°CICERO Shades of Green

SCA
Green Bond Second Opinion

27 May 2021

Svenska Cellulosa Aktiebolaget SCA (publ) is a Swedish forest products company offering packaging paper, pulp, wood products, renewable energy, services for forest owners, and transport solutions. It is Europe's largest private forest owner with 2.6 million hectares in Sweden and it has recently acquired 40,000 ha in Estonia and Latvia. SCA's raw material – from own forests and purchased- is certified or verified via FSC and PEFC.

Eligible categories in SCA's green bond framework include forestry operations, renewable energy, energy efficiency and pollution prevention and control. Several of the categories are broadly worded and allow for general process upgrades. The company argues that upgrades and process investments will support positive climate outcomes, however it is not always clear a priori what the climate benefits of the individual investments will be. Both financing and refinancing is permitted, as are CAPEX and OPEX investments (although the intention is for OPEX to be limited to 5% of proceeds). The intention is that approx. 80% of proceeds from the first transaction will go towards investments in forestry holdings the Baltics.

The *bio economy* – whereby carbon-intensive building and other materials are replaced by wood - represents an important potential positive climate opportunity. SCA estimates that on an annual basis its products reduce emissions by 6.1 Mt CO_2. On the other hand, Swedish forests will be subject to physical climate risks in the form of increased likelihoods of fires and storms in the coming decades, which SCA's operations will have to build resilience to.

Sustainability is integrated into SCA's policies and its operations are largely fossil-fuel free. The issuer has strong corporate sustainability targets and initiatives in place, including time-bound (2030) targets of zero waste and 50% reduction in fossil fuel use in its value chain. The issuer's operations are currently 95 % fossil fuel free, but further emission cuts may be difficult to achieve as the main source of emissions is from transportation, most of which takes place via third parties.

SCA's policy context may change as views on the right type and the best use of forests evolve. There is an ongoing debate among forestry practitioners, scientists and NGOs about how well Sweden is meeting conservation goals and the right balance between production and conservation in forests.

Based on the overall assessment of the projects that will be financed under this framework, and governance and transparency considerations, SCA's green bond framework receives a **CICERO Dark Green** shading and a governance score of **Excellent**. To improve the framework, SCA could consider having its impact report externally verified, increase its engagement with initiatives such as the SBTi and TCFD, and improving conservation and biodiversity measures in its forest holdings further.

SHADES OF GREEN

Based on our review, we rate the SCA's green bond framework **CICERO Dark Green.**

Included in the overall shading is an assessment of the governance structure of the green bond framework. CICERO Shades of Green finds the governance procedures in SCA's framework to be **Excellent.**

GREEN BOND PRINCIPLES

Based on this review, this Framework is found in alignment with the principles.

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1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated May 2021**.** This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

Expressing concerns with 'Shades of Green'

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

CICERO Shades of Green	Examples
Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.	Wind energy projects with a strong governance structure that integrates environmental concerns
Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.	Bridging technologies such as plug-in hybrid buses
Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.	Efficiency investments for fossil fuel technologies where clean alternatives are not available

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

2 Brief description of SCA's green bond framework and related policies

Svenska Cellulosa Aktiebolaget SCA (publ) is a Swedish forest products company offering packaging paper, pulp, wood products, renewable energy, services for forest owners, and transport solutions. It is Europe's largest private forest owner with 2.6 million hectares in Sweden and was established in 1929 through the founding of a holding company for a number of forest industry companies in northern Sweden. Today it also owns 40,000 ha in Estonia and Latvia. It was originally founded by ten independent forest companies comprising forests, sawmills, pulp mills and power generating assets. It was first listed on the Stockholm Stock Exchange in 1950 and has since undertaken several acquisitions and divestments.

SCA forest management is referred to as semi-natural forest which resemble natural forest at stand maturity. The company uses a combination of planting and natural regeneration, as well as various continuous tree cover models. Of the area harvested, roughly 90% is planted, and roughly 3% is managed with continuous tree cover. The remaining area is naturally regenerated only, using seed trees. In the planted area, roughly 30% of the future forest stand will consist of trees that are naturally regenerated, including a minimum share of 10% deciduous species.

