

CLIMATE CHANGE

Indicator	
305-1	Direct (scope 1) GHG emissions
305-2	Energy indirect (scope 2) GHG emissions

<p>Explain what standards, methodologies and assumptions were used in the calculation, the source of the factors used, and the link from where the information was taken</p>	<ul style="list-style-type: none"> • Greenhouse gases included in the calculation: this indicator includes only CO2 emissions, since emissions of other greenhouse gases are not significant in the cement production process. In addition, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry is limited only to the CO2 inventory (see: "The Cement CO2 and Energy Protocol - CO2 and Energy Accounting and Reporting Standard for the Cement Industry. World Business Council for Sustainable Development (WBCSD) - Cement Sustainability Initiative (CSI), 2011. Available at: https://www.cement-co2-protocol.org/en/index.htm). • Approach for the consolidation of emissions: an operational control approach was considered to calculate these emissions. • Standards, methodologies and assumptions used for the calculation: <ul style="list-style-type: none"> - The methodology used to calculate direct (scope 1) and indirect (scope 2 by location based method) emissions is the one developed by the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD) and European Cement Research Academy (ECRA): "The Cement CO2 and Energy Protocol - CO2 and Energy Accounting and Reporting Standard for the Cement Industry" (2011). - The methodology used to calculate indirect emissions (scope 2 by market based method) is the one determined by the World Resources Institute (WRI): "GHG Protocol Scope 2 Guidance" (2015). Available at: https://ghgprotocol.org/scope_2_guidance • Direct emissions (scope 1): are those that come from sources that are owned or controlled by the reporting entity. In cement plants, direct CO2 emissions are generated by the following sources: 1. Calcination of carbonates and combustion of organic carbon contained in raw materials; 2. Consumption of fuels in the clinkerization kiln; 3. Consumption of fuels in equipment other than the clinkerization kiln; 4. Consumption of fuels for the generation of energy in situ. • Indirect emissions (scope 2): are those caused by the consumption of external production of electricity. <p>Gross direct emissions are reported for cement operations and correspond to the total direct emissions generated by raw materials, fuels for the clinkerization kiln and fuels for equipment other than the kiln; CO2 is excluded from the generation of energy in situ.</p> <p>Biogenic CO2 emissions are excluded (those of biomass combustion) since they are considered neutral.</p> <ul style="list-style-type: none"> • Source of CO2 emission factors for each fuel: "CO2 and Energy Accounting and Reporting Standard for the Cement Industry - The Cement CO2 and Energy Protocol". WBCSD - CSI (2011). Available at: https://www.cement-co2-protocol.org/en/index.htm • Source of CO2 emission factors due to electric power generation in each country: <ul style="list-style-type: none"> - Colombia: Resolution 320 of August 5, 2022 of the Energy Mining Planning Unit - UPME (for its acronym in Spanish), updated the emission factor of the National Interconnected System for the year 2021 for inventories of emissions of greenhouse gases (GHG) and GHG mitigation projects. Available at: https://www1.upme.gov.co/siame/Paginas/calculo-factor-de-emision-de-Co2-del-SIN.aspx - Dominican Republic: United Nations - Clean Development Mechanism (2020). Standardized baseline: Grid Emission Factor for the Dominican Republic, Version 1.0. Available at: https://bit.ly/3kelawx - Guyana: International Renewable Energy Agency (Irena) (2022). Statistical Profiles - Energy Profile. Available at: https://www.irena.org/Data/Energy-Profiles ; https://bit.ly/41g7uTj - Panamá: National Secretary of Energy of Panama quoted by ENSA (2017). Inventory of Greenhouse Gas Emissions 2017. Available at: https://bit.ly/3IJ0ghE - Suriname: International Renewable Energy Agency (Irena) (2022). Statistical Profiles - Energy Profile. Available at: https://www.irena.org/Data/Energy-Profiles ; https://bit.ly/3IWvPxm - United States: EPA (Environmental Protection Agency) (2021). Emissions & Generation Resource Integrated Database (eGRID). Available at: https://www.epa.gov/egrid/summary-data - Honduras, Haití and Puerto Rico: International Energy Agency (IEA) (2013). CO2 emissions from fuel combustion - Highlights. Available at: https://bit.ly/3ZbcyGM • Source of CO2 emission factors for scope 2 (market based method): for Rioclaro cement plant (Colombia) the CO2 emission factor was supplied by Empresas Públicas de Medellín (EPM) ESP in its I-REC 2022 certificate. EPM is one of power supplier for this plant, specifically of hydro energy. For Piedras Azules cement plant (Honduras) the CO2 emission factor was supplied by Celsia Honduras, which is one power supplier for this plant. Celsia Honduras supplies energy to Piedras Azules cement plant from its solar farm. • Selection of the base year: The base year for measurement is 2006 given that the integration of the different cement companies was completed in that year, thus giving rise to Cementos Argos. Therefore, consolidated information on the production and flow of materials and energy to calculate emissions is available from that year.
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Measurement baseline year	2019	2020	2021	2022
Direct and Indirect GHG Emissions from Cement				
305-1 Direct GHG emissions tCO2	8.186.930	7.281.478	8.291.874	8.278.602
305-2 Indirect GHG Emissions tCO2 (location based method)	432.834	399.728	408.558	392.631
305-2 Indirect GHG Emissions tCO2 (market based method)			386.513	374.867
Direct and Indirect (location based method) GHG Emissions from Cement tCO2	8.619.764	7.681.206	8.700.432	8.671.233
Direct and Indirect (market based method) GHG Emissions from Cement tCO2			8.678.387	8.653.469

<p>Explain what standards, methodologies and assumptions were used in the calculation, the source of the factors used, and the link from where the information was taken</p>	<ul style="list-style-type: none"> • Greenhouse gases included in the calculation: only CO2 emissions were included in this indicator. • Approach to the consolidation of emissions: An operational control approach was considered to calculate these emissions. • Standards, methodologies and assumptions used for the calculation: the methodology used to calculate direct and indirect emissions is the one determined by the Corporate Accounting and Reporting Standard - The Greenhouse Gas Protocol, of the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) (2004). • The following equation was considered for calculating direct emissions of concrete operations: Direct concrete emissions = Fuel consumption * Lower heating value of fuel * CO2 emission factor associated with each fuel. • The following equation was considered for calculating indirect emissions of concrete operations (scope 2 by location based method): Indirect concrete emissions = Consumption of electric power purchased from the national grid of each country * CO2 emission factor of the national electricity grid of each country. Indirect emissions (scope 2) are those caused by the consumption of electric power purchased from the national electricity grid. • Source of CO2 emission factors for each fuel: "CO2 and Energy Accounting and Reporting Standard for the Cement Industry - The Cement CO2 and Energy Protocol". WBCSD - CSI (2011). Available at: https://www.cement-co2-protocol.org/en/index.htm • Source of CO2 emission factors due to electric power generation in each country: <ul style="list-style-type: none"> - Colombia: Resolution 320 of August 5, 2022 of the Energy Mining Planning Unit - UPME (for its acronym in Spanish), updated the emission factor of the National Interconnected System for the year 2021 for inventories of emissions of greenhouse gases (GHG) and GHG mitigation projects. Available at: https://www1.upme.gov.co/siame/Paginas/calculo-factor-de-emision-de-Co2-del-SIN.aspx - Dominican Republic: United Nations - Clean Development Mechanism (2020). Standardized baseline: Grid Emission Factor for the Dominican Republic, Version 1.0. Available at: https://bit.ly/3kelawx - Panama: National Secretary of Energy of Panama quoted by ENSA (2017). Inventory of Greenhouse Gas Emissions 2017. Available at: https://bit.ly/3IJOghE - Guyana: International Renewable Energy Agency (Irena) (2022). Statistical Profiles - Energy Profile. Available at: https://www.irena.org/Data/Energy-Profiles ; https://bit.ly/41g7uTj - United States: EPA (Environmental Protection Agency) (2021). Emissions & Generation Resource Integrated Database (eGRID). Available at: https://www.epa.gov/egrid/summary-data
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Direct and Indirect GHG Emissions from Concrete	2019	2020	2021	2022
305-1 Direct GHG emissions tCO2	126.796	72.026	77.635	74.882
305-2 Indirect GHG Emissions tCO2	12.737	14.041	10.696	9.579
Direct and Indirect GHG Emissions from Concrete tCO2	139.533	86.067	88.331	84.461

<p>Explain what standards, methodologies and assumptions were used in the calculation, the source of the factors used, and the link from where the information was taken</p>	<ul style="list-style-type: none"> • Greenhouse gases included in calculation: only CO2 emissions were included in this indicator. • Approach to the consolidation of emissions: an operational control approach to calculate emissions was considered. • Standards, methodologies and assumptions used for the calculation: The methodology used to calculate direct emissions is determined by the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD): "The Cement CO2 and Energy Protocol - CO2 and Energy Accounting and Reporting Standard for the Cement Industry "(2011). Available at: https://www.cement-co2-protocol.org/en/index.htm • The following equation was considered for calculating direct emissions of on-site power generation operations: Direct emissions from on-site power generation operations = Fuel consumption * Lower heating value of fuel * CO2 emission factor associated with each fuel. • Source of CO2 emission factors for each fuel: "Accounting and Reporting Standard for CO2 and Energy for the Cement Industry - Energy and CO2 Protocol in the Cement Industry". WBCSD - CSI (2011). Available at: https://www.cement-co2-protocol.org/en/index.htm
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Direct GHG Emissions from Electricity	2019	2020	2021	2022
305-1 Direct GHG emissions t CO2 - Electricity	395.896	416.468	415.300	454.134

<p>Explain what standards, methodologies and assumptions were used in the calculation, the source of the factors used, and the link from where the information was taken</p>	<ul style="list-style-type: none"> • Greenhouse gases included in the calculation: only CO2 emissions were included in this indicator. • Approach for the consolidation of emissions: An operational control approach was considered to calculate these emissions. • Standards, methodologies and assumptions used for the calculation: The methodology used to calculate direct and indirect emissions is the one determined by the Corporate Accounting and Reporting Standard - The Greenhouse Gas Protocol, of the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) (2004). • The following equation was considered for calculating direct emissions of aggregates operations: Direct aggregates emissions = Fuel consumption * Lower heating value of fuel * CO2 emission factor associated with each fuel. • The following equation was considered for calculating indirect emissions of aggregates operations: Indirect aggregates emissions = Consumption of electric power purchased from the national grid of each country * CO2 emission factor of the national electricity grid of each country. • Source of CO2 emission factors for each fuel: "CO2 and Energy Accounting and Reporting Standard for the Cement Industry - The Cement CO2 and Energy Protocol". WBCSD - CSI (2011). Available at: https://www.cement-co2-protocol.org/en/index.htm • Source of CO2 emission factors due to electric power generation in each country: <ul style="list-style-type: none"> - Colombia: Resolution 320 of August 5, 2022 of the Energy Mining Planning Unit - UPME (for its acronym in Spanish), updated the emission factor of the National Interconnected System for the year 2021 for inventories of emissions of greenhouse gases (GHG) and GHG mitigation projects. Available at: https://www1.upme.gov.co/siame/Paginas/calculo-factor-de-emision-de-Co2-del-SIN.aspx - Dominican Republic: United Nations - Clean Development Mechanism (2020). Standardized baseline: Grid Emission Factor for the Dominican Republic, Version 1.0. Available at: https://bit.ly/3kelawx - Panama: National Secretary of Energy of Panama quoted by ENSA (2017). Inventory of Greenhouse Gas Emissions 2017. Available at: https://bit.ly/3IIOghE
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Direct and Indirect GHG Emissions from Aggregates	2019	2020	2021	2022
305-1 Direct GHG emissions tCO2- Aggregates	4.009	2.806	4.275	5.209
305-2 Indirect GHG Emissions tCO2	752	656	747	555
Direct and Indirect GHG Emissions from Aggregates tCO2	4.760	3.462	5.022	5.764

	2019	2020	2021	2022
(305-1) Total direct emissions tCO2 - Cementos Argos	8.713.631	7.772.778	8.789.085	8.812.827
(305-2) Total Indirect emissions tCO2 (location based method)- Cementos Argos	446.322	414.425	420.000	402.765
(305-2) Total Indirect emissions tCO2 (market based method)- Cementos Argos			397.955	385.001
Total Emissions tCO2 - Cementos Argos (Scope 1 + Scope 2 location based method)	9.159.953	8.187.203	9.209.085	9.215.592
Total Emissions tCO2 - Cementos Argos (Scope 1 + Scope 2 market based method)			9.187.040	9.197.828

	2019	2020	2021	2022
Total Emissions tCO2 - Cementos Argos (Scope 1 + Scope 2 location based method) + Scope 3)	13.488.264	12.340.917	13.336.791	14.028.382
Total Emissions tCO2 - Cementos Argos (Scope 1 + Scope 2 market based method) + Scope 3)			13.314.746	14.010.618

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Indicator	Name
305-3	Other indirect (Scope 3) GHG emissions

