CEMEX's Task Force on Climate-related Financial Disclosures (TCFD) Report 2021

Task Force on Climate-related Financial Disclosure Response (TCFD)

GOVERNANCE
Disclose the organization's governance around climate-related risks and opportunities

a) Describe the board's oversight of climate-related risks and opportunities.

Our **Board of Directors** is ultimately responsible for supervising the overall operation of our company and is composed of qualified directors who provide appropriate oversight. In addition, one member of our audit committee meets the requirements of a "financial expert," as defined by SOX.

Chaired by Rogelio Zambrano, our Board of Directors consists of 15 directors, ten of whom qualify as independent directors according to criteria specified under Mexican Securities Law[1]. During 2021, our board met five times to report on a wide range of relevant issues, including sustainability-related concerns and financial strategy, with average board meeting attendance of approximately 93%.

Our Board Committees[2] include the Corporate Practices and Finance Committee, the Audit Committee, and the Sustainability Committee.

The **Sustainability Committee** particularly provides board-level oversight on Climate Action and CO_2 Management Strategy. The members of the Sustainability Committee are appointed by our shareholders. The Committee is comprised of four members of the Board of Directors and meets four times a year, and is normally briefed by the Sustainability Corporate Director and the Executive Vice President for Sustainability, Commercial and Operations Development. These briefings include in-depth reviews of previously defined topics (at the end of the previous year) as well as unforeseen recent developments that are considered material enough to be brought to the Board's attention or that require guidance from the Sustainability Committee. During 2021, the Sustainability Committee met four times with a meeting attendance of 100%.

1 As of December 31, 2021

2 For more information about these Board-Level Committees, please refer to page 100 in our 2021 Integrated Report.

Sustainability Committee

Armando J. García Segovia
President

Ian Christian Armstrong Zambrano
Francisco Javier Fernández Carbajal
Marcelo Zambrano Lozano

Members of our Sustainability Committee bring different skills and experience to managing climate-related risks and opportunities: Business Strategy, Energy, Environmental, Climate Change and Sustainability and Risk Management. During 2022, we expect to have our CEO as a member of the Sustainability Committee.

Sustainability Committtee Areas of Expertise

The board-level **Sustainability Committee** responsibilities are:

- Ensuring sustainable development is embedded in our strategy.
- Supporting our Board of Directors in fulfilling its responsibility to shareholders regarding our company's sustainable growth.
- Evaluating the effectiveness of sustainability programs and initiatives.
- Assisting our Chief Executive Officer and senior management team regarding the strategic direction on sustainability.
- Endorsing our sustainability model, priorities, and key indicators– this explicitly includes all topics related to climate change and CO_2 emissions.

The **President of the Sustainability Committee** is the primary responsible for the oversight of the Climate Action Strategy in CEMEX and is an independent member of our Board of Directors. As a public company in Mexico and in the U.S., on March 26, 2020, CEMEX, S.A.B. de C.V. held an ordinary general shareholders' meeting in which the shareholders for the first time approved the appointment of the members of the Sustainability Committee; that is, we have elevated the appointment of the members to be made at the shareholder level instead of at the board of directors' level. The responsibilities of the committee president are set forth in the Sustainability Committee role; examples of the type of decisions the president makes are the implementation of CEMEX's Future in Action program and the revision and resources assurance of the CO_2 Reduction Roadmap initiatives site by site.

In 2021, CEMEX launched its Future in Action program. This is a long-term program focused on developing low-carbon products, solutions, and processes to reach our ultimate goal of delivering net-zero CO_2 concrete by 2050. It concentrates on significantly reducing direct and indirect CO_2 emissions from our operations, as well as providing sustainable and innovative solutions for society. As part of this program, CEMEX is leveraging on the CO_2 Reduction Roadmap, initially developed in 2018 and launched across all our cement sites to model and assess the carbon mitigation potential that can be seized from each installation considering different factors. The roadmap was revisited in late 2020 to increase the level of ambition to a Well Below 2°C Scenario.

To know more about our Future in Action program and CO_2 Roadmap, please visit pages 20-37 from our Integrated Report.

In 2021, the scheduled agenda for the Sustainability Committee meetings included the following related to climate change:

- CEMEX Integrated Report Structure and Content.
- Sustainability KPI's Annual Performance , progress against our 2030 targets and improvement plan.
- Global and Regional Sustainability Risks and Opportunities Agenda Update.
- Climate Change Strategy and CO_2 Management.

The Sustainability Committee discussions in 2021 were enriching and led to valuable outcomes related to climate change, such as:

- New more ambitious 2030 global emissions target, bringing forward the previous one to 2025, validated by Science Based Targets Initiative (SBTi).
- Future in Action targets and roadmap enhancement.
- Deeper analysis of ESG risks and opportunities—especially climate-related.
- Water Action Plans (WAPs) in all priority sites and first pilot in second priority sites.
- Strengthening of biodiversity conservation efforts.
- Renewed focus on disclosure compliance with ESG-related matters.
- Clean electricity strategy.
- Construction of major air emissions online visualization tool.
- CEMEX Sustainability Learning Pathway as a dedicated employee training: special focus on climate-action related to our Future in Action program.
- Joining the Business Ambition for 1.5°C of the We Mean Business Coalition in partnership with the SBTi and the U.N. Global Compact.
- Joining The Race to Zero Campaign of the U.N. Framework Convention on Climate Change (UNFCCC).
- Founding member of the U.N. Global Compact CFO Taskforce for the Sustainable Development Goals (SDGs).
- Founding member of the First Movers Coalition, announced in COP26.
- Launch of the Sustainability-linked Financing Framework.

b) Describe management's role in assessing and managing climate-related risks and opportunities.

At the executive level, our CEO and members of our Executive Committee (ExCo) oversee the day-to-day operation of our company. They develop, refine, and direct the implementation of our business strategy. Climate-related topics are presented to the ExCo on a monthly basis to review progress and performance and to receive instructions if any adjustment is required.

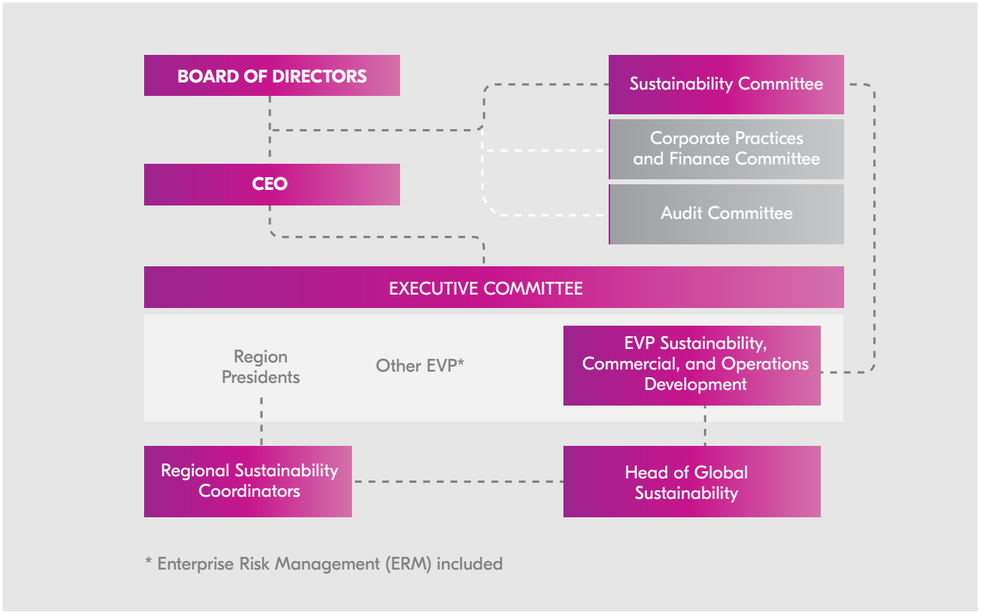
The Executive Vice President Sustainability, Commercial, and Operations Development, reporting directly to the company CEO, is a position in the Executive Committee to oversee the areas of Sustainability, Operations & Technology, Energy, R&D & IP Management, Health & Safety, Procurement, Commercial, and Digital Marketing.