SCA's business model is based on a fully integrated and utilised value chain: the lower part of the tree is processed in sawmills into solid wood products. The remainder becomes wood chips for pulp production and feedstock for a containerboard business. By-products from the sawmills include bark and sawdust - used to produce pellets for bioenergy, and tall oil and turpentine which are further refined into liquid biofuels and green chemicals. Finally, SCA's 2.6 million hectares of forest contain locations with favourable wind conditions, which are leased to power producers for renewable energy production.

SCA's turnover in 2020 was SEK 18.4bn (€1.8bn), with a predominantly international customer base (Europe, North Africa, USA). The turnover was distributed as follows: Forests (26%); Wood (25%); Paper (31%), and; Pulp (18%). It has around 4,200 employees.

Environmental Strategies and Policies

Emissions: The company monitors its GHG emissions and sequestration and in 2020 calculated its net climate benefit to be 9.6 million tonnes CO_2eq. According to SCA, its (growing) forest captures a net 4.4 million tonnes (Mt) CO_2 per year. It also claims that, together with the customers in the value chain, its products – through substitution of fossil-intensive material – reduce an additional 6.1 Mt CO_2 per year. The company is seeking to eliminate its fossil fuel emissions, however it still has some 0.9 million tonnes in emissions, mainly from transport (around 50% of total emissions). It is worth noting that emissions from SCA's industries have halved since 2010 and industrial processes are currently 95% fossil-free – mainly achieved through energy efficiency measures and a transition to biofuels. Some 35% of fossil emissions in the value chain are from own operations and from purchased electricity while about 65% are from sources outside the company's facilities.

The company carries out Life-cycle analysis of its products. According to its 2020 Annual Report, calculations show that SCA's wood-based products have a small carbon footprint compared to its carbon-intensive alternatives and that the company's greatest climate effect is achieved by using SCA's products to replace other products with a larger carbon footprint.

Sustainability targets: SCA has set group targets to be achieved by 2030. They include increasing its net climate benefit to 15 Mt CO_2 per year and halving fossil fuel emissions in the value chain. According to the company, these targets are aligned with science-based targets and the Paris Agreement's 1.5-degree target. The goals are to be achieved by net growth in forests, renewable product volume growth, reductions in fossil fuel use and renewable energy generation.

Energy: SCA produced 10.8 TWh of bioenergy in 2020 (wood residuals). Of this, 9.1 TWh was used in SCA's own plants and 1.7 TWh was delivered to external customers. The remainder of SCA's energy needs are covered through co-generation and by purchasing from the Swedish grid (largely fossil-free). The company has set as a long-term goal to manufacture 260,000 m^3 liquid biofuel from forest by-products (which the company claims is the volume corresponding to all fuel used in domestic flights in Sweden).

Transportation: Most of SCA's finished product transportation is via ships. Pulp and solid-wood products are transported using bulk carriers and containers and shipped to destinations in Sweden and Europe (and beyond). Raw material transportation usually start with trucks, operated by contractors. SCA seeks to reduce transport emissions through energy-efficiency measures, choice of fuel, eco-driving and tactical and operational optimization of the logistics system, including choice of transport mode, choice of transport route, larger vessels, load utilization, etc.

Certification: All of SCA's forest holdings are certified under Forest Stewardship Council (FSC®) and Programme for Endorsement and Forest Certification (PEFC™). Approximately 50% of its raw material comes from its own forests, the rest is procured – mainly from private forest owners in Northern Sweden. 96% of the wood fibre it uses is procured from Sweden, with the remaining from other Nordic countries (2%), the Baltic States (1%) and Poland, Scotland & Spain (1%). All wood raw material is certified in accordance with FSC® Chain of Custody and PEFC™ Chain of Custody standards, including the FSC Controlled Wood standard (less comprehensive and used for FSC Mix label). SCA encourages their suppliers to certify their forest management operations to the FSC and/or PEFC standards.

