C0. Introduction

C0.1

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

Smurfit Kappa Group plc and its subsidiaries (together 'SKG' or 'the Group'), a FTSE 100 company, is one of the leading providers of sustainable packaging solutions in the world, with approximately 46,000 employees in 350 production sites across 35 countries and with revenue of €8.5 billion in 2020 of products, with operations in Europe, Latin America, the United States and Canada.

In 2020, the Group's Europe and Americas regions accounted for approximately 75% and 25% of revenue respectively.

The Group owns 34 mills (29 of which produce containerboard), 242 converting plants (most of which convert containerboard into corrugated boxes), 44 recovered fibre facilities and two wood procurement operations (which together provide raw material for our mills) and 34 other production facilities carrying out other related activities. The Group owns approximately 67,000 hectares of forest plantations in Latin America and 500 hectares in France and Spain.

What we do:

Our core activity is to produce paper-based packaging solutions for our 65,000 customers. We are involved in all stages of our supply chain: we collect and purchase waste paper and we grow and purchase wood both to supply the fibrous raw material our paper mills need to produce a full range of packaging papers. Most of this paper is converted by our corrugated converting plants into corrugated containers which we then deliver to our customers. The Group operates in 23 countries in Europe and is the European leader in corrugated packaging, containerboard and solidboard with key positions in several other packaging and paper market segments. We also have three bag-in-box facilities, located in Argentina, Canada and Mexico, which are managed as part of our European bag-in- box operations. The Group operates in 12 countries in the Americas and is the largest pan-regional producer of containerboard and corrugated containers in Latin America.

In Europe our business is highly integrated and includes a system of mills and plants that primarily produces a full line of containerboard that is converted into corrugated containers. In addition to other types of paper, such as solidboard and sack kraftpaper, and paper-based packaging, such as solidboard packaging and folding cartons, this segment includes the Group's bag-in-box operations.

In 2020, we delivered 6.7 million tonnes (13 billion m2) of corrugated packaging to our customers, using most of the 7.0 million tonnes of containerboard produced within our own mill system. In terms of world market positions, the Group is one of the largest producer of corrugated packaging. Given the high degree of integration between the mills and its conversion plants, particularly in terms of containerboard, the Group's end customers are primarily in the corrugated packaging market, which uses the packaging for product protection and product merchandising purposes. The Group's large manufacturing footprint provides it with a competitive advantage because the corrugated packaging market is a localised market and corrugated box plants need to be close to customers (generally 300 kilometres or less) due to the relatively high cost of transporting the product. Approximately 60% of the Group's corrugated customers are in the fast moving consumer goods ('FMCG') sector, comprising food, beverage, and household consumables, the remainder being split across a wide range of different industries.

Our approach to sustainability:

Our end-to-end approach to sustainability is about considering, understanding and promoting sustainability at every step of the value chain. We use sustainability as a lens through which to focus our innovation, our strategy and our processes. The transparency and detail we offer our stakeholders is industry leading. With our pro-active team we use our extensive experience and expertise, supported by our scale, to open up opportunities for our customers. We collaborate with forward thinking customers by sharing superior product knowledge, market understanding and insights in packaging trends to ensure business success in their markets. We have an unrivalled portfolio of paper-packaging solutions, which is constantly updated with our market-leading innovations. This is enhanced through the benefits of our integration, with optimal paper design, logistics, timeliness of service, and our packaging plants sourcing most of their raw materials from our own paper mills. Our paper-based products improve the environmental footprint of our customers as their raw material is 100% renewable and the products itself are 100% recyclable.

Recognitions:

We are listed and participate in many investor ratings and disclosure programmes, like FTSE4Good, Euronext Vigeo Europe 120, STOXX Global ESG Leaders, Ethibel, the Green Economy Mark, SEDEX, and are included in the Solactive ISS ESG Beyond Plastic Waste Index in 2020. Early 2021, we received a five star recognition from Support the Goals, the first FTESE100 company to do so.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2020	December 31 2020	No	<Not Applicable>

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

Argentina
Austria
Belgium
Brazil
Bulgaria
Canada
Chile
Colombia
Costa Rica
Czechia
Denmark
Dominican Republic
Ecuador
El Salvador
France
Germany
Greece
Ireland
Italy
Latvia
Lithuania
Mexico
Netherlands
Nicaragua
Norway
Poland
Portugal
Russian Federation
Serbia
Slovakia
Spain
Sweden
Switzerland
United Kingdom of Great Britain and Northern Ireland
United States of America

C0.4

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

EUR

C0.5

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

Financial control

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

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

	Relevance
Agriculture/Forestry	Both own land and elsewhere in the value chain [Agriculture/Forestry only]
Processing/Manufacturing	Both direct operations and elsewhere in the value chain [Processing/manufacturing/Distribution only]
Distribution	Both direct operations and elsewhere in the value chain [Processing/manufacturing/Distribution only]
Consumption	No

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

(C-AC0.6g/C-FB0.6g/C-PF0.6g) Why are emissions from the consumption of your products not relevant to your current CDP climate change disclosure?

Row 1

Primary reason

Other, please specify (Not in the scope of my organisation)

Please explain

Smurfit Kappa Group produces packaging solutions to its customers in a business to business environment. Even though part of our services to customers is to help them reduce their product supply and value chain emissions, we can only base our information on assumptions on customer and consumer behaviour. In our services we do use computing tools that include latest available information on multiple factors in the supply chain and we are very much capable to estimate impacts of our products. Still, the decision making power on our packaging services in the customer value chain is with the customer. A packaging product is not a service such as machinery where this type of data collection would be currently possible.

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

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

Agricultural commodity

Timber

% of revenue dependent on this agricultural commodity

20-40%

Produced or sourced

Both

Please explain

SKG produces paper from virgin and recycled fibers. The virgin paper fibers cover +/- 25% of our raw material sourcing globally. Our forestry and plantations represent less than 0.5% of our assets. We source all our fibrous raw materials sustainably as Chain of Custody Certified, including our recycled fibres. 100% of the wood we use to produce virgin paper or pulp comes, at least, from sustainable non-controversial origin, risk assessed through our FSC and PEFC Chain of Custody system and verified by a third party (FSC Controlled Wood status). 58% of this wood is also from sustainably managed forests certified under the FSC, PEFC and/or SFI schemes. 16% of the wood we use originates from our own forests and plantations.

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
Director on board	Smurfit Kappa board has an overall responsibility for ensuring the Group demonstrates leadership within the paper-based packaging sector, promoting an actionable sustainable development agenda. Climate change related decision making is part of this overall responsibility of steering of the Group strategy. The Group CEO reports to the board and its members on any climate change related issues and those are discussed in minimum three times a year. An example of the Board level decision made on climate change are the updated sustainability commitments, set out the Group's most ambitious target to date when announced a goal to achieve at least Net Zero CO2 emissions by 2050, earlier in 2020. One of the updated commitments was to align the SKG climate change target to the Paris Agreement for the EU, the ambition is to have Net Zero emissions by 2050 and to reduce CO2 emissions by 55% by 2030. The Board agreed that Smurfit Kappa will validate its climate change target by the Science Based Target initiative (SBTi). Also the Board has agreed that Smurfit Kappa supports the recommendations of the Task Force for Climate –related Financial Disclosures (TCFD).
Chief Executive Officer (CEO)	The Group CEO is directly responsible for actions governing climate change. The Group CEO is also a director of the SKG Board and lead the Group Executive Committee. An example of the decisions made by the CEO on climate change is the introduction of the updated sustainability commitments for the SKG Board to approve. One of the updated commitments was to align the SKG climate change target to the Paris Agreement for the EU, the ambition is to have Net Zero emissions by 2050 and to reduce CO2 emissions by 55% by 2030. More recently has the CEO decided that Smurfit Kappa will validate its climate change target by the Science Based Target initiative (SBTi). Also the CEO has decided that Smurfit Kappa supports the recommendations of the Task Force for Climate –related Financial Disclosures (TCFD).
Board-level committee	In 2019, the Board reviewed the Group's sustainability and corporate social responsibility objectives and decided to establish a permanent sub-committee of the Board with responsibility for Sustainability. The purpose of the Committee is to provide direction and oversight of SKG's sustainability strategy for the benefit of all of the Group's stakeholders. The Board Sustainability Committee has the responsibility for the direction and overall strategic guidance of the Smurfit Kappa Group Sustainability strategy which is based on three key strategic sustainability and corporate responsibility pillars ('the "Pillars'); People; Planet and Impactful Business and to have particular regard to the alignment of the Group's sustainability strategy with global best practice. The Committee is currently comprised of four non-executive Directors. The Committee was established during 2019 and in 2020 it met five times. Part of their responsibility is to drive and provide overall strategic guidance on climate change related issues. The Committee, in its first full year, had an active and productive year with the Group completing many developments in its sustainability agenda. An example of the Board-level committee's decisions is to build a strategic work plan for the committee including climate change in 2019-2020. The Group announced ambitious new sustainability targets as part of 'Better Planet 2050' which were approved by the Committee and the Board, focusing on a further reduction of the environmental footprint, increased support for the communities in which SKG operates and further enhancement to the lives of the employees. More recently has the Committee decided and proposed to the main Board that Smurfit Kappa will validate its intermediate 2030 CO2 reduction target validated by the Science Based Target initiative ('SBTi') as being in line with the objectives of the Paris Agreement. Also the Committee has decided and proposed to the main Board that Smurfit Kappa supports the recommendations of the TCFD, and have included the first disclosure relating to this in the Sustainable Development Report 2020.
Chief Sustainability Officer (CSO)	The Chief Sustainability Officer is a member of the SK Group Executive Committee and responsible for Smurfit Kappa's overall sustainability strategy and its implementation. This includes climate change related issues.
Other, please specify (Executive Sustainability Committee)	The Executive Sustainability Committee consists of a key, relevant number of Group Executive Committee members that have responsibilities that are directly connected to sustainability issues, ensures that the sustainability strategy is driven throughout the business and reports to the Sustainability Committee of the Board. Climate change related issues will be governed by some of the members as part of their direct operational responsibilities.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Monitoring implementation and performance of objectives Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	Climate change related issues are part of many governance mechanisms. In Smurfit Kappa's case climate change related issues are focused on the reduction of fossil CO2 emissions. This can be achieved by using energy more efficiently, generating energy in a more efficient way and by investing in renewable energy. This is a strategic issue and part of operational review meetings, an element in certain major capital expenditure projects, an element in our overall corporate strategy and business plans of relevant units. It is also part of the CSR strategy and we have set a long term target related to climate change. When relevant it is part of acquisitions and divestitures. For the relevant managers it is also part of their performance objectives. The main Board of Smurfit Kappa Group receives three reports on climate-related issues, two interim reports at the end of Q1 and Q3 as well as the annual Sustainable Development Report.

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Sustainability committee	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Sustainability committee	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Other C-Suite Officer, please specify	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

C1.2a

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

Responsibility 1: Highest level: The SKG Board has a responsibility to oversee all Group activities. The Board has therefore been assigned to oversee all sustainability/climate change related issues. As a member of the board, the Group CEO reports to the board on the climate change related issue assessment and monitoring.

Responsibility 2: Board-level committee: During the year, we formed a Board Sustainability Committee (BSC), which has the responsibility to drive and provide overall strategic guidance of our sustainability strategy for the benefit of all our stakeholders. The sustainability strategy will focus on the three key pillars: People; Planet; and Business. Due to this role advising the Board, BSC is responsible for monitoring and assessing the climate related issues.

Responsibility 3: Executive committee level: In addition, the development and implementation of the Group's sustainability strategy, objectives and policies are managed by the Group Executive Committee led by the Group CEO. The Group Executive Committee prepares for the Board Sustainability Committee and is therefore assigned to assess and monitor climate change related issues.

Responsibility 4: C-suite level level: The Group has assigned the Group Vice President Development as a member of the Group Excom to function as Chief Sustainability Officer (CSO). In this role, the CSO is responsible for coordinating Group sustainability strategies, including assessing climate change, target setting and reporting against the targets publicly and to the Group CEO and the Group Excom.

Responsibility 5: Management level: The Sustainability Working group consists of relevant representatives from operations and the Group's head office, with different expertise areas in sustainability. This group is responsible for ensuring that targets are met across all material areas, supporting Group operations in assessing and managing sustainability/climate change strategies, collecting and analysing data from the operations to the Group Excom, it also promotes sustainability targets among our customers and suppliers and it is led by the CSO. The members of this working group coordinate sustainability roles in operations who are responsible for local implementation.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

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

Entitled to incentive	Type of incentive	Activity inventivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction target	Success in achieving the Group's targets on sustainability/climate change related targets is part of the CEO's personal goal and annual KPIs that he reports to the Group Board. (Smurfit Kappa Annual Report 2020, p 88)
Chief Sustainability Officer (CSO)	Monetary reward	Emissions reduction target	Sustainability and climate change related targets are part of the personal KPI's measures for the CSO, as part of the annual bonus system.
Energy manager	Monetary reward	Energy reduction project	Sustainability and climate change related projects are part of the personal KPI measures for Energy managers, as part of the annual bonus system.