Sources of Scope 3 emissions	Category	Evaluation status	2019	2020	2021	2022	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Standards, methodologies and assumptions in the calculation, gases included in the calculation, as well as the source of emission factors and GWP	Comments
Purchased goods and services	1	Relevant, calculated	3.373.602	3.096.972	2.934.945	2.827.251	0%	<p>From 2016 to 2019 Argos' scope 3 emissions calculations were made with Quantis SUITE 2.0 software from Quantis Enterprise, however this application was withdrawn from the market by Quantis in 2020. Due to this fact, Argos contracted with this same company the development of a customized tool that makes the same quantification as Quantis Suite 2.0. Likewise, the tool developed by Quantis for Argos works under the GHG Protocol methodology "Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI) (2011), and under the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance" developed by WBCSD (2016). Coverage: Cement, concrete and aggregates operations of the Colombia, Caribbean and Central America and USA regions.</p>	<p>Argos prioritized 5 categories as "Relevant" of the 15 categories that comprise the Scope 3. The prioritization process was based on the results of the study developed by Quantis for Argos, entitled "Calculation of Cementos Argos' GHG Emissions from priority Sources of Scope 3 Emissions", in addition to the guidelines provided by the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance", developed by the WBCSD - CSI (2016).</p> <p>Category 1, Purchased Goods and Services, was one of the 5 relevant categories. In 2022 this category represented 59% of the company's total scope 3 CO2 emissions.</p>
Capital goods/	2	Not relevant, calculated	NA	NA	NA	55.108	0%	<p>This category was calculated using the Scope 3 Evaluator Tool, which is a free scope 3 screening tool developed by the GHG Protocol teamed up with Quantis, in alignment with the Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (WBCSD and WRI, 2011). This tool is available at https://quantis-suite.com/Scope-3-Evaluator/. As input information for the calculation of this category, the Company's 2022 Capex information was used. The Capex classifications that were considered in the calculation were the following: Mining and Quarrying, Machinery (not elsewhere classified), Electrical and Optical Equipment -Transport Equipment, ConstructionSale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel The GHG emissions of this category were calculated with the CO2e emission factors contained in the Scope 3 Evaluator Tool. Coverage: Cement, concrete and aggregates operations of the Colombia, Caribbean and Central America and USA regions.</p>	<p>In 2022 this category represented 1.1% of the company's total scope 3 CO2 emissions.</p>
Fuel and energy related activities	3	Relevant, calculated	674.332	432.360	523.334	514.883	0%	<p>From 2016 to 2019 Argos' scope 3 emissions calculations were made with Quantis SUITE 2.0 software from Quantis Enterprise, however this application was withdrawn from the market by Quantis in 2020. Due to this fact, Argos contracted with this same company the development of a customized tool that makes the same quantification as Quantis Suite 2.0. Likewise, the tool developed by Quantis for Argos works under the GHG Protocol methodology "Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI) (2011), and under the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance" developed by WBCSD (2016).</p> <p>Coverage: Cement, concrete and aggregates operations of the Colombia, Caribbean and Central America and USA regions.</p>	<p>The company prioritized 5 categories as "Relevant" of the 15 categories that comprise the Scope 3. The prioritization process was based on the results of the study developed by Quantis for Argos, entitled "Calculation of Cementos Argos' GHG Emissions from Priority Sources of Scope 3 Emissions", in addition to the guidelines provided by the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance", developed by the WBCSD - CSI (2016).</p> <p>Category 3, Fuel and Energy-Related Activities, was one of the 5 relevant categories. In 2022 this category represented 11% of the company's total scope 3 CO2 emissions.</p>

Sources of Scope 3 emissions	Category	Evaluation status	2019	2020	2021	2022	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Standards, methodologies and assumptions in the calculation, gases included in the calculation, as well as the source of emission factors and GWP	Comments
Upstream transportation and distribution	4	Relevant, calculated	198.718	383.954	404.253	666.884	21%	<p>The carbon footprint for Colombia region was gathered from these companies: Logitrans, Transportempo, Imbocar, Teca, Vigia, and T.N.G, which correspond to land transport suppliers of raw materials, products in process and finish products (packed in bulk and in bags). Also, this category includes the carbon footprint calculated by Geodis which is an important supplier of cargo transportation by sea and air.</p> <p>For calculation of the emissions from the other two regions (USA and Caribbean and Central America) the tool developed for Argos by Quantis was used, which works under the GHG Protocol methodology "Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI), 2011), and under the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance" developed by WBCSD (2016).</p> <p>Coverage: Cement, concrete and aggregates operations of Colombia, Caribbean and Central America and USA regions.</p>	<p>Argos prioritized 5 categories as "Relevant" of the 15 categories that comprise the Scope 3. The prioritization process was based on the results of the study developed by Quantis for Argos, entitled "Calculation of Cementos Argos' GHG Emissions from Priority Sources of Scope 3 Emissions", in addition to the guidelines provided by the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance", developed by the WBCSD - CSI (2016). Category 4 (upstream transportation and distribution) is among the 5 relevant categories.</p> <p>In 2022 this category represented 14% of the company's total scope 3 CO2 emissions.</p>
Waste generated in operation	5	Not relevant, calculated	NA	NA	NA	22.791	0%	<p>To calculate this category, a free tool developed by the Brazilian GHG Protocol Program was used (version 2022.1.0). This tool was developed under the guidelines of the GHG Protocol methodology "Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI), 2011).</p> <p>The input data for the calculation in this tool are the waste generated by Argos in the year 2022 and that was taken to sanitary landfills.</p> <p>Coverage: Cement, concrete and aggregates operations of Colombia, Caribbean and Central America and USA regions</p>	<p>In 2022 this category represented 0.5% of the company's total scope 3 CO2 emissions.</p>
Business travels	6	Relevant, calculated	1.252	248	383	715	84%	<p>The carbon footprint for Colombia and United States regions was collected from the travel agencies that operate the logistics of corporate travel. For calculation of the emissions of the Caribbean and Central America region the Scope 3 Tool developed by Quantis for Argos was used, which works under the GHG Protocol methodology "Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (WBCSD and WRI, 2011), and under the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance" developed by WBCSD (2016).</p> <p>Coverage: Cement, concrete and aggregates operations of COL, CCA and USA regions.</p>	<p>Argos prioritized 5 categories as "Relevant" of the 15 categories that comprise the Scope 3. The prioritization process was based on the results of the study developed by Quantis for Argos, entitled "Calculation of Cementos Argos' GHG Emissions from Priority Sources of Scope 3 Emissions", in addition to the guidelines provided by the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance", developed by the WBCSD - CSI (2016). Category 6, Business Travel, was one of the 5 relevant categories.</p> <p>In 2022 this category represented 0.01% of the company's total scope 3 CO2 emissions</p>
Employee commuting	7	Not relevant / Calculated	NA	NA	NA	30.807	0%	<p>This category was calculated using the Scope 3 Evaluator Tool, which is a free scope 3 screening tool developed by the GHG Protocol teamed up with Quantis, in alignment with the Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (WBCSD and WRI, 2011). This tool is available at https://quantis-suite.com/Scope-3-Evaluator/. The calculation was made considering the following variables: the number of employees in each regional, average distance between residence and work, and number of working days in the year. It was assumed that all employees travel by their own car (to make a conservative calculation). The emissions of this category are then the result of multiplying the input information with the CO2e emission factor for the passenger car (this factor is from Ecoinvent 3.8, which is the database included in the Scope 3 Evaluator Tool - Quantis GHG Protocol). Coverage: Cement, concrete and aggregates operations of the Colombia, Caribbean and Central America and USA regions.</p>	<p>In 2022 this category represented 0.64% of the company's total scope 3 CO2 emissions.</p>

Sources of Scope 3 emissions	Category	Evaluation status	2019	2020	2021	2022	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Standards, methodologies and assumptions in the calculation, gases included in the calculation, as well as the source of emission factors and GWP	Comments
Upstream leased assets	8	Not relevant	NA	NA	NA	N.A.	N.A.	NA	This category is not relevant to cement companies according to what is established in the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance" developed by WBCSD (2016).
Total Upstream Scope 3 Emissions tCO2e			4.247.904	3.913.533	3.862.916	4.118.438			

Sources of Scope 3 emissions	Category	Evaluation status	2019	2020	2021	2022	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Standards, methodologies and assumptions in the calculation, gases included in the calculation, as well as the source of emission factors and GWP	Comments
Downstream transportation and distribution	9	Relevant, calculated /	80.407	240.181	264.790	-	0%	<p>Since 2022, the emissions in this category were included in category 4 since it was identified that Argos hires a supplier (through outsourcing) to carry the product sold to its customers. Therefore, the emissions of Category 9 are 0 tonne as of 2022.</p> <p>Coverage: Cement, concrete and aggregates operations of COL, CCA and USA regions.</p>	In 2022 this category represented 0% of the company's total scope 3 CO2 emissions.
Processing of sold products	10	Not relevant, calculated	NA	NA	NA	400.283	0%	<p>This category is calculated considering the emissions generated in third-party concrete plants that use Argos cement to produce concrete. It is assumed that:</p> <ol style="list-style-type: none"> Cement sold to third parties is equal to that produced minus the cement used in Argos concrete plants of the Colombia region and the USA region. The concrete produced by third parties with Argos cement is calculated with the average mix of Argos concretes (tonne cement/m3 concrete). The CO2 emission intensity indicator (kgCO2/m3) from Argos concrete operations in 2022 was used as an emission factor for concrete production. <p>Coverage: Cement and concrete operations of COL, CCA and USA regions.</p>	In 2022 this category represented 8,3% of the company's total scope 3 CO2 emissions.
Use of sold product	11	Not relevant	NA	NA	NA	N.A.	N.A.	NA	This category is not relevant to cement companies according to the prioritization process developed by Quantis for Argos in 2013 entitled "Calculation of Cementos Argos' GHG Emissions from priority Sources of Scope 3 Emissions", in addition to the guidelines provided by the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance", developed by the WBCSD - CSI (2016).
End of life treatment of sold products	12	Not relevant, calculated	NA	NA	NA	269.336	0%	<p>To calculate this category, a free tool developed by the Brazilian GHG Protocol Program was used (version 2022.1.0). This tool was developed under the guidelines of the GHG Protocol methodology "Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI), 2011).</p> <p>Emissions in this category correspond to the sum of the following activities:</p> <ol style="list-style-type: none"> Emissions from sending the bags of cement that were sold in 2022 to the landfill. The bags of cement that were recovered by Green Bags program are discounted from this amount. Green Bags program is a reverse logistics program that we offer our customers in a free way, to pickup the bags used in the construction work and give them a correct disposal. Emissions from transporting the sold product when it is taken to a landfill. The product sold was calculated as follows: tons of cement sold plus tons of concrete sold (considering a concrete density of 2.4 g/cm³) 	In 2022 this category represented 5,6% of the company's total scope 3 CO2 emissions.

Sources of Scope 3 emissions	Category	Evaluation status	2019	2020	2021	2022	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Standards, methodologies and assumptions in the calculation, gases included in the calculation, as well as the source of emission factors and GWP	Comments
Downstream leased assets	13	Not relevant	NA	NA	NA	N.A.	N.A.	NA	This category is not relevant to cement companies according to what is established in the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance" developed by WBCSD (2016).
Franchises	14	Not relevant	NA	NA	NA	N.A.	N.A.	NA	This category is not relevant to cement companies according to what is established in the "Cement Sector Scope 3 GHG Accounting and Reporting Guidance" developed by WBCSD (2016).
Investments	15	Not relevant, calculated	NA	NA	NA	24.733	0%	<p>This category was calculated using the Scope 3 Evaluator Tool, which is a free scope 3 screening tool developed by the GHG Protocol teamed up with Quantis, in alignment with the Accounting and Reporting Standard for the Corporate Value Chain (Scope 3)" (WBCSD and WRI, 2011). This tool is available at https://quantis-suite.com/Scope-3-Evaluator/</p> <p>This category was calculated by multiplying the investments made by Argos in other companies and the CO2e emission factor of the type of activity of each of them. The CO2e emission factors are included in the Scope 3 Evaluator Tool - Quantis GHG Protocol.</p> <p>Coverage: Cement, concrete and aggregates operations of the Colombia, Caribbean and Central America and USA regions.</p>	In 2022 this category represented 0,51% of the company's total scope 3 CO2 emissions.
Total Downstream Scope 3 emissions tCO2e			80.407	240.181	264.790	694.352			
Total Emissions of Scope 3 Greenhouse Gases tCO2e			4.328.311	4.153.714	4.127.706	4.812.791			

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Indicator	
305-4	GHG Emissions intensity
A-EC1	Net Specific Emissions of CO2 (kgCO2/t cementitious material)

Carbon intensity (Enter only emissions that you want to include in the ratio)	2017	2018	2019	2020	2021	2022	Comments
Intensity of the CO2 emissions in cement production (kg CO2/t cementitious products)	627	627	638	643	645	647	Numerator: Direct gross emissions (corresponding to GRI 305-1) Denominator: Cementitious material production. Coverage: Cement operations of the COL, CCA and USA regions.
Intensity of the CO2 emissions in the production of concrete (kg CO2/m3 concrete)	13,10	12,10	13,52	9,09	10,07	9,44	Numerator: Direct emissions GRI 305 - 1 Denominator: Concrete production. Coverage: Concrete operations of the COL, CCA and USA regions.
Intensity of the CO2 emissions in the production of aggregates (kgCO2/t product)	1,36	1,90	1,73	1,51	2,64	2,45	Numerator: Direct emissions GRI 305 - 1 Denominator: Aggregates production. Coverage: Concrete operations of the COL and CCA regions.
Intensity of the CO2 emissions in electricity generation (kg CO2/MWh)	781	865	865	910	924	988	Numerator: Direct emissions GRI 305 – 1. Denominator: Electric power production. Coverage: Electric power operations in situ of the Colombia and Caribbean and Central America regions.