Biodiversity and conservation measures: SCA's forest operations integrate nature conservation measures in all forest management activities, by retaining buffer zones, groups of trees, dead wood and other measures. The company's ambition is to ensure its forests are at least as rich in biodiversity, nature experiences and raw material in the future as they are today. Some 50 Sami communities have customary right to herd reindeer on SCA's land and SCA consults with these communities based on the principle of Free, Prior and Informed Consent (FPIC).

SCA's sustainability policy applies for all operations (business areas, support units, group functions) within the SCA Group. In co-owned operations, SCA's representatives will advocate compliance with this policy. SCA has a Supplier Standard which applies to all its suppliers and covers social, environmental and governance aspects.

Climate risk is identified by SCA at the corporate level as an operational risk and is assessed annually through the company's aggregated risk analysis. The company recognises the uncertain impacts of global temperature rises on its forest holdings as well as production and supply routes. It points out that SCA's plants are located in areas with a plentiful supply of water from sources which are considered robust. The company has not joined the Task Force for Climate Related Financial Disclosures (TCFD) but has undertaken an assessment of its alignment with the four TCFD principles.

Reporting: SCA's 2020 Sustainability Report is an integrated part of the combined Annual Report. SCA prepares its report in accordance with GRI Standards, Core option.

The company created a Green Bond framework in 2014, on which CICERO provided a second-party opinion. It led to one issuance of 1.5 bn SEK, and was transferred to Essity in 2017 through a divestment.

Use of proceeds

An amount equal to the net proceeds of the Green Bonds will finance or refinance, in whole or in part, investments undertaken by SCA or its subsidiaries that promote the transition towards a low-carbon and environmentally sustainable society ("Green Projects"), in each case as determined by SCA in accordance with the Green Project categories defined in Table 1 of this SPO.

Both financing and refinancing is permitted under the Framework. New financing is defined as Green Projects financed after the bond has been issued, and refinancing is defined as Green Projects financed before the bond issuance. Both OPEX (however, not SCA salaries or admin) and CAPEX are eligible: Operating expenditures qualify for refinancing with a maximum three-year look-back period before the issuance year of the Green Bond, while CAPEX investments will qualify without a look-back period. The issuer has clarified that intention is for OPEX to be limited to 5% of proceeds.

The distribution between new financing and refinancing will be reported in SCA's annual Green Bond reporting.

Exclusions: green bond net proceeds will not be allocated to projects dedicated to fossil energy production, fossil fuel infrastructure, nuclear energy generation, weapons and defence, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco. Furthermore, SCA is not directly or indirectly involved in the following unacceptable activities in forestry operations:

a) Illegal logging or the trade in illegal wood or forest products
b) Violation of traditional and human rights
c) Destruction of high conservation values
d) Significant conversion of forests to plantations or non-forest use
e) Introduction of genetically modified organisms
f) Violation of any of the ILO Core Conventions

Selection

Selection of projects will follow SCA's standard decision-making process, which includes the evaluation of environmental, social, corporate governance and financial risks. Green Projects shall comply with the eligibility criteria defined under the Green Project Categories. The process of evaluating and selecting eligible Green Projects as well as the allocation of Green Bond proceeds to eligible Green Projects comprise the following steps:

i. Sustainability experts and representatives within SCA evaluate potential Green Projects, their compliance with the Green Project Categories, and their environmental benefits.
ii. A list of the potential Green Projects is presented to SCA's Sustainability Council ("SC"). The SC is solely responsible for the decision to acknowledge the project as green, in line with the Green Project Criteria. Green Projects will be marked as green in a dedicated "Green Register". A decision to allocate net proceeds will require a consensus decision by the SC. The decisions made by the SC will be documented and filed.