C2. Risks and opportunities

C2.1

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

C2.1a

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

	From (years)	To (years)	Comment
Short-term	0	3	Typical capex pay-back time in SK and short term time frame for climate change risks and opportunities.
Medium-term	3	10	Pay-back time for a strategic capex investment in SK, and medium-term for climate change risks and opportunities.
Long-term	10	30	This is linked to long-term investment time horizon. For example investment in paper manufacturing machinery is expected to be valid for some 30 years. It is the long-term time frame for climate change risks and opportunities.

C2.1b

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

Smurfit Kappa Group defines substantive impact as significant financial, strategic or reputational damage that forces us to change our business strategy significantly either locally or as a Group. This definition applies to both our direct operations and our supply chain. The Group's risk process is based upon a standardised approach to risk identification, assessment and review with a clear focus on mitigating factors and assignment of responsibility to risk owners. Each individual risk identified is assessed based upon potential impact and likelihood of occurrence criteria. The likelihood of occurrence categories are based upon the probability of the risk occurring using percentage thresholds from remote up to probable. The impact of risk on cost is measured based upon applicable percentage thresholds of the Group's pre-exceptional EBITDA which for 2020 was €1,510 million and reputational impact is also considered.

C2.2

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

Value chain stage(s) covered
Direct operations

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term
Medium-term

Description of process
Process: The Board has overall responsibility for the Group's system of risk management and internal control and for monitoring and reviewing its effectiveness, in order to safeguard shareholders' investments and the Group's assets. Such a system is designed to manage rather than eliminate the risk of failure to achieve business objectives and can therefore only provide reasonable and not absolute assurance against material misstatement or loss. The Board carries out a review of the effectiveness of the Group's risk management and internal control systems. Group executive management is responsible for implementing strategy and for the continued development of the Group's operations within parameters set down by the Board. Day-to-day management of the Group's operations is devolved to operational management within clearly defined authority limits and subject to timely reporting of financial performance. Management at all levels is responsible for internal control over the respective operations that have been delegated to them. As such, the system of internal control throughout the Group's operations ensures that the organisation is capable of responding quickly to evolving operational and business risks and that significant internal control issues, should they arise, are reported promptly to appropriate levels of management. Risks are identified and evaluated, and appropriate risk management strategies are implemented at each level. The key business risks are identified by the Executive Risk Committee. The Audit Committee and the Board in conjunction with senior management review the key business risks faced by the Group and determine the appropriate course of action to manage these risks. The Audit Committee is responsible for reviewing the effectiveness of the Group's system of internal control including risk management on behalf of the Board and reports to the Board on all significant matters. We also looked at emerging risk as part of our overall risk management processes. Climate change remains an emerging risk for the Group. Climate change has the potential to impact our business operations in a variety of ways. Changes in weather patterns resulting in more regular flooding or water shortages, or catastrophic events such as earthquakes could give rise to business interruptions in our operations and our supply chain and potentially increase the cost of raw materials like wood where access to forests is hampered or forests are made more vulnerable to pests and diseases due to unseasonable weather. Our risk management framework comprises: operational management, who have responsibility for identifying, managing and mitigating risk within their local operations on a day-to-day basis; Country/Cluster and Divisional management who are responsible for oversight and monitoring; and the Executive Risk Committee who are responsible for oversight together with the identification, management and mitigation of Group level risks. Group Internal Audit acts as an independent assurance provider over certain principal risks. The Group's risk register process is based upon a Group standardised approach to risk identification, assessment and review with a clear focus on mitigating factors and assignment of responsibility to risk owners. The risk registers incorporate risk profiling against Group defined risk categories which include; strategic, operational, environmental, legal, economic/political/market, technological and financial risks. Each individual risk identified is assessed based upon potential impact and likelihood of occurrence criteria. New or emerging risks are added to the risk registers. Divisional management is responsible

for reviewing the Country/Cluster risk registers and updating the Divisional risk registers accordingly, which are reviewed and approved by the Divisional risk committees. The Group risk register is updated to reflect any significant changes in the Divisional registers or Group level risks following consultation with the Group's subject matter experts. The Executive Risk Committee reviews and assesses the Group Risk Register and identifies the principal risks. The Group Risk Register is then reviewed by the Audit Committee and the Board. Formal risk reporting timetables and structures are in place across the Group and are adhered to by Country/Cluster, Divisional and Group senior management. The company keeps a risk register in which it describes its principal risks. Climate change risks are part of the risk register. Every six months the risk register is updated. Considered are the immediate risks and medium to long term risks. Climate change poses different risks and opportunities within the value chain. Risks vary from extreme weather affecting our sites, to increasing costs for the emission of CO2 and pressure on availability of raw materials. The circular economy is an opportunity for our business as we seek to use resources efficiently. We are also investing in technology to reduce our energy demands. Finally, we are improving resource and energy efficiency when producing paper products and optimising the use of raw material residual streams, such as black liquor, in bioenergy production. Application of the process, mitigation actions: Legislation and Regulation – Environmental. Risk Description: The Group is subject to a growing number of environmental laws and regulations, and the cost of compliance or the failure to comply with current and future laws and regulations may negatively affect the Group's business. Mitigation: • The Group's environmental and climate change policies ensure each site has a manager who is responsible for environmental issues including monitoring air, noise and water emissions and ensuring that the site is running within its permits. • All our paper and board mills are operated under an EMS (Environmental Management System) (ISO 14001). • We continuously invest in our operations, to ensure compliance with environmental legislation. • The Group has an IT reporting system in over 300 sites ensuring environmental data is reported on a regular basis. Mitigating Climate Change is the most pressing issue of our time and our strategy is to reduce fossil CO2 emissions throughout our value chain. As part of our Better Planet 2050 initiative, we announced our support to the recommendations of the TCFD and will have our intermediate CO2 reduction target validated by the SBTi. Between 2005 and 2020, we achieved a 37.3% reduction of relative CO2 emissions from our mills. Further progressing in energy efficiency is key in achieving our CO2 emission reduction targets. Since 2005 we have invested €850 million in more efficient energy generation, technologies that reduce the use of energy and technologies that recover energy. Smurfit Kappa Nettingsdorf, Austria, started its new recovery boiler in 2020 resulting in 19.6% CO2 savings per tonne of paper with a massive investment of €134 million.

Value chain stage(s) covered
Upstream

Risk management process
A specific climate-related risk management process

Frequency of assessment
Annually

Time horizon(s) covered
Short-term
Medium-term

Description of process
Process: Smurfit Kappa has a sustainable and responsible sourcing programme through which it audits its principal suppliers on a number of sustainability criteria. Climate change criteria are part of the audit programme. Evaluated is the climate change risk per supplier. The programme itself consists of seven sections. These are: quality, hygiene and safety, business continuity, operations, continual improvement, service and technical support and environmental sustainable development. Each one has a strong sustainability implication, namely: assessing supplier risks; focusing on relevant supplier processes (especially regarding business continuity); mitigating risks related to environmental, social and equality issues; respect the right to water sufficiency, safety, acceptability, accessibility, affordability and reducing waste by meeting food safety requirements. During our on-site audits, employees responsible for the areas of the seven sections are interviewed. Our approach to Sustainable and Responsible Sourcing goes beyond regulatory requirements. To deliver our commitments and those of our stakeholders, we have a set of sourcing policies, informed by the Smurfit Kappa Suppliers' Code of Conduct, Sustainable and Responsible Sourcing Policy, Sustainable Forestry and Fibre Sourcing Policy. Our Sustainable and Responsible Sourcing programme is founded on risk mapping against our key criteria, and Risk mapping considers the sourcing categories with the highest impact on our products, and therefore our stakeholders. We require our suppliers to participate in commonly accepted best practice and certification schemes. These include good non-financial reporting under the UN Global Compact, GRI Standards and CDP; reporting social data to SEDEX, and adhering to ISO 9001 quality management, ISO 14001 environmental management, ISO 50001 energy management systems, ISO 22001 hygiene management and OHSAS 18001/ISO 45001 on safety, ISO 46001 water efficiency management and HACCP, HALAL, BRC on food safety. Audits result in a rating against each of the seven sections of our Sustainable and Responsible Sourcing programme. If the result is below 'acceptable' (scoring less than 40%), an obligatory improvement programme is devised. Major non conformities need to be addressed within two weeks and resolved within six months. Minor non conformities need to be solved within 12 months during a surveillance audit. The supplier assessment is repeated every three years through a re-approval audit process. Application of the process, mitigation actions: Since launching our Sustainable and Responsible Sourcing programme in 2010, we have been auditing 354 of our suppliers to ensure they meet our standards. Including re-approval audits and follow-up of improvement plans 774 activities with suppliers have taken place. Our risk mapping, combined with supplier audit results, show that 81% of our suppliers of key materials audited in 2020 carry moderate to low risk. Our sourcing network includes suppliers ranging from small-scale local companies to large multinationals. Of the total of 46 activities in 2020, 23 of these were first-time audits, including on-site and off-line audits. 18% were conducted on strategic suppliers and 35% on suppliers of key materials. A total of 94% of all suppliers audited during 2020 scored at least mark 'acceptable' (2019: 87%), and the remaining will pass the audit once they complete improvement plans. Following the initial audit, we work with each supplier to identify continual improvement opportunities.

Value chain stage(s) covered
Upstream
Downstream

Risk management process
A specific climate-related risk management process

Frequency of assessment
Annually

Time horizon(s) covered
Short-term

Description of process
Smurfit Kappa performs together with many customers so-called Life Cycle Analyses for its products. In these LCAs we assess the life cycle impact of our own products and the impact of the customer's supply chain. Majority of these impacts measured are the climate change impacts. Using a suite of tools, including Paper to Box and Pack Expert, we work with customers to determine their packaging's carbon footprint. These tools provide CO2 emissions data and other information to optimise solutions. On average in 2020, Paper to Box was used almost 10,000 times per day and Pack Expert over 1,400 times per day. As we have achieved a 37.3% reduction of CO2 emissions, these tools help use this data for our customers' benefit. Our InnoTools suite of design software also shows customers the carbon footprint for each packaging unit and tracks its development over time.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	The relevance of current regulations in our climate related risk assessment is considered high as they impact our operations directly and have an immediate effect. Current regulations set the playing field to our operations and have a cost impact. This type of regulations can be for example, regulations on energy costs or the EU BAT BREF. An example of SKG specific risk is the national interpretation of the EU BAT BREF in Spain that had an impact to an investment in a lime kiln at one of our paper mills. The investment was due at the time of the new BREF impmelemtation and therefore we wanted to wait to ensure compliance. At the same time we were not certain of what level of investment it would mean and how a possible delay would affect our compliance.
Emerging regulation	Relevant, always included	The relevance of emerging regulations in our climate related risk assessment is considered high as they may impact our investments and the life-time of our assets which typically have been designed for long term use (up to 30 years). Emerging regulations can also impact the level playing field and may lead to unfair competitive advantage for companies that would not face such strict climate -positive regulations as our operations. This may lead to a strategic risk for the company and is therefore always considered when the business is growing. An example of an emerging regulation is the EU Green Deal and its translation into EU directives and EU Member States laws. There is a risk that the Directives governing this issue will not be translated equally into national laws and there is also the possibility that the EU Directives will place the European paper & packaging industry at a disadvantage compared to non-EU competition. Also EU Directives may put the EU paper& packaging at a competitive disadvantage compared to other packaging materials such as plastic.
Technology	Relevant, always included	The relevance of technology in our climate related risk assessment is considered moderately important as in paper manufacturing and converting operations, the life-time of assets is of long term, often calculated up to 30 years. Changing regulations may lead to adjustments in technology and this may require significant or moderately significant investments. Such examples can be the energy efficiency of a paper machine, however, the efficiency is obviously part of the efficient use of the machinery and therefore part of financial planning all the time. An example of SKG specific risk in technology is the national interpretation of the EU BAT BREF in Spain that had an impact to an investment in a lime kiln in one of our paper milsl. The investment was due at the time of the new BREF impmelemtation and therefore we wanted to wait to ensure compliance. If we had invested before understanding the BREF, we may have lost compliance to the legislation by choosing an unsuitable technology.
Legal	Not relevant, explanation provided	The relevance of legal risks in our climate related risk assessment, are considered very low and not relevant. We do not foresee any climate change-related legal disputes such as customer, supplier or investor seeking for compensations for climate actions.
Market	Relevant, always included	Market related risks in our climate related risk assessment is considered high as we face a demanding customer base that reacts quickly to the market and may substitute to competitor products. A competitor may achieve a lower price because their product is not as sustainably produced as our products. They may not be subject to the same regulations or standards. This has the potential to be a substantive financial risk to the company.
Reputation	Relevant, always included	The relevance of reputation at climate related risks in our risk assessment are always considered, as the reputation of a company of our size has an impact on both investments in the company as well as customer preference for their suppliers. We invest in sustainable business practices to enhance and protect our reputation.
Acute physical	Relevant, always included	The relevance of acute physical risks are measured as part of our local climate related risk assessment process. Our production sites have different climate-related risks that may occur and in each case the risk is separately considered. The most relevant acute risks are related to water availability for paper manufacturing, and are related to the local water source's vulnerability to climate change. In our risk assessment we evaluate individual sites based on their readiness to manage acute challenges and in climate change context these are mainly related to water shortages mainly in drought cases. At our Colombian and French forest plantations we also focus on the forest resilience to weather changes and more extreme weathers such as storms. In our raw material sourcing climate-related risks are managed through a sourcing system that doesn't only rely on one source and our fibre sourcing is based on both virgin and recycled fibres.
Chronic physical	Relevant, always included	The relevance of chronic physical climate change related risk is of high importance and part of each operational site's risk management plan. For example, looking into the TCFD definitions, changing weather patterns will impact the forest management with a long-term, chronic impact: storms (and flooding) may be sudden but their intensity is increasing with long-term and chronic impacts to forest management (a storm damage has an acute impact, but there will be a period after storm which makes the forests surrounding the damaged site more vulnerable for windfalls, forest diseases and insect invasion/damages) and therefore from forest management perspective, we consider these changes in weather patterns chronic and not acute. In our forest management operations in Europe, for example, an accelerated climate change driven storm damage readiness and resilience is now part of the forest management planning. Also, in our water risk assessments, we consider the impacts of flooding and drought to our sites. This belongs in our view to chronic physical risk category as we consider the likely repeating changes in weather patterns as chronic therefore not acute.