Environmental Policy Indicator	Baseline year (2006)	2016	2017	2018	2019	2020	2021	2022	Comments
Specific Net CO2 Emissions (kg CO2/t cementitious products)	735	632	618	616	627	634	635	637	Net specific CO2 emissions per tonne of cementitious material increased slightly by 0,3% regarding 2021. The absolute net CO2 emissions and cementitious material production remained stable, in other words, CO2 emissions decreased in the same proportion as the production of cementitious material decreased. The slight increase of 0.3% in net specific CO2 emissions per tonne of cementitious material was mainly due to the increase in specific heat consumption in clinker production. This very small increase in net specific CO2 emissions allows us to say that they remained stable, which reflects a similar performance in the levers for reducing direct CO2 emissions from cement operations, associated with the cement clinker factor, which decreased, and the decreased in the use of alternative fuels. Such marginal changes in these CO2 reduction levers fell short of driving a decrease in emissions intensity. This indicator is calculated according to the methodology determined by the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD): "The Cement CO2 and Energy Protocol - CO2 and Energy Accounting and Reporting Standard for the Cement Industry" (2011).
Baseline year				2006					
Year for which the goal is set				2030					This indicator corresponds to the variable 74 calculated by the methodology described. Numerator: Net direct CO2 emissions (Total CO2 emissions, excluding CO2 emissions from in situ power generation and CO2 emissions generated by the consumption of alternative fuels). It corresponds to the variable 71 of the calculation of the "CO2 and Energy Accounting and Reporting Standard for the Cement Industry - Cement CO2 and Energy Protocol." Denominator: Cementitious material production. It corresponds to variable 21a of the calculation of the "CO2 and Energy Accounting and Reporting Standard for the Cement Industry - Cement CO2 and Energy Protocol."
Reduction goal of cement GHG emissions				523					Coverage: Cement operations of the Colombia, Caribbean and Central America and United States regions.
Reduction compared to baseline year 2006:		-13%							

CLIMATE CHANGE

Indicator	Name
305-5	Reduction of GHG emissions

Initiative	Baseline year to calculate the reduction	Emission reduction (tCO2) to 2021	Indication as to whether the reduced emissions belong to the Scope 1, 2 and/or 3	Gases included in the calculation	Description of the initiative
Caribbean and Central America - Piedras Azules cement Plant (Honduras): increase in the percentage of alternative fuels in the fuel mix of the clinkerization kiln, in replacement of petcoke	2021	6.133	Scope 1	CO2	Increase in the percentage of petcoke substitution by alternative fuels (tyres, waste oils, and expired medications) in the fuel mix for the clinkerization kiln. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
Colombia - Cartagena wet cement Plant: reduction of specific heat consumption in clinker production	2021	1.358	Scope 1	CO2	A reduction in specific heat consumption of clinker production was obtained. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
Colombia - Yumbo cement Plant: increase in the percentage of natural gas	2021	23.090	Scope 1	CO2	Increase in the percentage of coal substitution by natural gas in the fuel mix for the clinkerization kiln. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
Colombia - Sogamoso cement Plant: increase in the percentage of natural gas	2021	1.000	Scope 1	CO2	Increase in the percentage of coal substitution by natural gas in the fuel mix for the clinkerization kiln. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
USA - Martinsburg cement Plant: reduction of the clinker/cement factor.	2021	9.570	Scope 1	CO2	Reduction of the clinker/cement factor. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
USA - Harleyville cement Plant: reduction of the clinker/cement factor.	2021	7.276	Scope 1	CO2	Reduction of the clinker/cement factor. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
USA - Roberta cement Plant: reduction of the clinker/cement factor.	2021	42.499	Scope 1	CO2	Reduction of the clinker/cement factor. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
USA - Newberry cement Plant: reduction of the clinker/cement factor.	2021	19.031	Scope 1	CO2	Reduction of the clinker/cement factor. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
Colombia - Rioclaro cement Plant: reduction of the clinker/cement factor.	2021	12.999	Scope 1	CO2	Reduction of the clinker/cement factor. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
Colombia - Yumbo cement Plant: reduction of the clinker/cement factor.	2021	15.541	Scope 1	CO2	Reduction of the clinker/cement factor. For this calculation, the CO2 and Energy Accounting and Reporting Standard for the Cement Industry – Cement CO2 and Energy Protocol (WBCSD - CSI, 2011) was used.
Total		138.497			

CLIMATE CHANGE

Indicator	Name
203-2	Financial implications and other risks and opportunities due to climate change

Climate-related Opportunities		Primary climate-related risk driver	Primary potential financial impact	Company-specific description	Time horizon	Likelihood	Magnitude of impact	Potential financial impact figure (currency)		Potential financial impact figure – minimum (currency)		Potential financial impact figure – maximum (currency)		Cost of response to risk		Description of response and explanation of cost calculation	Comment				
Identifier	Where is the value chain does the risk driver occur?							Risk type	Risk description	COP	USD	COP	USD	COP	USD			COP	USD	COP	USD
Risk 1	Direct operations	Emerging regulation	Carbon pricing mechanisms	Increased direct costs	Short-term	Very likely	High	NA	NA	\$ 56,127,717,159	\$ 13,184,434	\$ 110,378,927,666	\$ 25,928,075	\$ 54,701,476,500	\$ 12,849,409	<p>In 2022 Argos updated its taxonomy of climate risks and opportunities and quantified their current impacts (2022) plus impacts in the short (2030), medium (2040) and long term (2050), defining climate scenarios to estimate risk variables and parameters and carry out calculations. Each scenario includes both physical variables (events and acute) and transition narratives. "Sustainability" (consistent with SSP/RCP 2.6 and IEA SDS), "Commitment" (consistent with SSP/RCP 2.6.4.5 and IEA STPS) and "Continuity" (consistent with SSP/RCP 2.6 and business-as-usual assumptions). Transition narratives set assumptions on the evolution of the social, political, legal, technological, and market contexts, complementing the information with market variables forecasts.</p> <p>Impacts correspond to the Value-at-Risk from production cost increases in the annual budget, setting assumptions for the current (2022), short (2030), medium (2040) and long term (2050) variations of common parameters concerning ETS. We performed Monte Carlo simulations for cost overruns considering ETS schemes depending on each time horizon. Random variables for each ETS in all cases are carbon prices, carbon intensity allowances and free allocation of permits. Emissions trading are defined by our scope 1 CO2 reduction roadmap (2022-2030) plus business forecasts (2040-2050).</p> <p>For 2022, the valuation of this risk estimates potential impacts of having an already existing ETS in the countries in which we operate, considering three likely scenarios to be implemented: the RGGI, the California cap and trade, and the European Union ETS. We consider their characteristics and includes each country's NDC. From the assumptions regarding subsidies, considering the case that each country may guarantee free allocations to 100% minus the NDC that is established.</p> <p>For impacts from 2030 to 2050 we assume ETS in all our geographies with assumptions given by the IEA scenarios, as well as inputs from business experts. The expected and maximum gains or losses were modeled in a risk engine that provides the distribution of losses aggregated by geography, time horizon and climate scenario.</p> <p>Reported figures correspond to financial impacts in the most immediate time horizon (2022). Longer term results show that if no further action is taken at the industry level, our maximum losses could be multiplied by five in 2040 and by ten 2050 under a scenario consistent with a proactive climate agenda (i.e., "Sustainability").</p>	<p>Monitoring and mitigation of this risk are integrated into the company's risk management system. Likewise, within the framework of the Environmental Strategy, Argos monitors and implements actions to reduce CO2 emissions, such as: CO2 inventory (scope 1, scope 2 and scope 3), CO2 reduction objectives, and mitigation levers (energy efficiency, use of alternative fuels, reduction of the climate/leakage ratio, as well as the increase in the efficiency of the value chain, among others). Argos considers that through the operational efficiency, the implementation of better and cleaner technologies, co-processing programs and new technologies such as the usage of calcium city to reduce clinker content in cement, it is possible to mitigate its CO2 direct emissions and therefore its transition risks associated.</p> <p>The company monitors its transition risks through the participation in several sectoral programs: Portland Cement Association (PCA), National Ready Mix Association (NRMA), FICEM (American Federation of Cement), PROCEMCO (Colombian Chamber of Cement and Concrete), GCCA (Global Cement and Concrete Association) and ANCI (National Business Association of Colombia).</p> <p>In addition, the Risk Management and the Environmental Management teams constantly monitor emerging changes in the countries where we operate, through platforms, such as the International Carbon Action Partnership (ICAP) and the World Bank's carbon pricing dashboard.</p>				
Risk 2	Direct operations	Current regulation	Carbon pricing mechanisms	Increased direct costs	Medium-term	Virtually certain	Medium-low	NA	NA	\$ 65,854,244,862	\$ 15,469,202	\$ 69,512,101,687	\$ 16,328,434	\$ 54,701,476,500	\$ 12,849,409	<p>New or higher carbon taxes on emissions or fossil fuel consumption. Among Argos' operations, Colombia is currently the only country where a carbon tax has been implemented. The Environmental, Energy Management, Risk Management, Production and Financial Planning teams developed a risk analysis addressing a potential widening of the tax base on Colombia's current carbon tax. Carbon taxes (currently applicable to liquid fuels consumption) could be potentially increased soon due to the widening of the tax base to coal and gas consumption.</p> <p>In April 2023, a first draft of the tax reform was released that proposes several modifications in green taxes. The first material change would consist of taxing the national consumption of coal with the National Carbon Tax (NCT, by its Spanish acronym) at a rate of COP 40,863 (approximately eleven dollars) per tonne. The NCT is an indirect tax, like VAT, that is registered only once in the chain (single phase) and falls on the carbon content of fossil fuels used for energy and combustion purposes. The tax is generated with the first sale made by the producer, or with the withdrawal of inventory and import for use consumption. Exports are exempt from the tax, as it is a tax that seeks to reduce CO2 emissions in Colombia.</p> <p>As it is an indirect tax, the producer of the fuel must collect it and the buyer is the one who must bear the value but can deduct it from his income. From the point of view of the tax management, this allows a reduced margin of maneuver due to its few exemptions or no subject. The most important of these is to be credited as "carbon neutral" in other words, the law allows that the carbon tax is incurred for taxpayers who certify to be carbon neutral through CO2 mitigation initiatives certified by third parties these are projects developed at the national level whose objective is the reduction or capture of GHG. One can also buy carbon credits, at a cost less than the value of the tax.</p>	<p>Given the latest updates on the upcoming tax reform in Colombia, we valued this risk addressing a potential widening of the tax base on Colombia's carbon tax. Under a Value-at-Risk approach, we performed Monte Carlo simulations for cost overruns derived from the tax increase. We took optimistic, likely and pessimistic references for potential carbon tax values per tonne of coal, all given by government proposals during different stages of the tax reform discussions. Gas consumption tax per cubic meter was considered under the guidelines provided by the tax reform. These values are also adjusted by inflation figures until 2022, and inflation forecasts from 2023. Annual consumptions of coal and gas were based on our annual forecasts defined by the Technical and Financial Roadmap for reducing our CO2 emissions to 2030.</p> <p>Reported figures correspond to financial impacts in the most immediate time horizon (2022). The widening of the carbon tax base in Colombia may represent between 35.8 (percentile 90) and 36.3 (percentile 95) billion COP in additional costs. This risk assessment may be performed in other countries, since we detect that a carbon tax is being considered by the governments of countries in which we operate.</p>				
Risk 3	Upstream	Market	Market increased cost of raw materials	Increased direct costs	Medium-term	Virtually certain	Medium-low	NA	NA	\$ 85,708,000,000	\$ 20,132,880	\$ 152,830,608,000	\$ 35,900,000	\$ 6,062,763,474	\$ 1,424,146	<p>In 2022 Argos updated its taxonomy of climate-related risks and opportunities and quantified their impacts in the short (2025), medium (2040) and long term (2050), defining the climate scenarios to estimate risk variables and parameters and carry out calculations. Climate scenarios guarantee the variety of situations recommended by TCFD, including a scenario with a temperature increase of less than 2°C. Each scenario includes both physical variables (events and acute) and transition narratives. "Sustainability" (consistent with SSP/RCP 2.6 and IEA SDS), "Commitment" (consistent with SSP/RCP 2.6.4.5 and IEA STPS) and "Continuity" (consistent with SSP/RCP 2.6 and business-as-usual assumptions). Regarding transition risks, transition narratives derive from the IEA SDS and STPS scenarios plus a business-as-usual narrative developed internally, which have been used as a basis for the evolution of the social, political, legal, technological, and market contexts, complementing the information with market variables forecasts.</p> <p>Impacts correspond to the Value-at-Risk from raw materials' cost increases in the annual budget, setting assumptions for the short (2025), medium (2040) and long term (2050) variations of key inputs, mainly coal, and supported by the IEA SDS, IEA STPS and business-as-usual assumptions and narratives. The expected and maximum gains or losses were modeled in a risk engine that provides the distribution of losses and potential gains aggregated by geography, type of risk, time horizon and climate scenario.</p> <p>As a general guideline, reported figures correspond to financial impacts in the most immediate time horizon. We foresee this risk to be materialized in 2025 and/or beyond. Under the "Sustainability" scenario, impacts may decrease over the 2040-2050 as an effective energy transition is achieved globally. However, if no effective energy transition is put in place and we make no further reductions in our fossil fuel dependency beyond our Technical Roadmap to 2030, we foresee that increases in global demand of commodities and/or market supply shocks given, for instance, by geopolitical issues, can increase our annual operational costs by up to USD 13 million (under a "Commitment" scenario) and USD 37 million (under business-as-usual conditions).</p>	<p>Co-processing continues to be one of the primary levers to reduce the intensity of specific CO2 emissions and use of the fundamental factors for energy and cost efficiency in the cement operations in the three Regions.</p> <p>In 2022 Argos continued implementing initiatives related to the company's climate change strategy, specifically with the lines of action for mitigation of CO2 emissions. These actions involved investments and expenses around USD 12.8 million (\$470,850,000 COP) of which USD 1.4 million (\$6,062,763,474 COP) were allocated to initiatives related to the reduction of heat consumption and the increase in the rate of use of alternative fuels.</p> <p>Some of these initiatives, regarding heat consumption optimization and increase of alternative fuels (Hires, mixed industrial waste, RDF, used oils, biomass, etc.) achieving a 5.7% rate at company level.</p> <p>We increase the substitution of conventional fuels (Hires, used oils and biomass, etc.) achieving a 5.7% rate at company level.</p> <p>Implementation of initiatives to reduce the consumption of electrical & thermal energy.</p> <p>The United States Environmental Protection Agency (EPA) recognized our Harlequin cement plant, South Carolina, with ENERGY STAR® certification for fourth consecutive year.</p> <p>In 2022 we implemented 12 of the 14 projects and initiatives planned, this corresponds to a budget execution of 12% with respect to the \$2.9 billion dollar approved for 2020.</p>				