The Sustainability Council is chaired by the Chief Financial Officer and includes the following members at green financing discussions and decisions: Sustainability Director, Chief Financial Officer, Senior Vice President, Communications, Senior Vice President, Human Resources, Head of Business Control, and Group Treasurer.

The SC convenes 4 times a year or when otherwise considered necessary. For the avoidance of doubt, the SC holds the right to exclude any Green Project already funded by Green Bond net proceeds. If a Green Project is sold, or for other reasons loses its eligibility, funds will then follow the procedure under Management of Proceeds until reallocated to other eligible Green Projects.

Management of proceeds

SCA will use a Green Register to track the allocation of net proceeds from Green Bonds to Green Projects. The purpose of the Green Register is to ensure that Green Bond net proceeds only support the financing of Green Projects or to repay Green Bonds. An external auditor appointed by SCA will review the management of proceeds and the Green Register will form the basis for impact reporting.

Unallocated Green Bond net proceeds may temporarily be placed in the liquidity reserve and managed accordingly by SCA Treasury (deposits in Nordic banks). The target is for the proceeds to be fully allocated within 18 months.

Temporary holdings will not be placed in entities with a business plan focused on fossil energy production, nuclear energy generation, weapons and defence, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco.

Reporting

SCA will annually and until maturity of the Green Bond issued, provide investors with a report (Green Bond Report) describing the allocation of proceeds and the environmental impact of the Green Projects. The report will be made available on SCA's website together with this Green Bond Framework.

The allocation reporting will include the following information:

i. A summary of Green Bond developments
ii. The outstanding amount of Green Bonds issued
iii. The balance of the Green Projects in the Green Register (including any temporary investments and Green Bond repayments) and the available headroom in the value of the Green Projects (if any)
iv. The total proportion of Green Bond net proceeds used to finance new Green Projects and the proportion of Green Bond net proceeds used to refinance Green Projects (defined as Green Projects financed before the bond issuance)
v. The total aggregated proportion of Green Bond net proceeds used per Green Projects Category

The impact reporting aims to disclose the environmental impact of the Green Projects based on SCA's financing share of each project. The impact report will also disclose what environmental objectives the Green Projects contribute to. As SCA can finance a large number of smaller Green Projects in the same Project Category, impact reporting will, to some extent, be aggregated. The impact assessment is provided with the reservation that not all related data can be covered and that calculations therefore will be on a best effort basis. The impact assessment will, if applicable, be based on a list of Key Performance Indicators (KPIs) as presented in SCA's Framework and broken down by category.

SCA has assigned an independent verifier to provide an annual statement confirming that the proceeds from the Green Bond issuance have been allocated to projects in line with the Green Bond Framework.

3 Assessment of SCA's green bond framework and policies

The framework and procedures for SCA's green bond investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where SCA should be aware of potential macro-level impacts of investment projects.

Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in SCA's green bond framework, we rate the framework **CICERO Dark Green.**

Eligible projects under SCA's green bond framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green bonds aim to provide investors with certainty that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed and that the selection process should be "well defined".

The issuer has mapped each project category to the relevant Sustainable Development Goals, in accordance with guidance from ICMA. The issuer's intention is that for a first transaction, approx. 80% of proceeds will go towards the first category (Valuable Forests; and almost exclusively investments in forestry holdings the Baltics), 10 % towards Fossil Free World, and 10% Efficient Use of Resources.

GBP category	SCA Category	Eligible project types	Green Shading and some concerns
Environmentally sustainable management of living natural resources and land use	**Valuable Forests**	The financing or refinancing of the ownership, acquisition, tree nurseries and responsible forest management, as well as related research and development programmes, all of which must provide impactful climate and environmental benefits. SCA notes that acquisition of a forest holding company may include other activities out of scope to SCA, such as farmland. SCA is likely to divest such additional assets. For the avoidance of doubt, only the value of Green	**Dark Green** ✓ SCA's forestry operations follow a practice whereby more trees are replanted than are harvested, resulting in net growth of their forests. SCA's forestry combines planting and natural regeneration. ✓ Forests have many valuable features, and as in the case of SCA can be used to manufacture products