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms

Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Smurfit Kappa has an integrated business model in which our production process covers the sourcing of raw materials, production of paper and boards and converting these to corrugated packaging solutions. Making paper is energy intensive and because of this, unevenly placed emission pricing can lead to unsustainable growth of our operating costs. These costs can either occur through carbon taxes or emissions trading schemes that take place in only some regions and have a potential for carbon leakage to regions with no such regulations. At Smurfit Kappa, our operations in Europe are subjects of stricter regulations and higher energy costs than our operations in the Americas. This impact is already visible for our German and Italian paper mills.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
75000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
We are already subjected to carbon taxes in countries such as Germany and Italy. The EU ETS has a defense mechanism in place for carbon leakage risk industries, such as the paper industry, too. We have estimated the potential impact of the EU ETS cost, in case the carbon leakage mechanism is undone with a current estimated of 55€/tonne of CO2 eq, currently totalling around € 75 million , (55€ x 1360000tonne of CO2 eq)

Cost of response to risk
200000

Description of response and explanation of cost calculation
Smurfit Kappa manages the emission cost related risks in three ways: 1) Preparing for changes in the operational environment by investing in lower fossil CO2 emission technologies and driving resource efficiency (leading to reduced emissions) throughout its operations 2) Driving above mentioned changes through emission reduction target setting 3) Participating in trade association initiatives looking for shared industry targets in emission reductions, as well as initiatives vis-a-vis policy makers. We try to help them in understanding our industry so that the regulations support rather than establish bottlenecks for climate-positive development. We calculate the cost €200,000 of responding to the risk by estimating the share of the membership fees in associations where we are a member and that work to influence policies, the time spent working in collaboration with these associations and the time spent with the relevant R&D projects. Technological mitigation is part of our business strategy and thus not included.

Comment
As the technological mitigation of this risk is included in our businesses plans, this management cost only includes an estimated cost of manpower and participation in industry association and R and D projects

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Identifier
Risk 2

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

Risk type & Primary climate-related risk driver

Market	Increased cost of raw materials

Primary potential financial impact
Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
For Smurfit Kappa this risk consists of disruptions in pulp wood and recovered paper markets as well as in long term disruptions in agricultural commodity markets (such as starch). The drivers of this risk are substituted markets for energy wood, and extreme weather conditions leading to droughts and storms. There are incentives to substitute wood production for energy markets that impact wood for pulp markets and lead to competition and increased costs. Extreme weather conditions can lead in shorter term to situations where availability of virgin fibres is disrupted typically by storms. This can lead to unbalanced markets, raw material quality issues and over and under supply of raw material. In the long term the weather conditions can lead to moving vegetation /forest zones and therefore changes in tree species and production patterns. Droughts can have an impact to the global starch markets and availability issues, increasing costs.

Time horizon
Medium-term

Likelihood
About as likely as not

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
0

Potential financial impact figure – maximum (currency)
15000000

Explanation of financial impact figure
Smurfit Kappa's fibrous raw material sourcing consists of 25% virgin fibres and 75% recycled fibres. Our annual sourcing cost of raw materials and consumables is approximately € 3.0 bn. Assuming that due to climate change risks prices for 10% of our raw materials increase by 20% for a period of 3 months, the cost increase would be € 15 million (€300mx20%=€60m/year, € 15 million per 3 moths). In this example, it is assumed that sales prices cannot be changed.

Cost of response to risk

50000

Description of response and explanation of cost calculation
Smurfit Kappa manages this risk through being integrated backwards in its supply chain. Only 25% of our raw material is virgin fibres and 75% recycled fibres. This balances the raw material portfolio. Approximately 50% of our virgin wood requirements are supplied through our own plantations and forestry operations which gives us higher flexibility to adapt. We also manage 18 recovered paper depots in Europe and 26 in the Americas. Smurfit Kappa is also testing ways to utilise technologies that make it possible to convert starch from flour directly in paper machines. This technology enables us to use outdated flour in our production that can no longer be used for food purposes. The cost of €50,000 to respond to the risk is an estimate of how much we invest in technology R&D.

Comment
The overall cost of response is low as all of this is done in the normal course of business

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Identifier
Risk 3

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Chronic physical	Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact
Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
As a paper-based packaging producer, there is a public interest in how we source our wood raw material. Deforestation is climate change driven and a climate change causing phenomenon that has a negative impact on our products. We must constantly prove that our raw material is sourced sustainably. Smurfit Kappa has taken a leadership position in providing transparency to the fibrous raw materials and has developed a full chain of custody system throughout its operations to provide customer security on the origin of fibres. It is an opportunity, but also in Smurfit Kappa's scale a risk if the fibre origin cannot be proven to be sustainable.

Time horizon
Long-term

Likelihood
Exceptionally unlikely

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
0

Potential financial impact figure – maximum (currency)
100000000

Explanation of financial impact figure
Financial impact of this reputational risk is assumed to be with our largest, most environmentally aware customers who require action from their suppliers to mitigate any deforestation risk from their supply chain. The reputational risk may lead customers to be forced by public opinion switching to substituting products or suppliers in their supply chains. The financial impact is an estimate of the cost of losing these businesses long-term in a worst case scenario. It is estimated that 10% of this business can be affected for maximum 6-12 months. The occurrence of this risk is considered extremely unlikely as our entire system is certified chain of custody

Cost of response to risk
400000

Description of response and explanation of cost calculation
The most efficient management method to mitigate deforestation risk in our supply-chain are certified chain of custody management systems at all of our operating facilities, sourcing of certified and non-controversial fibres and the ability to sell products as chain of custody certified. Smurfit Kappa has invested in certified chain of custody managements system covering all operations across our regions, as well as certified forest management at our forest holdings and plantations. These investments include certification costs, efficient IT systems to support processes as well as education of our personnel. Part of the process is to require certified timber, pulp and paper deliveries from our suppliers. Smurfit Kappa produces and purchases 99.8% of its fibres through certified chain of custody management systems, over 90% of its paper production is certified and 93.8% of its products were sold as chain of custody certified at the end of 2020. Another way to mitigate this risk is efficient use of fibres. With 75% of fibrous raw material coming from recycled paper sources, Smurfit Kappa has a balanced approach to sustainable use and sourcing of fibres. We invest annually some €400,000 in our chain of custody system globally.

Comment
The management cost is estimated including personnel costs, management system and other certification costs and maintenance and establishment of supporting IT systems.

C2.4

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

C2.4a

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

Identifier
Opp1

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resilience

Primary climate-related opportunity driver
Other, please specify (Opening and keeping positions in tenders by large customers or potential customers who demand sustainable raw material)

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
Risk #3 also creates an opportunity for Smurfit Kappa. Due to multiple reasons, customers want to reduce their supply chain risk on deforestation through demanding sustainably sourced fibres. At Smurfit Kappa, we have invested in fully covering certified chain of custody management systems. We offer industry leading coverage at our forestry and plantation level, with certified forest management resulting in a certified product offering. This investment is a key to efficiently communicate our commitment to halt deforestation in the impact area of our industry. We have extended our certification programme to cover all fibrous raw materials and all products, and at the end of 2020, we were the leading company offering certified products to our customers with 93.8% of our products sold as certified.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
0

Potential financial impact figure – maximum (currency)
85000000

Explanation of financial impact figure
The international large fast moving consumer goods customers, have created sourcing policies in which the forest certification scheme chain of custody certified products (FSC, PEFC, SFI) are a preferred choice over suppliers that deliver products through non-controversial sourcing policies only. Another opportunity is with smaller customers that work within environmentally friendly product niches where only certified sustainable packaging products are an option. Smurfit Kappa has decided to deliver to all customers, equally certified products and take a leadership position in this area. If we could increase our sales by 1% due to this opportunity our revenues would increase approximately by euro 85,000,000 (2020 revenue x 1%)

Cost to realize opportunity
400000

Strategy to realize opportunity and explanation of cost calculation
Smurfit Kappa has taken a leadership position in providing transparency to the fibrous raw materials and has developed a full chain of custody system throughout its operations to provide customer security on the origin of fibres. It is an opportunity, but also in Smurfit Kappa's scale a risk if the fibre origin cannot be proven to be sustainable. Smurfit Kappa has established a strategy which consists of the following elements: - certification of all of its own forestry operations and plantations against a forest management certification system (FSC and PEFC) - chain of custody certifying all of our operations as FSC, PEFC and/or SFI - prioritizing certified raw material purchases (wood, pulp, paper) with a target to purchase and produce over 90% of our paper as certified (2020/: 99.8%) - sell over 95% of our products as certified by 2025 (2020: 93.8% packaging solutions sold as certified) we have practically reached all of the above and the new target is to sell at least 95% of our products as certified by 2025 and establish an increasing trend in all of the remaining % of paper production and purchases as well as sales of products. We invest annually some €400,000 in our chain of custody system globally.

Comment
The cost to realise this opportunity is the same as mitigating the risk #3: The cost is estimated including personnel costs, management system and other certification costs and maintenance and establishment of supporting IT systems.

Identifier
Opp2

Where in the value chain does the opportunity occur?
Downstream

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Primary potential financial impact
Returns on investment in low-emission technology

Company-specific description
Smurfit Kappa offers paper-based packaging solutions and services to its customers. These products are of renewable raw material recycled and at the end of the product life cycle, if not recycled, the products are biodegradable. Through R and D we have an opportunity to substitute fossil raw material based packaging solutions (plastic) with principally carbon neutral products. Our products are being made from wood fibres and the carbon sequestered in the fibres remains in the products through their life cycle as a carbon storage. Over 50% of our fuels are by products from wood used for pulp making and therefore emissions are biogenic CO2 instead of fossil CO2. Due to its high recycling rates and efficient recycling systems, paper-based packaging doesn't enter water bodies, and therefore not polluting one of our most important natural carbon management ecosystem. Smurfit Kappa approaches this demand from customers from a strategic perspective. The customers can rely on Smurfit Kappa for its reliable data and data driven innovation. We have invested in a suite of tools that help our R and D teams to use data to develop packaging solutions that deliver reductions in the packaged product's supply chain and optimises packaging. Our CO2 emission reductions are directly impacting the customer product footprint and the customers can follow their packaging CO2 reductions through individual score cards.

Time horizon
Medium-term

Likelihood
About as likely as not

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
0

Potential financial impact figure – maximum (currency)
85000000

Explanation of financial impact figure
There is a potential to move 5-10% or our international environmentally aware customers to paper-based packaging substituting non-renewable-based packaging solutions such as plastics. If we are able increase revenue by 1% the effect would be euro 85,000,000 in additional revenue approximately

Cost to realize opportunity
4000000

Strategy to realize opportunity and explanation of cost calculation
Finding substituting packaging solutions for example to plastics through R and D and understanding our markets and our and our customers' supply chains. We invest some 8M€ annually in R&D of which we estimate to direct 50% to product design and research and data delivering to this opportunity. This equals with 4M€

Comment
Smurfit Kappa invests €8m annually in R and D. Only part of that is spent on the objective as stated above.

Identifier
Opp3

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Primary potential financial impact
Reduced direct costs

Company-specific description
As a paper manufacturing company, Smurfit Kappa can efficiently utilise all of its wood-based raw material. Where the wood sourced for pulp is not suitable for pulp making, the residues such as bark, black liquor etc. can be utilised as biofuel. We also generate biogas from our water treatment processes that can be used as a fuel in energy production. As paper making is energy intensive, it is our strategy to reduce emissions constantly and move away from fossil energy sources where we can. Ultimately, this is a cost driven strategy as we expect higher cost for our fossil energy usage as the regulations tighten around emissions.

Time horizon
Long-term

Likelihood
About as likely as not

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
0

Potential financial impact figure – maximum (currency)
25000000

Explanation of financial impact figure
Avoided cost from carbon taxes and other regulations, revenue from sold emission trading certificates, and avoided cost through becoming more energy efficient.If through

these measures we could save 5% of our expenses for energy we would save euro 25 million per year.

Cost to realize opportunity
33200000

Strategy to realize opportunity and explanation of cost calculation
As in the case of risk #1, Smurfit Kappa has a three pronged approach to this opportunity: 1) Preparing for changes in the operational environment by investing in lower fossil CO2 emission technologies and driving resource efficiency (leading to reduced emissions) throughout its operations - Estimated investments 33 M€ 2) Driving above mentioned changes through emission reduction target setting 3) Participating in trade association initiatives looking for shared industry targets in emission reductions, as well as initiatives vis-a-vis policy makers. We try to help them in understanding our industry so that the regulations support rather than establish bottlenecks for climate-positive development. - Estimated investment 200,000€

Comment
If 5% of our annual investments in 2020 would have been directed towards this issue the investment would have been approximately euro 33 million.

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?
Yes

C3.1b

(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	Yes, in the next two years	No, we do not intend to include it as a scheduled AGM resolution item	In 2020, Smurfit Kappa introduced a new set of targets bundled under a common theme, Better Planet 2050. We have a stated ambition to reach at least Net Zero fossil emissions by 2050 and have increased our 2030 CO2 intensity target from 40% to 55%. We are also validating with the Science Based Target initiative that our CO2 reduction target is in line with the objectives of the Paris Agreement. In 2020, we also started reporting on the recommendations of the TCFD. These are progressing well and together will form our carbon transitioning plan. Our Sustainability Committee of the Board is responsible for driving and giving guidance to our sustainability strategy for the benefit of all stakeholders including the interests of our shareholders. The Committee of the Board consists of four non-executive board members The Board regularly engage with shareholders, including through an annual general meeting and recognises the benefits of shareholder engagement in order to foster mutual understanding of the Company's strategy and the views of major investors.

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?
Yes, qualitative, but we plan to add quantitative in the next two years

C3.2a

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

Climate-related scenarios and models applied	Details
IEA B2DS IEA Sustainable development scenario	Smurfit Kappa has a Climate Change strategy that is based on the ambitions of the Paris Agreement and the EU net-zero policy and aims at limiting the temperature rise below 2 degrees. The Paris Agreement is in line with the IEA B2DS that looks into halting Climate Change from the UN SDG perspective. In Smurfit Kappa's scenario analysis we investigated our existing business environment against the EU net-zero Climate policy environment. Some 75% of our business is within the EU and therefore its Climate policy plays a role in our business environment and thus our Climate Change policy. In our scenario assessment, we implement the EU net-zero target in our complete global business. As an energy-intensive business, we have taken the Climate Change mitigation activities to apply to us to full, and therefore follow the EU -55% target by 2030. As a starting point, we have taken our CO2 emissions as the base situation. We have assumed different business scenarios in our production volumes. Our reference scenarios are aligned with the IEA B2DS with an outcome of less than 2 degrees temperature increase by 2050. We have set our boundaries to our own operations and we apply the EU -55% target horizon by 2030. According with the Sectoral Decarbonization Approach and the ETP scenario modelling for SBTi, the Beyond 2°C Scenario (B2DS) explores how far deployment of technologies that are already available or in the innovation pipeline could take us beyond the 2DS. Technology improvements and deployment are pushed to their maximum practicable limits across the energy system in order to achieve net-zero emissions by 2060 and to stay net zero or below thereafter, without requiring unforeseen technology breakthroughs or limiting economic growth. We have estimated that our paper manufacturing represents and continues to represent over 80% of our energy needs. We have a relatively integrated energy model at our paper mills, where we produce the energy to supply to our needs mainly by ourselves or by direct partners who only supply to us. We have set the scope of our main actions to the energy production at our paper mills because we can directly influence our decisions at our own combined heat and power plants. Our other sites, representing less than 20% of our energy needs are mainly using electricity from the grid. In the EU we believe that their energy supply will shift to zero carbon as the EU policies move on. Our Climate scenario assessment has impacted our strategy in three areas of investment: Investing in efficient energy production, Investing in efficient energy use in our processes and Investing in low carbon or renewable fuels in energy production We have also invested in recording of our progress and converting this information into individual customer data. As part of our strategy we follow the EU target setting and our objective is to reduce 55% of our fossil CO2 emissions by 2030 in line with the EU net-zero policy. Our strategy is to reduce fossil CO2 emissions throughout our value chain. As part of our Better Planet 2050 initiative, our ambition is to have Net Zero emissions by 2050 with a 55% reduction in fossil fuel emissions intensity by 2030, we announced our support to the recommendations of the Task Force for Climate-related Financial Disclosures and will have our intermediate CO2 reduction target validated by the Science Based Target initiative (SBTi). As a case study example, in 2020 we finalised the installation of a new recovery boiler at our Nettingsdorf paper mill in Austria, the full project included an upgraded water treatment plant and the installation of new drying cylinders on the paper machine, it will increase the energy efficiency and combating the Climate Change by cutting CO2 emissions by 40,000 tonnes a year. This investment follows our strategy in efficient energy production as well as shift to renewable fuels. The mill will be shifting to biomass as its main energy source.

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Our customers are looking for packaging solutions that have a low carbon footprint and that also help to reduce the carbon footprint of their own supply chains. This is the strategic opportunity and also risk. If we can deliver low carbon packaging solutions, customers will like our products. In case our packaging solutions are high carbon they won't. Our product strategy is to design tailor made packaging solutions for our customers that have the lowest carbon footprint for the required packaging and we have a strategy to jointly with the customer understand how and where our packaging solution fits into the customer's supply chain. Once we have a good understanding we have a strategy to jointly with the customer develop a packaging solution that decreases the carbon footprint of the customer's packaged product. We have a full suite of tools that enables us to consider our customers' packaging requirements at every stage. Through this approach we are able to offer, right-weighted, fit-for-purpose packaging solutions that support customers' value chains, optimise efficiency and minimise waste and pollution. This process is focused to include climate change mitigation activities. The time horizon of these projects is continuous. Every day we start projects like this and we will continue with this without an end date. The most substantial strategic decision influenced by the climate risks and opportunities is to focus our R&D and innovation efforts on developing and designing products that can be converted into tailor made customer solutions that decrease the carbon footprint of our customer's supply chain. Better Planet Packaging initiative's purpose is to create better packaging for a better world for future generations, while improving the packaging environmental footprint and reducing packaging traces on the planet. For example: We have development a diverse range of sustainable punnets, among other developments such as Top Clip is a unique differentiating solution to bundle cans into one consumer pack, delivering up to 30% lower carbon footprint,100% recyclable and plastic free. We perform together with many customers so-called Life Cycle Analyses for its products. In these LCAs we assess the life cycle impact of our own products and the impact of the customer's supply chain. Majority of these impacts measured are the climate change impacts.
Supply chain and/or value chain	Yes	Since 2010 we have a strategic sustainable and responsible sourcing programme. In that programme we audit our main suppliers also on their carbon footprint, contribution to mitigate climate change and their resilience to climate related risks. This is a continuous programme meant to create strategic insight for us whether in our supply chain there is climate related strategic risks and opportunities. The programme itself consists of seven sections. These are: quality, hygiene and safety, business continuity, operations, continual improvement, service and technical support and environmental sustainable development. Each one has a strong sustainability implication, namely: assessing supplier risks; focusing on relevant supplier processes; mitigating risks related to environmental, social and equality issues; respect the right to water sufficiency, safety, acceptability, accessibility, affordability and reducing waste by meeting food safety requirements. A substantial strategic decision was to investigate how we can apply one of our raw materials (starch) in a different manner. If we succeed we will be able to gain in energy efficiency leading to mitigation of climate change.
Investment in R&D	Yes	Climate-related risks and opportunities have influenced our R&D investment strategy. Our strategy is focused on developing paper that is lighter and stronger at the same time. Customers favour packaging solutions from us that have a lower carbon footprint. This opportunity will mitigate climate change as lighter paper requires less raw material which is energy efficient in the production process compared to heavier paper with the same strength characteristics. The most substantial strategic decision in this area to date has been influenced by climate related risk and opportunities, is the focus in R&D on developing lighter papers with no loss in strength characteristics. The time horizon is until 2030. Product development and innovation at SKG is data driven, with a proven scientific approach informing good business decisions. Data collected from our operations is combined with ongoing research and analysis of customer challenges and specific markets. We employ a range of tools, 'InnoTools', uniquely exclusive to SKG, enabling us to create the optimal fit-for-purpose paper-based packaging solutions for our customers.
Operations	Yes	Carbon pricing systems are on the rise and could result in increased operational costs for Smurfit Kappa. Our paper mills have carbon emissions of approximately 2,5 million tonnes and a rise of €10 in the price of carbon would potentially increase our operational cost by €25 million. This has led to a strategy by our Board to decrease our carbon emissions by 55% by 2030 compared to 2005. To date our reduction has been 37.3%. We will achieve this reduction by investing in efficient energy generation, investing in efficient energy use and investing in renewable energy. The most substantial strategic decision in this area to date is our €134 million investment in a recovery boiler in our kraftliner mill in Austria that will reduce our global paper mills' fossil CO2 emissions by 1.5%. Further progressing in energy efficiency is key in achieving our CO2 emission reduction targets. Since 2005 we have invested €850 million in more efficient energy generation, technologies that reduce the use of energy and technologies that recover energy. Examples of this are investments in e.g. Combined Heat and Power generation, and heat exchangers. These investments have improved overall energy efficiency in our paper mill system by 17%. We will continue to invest in the generation of renewable energy where that is economically feasible. We are also purchasing 100% renewable electricity in a number of the countries where we operate and we will continue on this path; grid electricity purchased in Austria, Colombia, the Netherlands and the UK are non-fossil certified, resulting in reductions of Scope 2 emissions. The time horizon is 2030 which is the year that we need to have reached our CO2 emissions reduction target.

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Capital expenditures Capital allocation	Smurfit Kappa takes the price of carbon as part of its capital investment approval process. This price aims to steer investments to low or zero carbon technologies and capital investments for renewable energy throughout our entire network of manufacturing locations. We use the current market price for carbon as the base scenario and also do sensitivity analysis on the price of carbon to understand the influence of higher carbon prices on the return of the capital project. This enables management to assess the difference between different options and to choose the most efficient ones in order to achieve our strategic goal to reduce carbon emissions by 55% by 2030 compared to 2005. The price of carbon is regularly reviewed and updated. The time horizon is until 2030 reflecting the year in which we need to reach our target. Taking the price of carbon into account we have invested €134 million in a new recovery boiler in our kraftliner mill in Austria that started operating in June 2020. This project will reduce our global paper mill system fossil CO2 emissions by 1.5% per year or 40,000 tonnes of CO2 per year and the kraftliner mill's emissions by approximately two third. Since 2005 we have invested €850 million in more efficient energy generation, technologies that reduce the use of energy and technologies that recover energy. Examples of this are investments in e.g. Combined Heat and Power generation, and heat exchangers. These investments have improved overall energy efficiency in our paper mill system by 17%. As a direct result of this implemented internal price on carbon we have approved a project of installing solar panels in our factories in Spain that will reduce our demand for purchased energy by 30% in the next 5 years. In our capital allocation plan we take into account which investments will be needed to realise our strategic goal to decrease our fossil CO2 emissions by 55% by 2030 compared to 2005. When we set the target of 55% we made a gap analysis of what was needed to come from the level of emissions in 2019 (when we reached our earlier target of reducing 32.9%) and what was needed to reach the 55% reduction level. We used different scenarios, no growth and growth scenarios and we made an estimation of the capital projects that we needed to realise the target. The time horizon was 12 years at the time.

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

N/A

C4. Targets and performance

C4.1

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

Intensity target

C4.1b

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

Target reference number
Int 1

Year target was set
2020

Target coverage
Business division

Scope(s) (or Scope 3 category)
Scope 1+2 (location-based)

Intensity metric
Metric tons CO2e per metric ton of product

Base year
2005

Intensity figure in base year (metric tons CO2e per unit of activity)
0.5345

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure
89

Target year
2030

Targeted reduction from base year (%)
55

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]
0.240525

% change anticipated in absolute Scope 1+2 emissions
-45.8

% change anticipated in absolute Scope 3 emissions
0

Intensity figure in reporting year (metric tons CO2e per unit of activity)
0.3353

% of target achieved [auto-calculated]
67.7608640190492

Target status in reporting year
New

Is this a science-based target?
No, but we anticipate setting one in the next 2 years

Target ambition
<Not Applicable>

Please explain (including target coverage)
This target covers 89% of our 2005 emissions under Scope 1 and 2, covering our paper manufacturing operations in all geographies and represents the relative emissions from paper making. The corrugating and converting operations have been excluded due to their relative small impact. We report against our fiscal year reporting which is also the calendar year and the base year data is also based on a full calendar year data. This target has been reported in CDP 2019 CC4.1b and we had an improvement against the reporting year 2019 (32.9%) and in current reporting year, 2020 we reached 37.3%. Only paper production is taken into account given its relative fuel use compared to our converting operations (90% and 10% respectively), and hence its contribution to our total fossil CO2 emissions. The difference in percentages (81% emissions in scope and 90% relative fuel consumption) is due to the fact that our paper mill network is highly self sufficient and has a lower usage of electricity from the grid compared to the converting operations, which are higher in using scope 2 energy. At our paper mills, when producing our own heat and power, we can reach over 90% efficiency of the fuel energy value compared to the electricity produced to the grid (30-60% efficiency). We have significantly invested in best practice in paper mills and the Combined Heat and Power plants built on our sites are highly relevant for the emission reductions we have achieved since 2010. We have included scopes 1 and 2 in our climate change targets due to the fact that we can influence these ourselves through the choices we make in our energy production and purchase. In case we buy electricity from suppliers who give Full Disclosure on the type of the fuels used for the generation of this electricity, the CO2 emissions of this electricity are based on the CO2 emission factors of these fuels. In case we participate in a electricity generation facility off site (p.a. off shore wind mill) the electricity and corresponding CO2 emission factor of this facility are taken into account in the indirect emissions calculation. In all other cases we use the grid factors and we follow the national trends and include them in our calculations with the most current grid factors available.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?
Target(s) to increase low-carbon energy consumption or production

C4.2a

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

Target reference number
Low 1

Year target was set
2013

Target coverage
Business activity

Target type: absolute or intensity
Absolute

Target type: energy carrier
All energy carriers

Target type: activity
Production

Target type: energy source
Renewable energy source(s) only

Metric (target numerator if reporting an intensity target)
Percentage

Target denominator (intensity targets only)
<Not Applicable>

Base year
2005

Figure or percentage in base year
37.4

Target year
2020

Figure or percentage in target year
50

Figure or percentage in reporting year
51.1

% of target achieved [auto-calculated]
108.730158730159

Target status in reporting year
Achieved

Is this target part of an emissions target?
Yes, this is part of our overall CO2 reduction target. Smurfit Kappa has set itself a three-pronged approach to reduce its CO2 emissions: - Investing in efficient energy generation - Investing in efficient energy use - Investing in fossil CO2 reductions This target represents the pillar of investing in fossil CO2 reductions

Is this target part of an overarching initiative?
No, it's not part of an overarching initiative

Please explain (including target coverage)
This target covers our own energy production at our paper mills globally. Smurfit Kappa is an integrated company producing paper-based packaging solutions to its customers. Our manufacturing scope is from the production of raw material (forest plantations in Colombia), sourcing virgin and recycled fibres, manufacturing paper and ultimately converting paper to packaging solutions. Paper-making is energy intensive and in many cases it makes sense for us to generate our own energy for the processes. We have an opportunity to manage the fuels to an extent and renewable fuels as well as low-carbon options can be a choice, especially at our virgin paper mills where we use the side streams from our pulp production (such as black liquor) to produce energy. As an example of this approach, our paper mill in Pitea, Sweden, is effectively fully run by renewable energy.

C4.3

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

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	23	305000
To be implemented*	6	12000
Implementation commenced*	7	70000
Implemented*	2	51000
Not to be implemented	3	32000

C4.3b

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

Initiative category & Initiative type

Low-carbon energy generation	Liquid biofuels

Estimated annual CO2e savings (metric tonnes CO2e)
36000

Scope(s)
Scope 1

Voluntary/Mandatory
Mandatory

Annual monetary savings (unit currency – as specified in C0.4)
20000000

Investment required (unit currency – as specified in C0.4)
134000000

Payback period
4-10 years

Estimated lifetime of the initiative
>30 years

Comment
Installation of a new recovery boiler instead of upgrading the existing one leads to higher capacity of black liquor to be burned. Due to this higher amount of biofuel less natural gas will be burned resulting in lower scope 1 emissions.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)
15000

Scope(s)
Scope 1
Scope 2 (market-based)

Voluntary/Mandatory
Mandatory

Annual monetary savings (unit currency – as specified in C0.4)
15000000

Investment required (unit currency – as specified in C0.4)
53900000

Payback period
4-10 years

Estimated lifetime of the initiative
>30 years

Comment
Rebuild of a paper machine to a more energy efficient machine gives more net saleable output. Because this paper mill is mainly using biofuels and electricity from biofuels CO2 emissions will decrease.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	As an organisation, we want to always comply with laws and regulations. We are a member of national and regional industry associations through which we are able to stay fully up to date with future developments in regulatory requirements. These are included in our CAPEX consideration and we invest in technology that is best practice in as far in the future as we can realistically see.
Employee engagement	We have an internal competition for the best ideas in the area of sustainability, Smurfit Kappa Sustainability Awards. Energy savings and lower CO2 emissions is part of the criteria for ideas to be accepted as entrant in this competition. These Awards have four categories: supply chain, process, product and social. The first three categories typically include entries with positive climate change effects.
Dedicated budget for energy efficiency	We do not have pre set budgets for energy efficiency. However we do approve every year substantial investment amounts focusing on energy efficiency. Reduction in energy costs is one of the key focus areas in our successful cost take out programme. To tackle climate change, we are using less fossil fuel and emitting less CO2, promoting renewable sources and closing loops to create circularity in our production process. There are three parts to our CO2 reduction programme: • Investing in efficient energy generation −Investing in highly efficient Combined Heat and Power (CHP) systems; and −Improving the efficiency of our existing boilers. • Investing in efficient energy use: −Investing in technologies that reduce energy consumption; and −Re-engineering our processes and implementing smart energy efficient solutions. • Investing in fossil CO2 reductions: Where possible, shifting to CO2 neutral biofuels and other renewable solutions.
Internal finance mechanisms	Potential investments are assessed using financial return methods and also having regard to the 'competitiveness/attractivenness opportunity the outcomes present for us in our interface with environmentally committed customers
Internal price on carbon	Part of the investment consideration is the current and expected future cost of CO2 per ton. There is an internal price of carbon used in the assessment of potential investment projects

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

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

Yes

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

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

Management practice reference number

MP1

Management practice

Biodiversity considerations

Description of management practice

Sustainable forest management according to FSC. PEFC or SFI

Primary climate change-related benefit

Increasing resilience to climate change (adaptation)

Estimated CO2e savings (metric tons CO2e)

10000000

Please explain

Potential carbon sequestration impact in a year.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation
Group of products

Description of product/Group of products
Packaging solutions and services

Are these low-carbon product(s) or do they enable avoided emissions?
Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions
Other, please specify (We have developed a set of tools that calculate the avoided emissions from packaging and supply chain logistics relying on the data we have collected and verified in our sustainability assurance process.)

% revenue from low carbon product(s) in the reporting year
35

% of total portfolio value
<Not Applicable>

Asset classes/ product types
<Not Applicable>

Comment
According to a survey conducted by INCPEN, packaging products typically are responsibile for only a small part of the carbon footprint of the packaged product value chain. However, research suggests that our product, if properly designed and applied, can decrease the total carbon impact of the product value chain by considerably more than the impact of the packaging itself. We offer to our customers a service to design packaging solutions that help them to lower or avoid emissions in their packaged product supply chain. We have developed a set of tools that help to compute this information and measure change year by year. The tools allow us to measure the CO2 footprint of the product as well as emissions related to transport and logistics. We call these tools Innotools and measure and report the use of these tools publicly. The reason why we can't report exact avoided emissions is that we don't have that data as it belongs to the customer. In addition, we offer our customers a holistic approach to sustainable packaging solutions in which the whole product packaging concept is assessed. Through this approach we can offer resource efficient packaging solutions in which each element of the packaging concept is optimised, including primary and secondary packaging, logistics and warehousing requirements. Our ambition is to offer solutions that help our customers reduce waste and wasted material through the supply chain through avoiding over and under packaging.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start
January 1 2005

Base year end
December 31 2005

Base year emissions (metric tons CO2e)
3615000

Comment
As the GHG protocol recommends structural changes in the organisation trigger recalculation of base year emissions. SK hasn't recalculated in it's base year emissions in 2020 after the acquisition of 1 paper mill inSerbia in 2019, which is for the first time included in 2020 due to the fact that this mill was not in operation in the base year.

Scope 2 (location-based)

Base year start
January 1 2005

Base year end
December 31 2005

Base year emissions (metric tons CO2e)
971100

Comment
As the GHG protocol recommends structural changes in the organisation trigger recalculation of base year emissions. SK hasn't recalculated in it's base year emissions in 2020 after the acquisition of 1 paper mill inSerbia in 2019, which is for the first time included in 2020 due to the fact that this mill was not in operation in the base year.

Scope 2 (market-based)

Base year start
January 1 2005

Base year end
December 31 2005

Base year emissions (metric tons CO2e)
971100

Comment
As the GHG protocol recommends structural changes in the organisation trigger recalculation of base year emissions. SK hasn't recalculated in it's base year emissions in 2020 after the acquisition of 1 paper mill inSerbia in 2019, which is for the first time included in 2020 due to the fact that this mill was not in operation in the base year.

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.
European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations
IEA CO2 Emissions from Fuel Combustion
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
Other, please specify (GRI Guidelines)

C5.2a

(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

All scope 1 and scope 2 calculations are made according to GRI guidelines G4. The fuel that is used by outsourced CHP installations that are located on SKG premises to produce steam and electricity which then is delivered to our mills is included in Scope 1 emissions. Indirect emissions for electricity are calculated using the CO2 per kWh emission from electricity suppliers, who give Full Disclosure (giving the Guarantees of Origin (green) or Certificates of Origin or certified delivered energy mix) or in which SK participates (p.a. off shore wind mill), or using the CO2 per kWh emission factor per country provided by the International Energy Agency Data Services. GHG Protocol - Indirect CO2 emissions from purchased electricity, heat or steam 2.0 March 2008 GHG Protocol - GHG emissions from stationary combustion 3.1 March 2008 Other: Allocation of emissions from CHP for electricity is calculated with a reference boiler of 90% efficiency.

These calculations and data are verified as part of SK sustainable development report limited assurance process.

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
2545000

Start date
<Not Applicable>

End date
<Not Applicable>

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We are reporting a Scope 2, market-based figure

Comment
In case an operation buys electricity from suppliers who gives Full Disclosure (giving the Guarantees of Origin (green) or Certificates of Origin or certified delivered energy mix) on the type of the fuels used for the generation of this electricity, the CO2 emissions of this electricity are based on the CO2 emission factors of these fuels. In case an operation participates in a electricity generation facility off site (p.a. off shore wind mill) the electricity and corresponding CO2 emission factor of this facility are taken into account in the indirect emissions calculation. In all other cases the CO2 emission factor of the national grid from the International Energy Agency Database is taken. The latest known factor from this database is at the beginning of the (internal) reporting period for SK 3 years old. Same principle is used to calculate the base year figures.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based
847500

Scope 2, market-based (if applicable)
565900

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
Facilities in Austria, Netherlands, UK, Colombia and Chile buy non-fossil electricity with full Disclosure. Multiplying the imported electricity with the grid emission factors from the countries give 281,600 extra scope 2 emissions compared to the market-based scope 2 emissions , which results in 565,900 + 281,600 = 847,500 ton location based scope 2 emissions.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?
No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Metric tonnes CO2e
641988

Emissions calculation methodology
Amongst all the purchased goods and services for SKG, the most impacting, from a CO2 emissions point of view, was selected and the total emissions then calculated. The selection was either based on the purchased quantity (tons) or on the environmental impact (Ecoinvent/ELCD emission factors' severity) linked to those specific materials/products.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

Capital goods

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Based on the SBTi rules, investments in capital goods in 2019-2020 were negligible. According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status
Relevant, calculated

Metric tonnes CO2e
425100

Emissions calculation methodology
Data of fuel usage were collected and using the FEFCO emission factors (transportation and distribution were included), the total CO2 emission was calculated.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Metric tonnes CO2e
478500

Emissions calculation methodology
Approximation on the basis of assumptions / data are partly for Europe only. Calculated is the emission for transport of our main raw materials to our mills and converting plants. The CO2 emission factors by transport mode are extracted from the GLEC reference model. We have estimated the CO2 emissions for the Americas operations by applying the same CO2 intensity factor for transport used in Europe per unit of product and the resulting figure multiplied by 1.5 to take the longer distances products are transported in the Americas into consideration. For Europe, we calculate a figure of 348000 tonnes. For the Americas the volume is 25% of the European volume multiplied by 1.5 and resulting to 130,500 tonnes CO2E. Totalling 478,500 tonnes CO2E.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

Waste generated in operations

Evaluation status
Not relevant, calculated

Metric tonnes CO2e
78557

Emissions calculation methodology
Using the tonnes of waste generated and analysed the composition of landfilled waste, the emission factors (DEFRA) were applied to calculate the total CO2 emissions for the different waste streams.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
We use any waste that can be efficiently combusted for heat and electricity in our own energy production and report these as part of our scope 1 emissions. The rest of the waste streams are either recycled in different operations outside our organisation or sent to landfill.

Business travel

Evaluation status
Not relevant, calculated

Metric tonnes CO2e
20000

Emissions calculation methodology
Approximation based of assumptions

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
We estimate that travel is done by a relatively small group of our 46,000 employees. Besides the operational and Group management teams, predominantly sales, technical and purchasing managers travel for business reasons. Based on two trips per month and an emission of 200kg per trip (which assumes a mix of air, car and train travel) the total emission is approximately 20,000 tonnes representing less than 1% of our scope 1 CO2 emissions.

Employee commuting

Evaluation status
Not relevant, calculated

Metric tonnes CO2e
27000

Emissions calculation methodology
Approximation based of assumptions

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Assuming that half of our employees (out of the 46,000 for the total Group) come to work by car and commute an average distance home-site of maximum 20km, and that they use a car with an average CO2 emission of 150g/km, the annual CO2 emission would be 27,000 tonnes. This represents approximately 1% of our scope 1 emissions.

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products. We have 2000 hectares of forests which mainly have positive impact to the Carbon balance through sequestrating carbon from the atmosphere. The average rotation time of the Woodstock is 40+ years.

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Metric tonnes CO2e
145750

Emissions calculation methodology
Approximation on the basis of assumptions / data are partly for Europe only. Calculated is the emission for transport of our main raw materials to our mills and converting plants. The CO2 emission factors by transport mode are extracted from the GLEC reference model. We have estimated the CO2 emissions for the Americas operations by applying the same CO2 intensity factor for transport used in Europe per unit of product and the resulting figure multiplied by 1.5 to take the longer distances products are transported in the Americas into consideration. For Europe, we calculate a figure of 106,000 tonnes. For the Americas the volume is 25% of the European volume multiplied by 1.5 and resulting to 39,750 tonnes CO2E. Totalling 145,750 tonnes CO2E.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

Processing of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
This process is not under our control. Packaging lines consist of primary and secondary packaging, our product is secondary packaging, and thus these emissions can be estimated as negligible in our value chain.

Use of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Use of sold Products is not under our control. Packaging lines consist of primary and secondary packaging, our product is secondary packaging, and thus these emissions can be estimated as negligible in our value chain. According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

End of life treatment of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Smurfit Kappa is an integrated paper-based packaging company with operations from raw material sourcing to packaging production. Old corrugated cardboard (packaging material delivered t our customers) is valuable raw material in our value chain. 75% of our raw material is recovered paper and paper-based packaging. This is why we participate in the end of life treatment of our products and emissions from this are part of our scope 1 and 2 emission reporting.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
We don't have downstream leased assets

Franchises

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
We don't have franchises

Investments

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
We don't have investments of this kind. They would be included in capital goods.

Other (upstream)

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
According to our assessment, the scope 1 and 2 emissions from our paper manufacturing are by far the most relevant emission category for us. After these, the second most material emission group are the scope 1 and 2 emissions from our converting and corrugating operations. The third most relevant, even though not material, emission group are the scope 3 emissions of transport of our raw materials and products.

C-AC6.6/C-FB6.6/C-PF6.6

(C-AC6.6/C-FB6.6/C-PF6.6) Can you break down your Scope 3 emissions by relevant business activity area?
Partially

C-AC6.6a/C-FB6.6a/C-PF6.6a

(C-AC6.6a/C-FB6.6a/C-PF6.6a) Disclose your Scope 3 emissions for each of your relevant business activity areas.

Activity
Processing/Manufacturing

Scope 3 category
Processing of sold products

Emissions (metric tons CO2e)
348000

Please explain
This activity cover the transport of wood, recovered paper and market pulp used at our own mills. We also take into account the emissions from the transport of intermediate products such as reels of paper, corrugated board sheets and solid board sheets from the paper mills to the converting plants. The scope of these emissions currently cover Europe only.

Activity
Distribution

Scope 3 category
Downstream transportation and distribution

Emissions (metric tons CO2e)
106000

Please explain
This activity covers the transport of finished products to our customers. The scope of these emissions currently cover Europe only.

C-AC6.8/C-FB6.8/C-PF6.8

(C-AC6.8/C-FB6.8/C-PF6.8) Is biogenic carbon pertaining to your direct operations relevant to your current CDP climate change disclosure?
No

C-AC6.9/C-FB6.9/C-PF6.9

(C-AC6.9/C-FB6.9/C-PF6.9) Do you collect or calculate greenhouse gas emissions for each commodity reported as significant to your business in C-AC0.7/FB0.7/PF0.7?

Agricultural commodities
Timber

Do you collect or calculate GHG emissions for this commodity?
No

Please explain
Smurfit Kappa harvests timber from its own forests and plantations for its own use at its paper manufacturing operations. Smurfit Kappa doesn't sell timber as a commodity to other parties.

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.000365

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
3111000

Metric denominator
unit total revenue

Metric denominator: Unit total
8530000000

Scope 2 figure used
Location-based

% change from previous year
0.63

Direction of change
Decreased

Reason for change
The 2020 key events that resulted in a 37.3% reduction of relative CO2 emissions compared with 2005 were: • Smurfit Kappa Nettingsdorf, Austria, started its new recovery boiler resulting in 19.6% CO2 savings per tonne of paper. Installation of a new recovery boiler instead of upgrading the existing one leads to higher capacity of black liquor to be burned. Due to this higher amount of biofuel less natural gas will be burned resulting in lower scope 1 emissions. • Since 2020 in the Netherlands it is mandatory to buy electricity from non-fossil fuel based generation. All scope 2 emissions from the 2 mills and all other plants are 0 from 2020 on. • In 2020 in the UK we bought electricity from non-fossil fuel based generation. All scope 2 emissions from the 2 mills and all other plants are 0 in 2020.

Intensity figure
66.6

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
3111000

Metric denominator
full time equivalent (FTE) employee

Metric denominator: Unit total
46685

Scope 2 figure used
Location-based

% change from previous year
7.2

Direction of change
Decreased

Reason for change
Reduction of CO2 emissions

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?
No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Argentina	44000
Austria	47000
Belgium	8000
Canada	0
Chile	2000
Colombia	530000
Czechia	25000
Denmark	5000
Dominican Republic	2000
France	185000
Germany	572000
Ireland	4000
Italy	103000
Lithuania	1000
Mexico	177000
Netherlands	274000
Norway	0
Poland	9000
Portugal	2000
Russian Federation	13000
Slovakia	3000
Spain	142000
Sweden	17000
Switzerland	1000
United Kingdom of Great Britain and Northern Ireland	203000
United States of America	106000
Costa Rica	1000
Ecuador	0
Brazil	4000
Nicaragua	0
El Salvador	3000
Greece	1000
Serbia	59000
Bulgaria	2000

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division
By facility

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
1. Paper mills virgin	543000
2. Paper mills recycled	1555000
3. Specialty mills recycled	89000
4. Wood supplier	10000
5. Integrated	327000
6. Corrugated converter	11000
7. Converter Board	3000
8. Recycling	7000
9. Bag in Box	0
10. Sack converter	0

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Nettingsdorf Papierfabrik, Austria	46000	48.181125	14.249285
Navarra (Sangüesa), Spain	15000	42.590889	-1.283158
Facture, France	39000	44.6311	-0.974436
Kraftliner Piteå, Sweden	13000	66.316543	21.445956
Nervion mill, Spain	7000	43.184818	-2.668412
Morava Paper, Czech Republic	19000	49.851673	17.843626
Zülpich, Papier, Germany	223000	50.705679	6.65234
Mengibar CB, Spain	95000	37.979251	-3.795819
Alfa D'Avignon, France	19000	43.963531	4.852524
Rethel mill, France	15000	49.507679	4.362829
Saillat, France	70000	45.872618	0.811303
Ania Paper, Italy	75000	44.042181	10.497455
Roermond Papier, The Netherlands	156000	51.20562	6.001539
SSK, UK	73000	50.20562	-1.865079
Townsend Hook, UK	100000	51.32802	0.44909
Wrexen mill, Germany	75000	51.50818	8.97742
Hoya Papier, Germany	140000	52.80978	9.15601
Herzberger Board, Germany	89000	51.66144	10.36266
Cali mill, Colombia	423000	3.56319	-76.47999
Bernal mill, Argentina	22000	-37.707029	-58.28076
Coronel Suarez mill, Argentina	16000	-37.4557	-61.91026
Barranquilla mill, Colombia	34000	10.9989	-71.78364
Barbosa mill, Colombia	47000	6.439	-75.333
Cerro Gordo mill, Mexico	81000	19.53735	-99.05917
Los Reyes mill, Mexcio	40000	19.52942	-99.19792
Monterrey mill, Mexico	14000	25.68049	-100.29669
Forney mill, USA	91000	32.73897	-96.44169
Bento mill, Brazil	0	-29.165477	-51.479456
Pirapetinga mill, Brazil	3000	-21.653106	-42.347766
Uberaba mill, Brazil	0	-19.717963	-47.979861
All other (> 300)	358000		
Parenco, The Netherlands	91000	51.9703	5.7253
Belgrade, Serbia	56000	44.8229	20.5151

C-AC7.4/C-FB7.4/C-PF7.4

(C-AC7.4/C-FB7.4/C-PF7.4) Do you include emissions pertaining to your business activity(ies) in your direct operations as part of your global gross Scope 1 figure?

Yes

C-AC7.4a/C-FB7.4a/C-PF7.4a

(C-AC7.4a/C-FB7.4a/C-PF7.4a) Select the form(s) in which you are reporting your agricultural/forestry emissions.

Emissions disaggregated by category (advised by the GHG Protocol)

C-AC7.4b/C-FB7.4b/C-PF7.4b

(C-AC7.4b/C-FB7.4b/C-PF7.4b) Report the Scope 1 emissions pertaining to your business activity(ies) and explain any exclusions. If applicable, disaggregate your agricultural/forestry by GHG emissions category.

Activity
Agriculture/Forestry

Emissions category
Mechanical

Emissions (metric tons CO2e)
10000

Methodology
Other, please specify (CO2 emissions from fuel usage of the SK machinery is calculated with the default values of the 2006 IPPC guidelines.)

Please explain
CO2 emissions from fuel usage of the SK machinery is calculated with the default values of the 2006 IPPC guidelines.

Activity
Processing/Manufacturing

Emissions category
Total

Emissions (metric tons CO2e)
2535000

Methodology
Other, please specify (If no fuel analysis at the mill exists the IPPC factor is used)

Please explain
To calculate our CO2 emissions, we collect the data on fuels used, the fuel analyses and if not existing, use the IPPC factors to calculate the scope 1 emissions from all our operations.

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Argentina	21300	21300	60700	0
Austria	22900	0	142600	142600
Belgium	3900	3900	22900	0
Canada	100	100	400	0
Chile	1600	0	3800	3800
Colombia	20200	0	150500	150500
Czechia	16700	16700	33500	0
Denmark	1900	1900	12700	0
Dominican Republic	3600	3600	6900	0
France	17100	17100	248200	0
Germany	95900	95900	230300	0
Ireland	5500	5500	14500	0
Italy	23700	23700	72900	0
Lithuania	200	200	2200	0
Mexico	163600	163600	342700	0
Netherlands	214700	0	491200	491200
Norway	100	100	15200	0
Poland	16800	16800	23700	0
Portugal	1200	1200	3200	0
Russian Federation	6900	6900	19800	0
Slovakia	900	900	5800	0
Spain	60900	60900	211300	0
Sweden	3700	3700	289700	0
Switzerland	100	100	4700	0
United Kingdom of Great Britain and Northern Ireland	22200	0	90700	90700
Costa Rica	0	0	3900	0
Ecuador	200	200	900	0
United States of America	59300	59300	140700	0
Brazil	14900	14900	127700	0
Nicaragua	0	0	0	0
El Salvador	1400	1400	8500	0
Greece	700	700	1300	0
Serbia	43600	43600	55400	0
Bulgaria	1700	1700	2300	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

By facility

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
1. Paper mills virgin	87300	49700
2. Paper mills recycled	486900	289900
3. Specialty mills recycled	8300	8300
4. Wood supplier	0	0
5. Integrated	219000	177600
6. Corrugated converter	21600	17100
7. Converter Board	11800	11800
8. Recycling	2100	1400
9. Bag in Box	9400	9400
10. Sack converter	1100	700

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Nettingsdorfer Papierfabrik, Austria	22000	0
Navarra, Spain	27200	27200
Facture, France	2100	2100
KraftlinerPitea, Sweden	3300	3300
Nervion mill, Spain	17100	17100
Morava Paper, Czech Republic	10500	10500
Zülpich Papier, Germany	9900	9900
Mengibar CB, Spain	0	0
Alfa D'Avignon, France	1800	1800
Rethel mill, France	1600	1600
Ania Paper, Italy	0	0
Roermond Papier, The Netherlands	25000	0
SSK, UK	0	0
Townsend Hook, UK	3300	0
Wrexen mill, Germany	15100	15100
Hoya Papier, Germany	17400	17400
Herzberger Board, Germany	8300	8300
Cali mill, Colombia	15600	0
Bernal mill, Argentina	10800	10800
Coronel Suarez mill, Argentina	5000	5000
Barranquilla mill, Colombia	300	0
Barbosa mill, Colombia	700	0
Cerro Gordo mill, Mexico	75600	75600
Los Reyes mill, Mexico	32500	32500
Monterrey mill, Mexico	9500	9500
Forney mill, USA	45100	45100
Bento mill, Brazil	2200	2200
Pirapetinga mill, Brazil	6700	6700
Uberaba mill, Brazil	3900	3900
All other (>300)	265000	218000
Saillat, France	4600	4600
Parenco, The Netherlands	167700	0
Belgrade, Serbia	37700	37700

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?
Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	276600	Decreased	8.32	Scope 2 emissions in 2019 for The Netherlands, UK and Chile were resp. 235.2, 24.8 and 1.6 kton. In 2020 all electricity imported is from renewable sources so decrease is 235.2+24.8+1.6=261.6kton. Biofuel ratio in Nettingsdorf (see 4.3b) increased in 2020 with 15kton due to the new recovery boiler. Total CO2 emission of SK in 2019 was 3323 kton. Total decrease due to renewables is 276.6 kton or 275/3323x100=8.27%
Other emissions reduction activities	7000	Decreased	0.21	Emission reduction due toheat recovery in Wrexen mill and shoe press installation in Morava mill (both installed in 2019) and gave a decrease of 3.3 and 3.7 kton respectively in 2020 because running for a complete year . So total reduction due to projects is 3.3 + 3.7 = 7 kton , resulting in a reduction of 7/3323x100=0.21% compared to 2019
Divestment	0	No change	0	No divestments in 2020
Acquisitions	93700	Increased	2.82	Total fossil fuel emissions from the Belgrade mill, acquired in 2019 and in 2020 for the first year reported are 93.7 kton of which 56.1 kton are scope 1 and 37.6 scope 2. Total CO2 emission of SK in 2019 are 3323 kton, which results in an increase of absolute emissions due to this acquirement of 93.7/3323 x 100= 2.82%
Mergers	0	No change	0	No mergers in 2020
Change in output	55200	Decreased	1.66	Total SK change in output between 2019 and 2020 was -209 kton , despite rebuild of the paper machine (see 4.3b) of which 108kton caused by Parenco acquirement, resulting in a net change of -209-108 = -317 kton. Total production in 2019 was 19131 kton and total CO2 emission of SK in 2019 was 3323 kton, resulting in a relative emission of 3323/19131=0.173 kton CO2 per kton production. The production increase increases the absoulte emission by -317 x 0.173 = -55.2 kton and an increase of -55.2/3323 x 100 = -1.66%
Change in methodology	25700	Increased	0.77	Average SK grid emission factor in 2019 was 0.248 kton per GWh imported and in 2020 excl. The Netherlands, UK and Chile (calculated in renewables change) was 0.260. Electricity imported in 2019 is 2207 GWh. Change in scope 2 emissions due to the grid factor change is an increase of (0.260-0.248)x2207=25.7kton or 25.7/3323x100=0.77%
Change in boundary	0	No change	0	No boundary changes in 2020
Change in physical operating conditions	0	No change	0	No changes due to weather conditions
Unidentified	11200	Increased	0.34	Total absoulte emission change in 2020 compared to 2019 is -212 kton increase. Total emission changes of all described in this question is -276.6+7+93.7-55.2+25.7-3.8=-223.2kton. 11.2kton can't be explained, like changes in grammages, etc. This gives a increase of 11.2/3323=0.34%
Other	3800	Decreased	0.11	Total electricity generated by CHP decreased by 25GWh. With a fuel usage of 5 GJ/MWh (general figure) this gives 25 x 5 = 125 GJ of fuel less. Total scope 1 mill emissions in 2019 were 2158 kton and total fuel usage of 71420 TJ. The reduction of CHP generation decreases the fossil CO2 emissions by 125/71420x2158= 3.8 kton or 3.8/3323x100=0.11%

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?
Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?
More than 5% but less than or equal to 10%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	10267973	11405118	21673090
Consumption of purchased or acquired electricity	<Not Applicable>	1689425	1382256	3071681
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	4950	<Not Applicable>	4950
Total energy consumption	<Not Applicable>	11962348	12787734	24749721

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)
Brown Coal Briquettes (BKB)

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
459855

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
80384

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
379471

Emission factor
99.62

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

Fuels (excluding feedstocks)
Bituminous Coal

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
911364

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam
73345

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
838019

Emission factor
94.59

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

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Fuels (excluding feedstocks)
Fuel Oil Number 5

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
112408

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
13572

MWh fuel consumed for self-generation of steam
41044

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
57791

Emission factor
77.59

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

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Fuels (excluding feedstocks)
Fuel Oil Number 1

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
187043

MWh fuel consumed for self-generation of electricity
3582

MWh fuel consumed for self-generation of heat
147412

MWh fuel consumed for self-generation of steam
19282

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
16700

Emission factor
74.12

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

---

Fuels (excluding feedstocks)
Lignite Coal

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
67685

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
67685

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Emission factor
101

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

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Fuels (excluding feedstocks)
Liquefied Petroleum Gas (LPG)

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
141536

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
94993

MWh fuel consumed for self-generation of steam
46544

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Emission factor
63.1

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

---

Fuels (excluding feedstocks)
Natural Gas

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
9640533

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
512171

MWh fuel consumed for self-generation of steam
3578611

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
5549751

Emission factor
56.14

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

---

Fuels (excluding feedstocks)
Waste Plastics

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
81824

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
8407

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
73417

Emission factor
73.56

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

---

Fuels (excluding feedstocks)
Biogas

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
273338

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
1218

MWh fuel consumed for self-generation of steam
182314

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
89806

Emission factor
77.15

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment

If no fuel analysis at the mill exists the IPPC factor is used

Fuels (excluding feedstocks)
Black Liquor

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
6849513

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
6849513

Emission factor
107.52

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

Fuels (excluding feedstocks)
Other, please specify (Methanol)

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
34447

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
34447

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Emission factor
69.8

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

Fuels (excluding feedstocks)
Biodiesel

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
152110

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam

140234

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
11876

Emission factor
149.21

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

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Fuels (excluding feedstocks)
Pitch

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
69418

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
68306

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
1112

Emission factor
77.26

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

---

Fuels (excluding feedstocks)
Waste Paper and Card

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
55092

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
55092

Emission factor
141.63

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

Fuels (excluding feedstocks)
Wood Waste

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
3106667

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
123811

MWh fuel consumed for self-generation of steam
745462

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
2237394

Emission factor
107.84

Unit
kg CO2 per metric ton

Emissions factor source
Fuel analysis entities or 2006 IPPC Guidelines for National Greenhouse Gas.

Comment
If no fuel analysis at the mill exists the IPPC factor is used

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	2381200	1967415	1133451	93736
Heat	979939	979939	194232	194232
Steam	12166016	12042680	5791024	5732316
Cooling	0	0	0	0

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method
Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type
Solar

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Austria

MWh consumed accounted for at a zero emission factor
2152

Comment
Total green electricitiy purchased in Austria is 131247 MWh. According to the TüV certificate on the origin of this electricity production 1.64% of this total is from solar energy

Sourcing method
Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type
Wind

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Austria

MWh consumed accounted for at a zero emission factor
13610

Comment

Total green electricitiy purchased in Austria is 131247 MWh. According to the TüV certificate on the origin of this electricity production 10.37% of this total is from wind energy

Sourcing method
Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type
Hydropower

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Austria

MWh consumed accounted for at a zero emission factor
111429

Comment
Total green electricitiy purchased in Austria is 131247 MWh. According to the TüV certificate on the origin of this electricity production 84.90% of this total is from hydro energy

Sourcing method
Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type
Biomass

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Austria

MWh consumed accounted for at a zero emission factor
2651

Comment
Total green electricitiy purchased in Austria is 131247 MWh. According to the TüV certificate on the origin of this electricity production 2.02% of this total is from solar energy

Sourcing method
Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type
Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Austria

MWh consumed accounted for at a zero emission factor
1404

Comment
Total green electricitiy purchased in Austria is 131247 MWh. According to the TüV certificate on the origin of this electricity production 1.07% of this total is from other renewable energy (mix of biogas, landfill gas and geothermal).

Sourcing method
Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

Low-carbon technology type
Hydropower

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Colombia

MWh consumed accounted for at a zero emission factor
150473

Comment
All operations in Colombia received from the electricity supplier an overview of IREC's that all electricity in 2020 is generated from hydro power stations, which means that the total Purchased and consumed electricity data from Colombia (see 7.5) is equal to the amount in this question

Sourcing method
Standard product offering by an energy supplier supported by energy attribute certificates

Low-carbon technology type
Nuclear

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Netherlands

MWh consumed accounted for at a zero emission factor
506675

Comment
All operations in The Netherlands have one combined contract with an electricity supplier in which is certified through Guarantees and Certificates of Origin that all electricity in 2020 is generated from nuclear power stations, which means that the total Purchased and consumed electricity data from The Netherlands (see 7.5) is equal to the amount in this question

Sourcing method
Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type
Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United Kingdom of Great Britain and Northern Ireland

MWh consumed accounted for at a zero emission factor
90695

Comment
All operations in the UK received from the electricity supplier a Renewable Electricity EcoAct Assured certification that all electricity in 2020 is generated solely from zero carbon, 100% renewable sources which means that the total Purchased and consumed electricity data from the UK(see 7.5) is equal to the amount in this question

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Sourcing method
Unbundled energy attribute certificates, International REC Standard (I-RECs)

Low-carbon technology type
Hydropower

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Chile

MWh consumed accounted for at a zero emission factor
3767

Comment
All operations in Chile received from the electricity supplier an overview of IREC's that all electricity in 2020 is generated from hydro power stations, which means that the total Purchased and consumed electricity data from Chile (see 7.5) is equal to the amount in this question

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C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description
Energy usage

Metric value
11.82

Metric numerator
GJ of primary energy used in paper and board

Metric denominator (intensity metric only)
Total net salebale paper production

% change from previous year
0.6

Direction of change
Decreased

Please explain
This value is the total primary energy usage per ton of paper produced for the paper and board mills. Total Primary energy is total fuel used for paper production, the electricity generated with water turbines and the imported electricity from the grid which is calculated with a general efficiency of 40%. Total fuels used for paper making is 71548 TJ, Hydro energy is 18 TJ and electricity imported is 1977 GWh which is calculated to primary energy 17793 TJ = 1977 (GWh) x 3,6 (TJ/GWh) /0,4 (40% efficiency power stations).

Description
Waste

Metric value
56.2

Metric numerator
specific kg waste sent to landfill from P&B mills

Metric denominator (intensity metric only)
specific kg waste sent to landfill from P&B mills

% change from previous year
18.1

Direction of change
Decreased

Please explain
The improvement from 2019 is mainly due to our investments towards our landfill reduction target, at our Cali mill in Colombia, in sludge press; installing a press to remove water from the sludge waste from its water treatment plant, our Cali mill has been able to significantly reduce the weight of the waste. Additionally, the dry content of the waste is now suitable for incineration which adds to the reduced waste sent to landfill. We also made good progress at our Smurfit Kappa Townsend Hook mill in the UK, where multiple projects took place to increase the yield from recovered paper to recycled fibres, increase reject recyclability and to optimise the water treatment plant initially reducing sludge from the water treatment plant.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
Smurfit_Kappa_Sustainable_Development_Report_2020.pdf

Page/ section reference
Page 104

Relevant standard
ISAE3000

Proportion of reported emissions verified (%)
100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
Smurfit_Kappa_Sustainable_Development_Report_2020.pdf

Page/ section reference
Page 104

Relevant standard
ISAE3000

Proportion of reported emissions verified (%)
100

Scope 2 approach
Scope 2 market-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
Smurfit_Kappa_Sustainable_Development_Report_2020.pdf

Page/ section reference
Page 104

Relevant standard
ISAE3000

Proportion of reported emissions verified (%)
100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category
Scope 3: Upstream transportation and distribution

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
Smurfit_Kappa_Sustainable_Development_Report_2020.pdf

Page/section reference
Page 104

Relevant standard
ASAE3000

Proportion of reported emissions verified (%)
73

Scope 3 category
Scope 3: Downstream transportation and distribution

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
Smurfit_Kappa_Sustainable_Development_Report_2020.pdf

Page/section reference
Page 104

Relevant standard
ASAE3000

Proportion of reported emissions verified (%)
73

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Year on year change in emissions (Scope 1 and 2)	ISAE3000	Our complete sustainability report is verified through assurance process in line with GRI standard. This covers all material metrics, data and other reporting. Smurfit_Kappa_Sustainable_Development_Report_2020.pdf
C9. Additional metrics	Energy consumption	ISAE3000	Our complete sustainability report is verified through assurance process in line with GRI standard. This covers all material metrics, data and other reporting.
C7. Emissions breakdown	Year on year change in emissions (Scope 1 and 2)	ISAE3000	Our complete sustainability report is verified through assurance process in line with GRI standard. This covers all material metrics, data and other reporting. For emissions breakdown data verified, see pages 76-81 Smurfit_Kappa_Sustainable_Development_Report_2020.pdf
C8. Energy	Energy consumption	ISAE3000	Our complete sustainability report is verified through assurance process in line with GRI standard. This covers all material metrics, data and other reporting. For energy consumption data verified, see pages 76-81 Smurfit_Kappa_Sustainable_Development_Report_2020.pdf

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

EU ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

EU ETS

% of Scope 1 emissions covered by the ETS

53.1

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2020

Period end date

December 31 2020

Allowances allocated

1489557

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

1350370

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Strategy is to reduce emissions by investing in GHG emissions reducing equipment such as biomass boilers. We also focus on actions that make our operations more energy efficient both in terms of usage and own generation.