In coordination with the rest of the company, the areas that constitute this Vice Presidency comprise the functions directly related to the Sustainability and Climate Change strategy of the company and contribute to the integration and completion of all the climate-related initiatives and programs, for example, the CO_2 Roadmap and our Future in Action Program. Without excellent coordination of all these areas, CEMEX could not progress effectively in achieving its internal and external goals.

Specifically, the Sustainability function oversees all cross-functions of the company (all business and all departments) and directly manages sustainability topics that are embedded throughout the organization.

The responsibilities with respect to climate change include:

- Monitoring the company's performance in terms of CO_2 emissions and related KPIs.
- Monitoring of the company's CO_2 Roadmap implementation and resources assurance for the execution of the reduction initiatives and presentation to the ExCo/Board for approval.
- Coordinating the Future in Action Program.
- Assessment of climate-related risks and opportunities (responsible for climate-related topics in integrated risk assessment) together with Enterprise Risk Management function in collaboration with regional units.
- Preparation of targets and initiatives for approval by the Executive Committee and Board of Directors.
- Implementation of approved targets and initiatives.



Link to remuneration

CEMEX has established a consistent set of targets for specific net CO_2 emissions (kg CO_2/ton of cementitious product) at global, regional, national, and plant levels, and these are linked to our publicly disclosed 2025 and 2030 targets. These targets are a mandatory part of the performance evaluation for the CEO, Executive Committee members (regional level), Country Managers (business unit level) and are transmitted in a top-bottom approach to the following levels across the organization. As part of this effort, all regional cement operations leaders and cement plant heads were required to assign at least 20% of their individual performance results weight to their specific CO_2 emissions result; the individual performance results are part of their variable compensation scheme. During 2022, CEMEX's institutional variable compensation plan will integrate a CO_2 emissions reduction metric for approximately 4,500 employees, who are eligible for a variable compensation payment.

Internal Carbon Pricing

In late 2020, CEMEX designed a methodology to implement an internal carbon price that allows the measurement of the financial performance in each one of our cement plants, reflecting a cost for CO_2 emissions that simulates that all of our sites in the world operate under an emission trading system (ETS) similar to Europe's ETS, which is the most advanced scheme. Every year, we update the price of carbon according to the latest projection on the market price in Europe, and that is used across all of our geographies, allowing our local managers to make operational and investment decisions taking into consideration the impact of CO_2 emissions in their present and future financial performance.

STRATEGY

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.

a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.

CEMEX's definition of short-, medium-, and long-term horizons is as follows[3]:

SHORT-TERM HORIZON	MEDIUM-TERM HORIZON	LONG-TERM HORIZON
0-3 years, based on our 2025 strategy	**3-6 years,** based on our 2030 strategy	**6-35 years,** from 2030 onwards

CEMEX identifies and calculates the impact of the main risks and defines as a "substantive impact" any impact that:

- Affects at least 15% of our business units, regardless of their financial or strategic impact.
- Or affects a whole Region, regardless of its financial or strategic impact.
- Or, regardless of the number of business units affected, the financial or strategic impact is higher than 1% over the total expected yearly EBITDA results within a 10-year period or threatens its competitiveness.
- Or the impact is higher than 5% over the specific expected EBITDA of a business unit within a 10-year period or threaten its competitiveness.
- Or, as per shareholder or Executive Committee request.

As part of our risks identification process, we evaluate their relevance to be included in our risk type assessment. The following is a brief description of some of the main short, medium, and long-term risk types faced by CEMEX and their corresponding mitigation strategies:

RISK TYPE	TIME-HORIZON	DESCRIPTION	EXAMPLE
TRANSITION RISKS			
Current regulation	**Short**	Several CEMEX operations are currently subject to climate change-related legislation, including emissions trading systems (European Union, California) and taxes (e.g., Colombia, Mexico). Given the significant implications that even small changes to e.g., free allocation to our operations or overall scarcity of allowances can have, it is paramount for CEMEX to follow closely current developments and adjust our risk adjustment and strategy accordingly.	Carbon tax on just liquid and gas (coal and petcoke are excluded) fossil fuels in Colombia is already impacting our operational cost, mainly related to transport. The same happens with the current regulation in Mexico, where all fossil fuels, excluding Natural Gas, are taxed, so this taxation is directly impacting our operational cost.
Emerging regulation	**Short**	CEMEX fully supports the implementation of the Paris Agreement and collaborates with governments worldwide to define and implement Nationally Determined Contributions (NDCs). On a quarterly basis, the CEMEX "CO_2 Regulation Focus Group", comprised of Public Affairs, Operations, and Sustainability members in each region, shares the insights from this collaboration with governments and identifies any risk in emerging regulations.	The trial period for the new Emissions Trading System (ETS) in Mexico has already started with a planned duration of 3-years, and it will have a noticeable impact on our operations. We are in close collaboration with governments through CANACEM (Mexican Cement Association) on the revision of the new ETS regulation during its trial period. The same exercise was done for all countries in our SCA&C region; carbon tax regulation vs. ETS has been analyzed in terms of emissions and economic impact of each scenario, and we evaluate the impact of the potential ETS implementation in Colombia in the next 2-years.

Response / Mitigation Efforts

- CEMEX has set and publicly announced its 2030 target of a 40% reduction in CO_2 per ton of cementitious material, for which it developed a CO_2 Roadmap including specific reduction initiatives for each cement site and identifying the resources (CAPEX) and calendar for their implementation. Our target has been validated by the SBTi and is aligned with its Well Below 2°C scenario. The roadmap has been verified by Carbon Trust, ensuring the technical feasibility of the considered technologies as well as adequate governance and a robust strategy to reduce emissions. Each region monitors monthly its site-by-site plan to ensure its implementation and resources allocation.
- CEMEX's fourth core business, Urbanization Solutions, also plays a key role in climate-related risks mitigation by generating sustainable alternatives for metropolises growth, providing the market with high-efficient building solutions, and promoting circular economy through enhanced waste management schemes for cities.

3 Please note these definitions of short, medium and long-term only apply to this exercise, particularly our assessment of climate-related risks and opportunities, and should not be used for interpreting any other CEMEX communication.

RISK TYPE	TIME-HORIZON	DESCRIPTION	EXAMPLE
TRANSITION RISKS			
Legal	**Short**	Although we are currently not subject to any climate change-related litigation, the increasing attention and commitment of governments to comply with NDC will evolve in more robust legislation and compliance surveillance, meaning an increase in litigation or penalties risk. CEMEX Central Legal department is monitoring on a quarterly basis all "Regulatory Matters and Legal Proceedings" applicable to our company, including all those related to climate change.	Water scarcity in some areas where we operate is one example of how the legal proceedings and regulatory matters are included in the quarterly revision. The control from the legal perspective is the strict compliance of each water withdrawal permit to avoid any disturbance in the water layer and a potential legal action derived from it. Another example of legal risk is every time more demanding enhanced emissions-reporting obligations and air emissions limits; we are analyzing this risk as a potential emerging regulation and from the legal perspective in case of not meeting the new revised limits.
Technology	**Long**	Technology is the key lever for CEMEX to significantly reduce its CO_2 footprint in the long run. CEMEX is involved in new R&D products (such as our proprietary low-CO_2 clinker) and other new technologies projects on Carbon Capture. CEMEX has an R&D department evaluating and assessing new climate-change technologies (proprietary or external) and a dedicated multidisciplinary team to evaluate new technologies in the market. CEMEX usually works under the H2020 EU scheme and new EU Innovation Fund, and is also collaborating with NPC in the U.S. in Carbon Capture, Utilization and Storage (CCUS) technologies, which can help us to manage transition risks. The technology is considered a risk in some installations where not implementing new technologies could result in a non-profitable operation.	CEMEX is involved in the design and development stage of EU-funded projects like LEILAC project, ABSALT, CO2OLHEAT, and e$COCO_2$, among others, and California and Texas plants were granted with two DOE funds to execute a feasibility study on Carbon Capture, one with membranes and other one with amines.
Market	**Medium**	The main impact on markets is likely to happen via regulation. The impact of market developments that are not driven by regulation is likely to be rather small in the short term, and changes are expected to occur very slowly. Nonetheless, CEMEX has identified this as a key topic in the long run as it has the potential to reshape the industry and is integrating it into its CO_2 strategy. Types of market trends that are likely to become relevant in the medium term include demand for low-carbon products or products for better energy efficiency of buildings, as it is now being pursued, for instance, in the EU Taxonomy. Low carbon products or high-efficiency products demand is closely monitored by our commercial department and our R&D in constant research of innovative solutions.	The low-carbon product demand trend is assessed and crossed with R&D development to adapt our facilities to the expected demand (e.g., lightweight concrete, fiber reinforced concrete) and also linked to building solutions obligations imposed by regulations (e.g., adaptation of existing buildings to energy efficiency obligations in a local/country basis).