Projects (as defined in this framework) within the acquired company can be eligible for Green Bond financing		which displace fossil fuel-intensive materials (e.g., wood replacing cement in buildings).
• Forest land: forest land certified, or in the process of being certified in accordance with the Forest Stewardship Council (FSC®) standards and/or the Programme for the endorsement of Forest Certified (PEFC™).	✓	All of SCA-owned forests are certified according to FSC and PEFC and follow national or best-practice laws and guidelines. This is positive, but planted and semi-natural forests - such as the ones maintained by SCA– tend to be relatively poor in biodiversity and ecological benefits compared to original forests.
• Tree nurseries: High quality seedlings from SCA nurseries: With a total capacity of over 100 million seedlings per year, mainly pine, spruce and contorta pine. All seedlings planted in SCA forests come from our own nurseries. Roughly half of the annual production supply other forest owners.	✓	Forestry companies, including SCA, are from time to time subject to NGO campaigns for their role in reducing the original boreal forests of northern Sweden and partly replacing them with non-native tree species – even if their activities take place within the confines of the law.
• Forest management: - Silvicultural operations (e.g. soil preparation, planting, pre-commercial thinning). - Restoration of native forests and conservation of biodiversity. Expenditures attributable to responsible forest management may be aggregated over a look-back period equal to the last calendar year.	✓	Active forest management entails some fossil fuel emissions. However, the issuer has confirmed that investments in roads and (fossil fuel) vehicles will not qualify as eligible projects under this framework. The company is also monitoring its emissions and has set corporate reduction targets for its operations.
• Research and Development Investments in the development of working methods and technology for forest management, silviculture, and artificial intelligence such as remote sensing to improve forest management planning and avoid negative impact on environmental values.	✓	We understand that SCA seeks to improve the

			biodiversity footprint of its operations through e.g., voluntary set-asides and by using alternative harvest techniques (selective cutting and shelterwood as well as measures to recreate habitats) In 2020, SCA introduced a new approach to increase the precision of its biodiversity conservation measures, based on the Swedish Red List of species ✓ Climate risks which affect boreal forests and which investors should be aware of include forest fires, storms, and pests
Eco-efficient and/or circular economy adapted products, production technologies and processes **Energy efficiency** **Renewable energy** **Clean transportation**	**Fossil free world**	The financing or refinancing of projects that utilize renewable energy to significantly reduce or eliminate use of fossil fuels, and projects that increase substitution from fossil alternatives including the establishment, acquisition, expansion and upgrades/modifications of facilities, associated infrastructure and the production technologies related to the production of renewable products and renewable energy, as well as the financing or refinancing of investments into energy efficiency measures in relation to an existing asset or as a stand-alone investment and investments into zero emission vehicles and machinery • Renewable Products: - Production technologies and processes related to the production of renewable and biodegradable products using wood certified to FSC and/or PEFC forest management standards or procured in	**Medium-Dark Green** ✓ Investments include upgrades and maintenance of SCA's standard production plants (for wood, pulp, and paper) ✓ For energy efficiency measures to qualify, the issuer has defined a threshold of 30% improvement. The use of thresholds is positive, and the level of 30% is in line with IEA recommendations for efficiency measures related to e.g. buildings. ✓ Replacing fossil-based machinery with battery/electric- powered machinery is a positive climate contribution, especially in the Nordic countries where the grid is majority fossil-free based.

