but this could change over time.</p>
		<p>Many of our downstream markets are positioning their value proposition on a low-carbon footprint with science-based decarbonisation commitments, including net zero by 2050, gaining momentum. This will apply pressure on our business to decarbonise to support these commitments within our value chains.</p> <p>As legislation and customer preferences shift to low-carbon impact, achieving our science-based decarbonisation trajectory will be a key enabler for future-proofing our business as we focus our growth strategy on circular, nature-based solutions for a low-carbon economy. Not being able to realise our decarbonisation strategy through improved energy efficiency and the use of renewable energy represents a significant reputational and financial risk.</p>

	Timeframe	Financial impact (p.a.)	Mitigation	Financial cost of mitigation
	Medium to long term	US\$30 to US\$150 million	<p>We have developed a climate transition roadmap and capital allocation strategy to achieve our 2030 targets and we have also committed to using our influence to encourage our major suppliers to set their own science-based targets.</p> <p>We acknowledge that the decarbonisation of our South African assets will be more challenging than in our other operating regions. Our mills in this report are all reliant on coal-based power for a significant proportion of their energy requirements. The South African energy landscape is heavily dependent on coal which is an abundant resource in the country. Accordingly, our decarbonisation roadmap for the region assumes that we will have to invest in our own renewable energy assets. We are actively investigating opportunities for investment in solar, wind and biomass power assets and will furthermore continue to collaborate and explore opportunities for purchasing renewable energy from independent power producers. Within the context of South Africa's national dependency on coal and high levels of unemployment and social inequality, we recognise that a just transition is critical for South Africa. We will therefore use our influence to collaborate with other business leaders, communities and Government stakeholders to advocate for a just transition where no-one is left behind.</p>	<p>US\$60 to US\$70 million</p> <p>(Estimated SBTi capital requirement p.a.)</p>

Sappi's climate-related opportunities

	Opportunity	Description
Transition opportunity	Changing consumer behaviour and preference for renewable, circular, low-carbon products	<p>The global demand for sustainable packaging solutions is prompting increasing investment and collaboration to develop innovative solutions to cater to changing customer preferences. Paper-based packaging being renewable and circular, emerges as an excellent substitute for less eco-friendly options. By capitalising on our sustainable packaging solutions, we aim to address the growing demand for a wider range of paper-based packaging products.</p> <p>Likewise, the surge in demand of sustainable textile fibres opens up possibilities for our dissolving pulp business. Our prominent role in supplying pulp to the lyocell fibre market positions us favourably, given the improved environmental impact of lyocell fibres, which are expected to double in market share over the next five years.</p>
	Beneficiation of wood by-products	<p>Furfural is an important biobased platform chemical which is used in a wide variety of applications including foundry resins, solvents and crop protection products. In many cases, biobased furfural replaces products which would otherwise be made from fossil fuels. Sappi has developed innovative technology for the production of furfural using the hemicellulose co-product of our DP operations. By using this co-product, we are able to maximise the portion of the tree used to make renewable value-added products. The Sappi technology is fully integrated with the pulp production technology, enabling a significant reduction in the carbon footprint of furfural production.</p>
Operational opportunity	Reduced operating costs through energy efficiency and use of renewable energy	<p>The production of pulp and paper is energy intensive and energy generation is the major source of our GHG emissions. In many geographies where we have operations, renewable fuel sources such as biomass are cheaper than fossil fuels such as coal and gas. In addition, it is anticipated that renewable power (for purchase) will, over the medium to long term, become cheaper than fossil-based power. By improving the efficiency of our energy plants and manufacturing operations and creating the flexibility to utilise different fuel sources, we have the opportunity to realise cost savings.</p>

Note: Cost to realise the transitional opportunities for packaging and biomaterials is focused exclusively on two specific projects (conversion and expansion of Somerset PM2 and furfural at Saiccor Mill) which are the two most advanced and likely to reach commercialisation opportunities in the current portfolio. R&D initiatives are ongoing in this space and opportunities will be added as they emerge. Cost to realise the transitional opportunities does not include the R&D spend which will be added in future reports.

	Timeframe	Financial impact (p.a.)	Action	Financial cost of actions
	Short to long term	US\$100 to US\$200 million	To meet the growing demand for packaging papers we have initiated a capital project at Somerset Mill to convert PM2 from coated woodfree graphic paper to solid bleached sulphate paperboard. The machine capacity will also be increased during the conversion from 240,000 tpa to 470,000 tpa. The project is expected to be completed in early 2025.	US\$418 Total capex for Somerset PM2
	Medium term	US\$20 to US\$30 million	Sappi has invested in a pilot plant at Saiccor Mill which has successfully demonstrated the technology for furfural production and testing of product with customers which is progressing well. A class 10 capex estimate for a full-scale plant with the capacity to produce 25,000 tpa is being explored.	US\$50 High level capex estimate for 25,000 tpa furfural plant
	Short to long term	US\$20 to US\$50 million	Based on our corporate commitment to reduce emissions and meet our SBTi targets, together with increasing market and regulatory pressure to reduce the carbon footprint of our products, we have implemented a comprehensive capital investment programme to reduce GHG emissions. Projects focus on energy efficiency, fuel switching to allow replacement of fossil fuels in our boilers with biomass and renewable energy projects. Many of these projects improve the efficiency of our manufacturing operations and allow for significant savings through fuel and power arbitrage opportunities.	US\$60 to US\$70 million (Estimated SBTi capital requirement p.a.)

Metrics and targets

The United National Sustainable Development Goals (UN SDGs) inspire us all to strive for a better future, setting out a roadmap for where we collectively need to go and how to get there. We have identified seven priority goals at global level – and a further two in South Africa – where we believe we can make the most impact and where we are concentrating our efforts.

We use a variety of metrics to measure the current and potential impact of our climate change-related risks and opportunities including metrics related to GHG emissions, water use, forestry certification and biodiversity. Direct GHG emissions are from our energy plants through combustion of fuels to generate the power required for our manufacturing operations (Scope 1). We also purchase power from the grid (Scope 2) and have indirect GHG emissions throughout the value chain, mainly as a result of our purchase of raw materials, fuel and transportation, which make up the majority of our Scope 3 emissions. We are acting across all three Scopes and working closely with our partners to reduce

GHG emissions for our business and our value chain. In 2022, our 2030 science-based decarbonisation targets, including a Scope 3 advocacy target, were approved by the SBTi. We remain committed to zero deforestation in our woodfibre supply chains and to maintaining carbon sinks in forestry through implementation of best forest management and silviculture practices.

Given the strategic importance of sustainability, the group's Executive Directors remuneration is linked to their contribution to the overall success of our **Thrive** strategy. Specifically, 6% of the short-term management incentive is directly linked to climate change through emission reduction, forestry certification and waste to landfill performance targets (MIS: sustainability = 30% of the 20% personal objectives). Additionally, in FY2023 we initiated a process to explore the inclusion of sustainability into the long-term incentives (PSP: proposal for 10% linked to performance against SBTi targets) and consultation with shareholders has so far been positive.
















For further details on our remuneration policy, see our 2023 Sappi Annual Integrated Report

www.sappi.com/annual-reports

Remuneration report on page 170.

Our performance against our global planet targets, which have an impact on climate change, is shown below.

FY2023 group performance against 2025 climate targets

	FY2023 snapshot of Thrive (2025) and SBTi targets	Sappi KPI	
Planet targets	 Clean water and sanitation	Specific process water usage (SSA)	
	 Renewable and clean energy	Share of renewable energy	
		Specific energy intensity	
	 Responsible consumption and production	Specific landfilled solid waste	
	 Climate action	Specific GHG emission	
	 Life on land	Share of certified fibre	
SBTi targets		Biodiversity (SSA)	
	 Climate action	Scope 1 and 2	
		Scope 3 engagement	

For more details on performance against planet targets see our 2023 Sappi Group Sustainability Report at www.sappi.com/2023GSDR

Global targets for FY2023 for specific total energy, share of renewable and clean energy, specific GHG emissions and specific waste to landfill were not achieved. The primary reason for the poor performance against our targets is the high levels of production curtailment that was required during the year which significantly reduced the efficiency of our operations. Unstable stop/start operating conditions require more energy and produce more waste on an intensity basis (per ton of product). Additionally, in Europe and North America energy efficiency during the winter months was particularly poor due to the requirement to keep certain lines and parts of the plants heated during periods of curtailment to prevent freezing. The waste to landfill was also impacted by a number of 'once-off' issues in all three regions. These included; Matane Mill instability in the anaerobic reactor in the water treatment system which required sludge disposal, Kirkniemi Mill decarbonisation project where some soil was removed from the site, Ngodwana Mill increase in sludge landfilled from the cleaning of emergency dams, Stanger Mill disposal of building rubble from the black liquor tank project.

Specific water usage is a SSA specific target. The target was not achieved due to incidences of unstable operating conditions and product quality challenges which required additional water usage as well as lower production volumes than planned for FY2023. The global certified fibre target >75% and biodiversity in Sappi Forests conservation areas was achieved.

The FY2023 Scope 1 and 2 emissions intensity of 0.94 tons CO₂/adt was substantially above our SBTi trajectory and is indicative of the very challenging year from a production curtailment and energy inefficiency perspective. Absolute Scope 1 and Scope 2 emissions were however below the prior year due to the lower operating rates. In terms of our engagement target for Scope 3 to have 44% of our suppliers by spend with science-based targets, globally we achieved 21% with each region achieving the following. SEU 25%, SNA 18%, SSA 15%. In FY2024 we will launch a focused Scope 3 engagement initiative through the efforts of our Sustainable Procurement Steering Committee with a targeted questionnaire to suppliers.

FY2023 GHG emissions data and five-year trend

	GRI reference	Unit	2019	2020	2021	2022	2023
Scope 1	305-1a	million kg CO ₂ eq/annum	4,421	4,078	4,269	4,079	3,474
	305-4	kg CO ₂ eq/adt	661.1	706.0	677.8	612.9	696.5
Biogenic emissions	305-1c	million kg CO ₂ eq/annum	7,074	6,803	6,622	6,877	6,730
Scope 2	305-2a	million kg CO ₂ eq/annum	1,553	1,207	1,161	1,333	1,234
	305-4	kg CO ₂ eq/adt	232.3	208.9	184.3	200.3	247.5
Scope 3	305-3a	million kg CO ₂ eq/annum	3,977	3,365	3,512	3,784	3,472
	305-4	kg CO ₂ eq/adt	594.7	582.6	557.7	568.7	695.9
Scope 1 and Scope 2 GHG emissions		million kg CO ₂ eq/annum	5,974	5,285	5,429	5,411	4,709
	305-4	kg CO ₂ eq/adt	893.3	914.9	862.1	813.2	944.0
		kg CO ₂ eq/US\$ million	1,039.7	1,146.7	1,031.4	741.7	810.7

Despite the poor emission performance in FY2023 we remain confident that the decarbonisation capital projects in our climate transition plan and a return to full operating rates will allow us to achieve our **Thrive** (2025) targets and SBTi (2030) target.

In 2023 we engaged KPMG to perform **limited assurance** on the following planet variables:

- Scope 1 and 2 GHG emissions
- Solid waste to landfill
- Certified fibre
- Water usage (SSA only).

Looking forward

A number of physical and transitional risks and opportunities have been identified related to climate change and we continue to monitor developments with respect to legislation, markets, technology and disclosure requirements.

Further climate-related scenario analysis for both physical and transitional impacts will be undertaken in FY2024. Risks, opportunities and financial impacts will continue to be refined.

We believe that we have the right strategy to address the risks and opportunities arising from climate change and will continuously enhance our scenario modelling to expand our thinking and ensure that our strategy and transition plan remains resilient.