- Early detection, development, and commercialization and/or partnership with disruptive and revolutionary construction projects or companies through CEMEX Ventures.

- As the development of emerging technologies is key to meeting our 2050 carbon neutrality ambition for concrete, the role that CEMEX plays in different research consortiums and partnerships, together with the outcomes of new-technologies mapping, are being monitored on a monthly basis by the CEMEX CO_2 Taskforce. This taskforce is a multidisciplinary group with the participation of Sustainability, Operations and Technology, R&D, Energy, Supply Chain, and CEMEX Ventures.

- CEMEX R&D is continuously enhancing our solutions portfolio based on the increasing demand for more sustainable products. A recent example is Vertua®, a family of products that started with a range of concrete with a low or neutral CO_2 footprint launched in several markets in 2020 and extended to all CEMEX geographies in 2021. This extensive family of products includes currently low carbon cements, concrete, as well as admixtures globally available.

- To mitigate reputational risk, CEMEX is actively involved in industry associations, including the Global Cement and Concrete Association (GCCA), from which concrete is promoted as a suitable building material to cope with climate change. Concrete plays a critical role in making cities sustainable and resilient, as it is the most durable and disaster-resistant among all construction materials.

RISK TYPE	TIME-HORIZON	DESCRIPTION	EXAMPLE
TRANSITION RISKS			
Reputation	**Short**	For the time being, the key reputation risks are related to our investors, but in the future, it cannot be ruled out that also customers will increasingly base their purchasing decisions on our reputation. CEMEX is in constant exchange with its stakeholders to understand their views and expectations. This risk is monitored on a regular and coordinated basis by the Public Affairs, Sustainability, and Investor Relations areas. The most important channels in the context of climate change are: ■ Regular stakeholder surveys evaluating our image and materiality matrix. ■ Dialogue with the investment community (e.g., institutional investors, financial and sustainability analysts). ■ Review of external reports by, e.g., NGOs, authorities, or media.	An example of this kind of reputation risk is "the perception" the markets could have of the cement sector, as it is seen as a big contributor to CO_2 global emissions, so this could affect our sales (risk) but also create some opportunities (need to extend the new low carbon products portfolio). We are monitoring in our risk assessment this potential risk, identifying the customer needs through the constant exchange with them, and this allows us to quickly identify this "lack of confidence" in our product and constantly monitor the press releases related to give the proper answer and take the correct actions. Additionally, we are actively participating in those cement associations of the locations where we are present, so we also discuss reputation risk and take actions accordingly (response to media). All these sources are considered when including the reputation risk and its consequences in sales in the risk-assessment process.
PHYSICAL RISKS			
Acute physical	**Short**	The assessment of acute physical climate risks, mainly extreme weather events such as tropical cyclones, is a constant task in our Enterprise Risk Management (ERM) system. This includes both the updating of local emergency plans as well as the collaboration with the insurer to understand the potential changes in insured risks.	All areas with natural-disaster high occurrence probability are identified, and the impacts are assessed in terms of production losses and reconstruction cost.
Chronic physical	**Medium**	CEMEX operates a number of terminals and also plants directly on the coast, where chronic physical risks such as rising sea levels could impact our operations continuity, so this physical risk could become a medium-term problem for the company. Another example of chronic physical risk being monitored is the water scarcity in the areas where we operate, to ensure the operation continuity.	To assess the impact of the water scarcity chronic physical risk, we evaluate the cost increase associated to other water sources or production losses.

- To mitigate acute physical risks, CEMEX implemented a Business Continuity Program (BCP) for each of its sites to minimize the potential impact of a disruptive event in our operations. This program integrates guidelines for emergency support, crisis management, and business recovery. The definition of the CEMEX BCPs ensures business resilience and operation recovery in the case of force-majeure events, ensuring the fulfillment of our commitments with our clients and a quick return to business as usual.

- To mitigate the impact of the water stress risk, we executed a detailed assessment in all our sites to identify potential water scarcity using the World Resources Institute Aqueduct tools. Based on the resulting map, we have set a 2030 target to implement a Water Action Plan (WAP) in all those priority sites where high-risk water stress was identified. Additionally, we developed water stress scenarios mapping for 2030 and 2040, and during 2021 we implemented 2030 targets for freshwater withdrawals reduction in our cement, aggregates and ready-mix businesses.

After evaluating the different types of risks and opportunities, there is a prioritization process according to their potential financial impact. In the following tables we provide a more detailed description of some of these specific risks and opportunities.

CLIMATE-RELATED RISKS	DESCRIPTION
RISK TYPE: Current regulation **PRIMARY CLIMATE-RELATED RISK DRIVER:** Carbon pricing mechanisms **TIME HORIZON:** Short-term **MAGNITUDE OF IMPACT:** High **PRIMARY POTENTIAL FINANCIAL IMPACT:** Increased direct costs **LIKELIHOOD:** Likely	CEMEX supports carbon pricing, particularly in the form of cap-and-trade, as the most effective and efficient means to combat climate change. However, it is essential that a pricing system is well designed, maintaining fair competition preserving both the industry and the climate effects if a carbon-leakage occurs; competition does not refer only to regulated and unregulated geographies, but also among potential substitute products (e.g., concrete vs. asphalt, timber or steel). CEMEX evaluates the risk of the transition to a carbon pricing regulation in those Countries with a regulation already in place that will certainly evolve to a next phase/taxation scheme or those with an announced new regulation in the short-term. The facilities are (1) California (one cement plant within the scope) with a CCA carbon price floor average (2021-2030) of 26.7 USD/t. (2) All EU cement Operations (EUA 2021: 53.70 EUR/t - EUA 2030: 110 EUR/t - 2050: 200 EUR/t; UKA 2021: 55.69 GBP/ton - 2030 and 2050 aligned with EUA prices). (3) Colombia: tax on liquid and gas fossil fuels (Carbon tax Colombia 2021: 17,660 COP/ ton of CO_2 contained in liquid and gas fuels (e.g., gasoline: 159 COP/gallon). (4) Mexico: tax on fossil fuels in place (Petcoke tax 2021: 20.3767 MXN/petcoke ton; 2022: 21.8784 MXN/petcoke ton). (5) Other geographies are monitored quarterly in the "CO_2 Regulation focus Group" meetings to determine their middle-term impact. To mitigate the impact of increasing the operating cost derived from strengthening the GHG (CO_2) regulation and increasing the GHG pricing, in CEMEX, we have our cement plant-by-plant CO_2 Roadmap, which includes all the initiatives to reduce CO_2 and needed to accomplish our 2030 targets. We have identified, evaluated, and prioritized close to 300 initiatives to be executed during this decade. Besides, CEMEX also actively participates in developing CCUS (Carbon Capture Utilization and Storage) technologies as a long-term solution in an open collaboration platform.
RISK TYPE: Acute physical **PRIMARY CLIMATE-RELATED RISK DRIVER:** Increased severity and frequency of extreme weather events such as cyclones and floods **TIME HORIZON:** Short-term **MAGNITUDE OF IMPACT.** Medium-high **PRIMARY POTENTIAL FINANCIAL IMPACT:** Increased capital expenditures **LIKELIHOOD:** About as likely as not	Increased frequency and strength of tropical cyclones (and other extreme storms) can cause direct damage to our operations. All the operations are assessed by FM Global, our global insurer, and the CEMEX Technical team under the Loss-Prevention Program (LPP). Derived from this assessment, we get the "Loss Expectancies-Property Damage," the "Loss Expectancies-Time Element," and the "remediation cost" to eliminate or mitigate the risk of physical damage due to an acute or chronic climate-related event. The "Loss Expectancies-Property Damage" evaluates the cost of the physical damage to equipment or infrastructure. The" Loss Expectancies-Time Element" evaluates the production loss and the cost derived from the activities to restore the original production. The Loss Expectancies are evaluated with the "total financial loss model" developed by FM Global, which effectively calculates the true value of resilience. The probability of occurrence of these natural hazards (flooding, windstorms) in a site is evaluated with the help of several proprietary maps of windstorm, flooding, and others available like seismic, wildfires..., built on information from the NASA, Research Centers, Universities, and other governmental, local sources mainly in the U.S. Additionally, to manage the physical risks (mainly for disruptive risks) CEMEX takes a structured and homogeneous approach worldwide, our Business Continuity Program (BCP), as explained above.
RISK TYPE: Acute physical **PRIMARY CLIMATE-RELATED RISK DRIVER:** Increased severity and frequency of extreme weather events such as cyclones and floods **TIME HORIZON:** Medium-term **MAGNITUDE OF IMPACT:** Medium-high **PRIMARY POTENTIAL FINANCIAL IMPACT:** Decreased revenues due to reduced production capacity **LIKELIHOOD:** About as likely as not	Increased frequency and strength of tropical cyclones (as well as other extreme storms) can also cause loss of production in our operations due to the time to recover the plant to its original production before the event. As commented above, all the operations are assessed by FM Global, our global insurer, and the CEMEX Technical team to calculate the "Loss Expectancies-Time Element" and the "remediation cost" to eliminate or mitigate the risk of production loss due to an acute or chronic climate-related event, as extreme climate events can disrupt the supply of crucial inputs and product outputs. "The Loss Expectancies-Time Element," evaluated with the "total financial loss model," provides an estimation of the loss of production together with the cost expended during the time to recover the plant to its production levels prior to the event. Additionally, we have our BCPs to manage physical risks.