accordance with the FSC Controlled Wood standard and contribute to increased substitution of fossil-based materials. - R&D related to renewable and biodegradable products as well as processes, and technologies with the purpose of replacing fossil-based and other non-renewable materials with bio-based alternatives.	✓ Pulp and paper manufacturing can have significant environmental impacts through pulping and bleaching processes. Some pollutants are released to the air, others are discharged to the wastewaters, and solid wastes are also generated. However, all of SCA's production sites require an environmental permit, which regulates emissions and effluents according to Swedish law.
• Renewable Energy - Converting to renewable energy, replacing fossil fuels, for process related energy needs - Renewable electricity production, such as turbines for co-generation from excess heat in the industrial process - Infrastructure to deliver surplus heat from the company's plants and facilities as district heating to local municipalities - Energy and fuels from forest operations and industry by-products that are not suitable for use as fresh fibre - Investing in wind or solar-based energy production	✓ Infrastructure investments are limited to those supporting SCA's surplus heat only, and 'conversion to renewable energy' implies using pellets and biofuel from the company's own (waste-based) production. ✓ Waste-based energy can be an efficient way of utilising waste which has no other purpose, but one should be mindful of robustly implementing a waste mitigation hierarchy approach to avoid the diversion of wood/biomass from other productive purposes
• Energy Efficiency: - Energy efficiency in production lines and operations, such as heat recovery and exchange systems, frequency converters, upgrading production units. Investments should	✓ Energy efficiency investments do not risk lock-in of fossil fuels as SCA's processes are 95% fossil free (and with the intention of moving to 100%).

		improve energy efficiency in the respective area by at least 30 percent, while minimizing long-term negative climate impact and potential rebound effects as well as negative climate impact from technology used. - Reducing absolute use of energy through investments in research and new replacement technologies. • Clean Transportation - Zero-emission vehicles (hydrogen/electric). - Battery-electric machinery and equipment used at production sites or in the forest logistics.	
Pollution prevention and control **Sustainable water and wastewater management**	**Efficient Use of Resources**	The financing or refinancing of solutions contributing to the reduction and reuse of waste, in addition to management and improvement of wastewater treatment facilities, associated infrastructure, and water efficiency measures. This financing can take place in the form of expansion or upgrades of existing solutions, or in new process development if a material increase in resource circularity is ensured. • Circularity: - Waste management systems and technologies contributing to an efficient management of waste, for the purpose of reducing, recycling and reuse all types of waste generated through SCA's processes and products. R&D related to	**Medium-Dark Green** ✓ The eligibility criteria require *a material increase in resource circularity* but fall short of requiring quantitative targets or specific technologies (which could provide guidance on the likely impact) ✓ SCA's wastewater treatment facilities, which can be energy intensive, run on (biomass) energy produced in-house

	renewable and biodegradable products, and processes and technologies to replace fossil-based and other non-renewable materials with bio-based alternatives. - Projects for better waste management supporting pollution prevention such as reduction of discharges of pollutants into water or air. - Soil remediation and removal and re-placement of harmful substances in products and materials.
• Wastewater Management:	- Wastewater treatment facilities and technologies. - Protection of freshwater sources, such as measures to secure groundwater levels and to prevent the discharging of pollutants into water and land. - Improvement of water-use efficiency, such as re-use of water and to reduce leakage.

Table 1. Eligible project categories

Background

Forests and land use represent important opportunities for reducing greenhouse gas emissions and sequestering carbon to counterbalance emissions from other sources. They also provide a source for adaptation and resilience through their provision of ecosystem and regulating services as well as preventing and reducing land degradation and maintaining land productivity. In addition, sustainable forestry provides raw materials and goods, such as biofuels and building materials for the low carbon economy. However, for forests to be a positive contribution to the environment and climate they have to be managed sustainably. Generally speaking, this means that if trees are harvested new ones should be replanted, that species should be suitable for the climate in which they grow (native) and that the rights of the people who live in or near forests should be respected. Forests are also exposed to the threats of climate change due to changes in weather patterns, and pest and disease outbreaks.

International standards such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) are often used as guidelines to ensure responsible management by covering both environmental and social impacts, such as biodiversity, water and soil, pollution, waste and GHG emissions, as well as community relations and workers' rights. WWF's certification assessment tool (CAT) evaluates the relative strengths of different forest certifications and has concluded that FSC is currently the most credible certification and performs stronger on both the environmental and social fronts[1]. However, in some contexts, both certifications have been seen to lack stringency related to tracing, pollution, waste and GHG emissions criteria[2].