Identifier	Where is the value chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company-specific description	Time horizon	Likelihood	Magnitude of impact	Potential financial impact figure (currency)		Potential financial impact figure – minimum (currency)		Potential financial impact figure – maximum (currency)		Explanation of financial impact figure	Cost of response to risk		Description of response and explanation of cost calculation	Comment		
									COP	USD	COP	USD	COP	USD		COP	USD			COP	USD
Risk 5	Direct operations	Market	Rise in risk-based pricing of insurance policies (beyond demand elasticity)	Increased indirect (operating) costs	<p>Rise in risk-based pricing of risk transfer and retention mechanisms: Risks derived from cost overruns in insurance programs due to increased exposure to physical and transition climate change risks. Climate events may increase the frequency and severity of natural catastrophe losses, fostering changes in commercial property conditions. In addition, major reinsurance companies have acquired global commitments for contributing to climate change mitigation, such as the UN Principles for Sustainable Insurance, the Net-Zero Insurance Alliance and the UN-convened Net-Zero Asset Owner Alliance, all of which promote goals in terms of emissions reporting, investments and business of their subsidiaries (NZA) and investments (NZA) portfolios. The NAZAs counts on guidelines about the reporting of emissions, goals, business (including cement) and mitigation activities, so we can expect that in the future additional specifications will be adopted for underwriting risks in our industry. Under these frameworks, reinsurers have adhered or will adhere to the "Thermal Coal Position", which establishes the following:</p> <ul style="list-style-type: none"> - Other than coal plants currently under active construction, no further thermal coal power plants should be financed, insured, built, developed or planned. - There should be an immediate cancellation of all new thermal coal projects, including thermal coal plants, coal mines and related infrastructure (i.e. supplying products or services to thermal coal based projects or business models) that are in pre-construction phase. - There should be phase-out of all unabated existing coal-fired electricity generation in accordance with 1.5°C pathways, as provided by the IPCC and referenced by the International Energy Agency (IEA) and Powering Past Coal Alliance (PPCA). The most recent energy system models require an accelerated transition in developed economies including phase-outs in most thermal coal assets by 2030 for industrialized countries and a full phase-out globally by 2040. <p>Reduction in underwriting capacity for our cement and self-generation businesses could increase risk transfer costs and hence insurance premiums in our industry. Therefore, climate change and ESG management may become a determinant in the allocation of insurance and reinsurance investment and underwriting portfolio. We must move forward to meet the ambitions set by reinsurers in terms of reporting, goals and processes, for maintaining our current risk financing capacity.</p>	Medium-term	Very likely	Medium			\$ 31,928,400,000	\$ 7,500,000	\$ 53,214,000,000	\$ 12,500,000	<p>In 2022 Argos quantified the business impacts from a taxonomy of climate-related risks and opportunities in the short (2030), medium (2040) and long term (2050), defining the climate scenarios to estimate risk variables and parameters and carry out calculations. Climate scenarios guarantee the variety of situations recommended by TCFD, including a scenario with a temperature increase of less than 2°C. Each scenario includes both physical variables (chronic and acute) and transition narratives: "Sustainability" (consistent with SPT/RCF 2.6 and IEA SDS), "Commitment" (consistent with SPT/RCF 2.6.5 and IEA STPS) and "Continuity" (consistent with SPT/RCF 1.5 and business-as-usual assumptions). Regarding transition risks, transition narratives derive from the IEA SDS and STPS scenarios plus a business-as-usual narrative developed internally, which have been used as basis for the evolution of the social, political, legal, technological, and market contexts, complementing the information with market variables forecasts.</p> <p>Based on all the defined information, the business areas made high-level estimates of the expected and maximum losses for each risk and opportunity. These estimates combined elements such as: real-case analyses, actuarial estimates, assumptions about the behavior of the business and the industry, among others. The results collect both the qualitative and quantitative vision of what can be seen today, being aware that these may change as the uncertainty about the future panorama is reduced. In parallel, correlations between risks, opportunities and the different geographies were defined. IEA SDS, IEA STPS and business-as-usual transition scenarios were matched with SPT/RCF 2.6, 4.5 and 8.5 scenarios respectively, for aggregating transition and physical risk valuations and provide company-wide results. Finally, the expected and maximum gains or losses were modeled in a risk engine that provides the distribution of losses and potential gains aggregated by geography, type of risk, time horizon and climate scenario.</p> <p>As a general guideline, reported figures correspond to financial impacts in the most immediate time horizon. We foresee this risk to be materialized in 2030 and/or beyond, and we report figures of cost increases under the "Sustainability" scenario. The company considers that the climate change agenda could multiply reported impacts by three in 2050.</p>	\$ 4,746,688,800	\$ 1,115,000,000	<p>The reported cost of response corresponds to the additional risk premium for the retention of our recently funded captive company BMR Ltd. Building materials Reinsurance Ltd., which was created from the restoration of risk management and a strong commitment of the Board of Directors to operational excellence. It will function as a separate company, with sufficient capacity to retain and control losses due to frequent events associated with material damage and lost profits. Initially, BMR will participate with a retention in excess of deductibles, a scheme that is supported by actuarial loss models, which seeks to reduce the frequency of these and their transfer to the market. It responds to compliance with the liquidity, solvency, and capital requirements by the regulator. This model is under continuous review so that the company generates enough financial traction that determines a greater risk participation in the medium term.</p> <p>With the creation of BMR, we sent a message to the reinsurance market about our commitment with operational excellence and sustainable management, strengthening the relationship between risk transfer and best practices in risk management. In addition, alternative risks mechanisms such as captives mitigate potential risks derived from the reduction of underwriting capacity in our industry caused by, among others, increasing demands for reducing fossil fuel dependency in our processes or a potential increase in property and liability claims derived from climate change physical and transition risks.</p>		Our corporate insurance program aims to transfer insurable risks under recognized statistical models in the reinsurance market, seeking our competitive advantages such as our geographic footprints, our risk management maturity, and the information available for risk-based decision-making. Through reinsurance, we seek an adequate, optimal transfer of risks, to avoid significant deviations of our objectives in the event of possible materializations and we pursue adequate compensation of possible losses. Our insurance strategy is defined annually, in which we define the most efficient traditional and alternative mechanisms and structures to guarantee an adequate risk transfer. We also maintain a fluid communication with our insurers either directly or via our insurance and reinsurance brokers, showing our progress in achieving our climate strategy, our climate change risk management, and the most relevant updates on ESG management. <p>Our Corporate Insurance strategy (property, liability and benefits) comprises the definition of the optimal risk transfer structure through, among others, the following mechanisms: direct and constant communication with our reinsurers via roadshows, meetings and reports, annual review of limits and deductibles, implementation of retention methodologies to insure the accurate update of insurable values, analysis of traditional and non-traditional risk transfer mechanisms that may guarantee an adequate risk transfer in our company and communicating extensively our efforts in managing our climate change and sustainability risk.</p>	
Risk 6	Direct operations	Technology	Technology-Transitioning to lower emissions technology	Increased capital expenditures	<p>Depreciation or early replacement of existing assets due to technological obsolescence: Risk derived from the delay in renewing technological equipment. Consequently, an earlier obsolescence can reduce the asset's value. Given the increasing need to transform our production processes, our business faces the following challenges:</p> <ul style="list-style-type: none"> - Cement: Wet lines in Colombia are the most likely to become obsolete either from climate change regulations and standards, increasing operational costs, or decreasing limestone reserves in quarries. Closing wet processing mills changes in the business model in the Colombian Southwest zone or changes in the product portfolio. Other wet processes, such as the Cartagena wet line, will be closed before 2030. Regarding dry plants, there is a growing need to implement new technologies in addition to the existing ones (e.g., carbon capture and alternative fuels). Cement plants in the US do not need to make a rapid technological conversion, as company goals can be met and 10-15% more demanding regulation can be faced with investments up to 1 million USD. Currently, the Pedras Azules plant in Honduras has state-of-the-art technology for the production of supplementary cementitious materials. The target we are in line with this site is an opportunity in this market, as it can be a mechanism that local producers can use to increase their competitiveness against imports. - Concrete and aggregates: these business lines face the challenging need to renew the fleet as that it complies with emission standards. Although a large part of the fleet meets these conditions, further substantial changes require conversion to hydrogen gas and electric options. This conversion is considered a challenge rather than an opportunity. For instance, for the transition to a fleet of electric vehicles, the countries in which we operate need to have adequate infrastructure (e.g., multiple charging points) that supports a change of fleet to cleaner technologies. The gradual transition to migrate to those technologies would take 10 to 15 years. In addition, for electric or gas-fueled fleets to work, it would be necessary to reduce the truck's load, which in turn reduces the cost efficiency of the equipment and increases loading times. Moreover, as Argos is not the direct owner of its vehicles in some segments, and regulation is heavily influenced by the transportation sector, we cannot have a direct influence on the implementation of these changes. 	Medium-term	More likely than not	Medium-low	NA	NA	\$ 6,385,680,000	\$ 1,500,000	\$ 8,514,340,000	\$ 2,000,000	<p>In 2022 Argos quantified the business impacts from a taxonomy of climate-related risks and opportunities in the short (2030), medium (2040) and long term (2050), defining the climate scenarios to estimate risk variables and parameters and carry out calculations. Climate scenarios guarantee the variety of situations recommended by TCFD, including a scenario with a temperature increase of less than 2°C. Each scenario includes both physical variables (chronic and acute) and transition narratives. Regarding transition risks, transition narratives derive from the IEA SDS and STPS scenarios plus a business-as-usual narrative developed internally, which have been used as basis for the evolution of the social, political, legal, technological, and market contexts, complementing the information with market variables forecasts.</p> <p>Based on all the defined information, the business areas made high-level estimates of the expected and maximum losses for each risk and opportunity. These estimates combined elements such as: real-case analyses, actuarial estimates, assumptions about the behavior of the business and the industry, among others. For the technology risk, we currently count on potential additional investments needed in the cement business in the US for complying with additional emissions regulations. We do not consider CAER for changing wet processes (to be made between 2023 and 2030), as we regard them as investments to take us to operations to an equal technological development status (see "Cost of response to risk" and "Description of response"), and the feasibility of changing our fleet is yet to be determined. For the last calculation phase, the expected and maximum gains or losses were modeled in a risk engine that provides the distribution of losses and potential gains aggregated by geography, type of risk, time horizon and climate scenario.</p> <p>As a general guideline, reported figures correspond to financial impacts in the most immediate time horizon. We foresee this risk to be materialized in 2030 and/or beyond, and we report figures of annualized cost increases under the "Sustainability" scenario. Further increases in these costs depend on innovations to be made in an industry scale.</p>	\$ 453,777,000,000	\$ 106,357,584,400	<p>According to the ECRA and CSJ (European Cement Research Academy and Cement Sustainability Initiative) in their publication "Development of State of the Art Technology in Cement Manufacturing: Training to Look Ahead, Revision 2017" (available at: https://docs.welocal.com/2017/06/03/ECRA_Technology_Papers_2017.pdf and https://www.cement.org/~/media/2017/06/03/ECRA_Technology_Papers_2017.pdf), a new dry-type clinker production line, which is much more efficient compared to wet-type one and therefore generates less CO2 emissions per tonne of clinker produced. We take this information as an overall estimate to start designing the business case for the activities we need to carry out until 2030 to increase efficiency and reduce our carbon footprint.</p>		During 2021 we built the Technical and Financial Readings to reduce scope 1 CO2 emissions and achieve the target proposed for 2030. We have defined the levers to reduce CO2 emissions: - The evaluation of operational continuity of those processes with a lower performance in terms of CO2 emissions, due to the nature of their technology (e.g. progressively shut down wet lines since they are more inefficient clinker production technology). - The optimization of fuel consumption that depends on the operational and infrastructure adjustments. - The diversification of the fuel portfolio, promoting heat substitution with alternatives fuels. - The optimization of the clinker/cement factor through the diversification and expansion of the company's portfolio with low-carbon products. In 2022 we implemented 12 of the 14 projects and initiatives planned, this corresponds to a budget execution of 12% with respect to the \$2.9 million dollars approved for 2020.	
Risk 7	Downstream	Reputation	Regulation-Regulation of sector	Decreased access to capital	<p>Restrictions on access to capital, credits and the like, as it is a production process that is intensive in CO2 emissions. The company may be increasingly exposed to different risks related to investment capital and indebtedness, as ESG metric disclosure standards are widely adopted, financial products aligned with long-term commitments to reduce CO2 emissions are developed, and more investors require greater transparency from company managers regarding climate change commitments. There would be a potential increase in the cost of borrowing or the inability to access credits granted by the banking system, plus a greater preference of investors and asset managers for sectors with lower carbon footprints or trends towards carbon neutrality. This may begin to materialize strongly in the Americas, which may follow emerging trends in other regions.</p> <p>Credit impacts are manifested through the differentials in interest rates of the green credit aqueducts. Penalties for non-compliance with commitments are manifested quickly and are subject to credit conditions.</p> <p>Investment: this is considered to carry the greatest potential impact. At this time, the effects of an investor without/with a difficult to estimate, since the company is underwriting its total value with share prices. The impacts of investor movements will largely depend on the success of these projects. However, it should be noted that since 2021 we have been responding to deeper concerns regarding our commitments to reduce emissions in the short term (2030). It should be noted that investors not only refer to the disclosure of information, but also compare our indicators and goals with those of industry peers, and this could become a criterion for allocating capital in the sector in the future.</p> <p>The impacts derived from this risk are, among others:</p> <ul style="list-style-type: none"> - Changes in credit ratings motivated by ESG criteria (environmental, social and governance) that impact investment opportunities. - Cost overruns of credit placed by financial institutions. - Impossibility of acquiring credit instruments that allow the financing of projects that contribute to climate change mitigation. - Lack of access to credit lines with competitive rates attached to ESG performance <p>Withdrawal of capital and advocacy from investors who are seeking to change their portfolios to sectors with lower carbon footprints, carbon neutral or whose actions are aimed at mitigating the impacts of climate change.</p>	Medium-term	Very likely	Medium-low			\$ 675,000,000	\$ 18,538	\$ 2,025,000,000	\$ 476,674	<p>The company is exploring potential drivers of this risk to credit and investment. This is an emerging risk in the Americas, hence specific ways in which it could be materialized is yet to be determined. However, one of the emerging trends Argos foresees is the development of financial products attached to ESG performance. Reported impacts are opportunity costs associated with non-compliance with ESG metrics attached to our recently acquired credit lines.</p> <p>In 2021, we were at the forefront of the search for financing plans that supported best practices on environmental, social, and corporate governance (ESG) matters with the disbursement of three credit lines linked to sustainability indicators.</p> <p>The first loan is a long-term financing agreement between BBVA and Argos for COP 160 billion (equal to approximately 17 million euros), with an interest rate linked to the company's performance on environmental, social and governance best practices.</p> <p>The second was through the Concrete Argos subsidiary, which signed with Bancolombia for COP 135 billion with a reduced interest rate linked to specific net CO2 emissions, water consumption in the cement business and the evaluation of sustainability criteria of suppliers, as part of the company's interest in developing an increasingly sustainable value chain.</p> <p>And the third one was for the ESG loan with international banks worth USD 300 million, used for an existing syndicated loan signed with BNP Paribas Securities Corp., Natixis, New York Branch, Sumitomo Mitsui Banking Corporation and The Bank of Nova Scotia. This interest rate is linked to CO2 emission reduction indicators and the percentage of women in leadership positions. It was signed by the Argos North America Corp subsidiary and included Cementos Argos S.A. and Argos USA LLC as guarantors of the operation.</p>	\$ 14,701,476,500	\$ 12,849,409,000	<p>In 2022 Argos continued implementing initiatives related to the company's climate change strategy, specifically with the lines of action that promote the mitigation of CO2 emissions. These actions involved investments and expenses of approximately USD 5.2.8 million (€470 million COP).</p> <p>Some of these initiatives were:</p> <ul style="list-style-type: none"> - During 2021 we built the Technical and Financial Readings to reduce CO2 emissions and reach the goal set for 2030. - In 2022 Science Based Targets initiative (SBTi) validated our CO2 2030 reduction emission target, aligned with its criteria in the ambition trajectory temperature well below 2°C. - During 2022 we establish a scope 2 target for our cement business unit. - We continued voluntarily aligned with the Financial Stability Board (FSB) recommendation on Task Force on Climate-related Financial Disclosures (TCFD), which allow us to validate the identification, evaluation and effective management of climate-related risks and opportunities are embedded in our risk management processes. - We continued with our commitment to increase the substitution of conventional fuels (coal and petcoke) with alternative fuels (biex, mixed industrial waste, HSF, used oil, biomass, etc.), achieving a 3.7% rate of company level. - Regarding low carbon products, the company dedicated 37% of its total R&D project's budget for researching and developing of these products in 2022. - Implementation of initiatives to reduce the consumption of electrical and thermal energy. - The United States Environmental Protection Agency (EPA) recognized our Harleyville cement plant, South Carolina, with ENERGY STAR® certification for fourth consecutive year. - During 2022, more than 370 life cycle assessment (LCA) of our cement and concrete products were carried out in the three regions through the implementation of the GCCA task force (EPF Tool - Quantis, which works with the Product Category Rules (PCR) for cement (NSF, 2020) and concrete (NSF, 2019). This work has allowed us to identify low-carbon products in our geographies. 		Monitoring and mitigation of this risk are integrated into the company's risk management system. Likewise, within the framework of the Environmental Strategic Argos, monitors and implements actions to reduce CO2 emissions, such as CO2 inventory (scope 1, scope 2 and scope 3), CO2 reduction objectives, and mitigation levers (energy efficiency, use of alternative fuels, reduction of the clinker/cement ratio, as well as the increase in the efficiency of the value chain, among others). Argos considers that through the operational efficiency, the implementation of better and cleaner technologies, co-processing programs and new technologies such as the usage of captured CO2 to reduce clinker content in cement, it is possible to mitigate its CO2 direct emissions and therefore its transition risks associated. <p>The company monitors its transition risks through the participation in several sectoral processes: Portland Cement Association (PCA), National Ready Mix Association (NRMA), FICEM (American Federation of Cement), PROCEMCO (Colombian Chamber of Cement and Concrete), GCCA (Global Cement and Concrete Association) and ANEP (National Business Association of Colombia).</p>	