CLIMATE-RELATED OPPORTUNITIES	DESCRIPTION
OPPORTUNITY TYPE: Products and services **PRIMARY CLIMATE-RELATED OPPORTUNITY DRIVER:** Development of new products or services through R&D and innovation **TIME HORIZON:** Short-term **MAGNITUDE OF IMPACT:** Medium **PRIMARY POTENTIAL FINANCIAL IMPACT:** Increased revenues resulting from increased demand for products and services **LIKELIHOOD:** Likely	CEMEX believes that concrete products, due to its versatility and robustness to build resilient infrastructure, can help combat and prevent the detrimental consequences of climate change by protecting people, property, and the environment, by providing the level of climate-proofing that will become mandatory as national building codes are revised to cope with more extreme weather events. Additionally, in the Net-Zero by 2050 published by IEA, they recognized that when economies are developing, per capita cement and other materials demand tends to rise; during the last two decades, cement growth its demand by 2.4-times in response to global economic and population expansion. They also mention that an increase in demand is foreseen for cement as it is required to build additional transport infrastructure (roads, cycles, cars, and trucks) and energy infrastructure, e.g., power plants and wind turbines to adapt to new Net-Zero Scenarios. As CEMEX has a high presence in markets in developing countries (South-Central America and the Caribbean, Mexico, Philippines, Egypt…), it is likely that the demand for concrete products increases first to attend the societal growth needs and then due to the need of adapting buildings and infrastructure to expected climate change effects, mainly in those geographies most exposed to extreme weather events, in our specific case Southern US, Latin America, and South-East Asia. For instance, we observed a slightly higher demand, mainly in Latin America and the Philippines, of products like Promptis® Rapid-hardening concrete that develops compressive strength to demold and move elements in four hours, so helped sites recover time lost during lockdowns and catch up with construction schedules, and Pervia®, a solution for draining pavement that makes it easier for water to permeate and be conducted to a water management system. The strategy to realize the opportunity for increasing the concrete demand to respond to societal needs quickly and affordably is to promote the benefit of innovative products and technologies. That is why, in 2019, CEMEX developed a new division called "Urbanization Solutions." Through Urbanization Solutions, CEMEX capitalizes on its expertise in building materials to offer complementary solutions to solve the most pressing societal needs: resilient buildings and infrastructure appropriate for disaster relief, energy efficiency, and affordability.
OPPORTUNITY TYPE: Products and services **PRIMARY CLIMATE-RELATED OPPORTUNITY DRIVER:** Development and/or expansion of low emission goods and services **TIME HORIZON:** Short-Medium term **MAGNITUDE OF IMPACT:** High **PRIMARY POTENTIAL FINANCIAL IMPACT:** Increased revenues through access to new and emerging markets **LIKELIHOOD:** Likely	Several studies have concluded that buildings are responsible for around 40% of global energy consumption and a similar percentage of GHG emissions. Therefore, it is crucial that the energy efficiency of buildings be improved, and the most likely way to achieve this is via more stringent energy efficiency standards for buildings. This could open several opportunities for CEMEX: ■ Significantly lowering the total energy consumption of buildings and helping to design the "sustainable cities of the future" will most likely require an increased replacement or refurbishment of existing buildings, which means more construction activity. ■ It is widely recognized that concrete's thermal properties make it an excellent structural material for energy-efficient buildings in both cold and hot climates, implying that the consumption of concrete per unit is likely to increase under more stringent efficiency standards. ■ More stringent building codes are likely to foster the development of new materials and constructive solutions; this could give innovative companies like CEMEX a competitive edge and could allow for higher margins on these already existing and new higher performance products being developed. A very specific example was showcased on the British TV program Grand Designs; the Corrigall "Concrete House" exemplifies the spirit of collaboration between our R&D, customers, architects, and engineers that CEMEX is always pursuing. The objective was to minimize, if not eliminate, conventional steel reinforcement while achieving very high thermal efficiency. Using CEMEX Resilia® ultra-high-strength and CEMEX hyper ductile fiber-reinforced concrete, the outcome was the first building in the UK where steel reinforcement was reduced by 75%, embodying a 39% reduction of CO_2 in the concrete structure or the equivalent of 120 tCO_2. Our Insularis® concrete technology was also used to achieve high thermal insulation, reducing the structure's thermal bridges and its overall energy consumption by 17%. Besides, we have also seen an increase in the demand for low-carbon products across different regions, as is the case of Vertua®, CEMEX's family of net-zero and low carbon products, which includes concrete, cement, aggregates, and admixtures. CEMEX performs R&D projects by detecting first the future needs and challenges of the society; to detect the future needs and evaluate existing and emerging technologies, we work with the "Tech Intelligence Program," comprised of 52 CEMEX members of different disciplines gathered to collaborate evaluating "technology alerts" (emerging or already developed). A survey is done to collect their impressions on the technology and develop the solution afterward.

CLIMATE-RELATED OPPORTUNITIES	DESCRIPTION
OPPORTUNITY TYPE: Energy source **PRIMARY CLIMATE-RELATED OPPORTUNITY DRIVER:** Use of lower-emission sources of energy **TIME HORIZON:** Medium-Long term **MAGNITUDE OF IMPACT:** Medium **PRIMARY POTENTIAL FINANCIAL IMPACT:** Reduced direct costs **LIKELIHOOD:** Very likely	Both the environment and CEMEX's revenues can benefit from co-processing if the right waste management regulation is in place. It will enable the development of a profitable waste management business by, for instance, imposing taxes and bans on landfills. This could lead to an increase in the availability of alternative fuels at a lower cost and reduce CO_2 emissions. The benefits of co-processing (switching from conventional fossil fuels to Alternative Fuels, mainly RDF (Refuse Derived Fuels)) are sometimes not widely understood in our areas of influence, especially in those regions with a lack of or low regulatory enforcement, like Latin America, Asia, and Africa and some areas in the USA, which are precisely the CEMEX markets that are expected to be most positively impacted, as they are the ones with more opportunity to increase the Alternative Fuels rates at a lower fuel cost. Our operations in countries like Germany, where the waste directive and the appropriate economic instruments to develop profitable waste management business are fully in place, reach year over year alternative fuel substitution rates of 75%-80%, while CEMEX 2021 average was 29.2%. To realize the opportunity to increase the use of lower-emissions sources of energy in our kilns, we have several lines of action: (1) Contact the Local/Regional/National administrations to promote the implementation of the proper regulation. (2) We also promote co-processing in our communities and with our main stakeholders. (3) We also take a proactive approach in developing our own waste management businesses, which are sometimes difficult if the regulatory incentives are not in place. The foundation by CEMEX of "Pro Ambiente" in Mexico, a company specializing in managing industrial, agricultural and domestic waste to be co-processed in our kilns, is an example of how the company materialized this opportunity.