Investors should be aware that the environmental and social impact of forestry operations is highly location-specific. The commercial harvesting of forests in Nordic climates (boreal) is different from temperate or tropical forests in terms of climate impacts as well as the vulnerability of native species and issues related to the rights of indigenous peoples. The national regulatory framework and enforcement levels also vary, with important implications for how sustainably forest companies operate. Broadly speaking, Sweden and other Nordic countries can be considered low-risk from a sustainability perspective. This being said, there have been recent controversies over the replacement of Sweden's boreal forests with planted forests and the impact this is having on biodiversity and indigenous peoples.

Since the early 1900s, legislation, national policies and a long-standing partnership between landowners, corporations and the state have ensured that harvested stands in Sweden are regenerated and forest resources restored. As a result, forest growth, the standing stock, as well as timber harvests have all doubled over the past century. National forest policy in Sweden stipulates equal weights between production and environmental goals since introduction of the current Forestry Act in 1994. However, there is still a debate among forest scientists as well as NGOs about how well Sweden is meeting conservation goals and the right balance between production and conservation.

Globally, the option of replacing carbon-intensive building and other materials with wood is gaining popularity in the construction industry and other actors in the *bio economy* and represents an important potential positive climate contribution by forest owners and wood product manufacturers.

Global demand for paper and paperboard demand is expected to continue rising to 2030, despite the decline in printing paper requirements, due to the increased need for packaging and sanitary paper. The production of pulp & paper is energy intensive and according to the IEA raising the energy efficiency of pulp and paper production is one of the key strategies to decarbonise the sector[3]. Additionally, the pulp and paper industry is a major source of pollutants and requires high volumes of water. The wastewaters generated from the pulp and paper industry have high concentrations of chemicals, toxic pollutants, and have high organic content. SCA's Swedish location, however, means that environmental risks in the form of the stringency of permits, enforcement and the energy source (almost fossil-free) related to their pulp operations can be seen as low.

EU Taxonomy

The European Union has published a taxonomy to classify sustainable activities. The Delegated Acts were agreed in April 2021 and will apply from 1 January 2022. They contain implementation guidance for companies and financial institutions – including technical criteria for a range of sectors. The Taxonomy includes a number of principles including a "do-no-harm clause" and safety thresholds for various types of activities. Do-No-Significant-Harm criteria include measures such as ensuring resistance and resilience to extreme weather events,

[1] Source : https://wwf.panda.org/?246871/WWF-Forest-Certification-Assessment-Tool-CAT
[2] See e.g. WWF Certification Assessment Tool V3: Forest Stewardship Council (FSC) and PEFC and https://preferredbynature.org/newsroom/ngos-pefc-fails-deliver-key-values
[3] Source: https://www.iea.org/reports/pulp-and-paper

preventing excessive water consumption from inefficient water appliances, ensuring recycling and reuse of construction and demolition waste and limiting pollution and chemical contamination of the local environment.

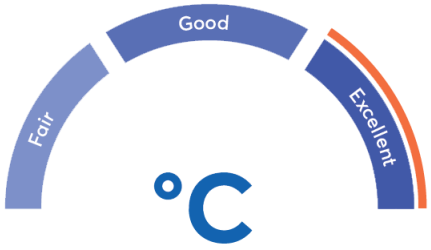
Relevant criteria and thresholds exist for several of the categories included in SCA's green bond framework, including renewable energy and forest management. We understand that SCA is monitoring the development of the Taxonomy and that it will present its assessment of alignment on an ongoing basis on the company's website.

Governance Assessment

Four aspects are studied when assessing the SCA's governance procedures: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Sustainability is clearly an integral part of SCA's policies and operations. It has made efforts to estimate the entire scope of its GHG emissions and sequestration capacity, including the substitution effect of its products. Climate risks are identified at the corporate level and assessed and mitigated through relevant measures. SCA's green bond framework is robust and includes impact reporting which is largely quantitative, well thought through, and relevant. There will be transparency on the reporting methodologies including on the calculation of the substitution effect of SCA's renewable and biodegradable products.