To tackle climate change, we are using less fossil fuel and emitting less CO2, promoting renewable sources and closing loops to create circularity in our production process. There are three parts to our CO2 reduction programme:

• **Investing in efficient energy generation**

−Investing in highly efficient Combined Heat and Power (CHP) systems; and

−Improving the efficiency of our existing boilers.

• **Investing in efficient energy use:**

−Investing in technologies that reduce energy consumption; and

−Re-engineering our processes and implementing smart energy efficient solutions.

• **Investing in fossil CO2 reductions:** Where possible, shifting to CO2 neutral biofuels and other renewable solutions.

Since 2005 we have invested €850 million in more efficient energy generation, technologies that reduce the use of energy and technologies that recover energy. One of the most substantial strategic decision in this area to date is our €134 million investment in a recovery boiler in our kraftliner mill in Austria that will reduce our global paper mills' fossil CO2 emissions by 1.5%.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Identify and seize low-carbon opportunities

GHG Scope

Scope 1
Scope 2

Application

Facilities: Every investment proposal in which the use of energy is relevant, the price of CO2 is taken into account. The internal price is based upon a mix of the current market price for carbon in Europe and a forecasted price of CO2 over the lifetime of the investment.

Actual price(s) used (Currency /metric ton)

55

Variance of price(s) used

The price is used for investments for facilities, which are effected by the EU ETS. In countries where no carbon pricing regulations are present, no carbon price is used.

Type of internal carbon price

Shadow price

Impact & implication

Due to the increased price of EU allowances and expected further increasement the effect of carbon savings in energy projects has/will have a much higher impact on the decision making of investment proposals.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers
Yes, our customers

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement
Engagement & incentivization (changing supplier behavior)

Details of engagement
Other, please specify (As part of our sustainable sourcing programme, we meet suppliers during physical audits and at our sites. During these meetings also climate change related policies and actions are discussed and suppliers are engaged and incentivised to take part)

% of suppliers by number
5

% total procurement spend (direct and indirect)
5

% of supplier-related Scope 3 emissions as reported in C6.5
20

Rationale for the coverage of your engagement
Our sustainable and responsible sourcing programme is risk-based. We select the suppliers we annually meet based on our risk assessments and audit them on site. The 5% coverage of the selected suppliers is based on the results of our risk assessment, the sourcing category and the fact that the suppliers have been audited on site. Our audit system counts each supplier site as an unique supplier entity and in many cases we source from the same supplier from multiple sites which impacts the percentage. Our audit system focuses in the following supplier categories: Key Raw Materials, Goods and Services and Commodities. The programme itself consists of seven sections. These are: quality, hygiene and safety, business continuity, operations, continual improvement, service and technical support and environmental sustainable development. Each one has a strong sustainability implication, namely: assessing supplier risks; focusing on relevant supplier processes; mitigating risks related to environmental, social and equality issues; respect the right to water sufficiency, safety, acceptability, accessibility, affordability and reducing waste by meeting food safety requirements. These have an impact to Product Safety, Driving Efficiency and Operational Continuity which all are areas also delivering to mitigating climate change.

Impact of engagement, including measures of success
We require our Key Raw Materials, Goods and Services, and Commodities to be managed and supplied to us sustainably. Since launching our sustainable and responsible sourcing programme in 2010, we have been auditing all our suppliers at least once to ensure they meet our standards. Our Sustainable and Responsible Sourcing programme is founded on risk mapping against our key criteria, and Risk mapping considers the sourcing categories with the highest impact on our products, and therefore our stakeholders. Audits result in a rating against each of the seven sections of our programme: Quality, Hygiene and Safety, Business Continuity, Continual Support, Service and Technical Support and Environment and Sustainable Development. If the result is below ‘acceptable’ (scoring less than 40%), an obligatory improvement programme is devised. Major non conformities need to be addressed within two weeks and resolved within six months. Minor non conformities need to be solved within 12 months during a surveillance audit. The supplier assessment is repeated every three years through a re-approval audit process. Our risk mapping, combined with supplier audit results, show that 81% of our suppliers of key materials audited in 2020 carry moderate to low risk. Our sourcing network includes suppliers ranging from small-scale local companies to large multinationals. Of the total of 46 activities in 2020, 23 of these were first-time audits, including on-site and off-line audits. 18% were conducted on strategic suppliers and 35% on suppliers of key materials. A total of 94% of all suppliers audited during 2020 scored at least mark ‘acceptable’ (2019: 87%), and the remaining will pass the audit once they complete improvement plans. Following the initial audit, we work with each supplier to identify continual improvement opportunities.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement
Collaboration & innovation

Details of engagement
Other, please specify (We offer to our customers packaging solutions that help them reduce CO2 emissions in their supply chains)

% of customers by number
35

% of customer - related Scope 3 emissions as reported in C6.5
0

Portfolio coverage (total or outstanding)
<Not Applicable>

Please explain the rationale for selecting this group of customers and scope of engagement
We have estimated that our Pan European and Pan American customers make about 35% of our customer base in number of customers. These customers have active sustainability and CO2 reduction programmes and we specifically target our services to these customer groups.

Impact of engagement, including measures of success
We have developed a suite of packaging service design tools that calculate the CO2 impact of different packaging options in different supply chain scenarios. This enables us to offer our customers the most optimised solutions in their supply chains. To be able to measure success, we calculate the number of times these tools have been used in daily average each year. Using a suite of tools, including Paper to Box and Pack Expert, we work with customers to determine their packaging’s carbon footprint. These tools provide CO2 emissions data and other information to optimise solutions. On average in 2020, Paper to Box was used almost 10,000 times per day and Pack Expert over 1,400 times per day.

C-AC12.2/C-FB12.2/C-PF12.2

(C-AC12.2/C-FB12.2/C-PF12.2) Do you encourage your suppliers to undertake any agricultural or forest management practices with climate change mitigation and/or adaptation benefits?
Yes

C-AC12.2a/C-FB12.2a/C-PF12.2a

(C-AC12.2a/C-FB12.2a/C-PF12.2a) Specify which agricultural or forest management practices with climate change mitigation and/or adaptation benefits you encourage your suppliers to undertake and describe your role in the implementation of each practice.

Management practice reference number
MP1

Management practice
Biodiversity considerations

Description of management practice
Forest management certification

Your role in the implementation
Procurement

Explanation of how you encourage implementation
Smurfit Kappa has forestry and fibre sourcing policy demanding for certified forest management by FSC, PEFC or SFI

Climate change related benefit
Increasing resilience to climate change (adaptation)

Comment

C-AC12.2b/C-FB12.2b/C-PF12.2b

(C-AC12.2b/C-FB12.2b/C-PF12.2b) Do you collect information from your suppliers about the outcomes of any implemented agricultural/forest management practices you have encouraged?
Yes

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?
Trade associations
Other

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?
Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association
Confederation of European Paper Industries (CEPI)

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
Any emission trading system should create a level playing field to all industry actors and prevent carbon leakage to countries and regions where regulations are not relevant. Wood raw material should be treated through an added value approach and without unnecessary substitutes that disrupt markets leading to valuable raw material bust for energy where the added value products offer a longer carbon storage option.

How have you influenced, or are you attempting to influence their position?
Through active participation in the committees and working groups in CEPI. CEPI has an ongoing discussion with the EU Commission on multiple Climate Change related issues. We focus on data driven and fact based debate and presentation of our positions as an industry as a whole. Smurfit Kappa is supportive of the CEPI positions and is preparing them in collaboration with CEPI.

C12.3e

(C12.3e) Provide details of the other engagement activities that you undertake.

Sustainable businesses encourage diverse views, and we provide opportunities for dialogue with the many stakeholders who impact our business. In our experience, this exchange of ideas and our end-to-end approach to sustainability delivers benefits for everyone.

We know which issues are important to our stakeholders through continual multi-level engagement with our customers, investors, employees, communities and other relevant parties. Our goal is to be the most sustainable paper-based packaging solutions company globally. To achieve this, we believe it is important to share our sustainability experience with our customers, suppliers and the wider industry.

This engagement includes:

1. We are involved with selected trade bodies to influence understanding and share knowledge about embedding sustainability throughout operations, including:

· Organising meetings and round-table discussions on sustainability with our stakeholders;

· Beyond compliance, Smurfit Kappa upholds standards on a variety of matters material to our business, representing them to the parties concerned, either directly or through industry bodies Participating in discussions within and outside our industry through our membership of:

o Confederation of European Paper Industries (CEPI) – Group and National level membership. Smurfit Kappa's Group CEO is currently a board member.

o European Corrugated Packaging Association (FEFCO) – Group and national level membership. Smurfit Kappa's CEO for Europe is currently a board member.

o European Round Table of Industrialists (ERT). Our Group CEO is a member of the ERT.

o International Corrugated Case Association (ICCA). Smurfit Kappa's CEO for Europe is currently a board member.

o Asociación de Corrugadores del Caribe Centro y Sur América (ACCCSA). Smurfit Kappa's CFO for the Americas is currently a board member.

2. In addition, we are active participants in and signatories to many environmental reporting and sustainability organisations:

· 4evergreen initiative

· UN Global Compact

· UN Global Compact's CEO Water Mandate

· The Forest Stewardship Council (FSC)

· The Programme for the Endorsement of Forest Certification (PEFC)

· The Supplier Ethical Data Exchange (SEDEX)

· World Business Council for Sustainable Development (WBCSD)

· EcoVadis, FTSE4Good and benchmarking against UN 2030 Sustainable Development Goals

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

The Sustainability Working Group (see C1.2 Sustainability Committee) coordinates the strategy implementation as well as activities to influence policy.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication
In voluntary sustainability report

Status
Complete

Attach the document
Smurfit_Kappa_Sustainable_Development_Report_2020.pdf

Page/Section reference
Pages 24-45 and pages 74-82

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C13. Other land management impacts

C-AC13.1/C-FB13.1/C-PF13.1

(C-AC13.1/C-FB13.1/C-PF13.1) Do you know if any of the management practices implemented on your own land disclosed in C-AC4.4a/C-FB4.4a/C-PF4.4a have other impacts besides climate change mitigation/adaptation?
Yes

C-AC13.1a/C-FB13.1a/C-PF13.1a

(C-AC13.1a/C-FB13.1a/C-PF13.1a) Provide details on those management practices that have other impacts besides climate change mitigation/adaptation and on your management response.

Management practice reference number
MP1

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil
Water

Description of impact
Sustainable forest management is designed to set minimum criteria for biodiversity, soil and water protection among other ecosystem services through responsible forest and plantation management having a landscape-level impact. Certified sustainable forest management has improved the state of commercial forests and plantations according to multiple studies. The primary positive impact covers our forestry operations and sourcing. However, our complete value chain benefits from this due to certified chain of custody management systems.

Have you implemented any response(s) to these impacts?
Yes

Description of the response(s)
Our approach to mitigate possible negative impacts and manage these responses is certified sustainable forest management by FSC, PEFC or SFI. We source virgin fibres from certifiably well managed forests, or at least of non-controversial origin, or certified recycled fibres. All materials must be delivered through a third-party-verified Chain of Custody certified supply chain. We accept Forest Stewardship Council (FSC), Programme for Endorsement of Forest Certification (PEFC) and Sustainable Forestry Initiative (SFI) certified wood, and the Chain of Custody systems at our mills and plants also cover recycled fibre sourcing. We regard these certification schemes as the best available means to conserve forests and their biodiversity. Our complete paper mill system has been Chain of Custody certified under FSC and PEFC schemes in Europe since 2010, and under FSC, PEFC and/or SFI schemes in the Americas since 2015. Forests play an important role in environmental resilience. We therefore need to promote healthy forests and manage these resources sustainably. Drought, flooding and local restrictions on water usage may limit our access to water, so we have been conducting water risk assessments at our paper mills. Since 2014, we have investigated the environmental impact of our paper and board mills and undertook water risk assessments across all our mills. All assessments to date confirmed that our mills' water use has no impact on water availability to neighbouring areas.

C-AC13.2/C-FB13.2/C-PF13.2

(C-AC13.2/C-FB13.2/C-PF13.2) Do you know if any of the management practices mentioned in C-AC12.2a/C-FB12.2a/C-PF12.2a that were implemented by your suppliers have other impacts besides climate change mitigation/adaptation?
Yes

C-AC13.2a/C-FB13.2a/C-PF13.2a

(C-AC13.2a/C-FB13.2a/C-PF13.2a) Provide details of those management practices implemented by your suppliers that have other impacts besides climate change mitigation/adaptation.

Management practice reference number
MP1

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil
Water

Description of impacts
Sustainable forest management is designed to set minimum criteria for biodiversity, soil and water protection among other ecosystem services through responsible forest and plantation management having a landscape-level impact. Certified sustainable forest management has improved the state of commercial forests and plantations according to multiple studies. The primary positive impact covers sourcing. However, our complete value chain benefits from this due to certified chain of custody management systems.

Have any response to these impacts been implemented?
Yes

Description of the response(s)
Our approach to mitigate possible negative impacts and manage these responses is to require certified sustainable forest management by FSC, PEFC or SFI from our suppliers and delivery of wood, pulp and paper through certified chains of custody.

C15. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

Please note that our information of our Latvian operations is part of the Lithuanian reporting.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Group Chief Executive Officer	Chief Executive Officer (CEO)