Identifier	Where is the water chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company-specific description	Time horizon	Likelihood	Magnitude of impact	Potential financial impact figure (currency)		Potential financial impact figure – minimum (currency)		Potential financial impact figure – maximum (currency)		Explanation of financial impact figure	Cost of response to risk		Description of response and explanation of cost calculation	Comment			
									COP	USD	COP	USD	COP	USD		COP	USD					
																				COP	USD	
Risk 8	Direct operations	Acute physical	Extreme rainfall	Decreased revenues due to reduced production capacity	<p>Extreme rainfall: In 2022 we defined a taxonomy of climate change risks and opportunities at the strategic (either current or emerging), tactical and operational levels. Periods of extreme rainfall are one of the most significant physical risks affecting not only our footprint but our business strategy, more specifically in United States and Colombia, affecting cement and concrete production, the supply chain and product shipment.</p> <p>Extreme rainfall is the most material threat affecting the ready-mix business in the United States. Heavy rains occur unexpectedly, and affect the US' entire chain (customers, works, suppliers) so it is complex to undertake individual actions from the company besides logistics planning. We must increase our awareness of the budget effects from the increase in the frequency and severity from this phenomenon since these substantially affect the fulfillment of the agreed goals.</p> <p>In the United States, heavy rains may affect the cement business from the increase in flood risks in zones of open-pit exploitation. In addition to flooding the pit, the presence of surrounding clayey areas can affect production, as pumping may be required to stop contingencies. Facilities in Nashville and Roberts are the most vulnerable to these events.</p> <p>In Colombia, rainy seasons cause floods in coal mines affecting exploitation and hence fuel supply for the cement kilns. In addition, rainy seasons can affect the energy supply, since the sedimentation levels of the rivers rise, impacting hydroelectric generation. We have a reference case in Colombia in which excess rainfall caused a limestone mine to lose a year of exploitation, causing significant cost overruns from the lack of the required aggregates for ready-mix production. Moreover, extreme rainfall cause stoppages in construction projects, affecting the ready-mix logistics planning.</p> <p>According to our physical risk projections, in 2050 the length of extreme rainfall periods in our footprint could increase up to 87% in Colombia, 100% in the US and 41% in the Caribbean and Central America, under business-as-usual conditions (SPS/RCP 8.5 climate scenario). A secondary effect of extreme rainfall are landslides which affect businesses and logistics especially in Colombia. We report landslides as a standalone threat for its important and specificities (see Risk 10).</p>	Short term	Very/usually certain	Medium-high	\$ 63.656.800.000	\$ 15.000.000	\$ 106.428.000.000	\$ 25.000.000	<p>In 2022 Argos quantified the business impacts from a taxonomy of climate-related risks and opportunities in the current (2022), short (2030), medium (2040) and long term (2050), defining the climate scenarios to estimate risk variables and parameters and carry out calculations. Climate scenarios guarantee the variety of situations recommended by TCFD, including a scenario with a temperature increase of less than 2°C. Each scenario includes both physical variables (chronic and acute) and transition narratives. For physical risks, Argos has a tool that analyzes changes in the associated physical variables for each relevant asset in each scenario and time horizon, using databases and climatological models such as the Copernicus databases and to a lesser extent, Cordex, international portals using projections derived from the IPCC AR6 (e.g., CMIP6). This tool includes facilities plus transportation and distribution centers. Climate scenarios selected for physical risk analyses are SSP/RCP 2.6, SSP/RCP 4.5 and SSP/RCP 8.5.</p> <p>Based on these definitions, business experts made high-level estimates of the expected and maximum losses for each risk and opportunity. These estimates combined elements such as: real-case analyses, actuarial estimates, assumptions about the behavior of the business and the industry, among others. The results collect both the qualitative and quantitative vision of what can be seen today, being aware that these may change as the uncertainty about the future panorama is reduced. The resulting estimates were projected for 2030, 2040 and 2050 based on the climate scenarios analyzed and the variations in climate variables from our climate variables tool mentioned above. In parallel, correlations between risks, opportunities and the different geographies were defined. The expected and maximum physical and transition losses and gains were modeled in a risk engine that provides their aggregated distribution by geography, type of risk, time horizon & climate scenario.</p> <p>As a general guideline, reported figures correspond to financial impacts in the most immediate time horizon (2022) and the most vulnerable business line (BMX) in the US. According to the estimations under climate scenarios, climate change could increase these impacts by 1 to 5% under a SSP/RCP 2.6 scenario, 4 to 5% under a SSP/RCP 4.5 scenario and 3 to 6% under a SSP/RCP 8.5 in the timeframe analyzed (2030-2050).</p>	\$	\$	<p>In addition, all facilities are currently designing climate change adaptation plans, according to Argos' Climate Change Adaptation Guidelines (CCAG), which must be applied to all our existing facilities and new operations acquired by the company in the future. Argos' CCAG comprises five steps, namely:</p> <ol style="list-style-type: none"> 1. Identifying & assessing physical risks 2. Identifying and prioritizing adaptation measures 3. Planning & implementing selected measures 4. Monitoring & evaluation <p>The measures adopted must be monitored & evaluated to guarantee continuous improvement. Argos counts on a self-assessment tool (SA) for evaluating the environmental management system's maturity which allow grading & following up on the implementation of control measures to mitigate risk exposure.</p> <p>Lessons learned & best practices</p> <p>This stage aims to determine whether the implemented measures increased climate resilience.</p>	\$ 62.575.394.109	\$ 14.698.997.000	<p>Reported management costs comprise the global corporate property policy premium for 2022-2023. The policy covers global losses from property damage and business interruption for natural catastrophic events. The potential impacts enable Argos implementing early actions aimed at optimizing the logistics chain to reduce the magnitude of potential impacts as well as to reduce our exposure to increased insurance premium costs.</p> <p>In addition, all facilities are currently designing climate change adaptation plans, according to Argos' Climate Change Adaptation Guidelines (CCAG), which must be applied to all our existing facilities and new operations acquired by the company in the future. Argos' CCAG comprises five steps, namely:</p> <ol style="list-style-type: none"> 1. Identifying & assessing physical risks 2. Identifying and prioritizing adaptation measures 3. Planning & implementing selected measures 4. Monitoring & evaluation <p>The measures adopted must be monitored & evaluated to guarantee continuous improvement. Argos counts on a self-assessment tool (SA) for evaluating the environmental management system's maturity which allow grading & following up on the implementation of control measures to mitigate risk exposure.</p> <p>Lessons learned & best practices</p> <p>This stage aims to determine whether the implemented measures increased climate resilience.</p>	<p>In 2022 the Company continued deploying Argos' climate change adaptation guidelines through the Physical Risk Assessment Tool, which combines hazard exposure levels from the Geosura platform for each facility's location, and the vulnerability assessment that each environmental analyst made according to their context specific. This tool evaluates through a questionnaire, the vulnerability of both the own Argos' facilities and the nearby logistics network that surrounds the facility and on which each plant depends for the entry and distribution to customers, through different means of transport. Geosura's platform that enables the interconnection of climatic databases and the interactive analysis in a geographic environment. The tool evaluates 10 threats, namely: floods, landslides, hurricanes, lightning, wildfires, frosts, wildfires, storms, heat waves, droughts, winds, and temperature increase. Geosura's natural hazard analyses contemplate four GHG scenarios: RCP 2.6, 4.5, 6.0 and 8.5. Currently, RCP 2.6 and 4.5 are being used as optimistic & pessimistic scenarios, respectively, and facilities are able to know the variation (°C) and the average temperature of each location for the next 30 years. These assessments covered 97% of our assets.</p>		
Risk 9	Direct operations	Acute physical	Hurricanes	Decreased revenues due to reduced production capacity	<p>Hurricanes: In 2022 we defined a taxonomy of climate change risks and opportunities at the strategic (either current or emerging), tactical and operational levels. According to the company's climate risk assessment carried out in 2022, hurricanes are one of the most significant physical risks affecting not only our footprint but our business strategy in general, more specifically in United States and the Caribbean and Central America regional divisions. Argos operates in areas which are highly vulnerable to extreme weather events, such as hurricanes, floods and storm surges. These risks foster the need to frequently monitor potential impacts from extreme weather events on our operations and supply chain, and design mitigation and adaptation strategies for all our facilities depending on their specific degree of vulnerability. According to our physical risk projections, in 2050 hurricanes may increase in frequency up to 43% in our footprint in the US and by 40% in our footprint in the Caribbean and Central America, under business-as-usual conditions (SPS/RCP 8.5 climate scenario). Hurricanes may cause increases in logistical costs, decrease in revenues, higher insurance premiums, property damage costs, among others.</p>	Short term	Usually	Medium	\$ 60.298.362.792	\$ 14.164.121					<p>In 2022 Argos quantified the business impacts from a taxonomy of climate-related risks and opportunities in the current (2022), short (2030), medium (2040) and long term (2050), defining the climate scenarios to estimate risk variables and parameters and carry out calculations. Each scenario includes both physical variables (chronic and acute) and transition narratives. For physical risks, Argos has a tool that analyzes changes in the associated physical variables for each relevant asset in each scenario and time horizon, using databases and climatological models such as the Copernicus databases and to a lesser extent, Cordex, international portals using projections derived from the IPCC AR6 (e.g., CMIP6). This tool includes facilities plus transportation and distribution centers. Climate scenarios selected for physical risk analyses are SSP/RCP 2.6, SSP/RCP 4.5 and SSP/RCP 8.5.</p> <p>Argos estimates financial impacts of hurricanes as costs of interrupting operations in key facilities (e.g., logistical, loss of profits), and potential property damage losses affecting insurance premiums. Losses for all locations are estimated and updated annually using the Risk Assessment and Risk Management (RAM) model for hurricanes, floods and storm surge, which enable us to make better informed risk transfer and retention decisions, as well to better identify critical operations in order to prioritize climate change adaptation plans. The resulting estimates were projected for 2030, 2040 and 2050 based on the climate scenarios analyzed and the variations in climate variables from our climate variables tool mentioned above. In parallel, correlations between risks, opportunities and the different geographies were defined. The expected and maximum physical and transition losses and gains were modeled in a risk engine that provides their aggregated distribution by geography, type of risk, time horizon & climate scenario.</p> <p>As a general guideline, reported figures correspond to financial impacts in the most immediate time horizon (2022) according to the updated RAM modeling applied to our footprint. According to the estimations under climate scenarios, climate change could increase these impacts by 8 to 26% under a SSP/RCP 2.6 scenario, 8 to 32% under a SSP/RCP 4.5 scenario and 12 to 43% under a SSP/RCP 8.5 in the timeframe analyzed (2030-2050).</p>	\$	\$	<p>Reported management costs comprise the global corporate property policy premium for 2022-2023. The policy covers global losses from property damage and business interruption for natural catastrophic events. The potential impacts enable Argos implementing early actions aimed at optimizing the logistics chain to reduce the magnitude of potential impacts as well as to reduce our exposure to increased insurance premium costs.</p> <p>In addition, all facilities are currently designing climate change adaptation plans, according to Argos' Climate Change Adaptation Guidelines (CCAG), which must be applied to all our existing facilities and new operations acquired by the company in the future. Argos' CCAG comprises five steps, namely:</p> <ol style="list-style-type: none"> 1. Identifying & assessing physical risks 2. Identifying and prioritizing adaptation measures 3. Planning & implementing selected measures 4. Monitoring & evaluation <p>The measures adopted must be monitored & evaluated to guarantee continuous improvement. Argos counts on a self-assessment tool (SA) for evaluating the environmental management system's maturity which allow grading & following up on the implementation of control measures to mitigate risk exposure.</p> <p>Lessons learned & best practices</p> <p>This stage aims to determine whether the implemented measures increased climate resilience.</p>	\$ 62.575.394.109	\$ 14.698.997.000	<p>In 2022 the Company continued deploying Argos' climate change adaptation guidelines through the Physical Risk Assessment Tool, which combines hazard exposure levels from the Geosura platform for each facility's location, and the vulnerability assessment that each environmental analyst made according to their context specific. This tool evaluates through a questionnaire, the vulnerability of both the own Argos' facilities and the nearby logistics network that surrounds the facility and on which each plant depends for the entry and distribution to customers, through different means of transport. Geosura's platform that enables the interconnection of climatic databases and the interactive analysis in a geographic environment. The tool evaluates 10 threats, namely: floods, landslides, hurricanes, lightning, wildfires, frosts, wildfires, storms, heat waves, droughts, winds, and temperature increase. Geosura's natural hazard analyses contemplate four GHG scenarios: RCP 2.6, 4.5, 6.0 and 8.5. Currently, RCP 2.6 and 4.5 are being used as optimistic & pessimistic scenarios, respectively, and facilities are able to know the variation (°C) and the average temperature of each location for the next 30 years. These assessments covered 97% of our assets.</p>	
Risk 10	Direct operations	Acute physical	Landslides derived from extreme weather events	Decreased revenues due to reduced production capacity	<p>Landslides derived from extreme weather events: In 2022 we defined a taxonomy of climate change risks and opportunities at the strategic (either current or emerging), tactical and operational levels. Landslides is one of the most significant physical risks affecting our businesses, more specifically in Colombia, where the geographic features and relief surrounding our facilities and value chain, plus the current vulnerability of soils may cause severe blockages affecting the supply chain, product delivery and business continuity. The most material and vulnerable plants are Rio Claro, Nare, and Cartagena. A worst-case scenario may create disruptions of at least 30 days for Cartagena (an additional band would have to be established). For Rio Claro, the main impact would be generated by disjoint issues. The company foresees that the country's road infrastructure will improve in the future by developing better conditions and building alternative routes that reduce the infrastructure's vulnerability.</p>	Short term	Very/usually certain	Medium-low	\$ 1.064.280.000	\$ 250.000	\$ 21.285.600.000	\$ 5.000.000			<p>In 2022 Argos quantified the business impacts from a taxonomy of climate-related risks and opportunities in the current (2022), short (2030), medium (2040) and long term (2050), defining the climate scenarios to estimate risk variables and parameters and carry out calculations. Climate scenarios guarantee the variety of situations recommended by TCFD, including a scenario with a temperature increase of less than 2°C. Each scenario includes both physical variables (chronic and acute) and transition narratives. For physical risks, Argos has a tool that analyzes changes in the associated physical variables for each relevant asset in each scenario and time horizon, using databases and climatological models such as the Copernicus databases and to a lesser extent, Cordex, international portals using projections derived from the IPCC AR6 (e.g., CMIP6). This tool includes facilities plus transportation and distribution centers. Climate scenarios selected for risk analysis are SSP/RCP 2.6, SSP/RCP 4.5 and SSP/RCP 8.5.</p> <p>Based on these definitions, business experts made high-level estimates of the expected and maximum losses for each risk and opportunity. These estimates combined elements such as: real-case analyses, actuarial estimates, assumptions about the behavior of the business and the industry, among others. Estimates in 2022 were projected for 2030, 2040 and 2050 based on the climate scenarios analyzed. In parallel, correlations between risks, opportunities and the different geographies were defined. The expected and maximum physical and transition losses and gains were modeled in a risk engine that provides their aggregated distribution by geography, type of risk, time horizon & climate scenario.</p> <p>As a general guideline, reported figures correspond to annualized financial impacts in the most immediate time horizon (2022) and the most vulnerable business line, i.e., cement and concrete in Colombia. According to the estimations under climate scenarios, climate change could increase</p>	\$	\$	<p>In 2022 Argos quantified the business impacts from a taxonomy of climate-related risks and opportunities in the current (2022), short (2030), medium (2040) and long term (2050), defining the climate scenarios to estimate risk variables and parameters and carry out calculations. Climate scenarios guarantee the variety of situations recommended by TCFD, including a scenario with a temperature increase of less than 2°C. Each scenario includes both physical variables (chronic and acute) and transition narratives. For physical risks, Argos has a tool that analyzes changes in the associated physical variables for each relevant asset in each scenario and time horizon, using databases and climatological models such as the Copernicus databases and to a lesser extent, Cordex, international portals using projections derived from the IPCC AR6 (e.g., CMIP6). This tool includes facilities plus transportation and distribution centers. Climate scenarios selected for risk analysis are SSP/RCP 2.6, SSP/RCP 4.5 and SSP/RCP 8.5.</p> <p>Based on these definitions, business experts made high-level estimates of the expected and maximum losses for each risk and opportunity. These estimates combined elements such as: real-case analyses, actuarial estimates, assumptions about the behavior of the business and the industry, among others. Estimates in 2022 were projected for 2030, 2040 and 2050 based on the climate scenarios analyzed. In parallel, correlations between risks, opportunities and the different geographies were defined. The expected and maximum physical and transition losses and gains were modeled in a risk engine that provides their aggregated distribution by geography, type of risk, time horizon & climate scenario.</p> <p>As a general guideline, reported figures correspond to annualized financial impacts in the most immediate time horizon (2022) and the most vulnerable business line, i.e., cement and concrete in Colombia. According to the estimations under climate scenarios, climate change could increase</p>	\$ 62.575.394.109	\$ 14.698.997.000	<p>In addition, all facilities are currently designing climate change adaptation plans, according to Argos' Climate Change Adaptation Guidelines (CCAG), which must be applied to all our existing facilities and new operations acquired by the company in the future. Argos' CCAG comprises five steps, namely:</p> <ol style="list-style-type: none"> 1. Identifying & assessing physical risks 2. Identifying and prioritizing adaptation measures 3. Planning & implementing selected measures 4. Monitoring & evaluation <p>The measures adopted must be monitored & evaluated to guarantee continuous improvement. Argos counts on a self-assessment tool (SA) for evaluating the environmental management system's maturity which allow grading & following up on the implementation of control measures to mitigate risk exposure.</p> <p>Lessons learned & best practices</p> <p>This stage aims to determine whether the implemented measures increased climate resilience.</p>	<p>In 2022 the Company continued deploying Argos' climate change adaptation guidelines through the Physical Risk Assessment Tool, which combines hazard exposure levels from the Geosura platform for each facility's location, and the vulnerability assessment that each environmental analyst made according to their context specific. This tool evaluates through a questionnaire, the vulnerability of both the own Argos' facilities and the nearby logistics network that surrounds the facility and on which each plant depends for the entry and distribution to customers, through different means of transport. Geosura's platform that enables the interconnection of climatic databases and the interactive analysis in a geographic environment. The tool evaluates 10 threats, namely: floods, landslides, hurricanes, lightning, wildfires, frosts, wildfires, storms, heat waves, droughts, winds, and temperature increase. Geosura's natural hazard analyses contemplate four GHG scenarios: RCP 2.6, 4.5, 6.0 and 8.5. Currently, RCP 2.6 and 4.5 are being used as optimistic & pessimistic scenarios, respectively, and facilities are able to know the variation (°C) and the average temperature of each location for the next 30 years. These assessments covered 97% of our assets.</p>

Identifier	Where in the value chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company-specific description	Time horizon	Likelihood	Magnitude of impact	Potential financial impact figure (currency)		Potential financial impact figure – minimum (currency)		Potential financial impact figure – maximum (currency)		Cost of response to risk		Description of response and explanation of cost calculation	Comment
									COP	USD	COP	USD	COP	USD	COP	USD		
Risk 11	Direct operations	Acute physical	Tornadoes	Decreased revenues due to reduced production capacity	<p>Tornadoes in 2022 we defined a taxonomy of climate change risks and opportunities at the strategic (either current or emerging), tactical and operational levels. According to the company's climate risk assessment carried out in 2022, tornadoes are one of the most significant physical risks affecting not only our footprint but our business strategy in general, more specifically in the United States and the Caribbean and Central America regional divisions. Our physical risk projections show that in 2022 the frequency of tornadoes may increase in our footprint by up to 20% in Colombia, 15% in the US and 18% in the Caribbean and Central America, under business-as-usual conditions (SSP/RCP 4.5 climate scenario). Tornadoes may cause increase in logistical costs, increase in revenues, higher insurance premiums, property damage costs, among others.</p>	Short term	Likely	Low	\$ 11.464.104.876	\$ 2.692.925	\$	\$	\$ 62.575.394.109	\$ 14.698.997,00			<p>The potential impacts include Argos implementing early actions aimed at optimizing the logistic chain in order to reduce the magnitude of potential impacts as well as to reduce our exposure to increased insurance premium costs. Reported management costs comprise the global corporate property policy premium for 2022-2023. The policy covers global losses from property damage and business interruption for natural catastrophe events.</p> <p>In addition, all facilities are currently designing climate change adaptation plans, according to Argos' Climate Change Adaptation Guidelines (CCAG), which must be applied to all our existing facilities and new operations acquired by the company in the future. Argos' CCAG comprises five steps, namely:</p> <ol style="list-style-type: none"> 1. Identifying & assessing physical risks 2. Identifying and prioritizing adaptation measures 3. Planning & implementing selected measures 4. Monitoring & evaluation 5. Lessons learned & best practices <p>This stage aims to determine whether the implemented measures increased climate resilience.</p>	<p>In 2021 the Company continued deploying Argos' climate change adaptation guidelines through the Physical Risk Assessment Tool, which combines hazard exposure levels from the Geosura platform for each facility's location, and the vulnerability assessment that each environmental analyst made according to their contact specific. This tool evaluates through a questionnaire, the vulnerability of both the own Argos' facilities and the nearby logistics network that surrounds the facility and on which each point depends for the entry and distribution to customers, through different means of transport. Geosura is a platform that enables the interconnection of climatic databases and the interactive analysis in a geographic environment. The tool evaluates 10 threats, namely floods, landslides, hurricanes, lightning, wildfires, frosts, wildfires, rainstorms, heat waves, droughts, winds, and temperature increase. Geosura's natural hazard analyses contemplate four GHG scenarios: RCP 2.6, 4.5, 6.0 and 8.5. Currently, RCP 2.6 and 8.5 are being used as optimistic & pessimistic scenarios, respectively, and facilities are able to know the variation (in °C) of the average temperature of each location for the next 30 years. These assessments covered 97% of our assets.</p>
Risk 12	Direct operations	Acute physical	Wildfires	Decreased revenues due to reduced production capacity	<p>Wildfires: Our climate forecasts predict that in 2050 the frequency and intensity of wildfires in our footprint could increase by up to 76% under business-as-usual conditions (SSP/RCP 4.5 climate scenario). This may affect our facilities to a major extent, as the natural hazard could cause significant asset damage, regardless of control and adaptation measures implemented. Up to date, our current exposure in each country can be summarized as follows:</p> <ul style="list-style-type: none"> Colombia: Higher temperatures may increase the probability of the outbreaks in the most vulnerable regions (Cartagena), hence additional controls must be implemented. In the ready-mix business, the most significant impacts may derive from damages or interruptions of construction works. United States: The most exposed cement plant is Hartleyville, and although wildfires may cause major impacts on the equipment, smoke and sand could temporarily stop the operation for a couple of days due to the evacuation of the personnel. Newberry is surrounded by dry forests. Roberts is in a very arid area and Martinsburg is surrounded by housing developments. Overall, the ready-mix facilities operate in arid areas. In general, the plants are surrounded by rural areas and could have a certain degree of vulnerability, but an event of great magnitude would have to occur. If climate change impacts accentuate the frequency and severity of these events up to the points predicted by our forecasts, the impacts would be greater for the entire region. 	Short term	More likely than not	Low	\$ 212.856.000	\$ 50.000	\$ 1.702.848.000	\$ 400.000	\$ 62.575.394.109	\$ 14.698.997,00			<p>Reported management costs comprise the global corporate property policy premium for 2022-2023. The policy covers global losses from property damage and business interruption for natural catastrophe events. Argos implements early actions aimed at optimizing the logistic chain to reduce the magnitude of potential impacts as well as to reduce our exposure to increased insurance premium costs.</p> <p>In addition, all facilities are currently designing climate change adaptation plans, according to Argos' Climate Change Adaptation Guidelines (CCAG), which must be applied to all our existing facilities and new operations acquired by the company in the future. Argos' CCAG comprises five steps, namely:</p> <ol style="list-style-type: none"> 1. Identifying & assessing physical risks 2. Identifying and prioritizing adaptation measures 3. Planning & implementing selected measures 4. Monitoring & evaluation 5. Lessons learned & best practices <p>This stage aims to determine whether the implemented measures increased climate resilience.</p>	<p>In 2021 the Company continued deploying Argos' climate change adaptation guidelines through the Physical Risk Assessment Tool, which combines hazard exposure levels from the Geosura platform for each facility's location, and the vulnerability assessment that each environmental analyst made according to their contact specific. This tool evaluates through a questionnaire, the vulnerability of both the own Argos' facilities and the nearby logistics network that surrounds the facility and on which each point depends for the entry and distribution to customers, through different means of transport. Geosura is a platform that enables the interconnection of climatic databases and the interactive analysis in a geographic environment. The tool evaluates 10 threats, namely floods, landslides, hurricanes, lightning, wildfires, frosts, wildfires, rainstorms, heat waves, droughts, winds, and temperature increase. Geosura's natural hazard analyses contemplate four GHG scenarios: RCP 2.6, 4.5, 6.0 and 8.5. Currently, RCP 2.6 and 8.5 are being used as optimistic & pessimistic scenarios, respectively, and facilities are able to know the variation (in °C) of the average temperature of each location for the next 30 years. These assessments covered 97% of our assets.</p>
Risk 13	Upstream	Chronic physical	Escases de agua	Increased indirect (operating) costs	<p>Depletion of water resources for the continuity of the operation due to climate change and ecosystem degradation (emerging risk ER2): Escasez de climate change, exposure to changes in water availability (through floods) and quality (contamination) increases, which restricts water access for both the community and the company. The potential impacts derived from this risk's materialization are: business interruptions, opposition to operations and projects by communities in the area of influence, increased operational costs, denial of permits for new operations and facilities, reduced investment attractiveness due to non-compliance to environmental commitments, among others.</p> <p>Our most vulnerable facilities regarding water stress are located in Toluquillo and Haiti, regions in which the average temperature increase in 2050 will be around 3.2°C under business-as-usual conditions (SSP/RCP 4.5 climate scenario), increasing our need to implement adaptation measures that guarantee business continuity in the future.</p>	Long term	About as likely as not	Low	\$ 4.247.547.861	\$ 997.751	\$ 4.852.599.397	\$ 1.139.878	\$ 7.787.607.993	\$ 1.829.313,71			<p>Reported figures comprise actions implemented in 2021. In all facilities, related to improvement of measurements, water recirculation processes, wastewater treatment and environmental water activities around water.</p> <p>The company has implemented the following responses facing the materialization of this risk:</p> <ul style="list-style-type: none"> • Environmental strategy with emphasis on water risk management, which includes prospective analysis through tools such as Aqueeduct and the Water Risk Filter, as a basis for future investments. • Technological innovation to reduce water consumption. • Operational efficiency projects. • Quantification of water flows to the operations. • Water measurement and efficient use plans in all facilities. <p>This important information allows the Company to be aware of water demand and possible changes in water supply, water availability at local level and developing strategies, such as the Water Measurement & Efficient Use Plans to prevent potential stakeholder conflicts that might impact its direct operations, supply chain, costs increase, penalties and potential loss of social license to operate.</p>	

Opportunities																		
Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity driver	Primary potential financial impact	Company-specific description	Time horizon	Likelihood	Magnitude of impact	Potential financial impact figure (currency)		Potential financial impact figure – minimum (currency)		Potential financial impact figure – maximum (currency)		Cost to realize opportunity		Strategy to realize opportunity and explanation of cost calculation	Comment
									COP	USD	COP	USD	COP	USD	COP	USD		
Opportunity 1	Direct operations	Resource efficiency	Use of more efficient production and distribution processes	Reduced direct costs	<p>Lower operational costs through more efficient processes - Circular Economy: It is possible to have a positive impact on profits through operational efficiency directed to reduce scope 1 CO2 emissions. This can be achieved through the development of projects conforming to Argos' climate of strategy drivers, such as:</p> <ul style="list-style-type: none"> Use of alternative fuels (sourcing): One of the opportunities that we have capitalized on is the substitution of conventional fossil fuels with alternative fuels from municipal waste and/or from other industries. This thermal replacement has not only contributed to reducing CO2 emissions and contributing to the financial result due to the lower cost per energy unit, but it has also become a viable and efficient solution for waste disposal. Colombia: Cement operators obtained a 2.75% substitution, corresponding to the consumption of 6678 tonnes of waste in the Cartagena and Rioclaro Plants. The waste used included: tires, polyurethane-impregnated materials, silica-degreed fuel (SDI) and biomass. United States: Cement operators in the US obtained an 9.31% substitution, representing a consumption of around 5073 tonnes of waste in the Hoboken, Harleyville, Newberry and Martinsburg Plants. In 2022 the following alternative fuels were used: industrial waste, urban waste, waste derivatives, including plastics, wood biomass, sawdust, peanut shells, nuts, tires, and used oils. Thus, the use of conventional fuels, such as coal and petcoke. However, the challenge is supply, since the chain is not sufficiently developed for the volumes required by the industry. Honduras: A heat substitution of 5.7% was achieved in the cement operations, which meant a consumption of 3374 tonnes of waste in the Piedras Azules Plant. For the substitution of petcoke – the primary conventional fuel in this plant – tires, expired medications, used oils, paper and cardboard were used. Recycled aggregates: are materials that are derived from the processing of construction and demolition waste, or other materials that have previously been used in construction, and then crushed or processed to create a new product. These aggregates can be used in a wide range of construction applications, including road construction, building foundations, and drainage systems. Recycled aggregates can be a sustainable and cost-effective alternative to traditional virgin aggregates. They can also help reduce the amount of construction and demolition waste that goes to landfill, which can have a positive impact on the environment. However, it's important to note that the quality of recycled aggregates can vary based on the source material and the processing methods used, so it's important to research the appropriate applications and with the proper specifications. Argos has one plant located in Belo, Antioquia (Colombia), and has a joint venture in Bogotá Colombia to process this kind of materials. 	Short term	Virtually certain	High	\$ 848.318.898,78	\$ 199.270.621					\$ 21.785.051.106	\$ 5.117.321	<p>Reported figure corresponds to:</p> <ul style="list-style-type: none"> Initiatives implemented by Argos during 2022 related to the company's climate change strategy, specifically with the line of action that promote the mitigation of CO2 emissions through heat substitution with alternative fuels. These actions involved investments and expenses of approximately USD 5.695,078 (19987 million COP). Capital injection to GRECO: Bogotá through the joint venture, the investments during 2022 were USD 5.412, 846 (1757 million COP) Adaptation of crushing equipment for recycled aggregates at our Belo aggregates plant in Colombia. Investments USD 5.396,400 (million COP). <p>Argos' Climate Change Strategy is focused on minimizing climate change-related risks and maximizing opportunities through innovation in processes and products to ensure the sustainability of the Company and its value chain. It defines the company's actions to mitigate climate change through efficient CO2 reduction levels such as using alternative fuels to substitute conventional fuels used at clinkerization kilns.</p> <p>Through the Circular Economy pillar of our Environmental Strategy, we contribute to the closing of the cycles of resources by harnessing waste or by-products from other industries, such as raw materials or alternative fuels, providing a sustainable solution to the problem of their waste. To this end, we focus on prevention, reduction, reuse, and recycling of our waste. Likewise, we establish collaborative links with authorities, companies, and communities.</p>	Our corporate strategy is materialized through actions aimed at the efficient use of resources, improving our flexibility and maximizing income generation and the profitability of the businesses. <p>To manage the efficiency and productivity of our business, we define key objectives and goals that seek agility, flexibility and profitability through the following lines: Circular economy, Operational excellence, Energy efficiency, and Logistics and transport.</p> <p>Regarding Circular Economy line of action of Argos' efficiency strategy, we take advantage of waste and by-products – such as raw materials or alternative fuels – from other industries to mitigate the environmental impacts generated by using non-renewable natural resources in our production processes. Also, we establish collaborative relationships with authorities, companies, and communities to provide a sustainable solution to the problem of the inadequate disposal of waste in our areas of influence.</p>
Opportunity 2	Downstream	Products and services	Development and/or expansion of low emission goods and services	Increased revenue resulting from increased demand for products and services	<p>Increased market opportunities via the Green Solutions portfolio "Green solutions, conscious innovation" In the coming years we will be the actors in a profound transformation of the construction industry that will allow us to offer our clients a portfolio of carbon neutral solutions by 2050 at the latest. To achieve this goal, we want to be the best allies of our clients in the construction of their sustainable housing and infrastructure dreams in all the territories where we operate. This opens new business opportunities and the possibility of increasing revenue from sales of solutions with clear benefits for sustainable construction. Our goal by 2050 is to be the revenue generated from the sale of products with sustainability characteristics to reach USD 800 million.</p> <p>This portfolio includes materials, products and services with lower CO2 emissions as a result of innovative production processes in which energy consumption has been reduced, traditional fossil fuels have been substituted or alternative raw materials with a lower carbon content have been used. Likewise, they promote the optimization and use of non-renewable resources in different phases of construction projects to reduce their environmental impact.</p> <p>We highlight in this portfolio the following categories of products that contribute to the mitigation and adaptation of climate change: 1. Low carbon products and services, 2. Products and services that promote conscious construction.</p> <ol style="list-style-type: none"> 1. Low Carbon Products: cement and concrete with lower carbon content embedded and lower energy consumption in its production stage, according to the life cycle analysis. 2. Products and services that promote conscious construction: These products and services have the following benefits: adaptation to climate change and the circular economy; reduce the use of non-renewable resources in the manufacturing stage and/or in the construction stage; increase the useful life of the infrastructure; allow the management of water as a resource; and contribute to well-being, comfort and health. 3. Green Bags Program: With the implementation of the program, more than 2.5 million bags were recovered in 2022, which is equivalent to avoiding the felling of 3,684 trees for the manufacture of pulp and paper fiber, thanks to the participation of 324 clients linked to the program and the support from 5 paper management and processing companies. Argos received during 2022 more than USD 5.382,076 (162 million COP) for paper recovery sales. 4. Modular Solutions: With the modular system in particular, productivity in the construction of housing spaces increases exponentially, construction time is saved, guaranteeing the safety and quality of the structures, and it contributes to mitigating climate change by being more efficient and reducing waste. Argos perceived income by USD 5.15880 (67 million COP). <p>In addition, we aim to keep accessing market opportunities via products with resilience characteristics. With the increasing likelihood of more intense extreme weather events that may cause natural disasters, Argos sees the importance in developing products that help to build infrastructures that better adapt to the changing conditions. For example, Argos offers a special concrete with higher color reflectance, which minimizes heat absorption. In addition, the company offers products that allow greater infiltration rate, so it reduces the intensity of damage caused by floods.</p> <p>Within the services from conscious construction Argos has program called Green Bags. Argos offer an alternative to clients to adequately manage the empty packages of cement, aggregates and ready mixes that are generated in the works, via reverse logistics, so that they can be used for the manufacture of fiber cement, paper pulp or fuels derived from waste and thus contribute to the economic development of other sectors of the value chain.</p> <p>Since 2020, Argos offers a new modular construction system for buildings and infrastructure at the service of the market, modular solutions, which aims to maximize the productivity and resources of our clients, reducing their time, cost overruns and waste on site. Additionally, these solutions optimize the use of non-renewable resources and ensure less final waste.</p>	Short term	Virtually certain	High	#####	#####			\$ 905.833.638	\$ 21.781	<p>Reported annual costs correspond to:</p> <ul style="list-style-type: none"> R&D project for developing products with sustainability characteristics, such as: low-carbon products, adaptation and circular economy, among others: USD 138.882. Our Research and Development team (R&D) develops innovative and low-carbon processes, products and solutions that allow reducing CO2 emissions at various stages of our value chain. Regarding low-carbon products, the company dedicated 37% of its total R&D project budget, research and developing of these products in 2022. Operating costs of the Green Bags Program: USD 5.44825 (180 million COP) Expenses and Open of Modular Solutions: USD 5.41033 (17 million COP) <p>Argos works to create sustainable value, effectively responding to new market demands and positioning itself as an industry leader through innovation. Thus, product portfolio and customized solutions is the value proposition that Argos offers to its customers, and which differentiates it in the marketplace (i.e. cement, concrete, aggregates, as well as differential services such as technical assistance, integrated logistics, and customized solution design). In addition, under the "sustainable construction" pillar of the Environmental Strategy, Company leverages life cycle management and develops projects focused on solving construction challenges with extraordinary solutions through innovation.</p>	As a result of Argos' commitment to sustainability, the Company is providing the Green Solutions portfolio to its clients, a set of products, solutions and services aimed at strengthening the value chain and responding to the current challenges of achieving sustainable and resilient territories, through continuous improvement and innovation of our business model and production processes. Green Solutions portfolio that allow us to be active agents in the construction of a future, among our products are the delivery of low carbon products as well as products, solutions and services focused on a conscious construction such as soluble packaging, recycling programs, hybrid fuel, among other initiatives. During 2022 Argos we continue to promote research and development in our cement and concrete products and modular solutions, which we validate through the cycle assessment (LCA) using the OCCA, EPD Tool 2021, which complies with the Category Rules of Product (PCR) for cement (PCR_2020) and concrete (PCR_2020).		
Opportunity 3	Direct operations	Resource efficiency	Use of more efficient production and distribution processes	Reduced direct costs	<p>Innovation in processes. It is possible to have a positive impact on results through operational efficiency aimed at reducing scope 1 and scope 2 CO2 emissions. This can be achieved through the development of projects complying to Argos to be efficient in its operations and development new technologies for capture carbon and utilization projects. We highlight some relevant projects implemented during 2022 to contribute to the mitigation of climate change:</p> <ol style="list-style-type: none"> 1. Digital Twins: are virtual replicas of physical assets, processes, systems, or even people that are created using real-time data and advanced analytics. A digital twin uses sensors and other data sources to create a virtual model that can be used to simulate and monitor the behavior of the physical asset or process. This technology allows Argos to optimize the use of raw materials and energy consumption in the cement manufacturing process. 2. Hydrogen injection in the clinker process: In 2022, Argos implemented a hydrogen injection system in the clinker kiln at the Piedras Azules plant in Honduras. The main objective of the system was reduce CO2 emissions and thus have a much more sustainable and efficient operation. With the injection of hydrogen, the aim is to reduce the use of traditional fossil fuels, the levels of CO2 emissions and energy consumption, which constitutes an innovation applied to the production process that not only saves costs, but also contributes to our commitment to climate change mitigation. 3. CCUS: Since 2008 Argos has been working on a carbon capture project through microalgae. With the support of the East University, Ruta 9 and the University of Antioquia, the system has allowed different microalgas to absorb CO2 that do so 30 times more than plants or trees, capture solar energy and generate biomass, which has a great potential as biofuel. 	Short term	Virtually certain	High	\$ 33.608.200.163,92	\$ 7.884.703,50			\$ 5.403.787.115,31	\$ 1.269.932,78	<p>Reported figure correspond to estimated annual monetary savings from the CO2 emissions reduction initiatives that were implemented by Argos within the reporting year 2022. These initiatives are related to hydrogen injection and savings in production cost of the cement process, derivative to digital twins implementation:</p> <ul style="list-style-type: none"> The industrial H2 injection test is implemented in the Piedras Azules kiln with the following results: <ul style="list-style-type: none"> increase in clinker productivity (%) Reduction of petcoke consumption and therefore reduction of caloric consumption (3% -20 kcal/kg KJ) increase in the % replacement of white tires (21%) The total savings during 2022 due to fuel reduction consumption by USD 5.495,97 (242 million COP) <p>Digital Twins, this technology allows Argos to optimize the mix of raw materials and energy consumption in the cement manufacturing process, the savings during 2022 were more than USD 5.787,746 (33.366 million COP)</p>	Our corporate strategy is materialized through actions aimed at the efficient use of resources, improving our flexibility and maximizing income generation and the profitability of the businesses. <p>To manage the efficiency and productivity of our business, we define key objectives and goals that seek agility, flexibility and profitability through the following lines:</p> <p>Operational excellence: We adapt productive processes to new market challenges and we advance toward digital transformation. For this, we concentrate on operational efficiency, production optimization and logistics and transport processes, as well as the implementation of circular economy models.</p> <p>Energy efficiency: We permanently seek electric and caloric efficiency in productive processes, ensuring the proper use of resources and contributing to the reduction of CO2 emissions, through the adoption of the guidelines of the corporate strategies.</p> <p>Logistics and transport: Considering the logistical context of each region, taking advantage of our resources and geographical location to improve delivery times and decrease costs.</p>		

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CLIMATE CHANGE

SASB Component						
Indicador	Code	Description	Category	Units	Responsible	2022
GHG emissions	EM-CM-110a.1	Total direct emissions (Scope 1)		Ton CO ₂	Environmental	8.812.827
		Percentage covered by emission limitation regulations (%)	Quantitative	%	Environmental	0,73%

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CLIMATE CHANGE

	ARGOS	GCCA	GRI	DJSI	2019	2020	2021	2022	TARGET 2030	COMMENTS
CO₂ Emissions										
Cement										
Direct GHG emissions (Scope 1) (t CO ₂)			305-1	2.2.1	8.186.930	7.281.478	8.291.874	8.278.602		
Indirect GHG emissions (Scope 2 by the "location" method) (tCO ₂)			305-2	2.2.2	432.834	399.728	408.558	392.631		
Indirect GHG emissions (Scope 2 by the "market" method) (tCO ₂)			305-2	2.2.2	-	-	386.513	374.867		
Total CO ₂ emissions - Gross (tCO ₂ /año)		GCCA			8.186.930	7.281.478	8.291.874	8.278.602		
Total CO ₂ emissions - Net (tCO ₂ /año)		GCCA			8.057.886	7.176.891	8.166.427	8.154.918		
Specific CO ₂ emissions - Gross (kgCO ₂ /t cementitious material)		GCCA	305-4		638	643	645	647		
Net-Specific CO ₂ emissions (kg/t cementitious material)	A-EC1	GCCA			628	634	635	637	523	
Indirect specific GHG emissions (Scope 2 by the "market" method) (kgCO ₂ /t cementitious material)							30	29	23	
Reduction of specific CO ₂ Scope 1 + 2 emissions (%) - SBTi								1%	-21%	
Concrete										
Direct GHG emissions (Scope 1) (t CO ₂)			305-1		126.796	72.026	77.635	74.882		
Indirect GHG emissions (Scope 2) (tCO ₂)			305-2		12.737	14.041	10.696	9.579		
Intensity of GHG emissions (kgCO ₂ /m ³ concrete)			305-4		14	9	10	9		
Aggregates										
Direct GHG emissions (Scope 1) (t CO ₂)			305-1		4.009	2.806	4.275	5.209		
Indirect GHG emissions (Scope 2) (tCO ₂)			305-2		752	656	747	555		
Intensity of GHG emissions (kgCO ₂ /t product)			305-4		2	2	3	2		
Electricity Generation										
Direct GHG emissions (Scope 1) (t CO ₂)			305-1		395.896	416.468	415.300	454.134		
Indirect GHG emissions (Scope 2) (tCO ₂)			305-2		NA	NA	NA	NA		
Intensity of GHG emissions (kgCO ₂ /MWh)			305-4		865	910	924	988		
Compañía										
Total direct emissions (Scope 1) (tCO ₂)			305-1	2.2.1	8.713.631	7.772.778	8.789.085	8.812.827		
Total indirect emissions (Scope 2 by "location" method) (tCO ₂)			305-2	2.2.2	446.322	414.425	420.000	402.765		
Total direct and indirect emissions (by "location" method) (tCO ₂)					9.159.953	8.187.203	9.209.085	9.215.592		
Total indirect emissions (Scope 2 by "market" method) (tCO ₂)			305-2	2.2.2	-	-	397.955	385.001		
Total direct and indirect emissions (by "market" method) (tCO ₂)					-	-	9.187.040	9.197.828		
Other total indirect GHG emissions (Scope 3) (tCO ₂ e)			305-3	2.2.3	4.328.311	4.153.714	4.127.706	4.812.791		
Energy and fuels										
Specific heat consumption of clinker production (MJ/t clinker)		GCCA			3.759	3.684	3.822	4.061		
Substitution of conventional fuels with alternative fuels (%)	A-ENE1			2.3.2	5,60%	6,20%	6,37%	5,77%	33,0%	
Alternative fuels rate (%)		GCCA			4,50%	4,20%	4,39%	4,08%		
Biomass as fuel rate (%)		GCCA			1,02%	2,04%	1,98%	1,69%		
Materials										
Clinker/Cement Factor		GCCA		2.3.2	77%	78%	77%	74%		