For further information related to our risks and opportunities, please refer to our CDP response, section C2. Our CDP response with 2021 information will be uploaded in our website as soon as it is available.

b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

The influence by area of climate-related risks and opportunities in CEMEX's business and strategy is presented below, alongside some cases that exemplify situations the company faced and how these were solved.

Products and Services

Climate-related risks and mainly opportunities have already adapted our short-term strategy to commercialize products that support the low-carbon transition and value-added products globally. Cement and concrete already provide several important characteristics for a low-carbon transition, such as longevity, resistance, wide availability, etc. Nonetheless, there is still a significant potential for further developments to, e.g., decrease its embodied carbon, improve the insulating properties of concrete, further increase its strength, or implement smart functions to increase maintenance intervals and technical lifetimes. As one of the industry leaders, CEMEX will continue to be at the forefront of these developments with the help of our R&D department. The demand for products with sustainability attributes like energy efficiency, resource efficiency, and low CO_2 footprint, among others, has doubled in the last five years, and we forecast an additional 5% increase annually in the medium-long term period. Therefore, our portfolio of products is being adapted continuously to address this demand. To know more about our sustainable products and solutions, please visit pages 24-27 in our Integrated Report.

SITUATION	CEMEX observed demand for low-carbon products mainly in Europe and other countries like Colombia.
TASK	CEMEX aimed to offer a new low-carbon range of concrete products to the market.
ACTION	In 2019, R&D developed an innovative geopolymer-based concrete achieving a footprint reduction of up to 70% compared to traditional structural concrete. The new product results from intensive research, becoming the first product available on the market. With the geopolymer-based concrete, Vertua® Ultra Zero, we developed Vertua® Classic and Vertua® Plus, reducing the emissions by 30% and 50%, respectively. CEMEX also offers the customer the compensation of the remaining emissions, partnering with Natural Capital Partners in Europe and getting a Carbon Neutral Product certification.
RESULT	In early 2020 we successfully launched to the market the Vertua® low-carbon concrete range, first in France, and then we rolled it out to UK, Germany, and Colombia. In 2021, we extended the Vertua® concrete offer to the rest of the markets where we have presence, being now a family of products that comprises not only concrete, but also cement, and admixtures.

Supply chain and/or value chain

Climate Change plays an increasingly important role in selecting suppliers, particularly for electrical energy, impacting our short- and medium-term strategies. As a result, we have been reducing our scope 2 emissions for more than a decade by sourcing electricity from renewable sources, getting a 30% of our cement operations electricity consumption from clean sources in 2021. The most prominent example was the development of the Eurus and Ventika I and II wind farms in Mexico with a combined capacity of more than 500 MW. In 2021 we enhanced our commitment by setting a target of 55% of the electricity coming from clean energy sources in cement in 2030. Additionally, we are also working on reducing our transport and logistics emissions through piloting electric vehicles into our ready-mix fleet, using renewable diesel, and implementing electromobility solutions. Please visit page 32 of our Integrated Report for more information about these efforts.

SITUATION	CEMEX analyzed the cement electricity supplies in late 2018 and evaluated the options to reduce our intensity and the cost-effectiveness of the alternatives.
TASK	In 2021, we redefined our clean power target for 2030 and designed a low-carbon transition plan for scope 2. Our goal, having a 55% in clean energy consumption in cement production, is part of the SBTi verification.
ACTION	CEMEX UK renewed its contract with Engie to supply 100% from renewable sources and CEMEX Poland signed a contract to supply its operations with renewable power.
RESULT	Since this contract in the UK started in late 2018, we have reduced our CO_2 emissions by over 100,000 tons/year. In June 2021, this partnership was extended for three more years. In Poland, the operations have reduced their CO_2 emissions by around 200,000 tons/year thanks to this renewable energy supply.

Moreover, regarding downstream services, within the same short and mid-term timeframe, CEMEX provides different Green Building Certification Services, like ecoperating® building certification, urban development consultancy, green building certification, bio-climatic architecture, energy-efficient engineering together with sustainable materials and solutions development.

Investment in R&D

CEMEX is committed to delivering net-zero CO_2 concrete in 2050, so the R&D investment is a key player in our short, mid and long-term strategies for all our cement and concrete operations worldwide. According to different studies, like the IEA-CSI Technology Roadmap 2018 and IEA Net-Zero by 2050, one of the major contributors to our emissions reduction to achieve carbon neutrality will be the capture and storage or utilization of CO_2 emitted from our processes. The role and relevance of CEMEX's Global R&D department is now essential, as well as the participation of CEMEX Ventures in the research of low-carbon solutions offered by companies and start-ups, like the agreement we signed with Carbon Clean, a global leader in low-cost CO_2 amine-based capture technology. Besides, CEMEX launched in late 2019 a "CO_2 Task Force" focus group involving Operations, R&D, Sustainability, CEMEX Ventures, Logistics, Energy, and regional representatives to streamline the analysis and participation in the further research. As a result, CEMEX is now participating in more than 30 innovation projects and aims to build a demonstration pilot in seven of our facilities. To know more about our engagement in these innovation projects, please visit page 33 in our Integrated Report.

SITUATION	The major contributor to achieving our 2050 neutrality ambition is carbon capture, so CEMEX needed to get involved in capture research by partnering and participating with consortiums.
TASK	The goal is to get a portfolio of cost-effective and scalable capture technologies, so we need to explore and get involved in the different alternatives.
ACTION	CEMEX is determined to be disruptive and started conversations with Synhelion. The radically new approach replaces fossil fuels in cement plants with high-temperature solar heat and captures 100% of the carbon emissions, which are then utilized as feedstock for fuel production, enabling cement manufacturing to achieve net-zero level. This is made possible by the unprecedented temperature levels of solar heat provided by Synhelion's technology and its pioneering process to turn CO_2 into synthetic drop-in fuels, such as kerosene, diesel, and gasoline.
RESULT	CEMEX announced their collaboration in September 2020, aiming to build a pilot to be finished in 2023. So far, this partnership has already produced the world's first solar clinker.

Operations

Under the umbrella of our Future in Action program, CEMEX elaborated a very comprehensive low carbon transition plan for a short and medium-term time horizon. We developed a detailed roadmap site by site with specific actions to achieve our 2030 Scope 1 and 2 targets by implementing different technical measures like increasing the use of Alternative Fuels, particularly biomass, upgrading inefficient technology assets like our new kiln in Poland, increasing the use of clinker substitutes or changing portfolio products to more added cements mainly in SCA&C (South-Central America and the Caribbean), Mexico and US, where the swap to Type I-L cements has been deployed during the past three years. We also adopted some organizational measures such as awareness-raising, monitoring and reporting of emissions, and extensive use of our proprietary carbon footprint tool. To reinforce this commitment, all the operations are set an annual emissions reduction goal already linked to their remuneration and now also impacting their country's EBITDA.

SITUATION	CEMEX has a low carbon transition plan in place for its operations (CO_2 Roadmap) that is being followed up monthly.
TASK	CEMEX CEO wants to ensure that its low carbon transition plan is accomplished in a timely manner in all the sites at the scheduled pace.
ACTION	In late 2020, CEMEX designed a methodology to implement an internal carbon price that allows the measuring of the financial performance in each one of our cement plants, reflecting a cost for CO_2 emissions that simulates that all of our sites in the world operate under an emission trading system (ETS) similar to Europe's ETS, which is the most advanced scheme, that together with the link to remuneration, strengthen the accomplishment of the planned activities.
RESULT	In 2021, we started to monitor on a monthly basis the Year-to-date (YTD) performance vs. YTD goal for 100% of our cement sites. Example: Panama has a monthly/YTD target for Net $kgCO_2$/cementitious ton, and it is compared to its monthly/YTD performance. The difference is multiplied to the price of carbon updated according to the latest projection on the market price in Europe, impacting its monthly EBITDA. All the efforts to accomplish our roadmap led in 2021 to the largest CO_2 reduction for our company in a year, -4.7%, confirming we are on the right track to achieve our 2025 and 2030 targets.

Influence on different areas of financial planning:

INFLUENCED FINANCIAL PLANNING ELEMENT	DESCRIPTION
Revenues	Revenues are mainly affected by the increase in sales expected for the new resilient and low carbon products. The impact on our revenues has already been noted. However, we notice that as soon as our customers understand the magnitude and importance of having a lower carbon footprint and product life cycle assessment, the opportunity will be even more significant. Therefore, our R&D is constantly adapting our product portfolio to meet customer and society needs. To factor these opportunities into our financial planning process, we consider that this product has a medium magnitude impact. We estimate the sales increase expected annually and calculate the associated revenues. The magnitude of the impact on sales has been so far around a 0.5%, which is still very low, but we expect a medium impact in the middle term and a medium-high one in the long term, impacting 100% of our business units.
Direct and indirect costs	The operating cost (direct and indirect) is already being impacted by changes in regulations that increase operating production costs, mainly in European cement operations and in California. We include this operating cost increase effect within the OCF (Operating Cash Flow) forecast in the short term (5 Year Business Plan) and moreover, considering the OCF impact in the middle term by simulating the already known rules of Phase IV (in EU and California) and also the mitigation actions we are carrying out to reduce the impact (CO_2 Roadmap). Another impact in the financial planning costs is the Alternative Fuels strategy when the price lowers or is expected to lower. We find new alternative fuel opportunities in very specific areas (UK) with a 5% cost decrease compared to previous contracts. The impact of this lever is still low, and it is just affecting some EU operations (mainly UK and Poland), but we are including the potential effect in the middle term financial planning process (5 Year Business Plan, which is updated annually and every time a relevant change arises).
Capital allocation and expenditures	Capital allocation and expenditures have an important role for all identified risks and all identified opportunities, so it is factored within our financial planning process with a high impact. While climate change-related risks and opportunities are relevant for all kinds of capital, the main areas where they factor into the CEMEX planning process are the following: ■ Financial capital: systematic consideration of costs induced by GHG regulation (e.g., taxes, the cost for purchase of allowances) in the evaluation of investment projects; general stress testing of our mid-term financial planning by applying an internal carbon price according to the latest projection on the market price in Europe per metric ton of CO_2 (average price) and a sensitivity analysis with different prices to evaluate the robustness of the investment. ■ Human Capital: Increasingly stronger focus on climate change-related topics, e.g., R&D into low-carbon technologies and products; further development of climate management and related processes; investigation of the life-cycle impact of our products and services; transparent communication around the company's carbon strategy, performance, and advantages of our products and services. ■ Natural Capital: evaluation of mineral deposits for raw materials for low-carbon products; evaluation of projects to grow biomass as an alternative fuel; evaluation of carbon offset generation.
Acquisitions and divestments	All climate-related risks and opportunities are systematically integrated into the evaluation of acquisitions and divestments. The results depend on the size of the transaction but may range from low impact to be a substantial part of the overall value; as a systematic approach, the climate-related risk is always considered in our acquisition and divestment planning process, factored with a high impact magnitude. For instance, we announced the temporary closing of two operations in Spain in 2018 and one in the UK in 2020. One of the drivers to take this decision was the higher specific emissions of these operations, as there was a production cost increase expected there in the long term. An example of the impact is that our climate change/low carbon investment increased by more than 25%, and it is planned to increase much more in the coming years, as it is considered in our "CO_2 Roadmap".
Access to capital	The access to capital is an opportunity that is already affecting our operations with a medium impact, and we have foreseen a potential to become a high impact risk. Investors, particularly institutional ones, increasingly consider climate-related risks and opportunities in the evaluation of their portfolios. CEMEX maintains an open and transparent dialogue with all interested investors, informing them about the company's strategy and performance. Besides, during 2021, CEMEX launched the Sustainability-linked Framework, one of the most comprehensive in the building materials sector which further aligns our corporate sustainability commitments to our financial strategy as part of our Future in Action Program. In November 2021, we successfully closed a US$3.25 billion syndicated credit agreement, being the first debt to be issued under this Framework. Additionally, we get subsidies in the context of the EU "Innovation Funds" to support our new R&D technologies, and we were granted too with DOE (US) funding for innovation.

c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

CEMEX assesses the resilience of its medium and long-term climate strategy with different climate scenarios. Up to 2020, we used as reference the RCP-IPCC (RCP 6.0, RCP 4.5); the 2DS (IEA-CSI Cement Low-Carbon Technology Roadmap 2018); and B2DS of the IEA-Energy Technology Perspectives 2017 (ETP2017) climate-related scenarios.

In early 2021, we updated the reference scenarios to the latest ones developed by IEA, the World Energy Outlook 2020, and revisited them in October 2021, when the World Energy Outlook 2021 was published and the underlying assumptions on macro-drivers, policies and techno-economic inputs were adjusted.

The new scenarios included in the evaluation of our strategy resiliency are the Stated Policies Scenario (STEPS), the Sustainable Development Scenario, and the Net Zero emissions by 2050 Scenario (NZE).

The worst case temperature scenario is now the STEPS, which does not take it for granted that governments will reach all announced goals. Instead, it takes a granular sector-by-sector look, considering not only existing policies but also of those that are under development, like the "Fit for 55" package. The SDS and NZE are also considered to evaluate the resiliency of our strategy, as more restrictive transitional scenarios.

SCENARIO NAME	STATED POLICIES	SUSTAINABLE DEVELOPMENT	NET ZERO EMISSIONS BY 2050
Short name - external reference scenario	STEPS	SDS	NZE
Temperature range (2030-2050-2100): (Confidence level: 50%)	(1.5°C - 2°C - 2.6°C)	(1.5°C - 1.7°C - 1.6°C)	(1.5°C - 1.5°C - 1.4°C)
Reference temperature scenario	> 2ºC Scenario/ RCP 4.5[1]	Well Below 2°C/ RCP 2.6[1]	Net-Zero emissions by 2050 - 1.5°C/ RCP 1.9[1]
Source	IEA - Energy Outlook 2021/ IPCC 5th Assessment Report[1]	IEA - Energy Outlook 2021/ IPCC 5th Assessment Report[1]	IEA - Energy Outlook 2021/ IPCC 5th Assessment Report[1]
RELEVANT UNDERLYING ASSUMPTIONS			
Industry policies and incentives to technology development	Different measures depending on the geography. EU: New Industrial Strategy and country-level spending on green industry pilots, circular economy and hydrogen. U.S.: Investments from a Department of Energy program to decarbonize manufacturing. LATAM: No incentives, except in Brazil.	In all geographies, policies to support increasing deployment of CCUS and hydrogen, to support circular economy, enhanced minimum energy performance standards by 2025 for electric motors and mandatory energy audits.	Relies on a much more rapid pace of technology innovation than has typically been achieved in the past and at a competitive cost. Most new clean technologies in heavy industry demonstrated at scale in 2030 and more than 90% of heavy industrial production is low emissions in 2050. In 2035, we expect to capture 25% of the carbon in our facilities, and in 2050, 90% of the carbon.
Building sector policies	Different measures depending on the geography. EU: Country-level incentives for renovation and appliance upgrades, new building codes, and clean heating incentives and investment. Egypt: minimum performance standards for incandescent lamps. U.S.: Updated minimum energy performance standards. LATAM: no building policies in place but for Argentina.	Mandatory energy conservation building codes, including net-zero emissions requirement for all new buildings by 2030 at the latest.	Universal energy access and all new buildings are zero carbon-ready and 85% of all buildings are zero carbon-ready in 2050.
Carbon price (IEA reference) USD/ton	EU: 2030: 65 / 2040: 75 / 2050:90 Colombia, Mexico: 2030: 15 / 2040: 20 / 2050: 30 US: Price only in California.	Advanced economies: 2030: 120 / 2040: 170 / 2050: 200 Colombia and Mexico with NZ pledge: 2030: 40 / 2040: 110 / 2050: 160	Advanced economies: 2030: 130 / 2040: 205 / 2050: 250 Developing economies: 2030:15 / 2040: 35 / 2050: 55
Cement demand and demand of low carbon products	CAAGR: +0.7 in 2030 and -0.2 in 2050 Low carbon products demand increase +0.1	CAAGR: +0.7 in 2030 and -0.4 in 2050 Low-carbon products demand increase +0.2	CAAGR: -0.20 in 2030 and -0.3 in 2050 Low-carbon products demand increase +0.5

[1] The corresponding RCP (Representative Concentration Pathways) scenarios of the IPCC 5th Assessment Report have been used for physical risk assessment of each transition scenario.

SCENARIO NAME	STATED POLICIES						SUSTAINABLE DEVELOPMENT						NET ZERO EMISSIONS BY 2050					
Short name - external reference scenario	STEPS						SDS						NZE					
STRATEGY EFFECTIVENESS: RISKS AND OPPORTUNITIES																		
	PROBABILITY			IMPACT			PROBABILITY			IMPACT			PROBABILITY			IMPACT		
RISKS	LOW	MED	HIGH	LOW	MED	HIGH	LOW	MED	HIGH	LOW	MED	HIGH	LOW	MED	HIGH	LOW	MED	HIGH
Reduced market demand for higher- carbon products/commodities																		
Physical: Increased business interruption and damage across operations and supply chains with consequences for input costs, revenues, asset values, and insurance claims																		
Increased input/operating costs for high carbon activities under regulated markets (even threats to securing license to operate)																		
Risk of stranded assets: plants that cannot be easily upgraded and close to end of their lifetime																		
OPPORTUNITIES																		
Increased demand for energy-efficient, lower-carbon products and services																		
New technologies available at competitive cost that disrupt markets																		
Access to competitive energy sources (AF cost)																		
Opportunity to enhance reputation and brand value																		

Impact for the risk refers to the company's exposure to the specific risk.

Impact for the opportunity is the capitalization the company can have on the opportunity.

The results of the analysis confirm that CEMEX's carbon strategy is in general robust. CEMEX is aware that climate action is the biggest challenge of our times. With the Future in Action program, we remain committed to becoming a net-zero CO_2 company by 2050. We will provide greener products and services for a more sustainable and circular world.

- We will continue working to achieve 2030 targets of reducing our net specific CO_2 emissions by 35% compared to our 1990 baseline; mid-term performance validation to guarantee achievement
- While working to reach our goal of delivering net-zero CO_2 concrete by 2050, in 2022 we will validate our 2050 climate targets to be in line with the Science Based Targets initiative
- Also, CEMEX will continue investing in research and development to deliver innovative building materials and solutions to build climate-smart urban projects, sustainable buildings, and climate-resilient infrastructures, while capitalizing on CX Ventures, Urbanization Solutions, and strategic partnerships.
- We remain committed to identifying and investing in new technologies needed to achieve our 2050 target, and it will be strengthened in the most carbon-constrained scenarios.

RISK MANAGEMENT

a) Describe the organization's processes for identifying and assessing climate-related risks.

b) Describe the organization's processes for managing climate-related risks.

c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.

CEMEX's Risk Management Process

At CEMEX, identifying, assessing, discussing, mitigating, and monitoring risks and opportunities is part of an integral process that considers all types of potential risks and opportunities, including climate-related ones that could impact the company's strategic objectives. The Enterprise Risk Management (ERM) and the Sustainability functions have primary responsibility for conducting this process.

CEMEX's risk management model is a combination of both a 'bottom-up' and 'top-down' system, that is, one that connects top management insights with the rest of the organization to manage risks and opportunities comprehensively. The risk management process is implemented in a standardized way by the ERM representatives who are present at global, regional, and country levels. The risk and opportunity agendas are developed twice a year and updated on an ongoing basis. A sustainability specialist focuses on regulatory and other risks (such as reputational or market), whereas physical risks related to climate change (e.g., increased probability of flooding, potential interruptions of the supply chain) are covered by regional and local representatives. In addition, the Sustainability expert in the ERM network collaborates with regional and local sustainability staff to monitor and analyze corresponding developments.

For example, regional experts constantly follow legislative developments related to CO_2 and meet every quarter to share their progress, analyze potential impacts for CEMEX, and immediately report any material changes (such as new emission taxes or important adjustments to emissions trading systems) to the ERM network and Corporate Sustainability.

Once the risks are fully identified, CEMEX's Global risk agenda is developed and presented to the Executive Committee and the Board of Directors for its insight and approval. The Global Risk Agenda is formally updated twice a year. All contributors (direct and indirect) constantly monitor the evolution of important topics (regulatory, scientific and other developments), and changes identified as material will trigger a process designed to ensure that appropriated adjustments are implemented.

Through its Sustainability Committee, the Board of Directors oversees and discusses in detail the climate-related risks and opportunities previously identified in the Global risk agenda. These risks and opportunities are included in the Sustainability Risk & Opportunity Agenda.

The following is an example of how this process is applied to a transitional risk. One of the most important risks identified is the transition to a new or an update of the carbon regulation.

- **1. Risk Identification:** Sustainability and ERM monitor the status of each country in regard to carbon regulation. Different situations exist: some countries are already regulated, and the regulation will evolve in the short-term (e.g., European Union and California); in other countries, there is a short-term plan to implement a new carbon regulation (e.g., Mexico); and in some countries, there is no short-term risk, but a medium or long-term is considered.
- **2. Risk Assessment:** the financial impact of the transitional risk is evaluated in terms of CO_2 and cost, and the goal is to minimize this impact.
- **3. Risk Discussion:** CEMEX has launched Future in Action to address climate action and has developed the cement site-by-site plan "CEMEX CO_2 Roadmap", to identify and list all of the carbon reduction initiatives specific for each site regardless of carbon regulation in place. The plan has to be tracked, and the resources ensured for full implementation.
- **4. Risk Mitigation:** the result of the action is that, after the implementation of all the identified initiatives, the financial impact can be significantly reduced by close to -20%.

The following is an example of how the described process is applied to a physical risk, which is the increase of extreme storm events that can disrupt the supply of crucial inputs.

- **1. Risk Identification:** Increased frequency and strength of tropical storms and hurricanes can cause a disruption in supply to our operations. The ERM function selects those operations with a higher probability of an extreme event happening, based mainly on historical events derived from climate change patterns (e.g., Dominican Republic, Colombia, and Puerto Rico from our South-Central America & Caribbean region).
- **2. Risk Assessment:** The physical risk is evaluated in order to identify all potential impacts that could limit CEMEX from achieving strategic objectives.
- **3. Risk Discussion:** To manage the risk, the ERM function takes a structured and homogeneous global approach by implementing a Business Continuity Program (BCP) to minimize the potential impact of a disruptive event in our businesses. Under the scope of the BCP, a business recovery plan is implemented in each identified site, and it enables the continuity and recovery of operations. ERM develops recovery strategies for PREPSI (People, Resources, Equipment, Premises, Suppliers, and Information). The loss of PREPSI is considered in two stages: operational continuity (by temporarily continuing to provide the goods or services agreed with our customers) and a return to business as usual (recovering business back to normal levels of operation).
- **4. Risk Mitigation:** The result of the implementation of BCP is the reduction of the impact of an extreme event, as we decrease the recovery time of the affected operation by, for instance, increasing the supplies inventories or identifying a backup supply.

The Risk Management Process at CEMEX

Our risk management process is an ongoing systematic approach present in corporate, regions, countries, and operational business units. It is a proactive, preventive, and corrective approach to address all potential risks and identify opportunities. There is a full coordination with Sustainability and the climate action strategy of the company.

Our risk management process adheres to international best practices from the Risk Management Society (RIMS) and Business Continuity Institute (BCI). It is compliant with ISO 31000:2018-Risk management standards and ISO 22300:2018-Business continuity management systems. Furthermore, this process is conducted in compliance with our company's values, laws of the countries where we operate, and our Code of Ethics and Business Conduct.

METRICS AND TARGETS

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.

b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

GHG EMISSIONS	2019	2020	2021
Absolute gross CO_2 emissions (million tons)[1]	38.7	37.2	38.1
Absolute net CO_2 emissions (million tons)[1]	36.1	34.9	35.2
Specific gross CO_2 emissions (kg CO_2/ton of cementitious product)[1]	667	658	639
Specific net CO_2 emissions (kg CO_2/ton of cementitious product)[1]	622	620	591
Reduction in CO_2 emissions per ton of cementitious product from 1990 baseline (%)	22.4	22.6	26.2
Scope 1 CO_2 emissions (million tons)	39.0	37.5	38.4
Scope 2 CO_2 emissions (million tons)	3.4	3.4	3.7
Scope 3 CO_2 emissions (million tons)[2]	10.9	10.4	10.7
CO_2 Emissions Intensity (Scope 1 + 2)[3]	3.2	3.2	2.9
CO_2 Avoided Emissions (million tons)	7.5	8.6	10.2
CO_2 Emissions from Biogenic Carbon (million tons)[1]	1.9	1.7	1.8
Scope of emissions covered by an ETS/carbon taxation regime (% Scope 1)	33.6	36.0	34.7

ALTERNATIVE RAW MATERIALS & WASTE MGMT.	2019	2020	2021
Clinker Factor (Cementitious) (%)	77.8	77.0	75.2
Alternative raw material rate (%)[4]	9.6	10.2	11.0
Total waste sent for disposal (thousand ton)	430.3	405.5	405.0
Total waste-derived sources managed (thousand ton)[7]	-	-	22,887.3
Ratio of waste-derived sources managed vs. waste sent for disposal	-	-	57
Ratio of own waste recycled vs. sent for disposal	95	94	95

WATER USE [6]	2019	2020	2021
Total water withdrawals by source (million m^3)	59.0	53.7	57.2
Total water discharge by destination (million m^3)	22.8	16.0	15.6
Total water consumption (million m^3)	36.1	37.8	41.6
Specific water consumption: Cement (l/ton)	229	233	255
Specific water consumption: Ready-mix (l/m^3)	214	219	238
Specific water consumption: Aggregates (l/ton)	100	123	132
Sites with water recycling systems (%)	83	82	82

ENERGY CONSUMPTION	2019	2020	2021
Specific heat consumption (MJ/ton clinker)	3,999	4,024	4,023
Specific power consumption (kWh/ton cem)	122	123	122
Fuel Consumption (TJ)	186,190	181,071	186,927
Power Consumption (GWh)	7,517	7,297	7,583
Total Energy Consumption (GWh)	59,236	57,594	59,507
Primary Fuels - Fuel Mix (%)	72.0	74.7	70.8
Petroleum coke	39.3	50.5	44.7
Coal	26.3	17.3	18.5
Fuel oil + Diesel	0.7	0.7	1.1
Natural gas	5.7	6.2	6.5
Alternative Fuels - Fuel Mix (%)	28.0	25.3	29.2
Fossil-based waste	16.8	14.5	18.5
Biomass waste	11.2	10.8	10.7
Clean electricity consumption in cement (%)[5]	30	29	30

c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

CLIMATE-RELATED TARGETS	2025 TARGETS	2030 TARGETS	2050 TARGETS
Kg. of CO_2/ ton cementitious material (Reduction from 1990 baseline)	520 35% Reduction	< 475 > 40% Reduction	Net-zero CO_2 concrete
Alternative fuels (%)	43	50	
Clinker factor (%)	74	71	
Clean electricity consumption in cement (%)	40	55	

To know more about our climate-related targets, please refer to our CDP report.

1 Calculation according to the GCCA Sustainability Guidelines for the monitoring and reporting of CO_2 emissions from cement manufacturing.
2 Excluding "use of sold products" of other businesses, 4.1 million tons.
3 Scopes 1 + 2 per total revenues in thousand US dollars.
4 Calculation according to GCCA Sustainability Guidelines for co-processing fuels and raw materials in cement manufacturing.
5 Our definition of clean electricity includes renewable energy sources such as solar, wind, hydro and biomass, together with power generated from waste heat recovery systems.
6 Classification according to GCCA Sustainability Guidelines for the monitoring and reporting of water in cement manufacturing.
7 Figure includes non-recyclable waste consumed in our operations as alternative raw material and fuel, alternative/ secondary aggregates, own recycled material in our main businesses and other waste managed by the company.

About this Report

Except as the context otherwise may require, references in this report to "CEMEX," "we," "us" or "our" refer to CEMEX, S.A.B. de C.V. and its consolidated entities. This report contains forward-looking statements within the meaning of the U.S. federal securities laws. We intend these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements within the meaning of the U.S. federal securities laws. In some cases, these statements can be identified by the use of forward-looking words such as "may," "assume," "might," "should," "could," "continue," "would," "can," "consider," "anticipate," "estimate," "expect," "envision," "plan," "believe," "foresee," "predict," "potential," "target," "strategy," "intend" "aimed" or other similar words. These forward-looking statements reflect, as of the date such forward-looking statements are made, or unless otherwise indicated, our current expectations and projections about future events based on our knowledge of present facts and circumstances and assumptions about future events. These statements necessarily involve risks and uncertainties that could cause actual results to differ materially from our expectations. Some of the risks, uncertainties, and other important factors that could cause results to differ, or that otherwise could have an impact on us or our consolidated entities, include, but are not limited to: the impact of pandemics, epidemics or outbreaks of infectious diseases and the response of governments and other third parties, including with respect to the novel strain of the coronavirus identified in China in late 2019 and its variants ("COVID-19"), which have affected and may continue to adversely affect, among other matters, the ability of our operating facilities to operate at full or any capacity, supply chains, international operations, availability of liquidity, investor confidence and consumer spending, as well as availability of, and demand for, our products and services; the cyclical activity of the construction sector; our exposure to other sectors that impact our and our clients' businesses, such as, but not limited to, the energy sector; availability of raw materials and related fluctuating prices; competition in the markets in which we offer our products and services; general political, social, health, economic and business conditions in the markets in which we operate or that affect our operations and any significant economic, health, political or social developments in those markets, as well as any inherent risks to international operations; the regulatory environment, including environmental, energy, tax, antitrust, labor, and acquisition-related rules and regulations; our ability to satisfy our obligations under our material debt agreements, the indentures that govern our outstanding Notes and our other debt instruments and financial obligations; the availability of short-term credit lines or working capital facilities, which can assist us in connection with market cycles; the impact of our below investment grade debt rating on our cost of capital and on the cost of the products and services we purchase; loss of reputation of our brands; our ability to consummate asset sales, fully integrate newly acquired businesses, achieve cost-savings from our cost-reduction initiatives, implement our pricing initiatives for our products and generally meet our "Operation Resilience" strategy's goals; the increasing reliance on information technology infrastructure for our sales invoicing, procurement, financial statements and other processes that can adversely affect our sales and operations in the event that the infrastructure does not work as intended, experiences technical difficulties or is subjected to cyber-attacks; changes in the economy that affect demand for consumer goods, consequently affecting demand for our products and services; weather conditions, including, but not limited to, excessive rain and snow, and disasters such as earthquakes and floods; trade barriers, including tariffs or import taxes and changes in existing trade policies or changes to, or withdrawals from, free trade agreements, including the USMCA; terrorist and organized criminal activities as well as geopolitical events; declarations of insolvency or bankruptcy, or becoming subject to similar proceedings; and natural disasters and other unforeseen events (including global health hazards such as COVID-19).

Readers are urged to read this report and carefully consider the risks, uncertainties and other factors that affect our business and operations. The information contained in this report is subject to change without notice, and we are not obligated to publicly update or revise forward-looking statements after the date hereof or to reflect the occurrence of anticipated or unanticipated events or circumstances. Readers should review future reports filed or furnished by us with the SEC in the US and the Mexican Stock Exchange.

This report also includes statistical data regarding the production, distribution, marketing and sale of cement, ready-mix concrete, clinker, and aggregates. We generated some of this data internally, and some was obtained from independent industry publications and reports that we believe to be reliable sources. We have not independently verified this data nor sought the consent of any organizations to refer to their reports in this report. Unless otherwise indicated, the information provided in this report is for the company as a whole, covering our global cement, ready-mix concrete, aggregates, and urbanization solutions business lines during the 2021 calendar year, which is also the company's fiscal year. We have included information for the operations in which we have financial and operative control. If a plant is sold, its information is no longer included in our data or considered in our targets. Unless something else is explicitly indicated, all monetary amounts are reported in U.S. dollars. All references to "tons" are to metric tons.

KPMG, an independent organization, verified the data and calculations of our annual indicators associated with CO2 and other emissions, health and safety, circular economy, biodiversity, environmental and social incidents, and water, emitting a limited assurance statement.

To know more details about CEMEX's indicators, activities, initiatives and information, please refer to our 2021 Integrated Report. To know more about our climate-related information, please refer to our CDP Response. Our CDP report with 2021 information will be uploaded in our website as soon as it is available.

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