SCA has previously issued a green bond (2014 framework) and although much of the experience from this issuance left the company through a recent divestment, it had been noted that allocation of proceeds from that bond was slow and that this is an aspect the company intends to improve on with the current framework. Learning from previous green finance experiences is an important aspect of a company's sustainability journey and we encourage SCA to continue and strengthen the learning aspect.



The overall assessment of SCA's governance structure and processes gives it a rating of **Excellent.**

Strengths

The issuer has strong corporate sustainability targets and initiatives in place, including time-bound targets (2030) of zero waste and 50% reduction in fossil fuel use in its value chain. It has recently embarked on an initiative aiming to improve precision in biodiversity conservation measures on the 2.6 million hectares of corporately owned land. Climate risk is assessed annually and will include climate scenario analysis going forward.

SCA's business model is based on a fully integrated and utilised value chain: the lower part of the tree is processed in sawmills into solid wood products. The remainder becomes wood chips for pulp production and feedstock for a containerboard business. Such an approach is resource efficient and positive for the environment.

The total GHG impact of forestry include the effects of the growing forests, emissions in operations and the supply chain, and the avoided emissions from replacing fossil-intensive materials with wood. The latter 'substitution effect' is a potentially globally significant technology shift (e.g. replacing cement with wood material in buildings),

and SCA has made an effort to calculate it for its own operations (using external peer-reviewed research[4]) and to transparently provide an estimate of it in its GHG inventory reporting.

Weaknesses

We find no material weaknesses in SCA's green bond framework.

Pitfalls

Whether boreal forests should be used for productive purposes (of, e.g., wood-based products) or for conservation purposes – and the balance between these two - is part of an ongoing debate in Sweden and elsewhere. The regulatory environment of SCA may change in response to policy changes and further pressure may be expected from civil society. We encourage SCA to continue to stay attuned to the risk of regulatory changes and developments in scientific and public opinion and to adjust their plans and policies accordingly.

Although SCA is aiming to lower fossil-fuel emissions from its supply chain, a significant share of these occurs via external partners. SCA's ability to control these emissions is therefore limited by its ability to influence its partners.

Some of the Framework's eligible categories are wide-ranging and their criteria vague. The eligibility criteria states that the investments *must provide impactful climate and environmental benefits* but the extent of these effects are not known a priori. This creates a problem when it comes to assessing the climate impacts, although that will be possible once concrete projects have been selected. A good climate impact cannot be guaranteed on the basis of the criteria alone, but will need trust in the governance framework and impact reporting of SCA.

Rebound effects: These can occur when GHG reductions result in a net increase in emitting activities. For example, energy efficiency improvements that lower energy costs may induce more energy use and partially offset the initial energy savings. This can have the end result of lower reduction in GHG emissions than anticipated. While these effects can never be entirely avoided, it is recommended to be aware of possible rebound effects and avoid investing in projects where the risk of such effects is particularly high.

[4] See: https://www.sca.com/globalassets/sca/hallbarhet/klimatnytta/rapport.pdf

Appendix 1:
Referenced Documents List

Document Number	Document Name	Description
1	SCA Green Bond Framework May 26th 2021 v12	Green Bond Framework
2	SCA Annual report 2020	
3	Sustainability Policy (2014)	
4	Delivering-biodiversity-conservation-v2021-03-16	SCA's biodiversity conservation strategy from March 2021.
5	Health and Safety Policy	
6	SCA Supplier Standard	
7	Instruction for sourcing of wood raw material	
8	Reporting the overall climate impact of a forestry corporation the case of SCA	
9	SCA Scope 1 2 3 - Detailed breakdown	

°CICERO
Shades of
Green

Appendix 2:
About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD).