TCFD REPORT 2023

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES REPORT

The Siam Cement Public Company Limited

Content

1 Governance

1.1 Board's oversight of climate-related risks and opportunities

The climate related risks and opportunities are emerging in the form of "polycrisis", SCG Board of Directors has a vital role to oversight SCG's mitigation and adaptation in climate resilience by maintaining financial stability, reducing costs, enhancing production efficiency, and entering into new businesses to address the needs both for today and tomorrow.

SCG has been facing several challenges as same as the other businesses across the nation and the world, which have been doing businesses under global polycrisis not only economic challenges in terms of inflation as a result of geopolitical conflict, but also impacts from climate change and natural disasters that are becoming more severe. The Board of Directors have oversight on risks and opportunities over the near-term and long-term business landscape and its impacts. In addition to business strategies, plans, risk management, and investment budgets regarding climate-related issues, nature loss, and inequality, these issues are addressed and discussed at the Board's meetings (8 times per year).

The SCG Board of Directors is comprised of respected, knowledgeable, and competent persons who have the ultimate responsibility for the Company's strategy and overall governance, including climate strategy. They define corporate purposes and objectives and collaborate with top executives to develop short-term and long-term business strategies and policies, a financial policy, a risk management policy, an organizational overview, and an annual review of the Company's important policies and plans. The Board also plays a crucial role in allocating resources to achieve business objectives, providing independent oversight, and monitoring and evaluating the performance of the Company and its top executives.

SCG has establish policies and guidelines for the Board of Directors, shareholders, and stakeholders in line with the eight principles of good corporate governance for listed companies recommended by the Securities and Exchange Commission (SEC) as follows:

Principle 1	Establish Clear Leadership Role and Responsibilities of the Board
Principle 2	Define Objectives that Promote Sustainable Value Creation
Principle 3	Strengthen Board Effectiveness
Principle 4	Ensure Effective CEO and People Management
Principle 5	Nurture Innovation and Responsible Business
Principle 6	Effective Risk Management and Internal Control
Principle 7	Ensure Disclosure and Financial Integrity
Principle 8	Ensure Engagement and Communication with Shareholders

The implementation of the Board's resolutions and oversight is accompanied by operating result targets, monitoring, and evaluation. These actions are taken to ensure alignment with the plan, capital expenditures, materially connected transactions, mergers and acquisitions, corporate spin-offs, and joint venture deals.

Board Oversight on Medium-Term Plan

SCG regularly conducts a Medium-Term Plan (MTP) based on Past Performance Analysis (PPA), PESTLE analysis, megatrends, industry outlooks, and strategic moves to capture opportunities, enhance competitiveness, and create business resilience for its strategic direction over the next 3-5 years. The MTPs from all business units are proposed to the Board for decision-making on investment, business activities, and initiatives, as well as the major operating plan, budgets, business goals, and business policies that aim to enhance SCG's global competitiveness.

As part of their MTP formulation process, all business units have integrated TCFD framework. This includes the identification of key drivers for the transition to net zero, the physical risk from climate change that may arise in all operations, the financial impact of identified key drivers, and a strategic response to these material risks and opportunities. SCG integrates the TCFD framework in MTP as a tool to monitor transitional signposts for policy, technology, and market and to identify their impacts and implications on SCG in order to provide the Board with quality information for decision-making on the business shift toward net zero transition.

Based on TCFD-guided scenario analysis and risk management, the Board defines key objectives and business goals that promote sustainable value creation. The Board oversees and supports the development of innovations that benefit SCG and all of its stakeholders. It also tracks social and environmental responsibility performance and ensures that resources are allocated and managed effectively.

The Board of Directors appoints and assigns various committees with climate-related responsibilities: the Audit Committee, the Remuneration Committee, and the CSR for Sustainable Development Committee.

Audit Committee

The Audit Committee comprises three independent directors, who possess widely recognized expertise and experience in accounting or finance fields and have sufficient knowledge and experience to review the reliability of the financial statement, risk management and internal control. The Audit Committee members' duties include a review to ensure that operations have been carried out in accordance with the Company's policies, Articles of Association as well as the laws and regulations of compliance-related agencies.

The Audit Committee, acting on behalf of the Board of Directors, monitor and evaluate the effectiveness and efficiency of the risk management process, ensuring it aligns with international standards and that material risks are appropriately identified, assessed, and managed. The SCG Risk Management Committee is entrusted with the risk management framework of SCG and reports outcomes to the Audit Committee and Board of Directors. The SCG Risk Management committee reviews and monitors SCG's risk profile aggregated from each business unit, which includes climate-related risks according to the TCFD framework. Mitigation strategies for risks or growth strategies for opportunities are formulated, implemented, and periodically followed up to ensure SCG's business growth and resilience aligns with their climate targets and climate-related risks and opportunities.

Remuneration Committee

The Remuneration Committee is assigned by the Board of Directors to consider proposing the remuneration methods and processes for members of the Board, the sub-committees as well as continually keep up with the changes and possibilities in regard to the remuneration for the Board and the top executives to propose for the Board's consideration.

The Remuneration Committee oversees the SCG Management Remuneration Policy, evaluates the performance of the President & CEO and top executives, and recommends succession plans for Board consideration. In addition to monitoring and analyzing changes and trends, the committee suggests remuneration policies that can motivate these executives to lead the company toward success as well as to retain competent and ethical employees.

The Remuneration Committee considers providing both short-term and long-term incentives and appropriate remuneration for the President & CEO and top executives to propose to the Board for

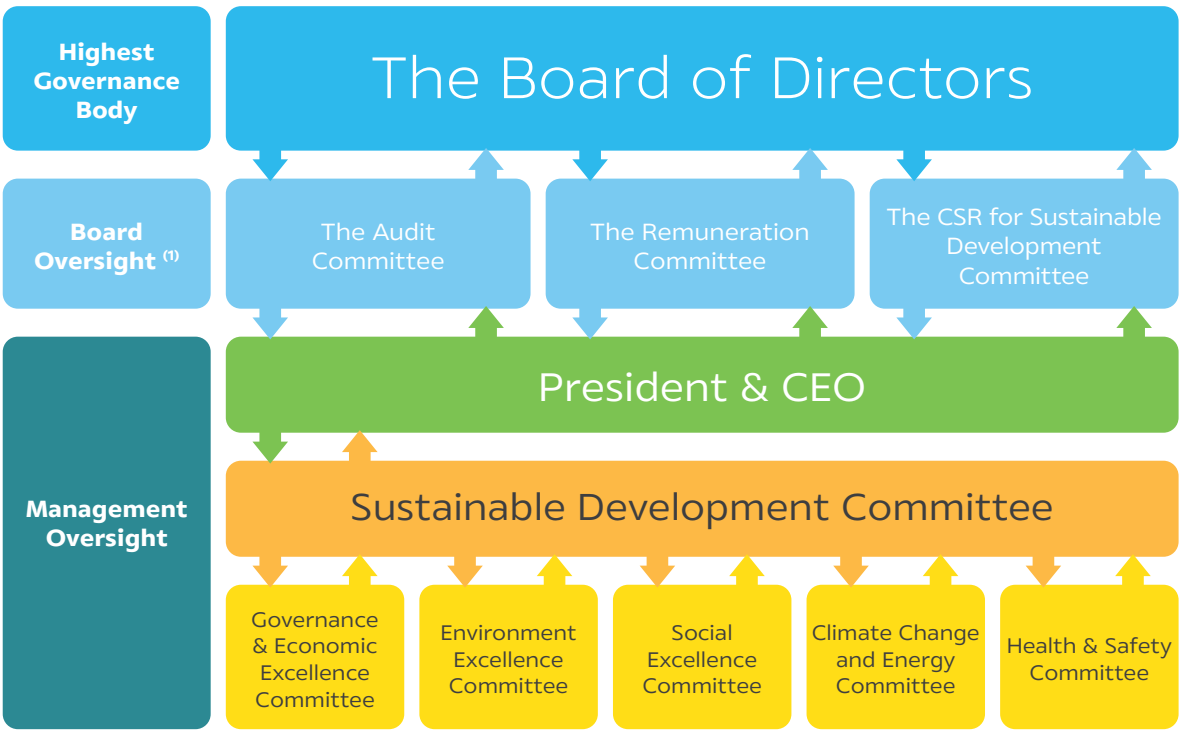
approval, taking into account KPIs regarding financial, relative financial, and other non-financial performance. ESG and climate-related metrics and targets are incorporated and linked to variable compensation and merit for 30% of the CEO and executives in order to ensure the Company's sustainable growth. Please see more detail on the SCG website: https://file.scgsustainability.com/wp-content/uploads/2023/07/19132202/CEO-and-Executive-Compensation-Management_EN.pdf

CSR for Sustainable Development Committee

The CSR Committee for Sustainable Development comprises nine members, six of whom are the Company's Board of Directors and three of whom are members of SCG Management. The Committee is responsible for establishing policies and guidelines on CSR activities for sustainable development and the integration of an ESG approach to business operations on the basis of fairness, transparency, and accountability under a development framework in line with world-class standards; building collaboration and partnerships with all key stakeholders to support the long-range net zero transition into a low carbon economy; proposing the setting of annual CSR budget; as well as monitoring the Committee's performance and reporting to the Board of Directors

The flagship initiatives are the "Conserving Environments from the Mountain through the Sea" Project to maintain environmental balance, ensure infinite water resources, mitigate drought and floods through the construction of check dams in the upstream area, water resource management, tree planting, restoration of a marine ecosystem with artificial coral reefs, and promotion of resource efficiency, as well as promote job creation, stable income, and sustainable community development.

The CEO and top executives regularly engage in their climate-related activities for monitoring of risks, trends, and best practices, as well as partnership and advocacy towards Net Zero emissions by 2050.



(1) for climate related risks and opportunities

1.2 Management's role in assessing and managing climate related risks and opportunities

Chief Executive Officer (CEO)

The Chief Executive Officer (CEO), who is also a member of the Board, is appointed to oversee the management of the Company's sustainability and all climate-related issues, including risk management, investment portfolio, climate strategy, operational eco-efficiency, stakeholder engagement, and innovation. The CEO's responsibility on managing climate-related issues forms part of annual performance appraisal.

In addition, the CEO leads the management of climate-related issues as Chair of SCG Sustainable Development Committee (SDC). and has responsibility to determine and review policy, guideline and target of SCG sustainability issues including energy and climate. Meanwhile, the CEO reviews and monitors climate-related risk and opportunities profile incorporated in enterprise risk management in line with TCFD through SCG Risk Management Committee (RMC). Chaired by the CEO with President and Vice President of Business Units as members, the RMC determines risk management structure and assigns accountability for risk management and consider/ approve risk management policies, strategies, framework and plans.

Chief Sustainability Officer (CSO)

In 2022, SCG appointed a Chief Sustainability Officer (CSO) who works closely with the CEO and is a member of SCG Sustainable Development Committee (SDC). The CSO is in charge of developing a sustainability strategy, goals, and targets that integrate ESG aspects into the Company's strategic planning, operations, and decision-making as well as promote long-term business value creation. The CSO involves collaborating with both national and international stakeholders, such as government agencies, industry peers, trade associations and organizations in building collaborative network to gather input, address sustainability challenges and develop shared solutions for sustainability initiatives.

SCG Sustainable Development Committee

The SCG Sustainable Development Committee (SDC), chaired by the CEO and comprised of the highest-level (President/Vice President) representation from all business units, including business functions (such as sustainable development, communication, and business planning), supports the Climate Change and Energy Committee on oversight and management of climate-related issues across the value chain for practical implementation and change leadership. The SDC reviewed and approved TCFD integration in business strategies, as well as TCFD scenarios in transition risks and physical risks, mitigation plans, and Net Zero by 2050, in order to align direction across all operations in SCG. The discussion issues directly related to climate included:

- Development of a business long-term plan by integrating the risk management framework and scenario analysis in accordance with the TCFD framework.
- Governance structure of top executives, enterprise risk management, business ethics, and transparent disclosure under the oversight of the Board of Directors.
- Maintain business stability and business adjustment, strategies, investments, and other activities for a low carbon economy and the transition to Net Zero emissions.

Accelerating the transition to Net Zero in the face of the polycrisis means not only decarbonization, but also contributions to all pillars of ESG. **By aligning our efforts with net zero goal,** we drive transformative change and reinvent sustainable growth while foster nature's health, create jobs, and enhance people's quality of life to make future-proofing of low carbon society

Roongrote Rangsiyopash

President & CEO, SCG
Chairman of SCG Sustainable Development Committee

The net zero is now business imperative, we must **act now and proactively prepare our organization to lead the way over the next decade.** Promising opportunities could be captured with our innovative technology and robust capability building.

Thammasak Sethaudom

Executive Vice President, SCG
Co-Chairman of SCG Sustainable Development Committee

Climate Change and Energy Committee

The Climate Change and Energy Committee, chaired by the Chief Sustainability Officer, includes representatives from management of all business units and the energy department. The Committee, which is directly responsible for climate issues, establishes policies, strategies, and near-term and long-term targets to develop the SCG decarbonization roadmap to be Net Zero by 2050 in accordance with science-informed, the Paris Agreement, and the National Determined Contribution (NDC), monitors performance against targets, and explores global trends, technologies, and collaborations to meet the target. TCFD is introduced into businesses through scenarios of physical risks and transition risks in developing business plans over the time horizons of short term (0–5 years), medium term (5–10 years), and long term to net zero (10–30 years). During the transition period, risks include carbon taxes, regulations, and the expectations of stakeholders, whereas opportunities exist for low carbon products and services and renewable energy.

The Climate Change and Energy Committee conducted the following activities:

- Set the SCG Net Zero Roadmap in line with the science-informed emission reduction target to be Net Zero by 2050 and its trajectory by 2030.
- Formulate decarbonization strategies, including the development of clean and green technologies, budgeting, and internal carbon pricing.
- Collaborate with government agencies, trade associations and organizations, and industry peers to create all related public policies and initiatives aimed toward achieving Thailand's NDC and the Paris Agreement.

> The net zero ambition and commitment bring us to the new era of transformation. Our journey towards net zero transition needs **collaboration across all sectors, leading by example through public private partnership, which are the key actions** to achieve the unprecedented challenges.

Chana Poomee
Chief Sustainability Officer
Chair of Climate Change and Energy Committee

2 Strategy

2.1 Climate-related risks and opportunities, Scenario analysis over short, medium, and long term

In 2023, SCG conducted scenario analysis embed in strategic business planning which is in line with enterprise risk management framework to assess materiality of climate-related risks and opportunities in term of both business and externality impacts.

Climate Scenario Analysis Approach
In consistent with TCFD Framework

1 Ensure Governance
Integrate scenario analysis into strategic planning and/or enterprise risk management framework. Assign oversight to relevant board committees/sub-committees. Identify which internal (and external) stakeholders to involve, and how.

2 Assess Materiality of Climate-related Risk

- Market and Technology Shifts
- Reputation
- Policy and Legal
- Physical Risks

What are the current and anticipated organizational exposures to climate-related risks and opportunities?

Do these have the potential to be material in the future?

Are organizational stakeholders concerned?

3 Identify and Define Range of Scenarios

- Transition Risk Scenarios
- Physical Risk Scenarios

What scenarios (and narratives) are appropriate, given the exposures?

Consider input parameters, assumptions, and analytical choices.

What reference scenario (s) should be used?

4 Evaluate Business Impacts

Impact on:
- Input costs
- Operating costs
- Revenues
- Supply chain
- Business interruption
- Timing

Evaluate the potential effects on the organization's strategic and financial position under each of the defined scenarios.

Identify key sensitivities.

5 Identify Potential Responses

Responses might include:
- Changes to business Model
- Portfolio mix
- Investment in capabilities and technologies

Use the results to identify applicable, realistic decisions to manage the identified risks and opportunities.

What adjustments to strategic/financial plans would be needed?

6 Document and Disclose
Document the process; communicate to relevant parties; be prepared to disclose key inputs, assumption, analytical methods, outputs, and potential management responses.

Net zero is at the core of SCG's business planning and financial integration. SCG Net Zero Roadmap guides our strategic thinking, enables timely investment decisions, and enhances project returns.

Chantanida Sarigaphuti

Vice President-Finance
and Investment & CFO
Governance and Economic
Dimension Leader

2.2 Transition Risk

Scenario

In 2023, SCG updated climate-related scenarios based on the World Energy Outlook 2022. The Announced Pledges Scenario (APS) and the Net Zero by 2050 Scenario (NZE) have been modeled.

1) "APS" has a 50% chance of constraining global warming at 1.8°C by reaching net zero by 2050 by 2050 and is based on the Announced Pledges Scenario.

2) "NZE" has a 50% chance of constraining climate global warming at 1.5°C by reaching net zero by 2050 and is based on the WEO Net Zero by 2050 scenario.

Broad macroeconomic scenario drivers–IEA APS and NZE

		IEA APS 2030	IEA NZE 2030	IEA APS 2050	IEA NZE 2050
World population	Million	8,501		9,692	
Southeast Asia	Million	726		792	
Urbanisation rate		60%		68%	
Southeast Asia		56%		66%	
World GDP growth		3.3% (2021-2030)		2.6% (2030-2030)	
Southeast Asia		5.0% (2021-2030)		3.3% (2030-2030)	
Crude oil prices	$/barrel	63.5	35	60.4	24.0
Natural gas prices	$/MBtu, Japan	9.1	6.0	7.4	5.1
Steam coal	$/t, Japan	74.4	59.0	59.5	46.0
Fossil fuels in primary energy mix		70%	62%	36%	18%
Energy and environmental policies		Policies promoting production and use of alternative fuels and technologies such as hydrogen, biogas, biomethane and CCUS across sectors. Faster deployment of large-scale near zero emissions plants in energy-intensive industries. Energy demand in the buildings sector declines by 8% by 2030.	No new unabated coal power plants approved for development. Nearly 50% of electricity from low-emissions sources, and over 40% is from wind and solar PV. Phase out of unabated coal in advanced economies. 8% of emissions from cement production captured and stored.	Policies to support increasing deployment of CCUS and hydrogen in various industry and fuel transformation sub-sectors.	Nearly 90% of electricity generation from renewables, and almost 70% is from solar PV and wind. Phase out of all unabated coal for electricity generation. More than 90% of heavy industrial production is low emissions. 95% of emissions from cement production captured and stored More than 85% of buildings are zero carbon-ready levels, and 50% of existing buildings are retrofitted.

Reference: Global Energy and Climate Model Documentation, International Energy Agency

Carbon Price

USD / ton CO_2	Scenario	2030	2040	2050
Thailand – carbon taxes	APS	17	110	160
	NZE	45	160	200
EU CBAM	APS	135	175	200
	NZE	140	205	250

- We assume Thailand's carbon taxes based on the study published by Thailand Greenhouse Gas Management Organization (TGO), World Economic Outlook published by IEA, and discussion with the officials in TGO.

- In both APS and NZE scenario, we assume Thailand will implement carbon tax in year 2026 with the initial price of USD 5/ton CO_2 and gradually increase to USD 17/ton CO_2 in 2030.

- EU carbon prices are based on International Energy Agency (IEA) on both APS and NZE scenarios.

Key Drivers and Impacts

Policy and Regulatory

Key Driver	Time Horizon Short term (0-3 years) · Medium term (3-10 years) · Long term (>10 years)	Business Impact	Where
Carbon tax Implementation	3 years onward	The implementation of a carbon pricing scheme in Thailand and ASEAN could lead to higher production costs. This could result in an increase in Operation Expenditure (OPEX) due to the carbon tax paid to the local government or require more investment to lower GHG emissions per ton of production to meet the threshold of the ETS. However, the carbon tax also presents opportunities. The tax could make energy and carbon reduction projects feasible, which would not have been possible without the tax. This will allow SCG to implement more carbon reduction projects with a positive financial return above its hurdle rate.	All business units
Carbon border adjustment mechanism (CBAM)	3 years onward	Cement is one of the product categories that the EU has identified for enforcing a Carbon Border Adjustment Mechanism (CBAM) to prevent carbon leakage from other countries. Although SCG does not export cement to the EU, the implementation of the EU CBAM policy may lead to similar policies in other countries. As a result, SCG has taken proactive decarbonization and mitigation measures, such as reducing the clinker-to-cement ratio, increasing the use of alternative fuels to replace fossil fuels, and developing low carbon products. These actions align with global efforts and help prevent potential carbon tariffs that may arise if SCG's GHG emissions per ton of cement exceed the limits set by the destination jurisdiction. Nonetheless, the impact of CBAM on SCG will likely be minimal, as most of its export destinations are in ASEAN, where CBAM is expected to be implemented similarly to Thailand's CBAM and carbon tax policies.	Cement and Building Materials Business
Science-informed emission reduction targets in line with at least a "well-below 2°C"	5 years onward	Regarding high energy costs and global warming, in the medium term, the focus is on utilizing solar power and biomass as a replacement for conventional grid electricity and fossil fuels such as natural gas. In the long term, SCG aims to explore new technologies such as solar batteries, hydrogen fuel combustion kilns, and high-density solar power when the cost is optimal.	All Business units

Technology

Key Driver	Time Horizon	Business Impact	Where
Decarbonization technologies to support low carbon process and product		The use of decarbonized electricity, heat recovery and electrification techniques, bioenergy, as well as alternative fuels and raw materials, will play a critical role in producing greener products. In order to achieve its net zero commitment, SCG is leveraging various technologies. One critical step is reducing the use of fossil fuels and replacing them with alternative fuels such as biomass and waste to significantly minimize carbon emissions. Furthermore, SCG aims to increase its usage of renewable power sources such as solar systems and explore other alternative methods to decrease reliance on electricity generated from conventional fossil fuel-based grids and reduce environmental impact. Additionally, SCG commits to reducing clinker content in cement production and incorporating alternative materials like supplementary cementitious materials (SCMs) and calcined clay, which can significantly reduce the carbon intensity of SCG products. All of these efforts, along with ongoing research and investment, will allow us to enhance our technology readiness level and successfully implement sustainable practices throughout our operations.	All business units
Development of commercially viable green hydrogen and transitional use of blue/ grey hydrogen		The development of hydrogen technology on a large scale is expected to reduce production costs in the future. SCG aims to shift from grey to blue or green hydrogen to decarbonize the energy sector across its business units. Green hydrogen, which is produced from renewable sources like wind and solar, has the potential to power industries as a zero-carbon energy source. Moreover, hydrogen may play a role in long-term transportation, where trucks and barges could be fueled with hydrogen instead of fossil fuels. In addition, hydrogen will be used to produce ammonia and methanol in the future.	All business units
Maturity of Carbon Capture, Utilization and Storage (CCUS) and Direct Air Capture (DAC) technologies in driving low/zero carbon emission		Carbon Capture, Utilization and Storage (CCUS) is a crucial step towards decarbonizing energy-intensive industries. With CCUS rapidly becoming viable, carbon-intensive operations will need to adopt this technology to reduce carbon emissions. In addition, Direct Air Capture (DAC) is an emerging technology to capture carbon from the air, although its carbon removal efficiency is lower than that of CCUS. The captured carbon from both CCUS and DAC can be used in many applications such as production of urea as a soil conditioner, production of synthetic fuel for jet aircraft, injecting into oil wells and wet concrete, etc. According to the IEA study, CCUS technology can become a viable option for SCG at a cost of $80 per ton of CO_2. While there may be an increase in capital and operational expenditures associated with the implementation of CCUS, it will help to reduce carbon costs and potentially support circularity within the Chemicals Business, which could lead to a reduction in SCG's overall costs.	All business units

Market

Key Driver	Time Horizon	Business Impact	Where
Increasing demand for low carbon products, especially low carbon cement		SCG has established a detailed roadmap aimed at continuously enhancing its low carbon cement, thus strengthening its key position in the sustainable business sector. SCG acknowledges the importance of investing in innovative low carbon product technologies to meet increasing market demand. This focus on innovation will not only establish SCG as a leading player in the low carbon cement industry but also boost sales of low carbon cement and other related products. Through these efforts, SCG is well-positioned to take advantage of market dynamics and make a significant impact in the low-carbon product sector. SCG will need Capital Expenditure (CAPEX) to invest in new low carbon product technologies to cater to new market demand. SCG will also be able to generate sales from low carbon products such as low carbon cement. SCG has a clear target to be a leading cement player in low carbon products and has laid out a clear roadmap to develop and continually improve its low carbon cement.	Cement and Building Materials Business
Increase in EVs demand		Growing adoption of electric vehicles (EVs) is expected in the future. Electric vehicles consume a high intensity of plastic, which will lead to a higher demand for plastics and polymers in both automotive and battery production. As a major producer of polypropylene, SCGC (Chemicals Business) could potentially benefit from this trend by generating higher revenues and earnings. Therefore, SCGC is actively seeking opportunities to partner with companies in the EV-related industry to further capitalize on this market. This could result in an increase in revenues and earnings from polypropylene, one of the major products of SCGC used in EV and battery production.	SCGC (Chemicals Business)
Increase in demand for products based on recycled plastic waste and packaging		SCGC (Chemicals Business) has established an advanced recycling pilot plant in Thailand to conduct research and development on recycled petrochemical feedstock. Furthermore, SCGC has acquired Sirplaste, a mechanical recycling company in Portugal, and KRAS, a waste management and recycling company in the Netherlands and Kosovo, to produce high-quality recycled plastics. As customers become increasingly aware of the climate emergency, recycled products are likely to have a higher value than conventional products, which should positively grow SCG's business. SCGP (Packaging Business) has recycling platforms in its operation using high-performance materials produced from recycled plastic made from waste materials from manufacturing processes (Post Industrial Recycle, or PIR) to replace virgin plastic resins and is now doing recycling activities that have already achieved 99.8% recyclability in its packaging products and plan to reach the target of 100% in 2025.	SCGC (Chemicals Business) and SCGP (Packaging Business)

Key Driver	Time Horizon	Business Impact	Where
Increase in demand for green construction	3 years onward	With the trend of customers requiring their houses or buildings to comply with green construction standards, SCG is already offering green construction solutions such as the Building Information Modeling (BIM) platform for construction. Green construction not only benefits the environment but can also result in cost savings during construction and in utility usage. Additionally, SCG Decor and SCG Smart Living of Cement and Building Materials Business are actively working to register more Carbon Footprints of Products (CFP) in order to increase Thailand's building material carbon database, which will improve the accuracy of BIM objects and other green construction solutions.	Cement and Building Materials Business
Demand for greener sources of energy– renewables, biofuels, hydrogen, battery storage	3 years onward	SCG has been actively promoting the transition towards a low carbon economy by diversifying its energy sources and reducing its dependence on fossil fuels. This strategy can potentially lead to lower energy costs, improve product value in green markets, and help businesses generate carbon credits. SCG's renewable energy solutions range from solar and wind power solutions, EV charging stations, biogas, and energy pellets from biomass. For the long term, SCG is exploring new technologies like solar batteries, hydrogen fuel combustion kilns, and high-density solar power.	All business units

Reputation

Key Driver	Time Horizon	Business Impact	Where
Stakeholder's higher expectation on climate action	3 years onward	As a responsible corporate citizen, SCG commits to reducing 20% of GHG emissions by 2030 (compared to the base year of 2020) and achieving net zero by 2050. We aim to set an example in the area of ESG and create sustainable value for all stakeholders along the value chain.	All business units

Key Drivers and Impacts

Climate Attribute	Business Impacts	Financial Impacts
Carbon tax	• Fossil fuel-based electricity and fuel costs increase • Fossil fuel feedstock costs increase • Carbon emissions cost (GHG Scope 1) • Carbon reduction projects increase	OPEX
Carbon border adjustment mechanism	• Reduce competitiveness of high-carbon emission products	Revenue
Development of greener sources of energy–renewables, alternative fuels, bioenergy, hydrogen	• Shift to greener sources of energy • Investment required both in CAPEX as well as R&D • Could potentially help some businesses generate carbon credits	CAPEX, OPEX
Maturity of CCUS and DAC technologies	• Important technology for hard-to-abate sectors • Investments required in CAPEX as well as R&D • Will help reduce carbon costs	CAPEX, OPEX
Increase in demand for low carbon products	• Sales of recycled, and green products to increase • Products with lesser carbon footprint preferred • Increase in CAPEX for alternative production technologies	CAPEX, Revenue
Stigmatization of the sector and increased stakeholder concern or negative stakeholder feedback	• Reputation-related issues which could result in declining stakeholder's trust, which may impact company's valuation, earnings, funding etc.	Valuation, Revenue

Strategic Response

SCG announced the long-term goal of achieving Net Zero by 2050 and the near-term target of reducing GHG Scope 1 and 2 emissions by at least 20% by 2030 compared with base year 2020, covering all of SCG's subsidiaries, operational jurisdictions, and business areas. These goals align with Thailand's Nationally Determined Contribution (NDC) and the Paris Agreement to limit global temperature rise to 1.5ºC above pre-industrial levels in order to mitigate climate impact. The concerted efforts are meant to prevent a disaster that poses an existential threat to humankind, businesses, or any entity.

In 2022, SCG achieved a reduction of 4.13 million tons CO_2 in greenhouse gas emissions, or 12.5% from base year 2020 by adopting principles of circular economy, digital technology, artificial intelligence, and automation to enhance production capacity and energy efficiency. It is working to reduce resource consumption and ensure competitiveness for long-term growth while minimizing climate impacts on people at all levels and promoting access to clean energy sources and livelihood security for all.

SCG has increased the utilization of low carbon energy sources, including biomass from agricultural waste, refuse-derived fuel (RDF) for cement production, and solar energy.

SCG also conducted research and invested in deep technologies such as artificial intelligence (AI) supervisory technology for energy analytics and carbon capture, utilization, and storage (CCUS) technology. Aside from this, SCG has also managed to plant trees to help absorb carbon dioxide in response to the Natural Climate Solutions (NCS) projects.

In addition, SCG recognizes business opportunities in the net zero transition towards a low carbon economy. To this end, it has invested in clean energy businesses through SCG Cleanergy, electric vehicle-related businesses, and various eco-friendly products certified by "SCG Green Choice" such as hybrid cement and SCG solar rooftop solutions, which offer options to the eco-conscious and support consumers in collective action towards emissions reduction and energy conservation, as well as providing better living for them.

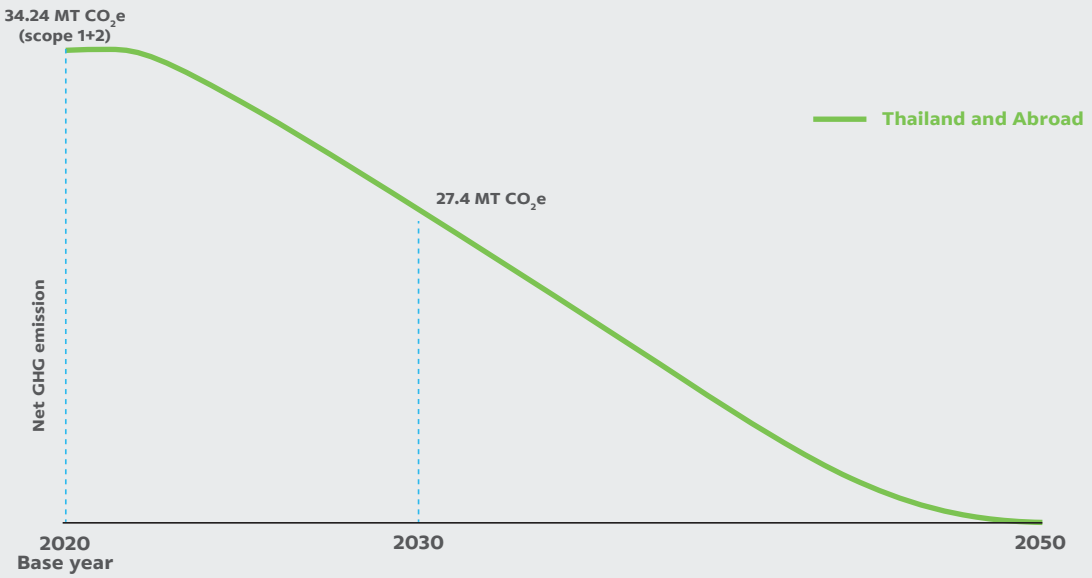
As a member of the Thai Cement Manufacturers Association (TCMA), SCG joined the Association's "Mission 2023" in which 25 partners in government, business, industry, and academic sectors pledge emissions reduction of 1 million tons CO_2 in 2023 as part of the efforts to advance towards carbon neutrality in industrial processes and product use, including clinker replacement measures by promoting the production of hydraulic cement in support of the national carbon neutrality goal.

SCG has worked with the Department of Forestry and Lampang Province to create a memorandum of understanding for the sustainable conservation, restoration, and community-based reforestation of 5 community forests covering 3,000 rai and with the Department of Marine and Coastal Resources and Trang Province to create a pilot model for community-led mangrove reforestation. This model sustains water, food, and community income. Its natural carbon sink and emissions reduction are taken into account for carbon credits.

SCG joined hands with Toyota Motor Corporation and Commercial Japan Partnership Technologies Corporation (CJPT) to develop three key environmental innovations: energy production, including hydrogen energy from biomass and food waste; electricity generation from solar and hydropower sources; the use of big data and telecommunication infrastructure to enhance transportation and logistics efficiency; and the development of a wide range of electric vehicle innovations to continuously reduce CO_2 emissions and help Thailand achieve carbon neutrality by 2050.

SCG has cooperated with Nippon Steel Engineering Co., Ltd. (NSE) and Thai Nippon Steel Engineering and Construction Corporation, Ltd. (TNS) to study Carbon Capture and Utilization Technology from cement plants in Thailand and Southeast Asia and aim to achieve Net Zero Cement & Concrete by 2050. Moreover, the feasibility of an in-house-developed chemical absorbent carbon dioxide capture system called "ESCAP™" to capture carbon dioxide from exhaust gases emitted from SCG's cement plants in Saraburi Province will be jointly studied.

Net Zero 2050
20% GHG Reduction in 2030 (from 2020 base year)



Net Zero greenhouse gas emissions by 2050

Energy Efficiency
By using the best available technologies

Alternative Fuel
By increasing the share of biomass / waste that substitute fossil fuel

Renewable Power
By increasing the share of renewable energy such as solar and wind

GREEN CHOICE

Low Carbon Products
By innovating the products with circular economy principle and low carbon in value chain

Offset Strategy
By collaborating with communities and authorities to forestation and rehabilitation of terrestrial forest, mangrove and seagrass as carbon sink

Carbon Capture
By network with national and international to scale up Carbon Capture, Utilization and Storage (CCUS) technologies

2.3 Physical Risk

SCG has reviewed periodically the physical risk assessment of prominent natural hazards at 19 locations in Thailand, Indonesia, Vietnam, Philippines, Japan, and Australia based on the revenue, frequency of historical events/hazards and corresponding projected risk rating under RCP 2.6 and RCP 4.5.

SCG has assessed climate-related physical risks over short, medium and long-term using RCP 2.6 and RCP 4.5 scenarios. The scenarios are applicable to cover majority of SCG assets with operation, upstream and downstream activities in Table.

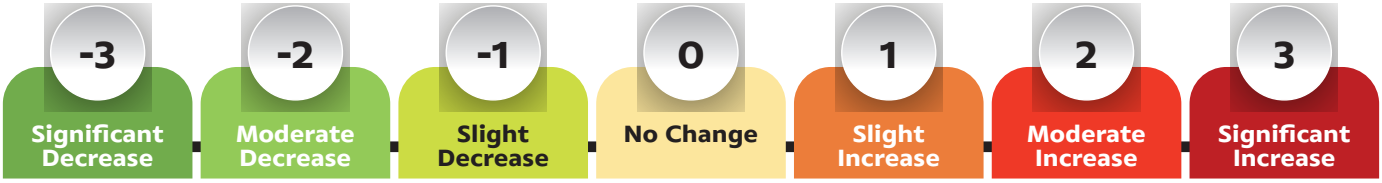
SCG Physical Risk Scenario Analysis

Scenario	• RCP 2.6 scenario: Stringent mitigation scenario. A pathway which is representative of a scenario that aims to keep global warming likely below 2°C (range between 0.25-1.75°C) and above pre-industrial temperatures by 2100. • RCP 4.5 scenario: Intermediate scenario. A pathway which described by the IPCC as an intermediate scenario. Average global warming in this scenario is estimated to be around 1.8°C above pre-industrial temperatures by 2100
Scenario Time Horizons	• 2030 (near-term): covered “Short-term” timeframe • 2040: covered “Medium-term” timeframe • 2050: covered “Long-term” timeframe These scenario time horizons are aligned with SCG’s risks and opportunities identification timeframes.
Target area of analysis	Major and significant Operations and supply chain (suppliers and customers)
Scope of financial impact calculations	8 locations in Thailand and 11 locations in overseas (Indonesia, Vietnam, Philippines, Japan, and Australia) accounting for 63% of the majority of assets.

Key Drivers and Impacts

Summary of Projection for Key Climate Variables:

Results of the physical risk assessment for SCG’s operations, upstream and downstream activities are presented in terms of risk trends indicating changes to risk intensity under the RCP 2.5 and RCP 4.5 at 2030, 2040, and 2050 timeframes using the following scale:



Operations	Upstream (Suppliers)	Downstream (Customers)
Assessment baseline (2021): Urban floods, riverine floods, coastal floods, and cyclones were identified as hazards with high risk. Other high-risk items 2030-2050 are described below. For both RCP 2.6 and RCP 4.5 scenario of operation business, there have moderate to significant increase in urban floods, river floods and landslide in short-term (2030), medium term (2040) and long term (2050).	Assessment baseline (2021): Urban floods, riverine floods, coastal floods, and cyclones were identified as hazards with high risk. Other high-risk items 2030-2050 are shown below. For both RCP 2.6 and RCP 4.5 scenario of upstream business, there have moderate to significant increase in urban floods, river floods and landslide in short-term (2030), medium term (2040) and long term (2050).	Assessment baseline (2021): Urban floods, riverine floods, coastal floods, and cyclones were identified as hazards with high risk. Other high-risk items 2030-2050 are shown below. For both RCP 2.6 and RCP 4.5 scenario of upstream business, there have moderate to significant increase in river floods, coastal floods, urban floods, and landslide in short-term (2030), medium term (2040) and long term (2050).

Natural Hazard Implications to SCG's operation

General potential significant risk to SCG's operations have been identified. Some examples are shown below.

Natural Hazard	Potential Risks to SCG's operation
Water Scarcity	• Disruption of supply chain and operation, and conflicts with stakeholder on water withdrawal (e.g. number of days of operation shutdown for lack of water supply)
Riverine Floods	• Increased cost for replacement or repair of damaged assets, especially electrical equipment and components that may be damaged from flooding • Impact on safety and ability for employees to come to work
Urban Floods	
El Niño and La Niña are the natural phenomenon that influences global weather patterns.	• During 2023-2025, El Niño climate pattern will be significant to lower rain, more drought and higher temperature in Asia Pacific which SCG operations located.

Financial Impact of Physical Risks

Operations	Upstream (Suppliers)	Downstream (Customers)
We have used the 2011 biggest flooding event in Thailand to estimate the potential financial impact to our operations. In 2011, the flood impacted SCG's operations by damaging SCG's assets and consequently affecting the ability for SCG to fully provide services. This impact is reflected in SCG's revenue from services in Q4 of 2011 which decreased by -7.2% (quarter on quarter) as a result from the flood. We estimated future impacts based on changes in rainfall patterns.	The delays of supply goods shipment from suppliers due to impacts from natural hazard events can potentially impact SCG's operations. Under the RCP 4.5 scenario, hazard intensity increases more severely for 2020, 2040, and 2050 timeframes compared to the RCP 2.6 scenario for several natural hazards. We have analyzed the impacts caused by delays related to physical risk events, with severity increasing over time. In line with SCG Enterprise Risk Management criteria these risks are all classified as "minor" to "serious" in 2030 and "minor" to "critical" in 2040 depending on the number of suppliers simultaneously impacted. These risks are considered "critical" in 2050 regardless of the number of suppliers simultaneously impacted, in terms of financial impact.	We have conducted this assessment based on the assumption that SCG's top 3 customers as presented in section 2.3.1 (Customers from Kampang Phet, Chachoengsao, and Australia) will contribute to the revenue from product exports. In line with SCG Enterprise Risk Management criteria these risks are all classified as "minor" to "serious" in 2030 and "minor" to "critical" in 2040 depending on the number of suppliers simultaneously impacted. These risks are considered "critical" in 2050 regardless of the number of customers simultaneously impacted, in terms of financial impact.

Strategic Response

From the physical risk assessment, SCG has prepared a mitigation and adaptation plan to address the adverse effects of climate change and taking appropriate action to prevent or minimize the damage they can cause or taking advantage of opportunities that may arise.

From Climate Change Physical Risk Assessment, as riverine and urban flooding were categorized as a high-risk hazard, SCG have prepared a flood adaptation plan including response measures and implementation timescales for SCG's assets as shown in Table below.

Risk	Responses	Adaptation plan to be completed with in 2027[1]
Urban and Riverine Floods  • Damage/disruption of assets • Debris on road/damage to road surface may disrupt logistic • Failure of track circuit or detection of presence/ absence of logistic on track	Asset Level Impact Assessment	• Undertake an asset level flood risk assessment to identify and quantify the risks to flooding, key vulnerable areas, assets at risk and High Flood Level (HFL). Use this information to develop a hazard mitigation plan.
	Flood Forecasting and Monitoring	• Implementation of flood forecasting, early warning and monitoring systems to ensure adequate action within a reasonable time to minimize flood related losses.
	Stakeholder Capacity building	• This includes implementation of training, awareness and capacity building programs within the communities for disaster management during natural hazards and construction of shelters for protection against flooding.
	Storm Water Drainage and Management	• Design and implement suitable mitigation measures such as increasing capacity of storm water drainage or pumping system. • Prepare plan to operate commercial vehicles at lower speed during rainfall intensity.
	Flood Walls or Bunds	• Hard Wall such as cement concrete or rubble masonry or earthen bund to prevent ingress of storm water into critical areas.
	Plantation or Afforestation	• Plantation of trees or green cover to minimize run-off related soil erosion and destabilization of slopes.

[1] Time frame for majority of adaptation plan although some measures such as capacity training can be addressed before in 2-3 years.

3

Risk Management

The SCG Risk Management Committee is composed of the SCG President and CEO as the Committee Chairman, the SCG Executive Vice President, and the top executives of Chemicals Business, and Cement and Building Materials Business. They are responsible for determining the risk management structure and assigning accountabilities for risk management. The Committee also considers and approves the SCG enterprise risk management framework and processes, reviews the SCG risk profile which has the potential to impact the company, follows up on the implementation of mitigations, and reports the outcome of risk management to the Audit Committee. The SCG Risk Management Committee works closely with the Climate Change and Energy Committee and conducts an annual review of the Climate Change and Energy landscape to ensure that climate-related issues are well managed and monitored throughout the company.

3.1 Enterprise risk management process for identifying and assessing climate-related risks

The SCG risk management process is based on the ISO 31000 and COSO ERM frameworks, which consist of four steps: identifying risks, assessing risks, responding to risks, reporting on risks, and monitoring risks. This process is applied in three primary areas, namely short-, medium-, and long-term strategic risk management, investment project risk management, and operational risk management. Each of these areas follows the same four-step risk management process to ensure comprehensive and effective risk management across the organization.

Risk Monitoring and Reporting

Step 1:
Risk/Opportunity Identification

During the risk identification process, SCG considers and analyzes collected and up-to-date information such as economic outlooks, industry trends, regulations, competitor movements, inquiries from rating agencies/investors, and its internal capabilities. This information is used to identify any potential risk issues that could negatively affect the Company's goals, as well as opportunities that could increase the Company's competitive advantages. To facilitate effective risk identification, SCG has developed the SCG Risk Universe, which is a list of risks that companies/businesses may face in the future. The relevant risks are grouped into eight categories

SCG Eight Risk Categories

1

Environment & Social Risk
- Social impact
- Environmental impact

2

Governance & Compliance Risk
- Laws and regulations
- Social or business commitment
- Internal rules & regulations

3

Reputation & IP Risk
- Reputation or brand
- Intellectual property Infringement by others

4

Hazard Risk
- Natural disaster
- Man-made disaster
- Pandemic

5

Input Risk
- Raw materials
- Energy/utilities
- Labor
- Machinery/equipment
- Trading goods

6

Process Risk
- Plant operations
- Product development
- Human Capital
- IT-related risks
- Supporting functions
- Engineering/construction
- Alliance

7

Financial Risk
- Exchange rate
- Interest rate
- Liquidity
- Credit
- Financial market
- Goodwill & asset impairment

8

Business Risk
- General business environment
- Industry cyclicality
- Competitor
- Consumer
- Technology

Furthermore, the TCFD framework has been used to map transition risks and physical risks across the eight risk categories to ensure alignment and completeness of identified risks and opportunities in SCG's risk management process.

Climate-related Risks	SCG Risk Category	Examples of Risk Event
Climate-related Risk		
Environmental risk	• Environmental & social risk	• GHG emissions from operating plants both scope 1 and 2
Transition Risk		
Policy and legal risk	• Governance & compliance risk	• Carbon pricing and reporting obligation • Mandates on and regulation of existing products and services • Exposure to litigation
	• Financial risk	• Opportunity to access sources of funds related to ESG
Market risk	• Business risk	• Changing customer behaviors • Uncertainty in market signals
	• Input risk	• Increased cost of raw materials/energy • Availability of raw materials/energy
Technology risk	• Business risk	• Substitution of existing products and services with lower emission options • Unsuccessful investment in new technologies
Reputation risk	• Business risk	• Shift in consumer preferences
	• Reputation & IP risk	• Increased stakeholder concern/negative feedback • Stigmatization of sector
Physical Risk		
Acute risk	• Hazard risk	• Extreme weather events
Chronic risk	• Hazard risk	• Changing weather patterns

Step2:
Risk/Opportunity Assessment and Prioritization

In the assessment process, risk owners are required to evaluate the likelihood and impact of risks, as well as the adequacy and effectiveness of existing controls. The impact can be assessed qualitatively, such as in terms of health and safety, legal, reputation, or strategic considerations, or quantitatively, such as in terms of EBITDA impact.

To assist with risk prioritization, SCG has established a Risk Map that reflects the company's risk appetite and limits and sets priorities for risks and opportunities.

The map considers the likelihood and consequence of each risk, both qualitatively and quantitatively. Based on this map, risks and opportunities are categorized into three levels: high level or red zone (actively manage), medium level or yellow zone (manage), and low level or green zone (close monitor).

Risk owners must develop risk mitigation measures to reduce the likelihood and/or impact of risks to an acceptable level, depending on their gross risk level.

SCG Risk Appetite Statement

To grow its business in a profitable, sustainable manner, SCG will **proactively manage its risks.**

In doing so, SCG does **not tolerate risk** that endangers the **health & safety** of its employees, business partners, customers or the communities in which it operates; violates SCG's **environmental** or **compliance standards;** OR that harms **SCG's reputation.**

SCG will also knowingly take on risks with **financial impact** in line with prevailing corporate guidelines (note that these may change over time).

Step 3:
Risk Response and Mitigation

Once the risks are prioritized, risk owners develop mitigation options which include defining Key Risk Indicators and Key Performance Indicators. These indicators are leading and lagging indicators used to anticipate risk events and manage risk levels in line with targets. Mitigation options are then discussed and decided upon in various timeframes, such as at the medium-term plan meeting for 3-5 year strategies, annual plan meeting, and project investment approval meetings for implementation.

Step 4:
Risk Monitoring and Reporting

It is essential for risk owners to continuously monitor and periodically review the identified, assessed, and managed risks. The outcome of the implementation of risk mitigation measures will be reported to various committees at different time intervals, such as the Business Unit Risk Management Committee, SCG Risk Management Committee, SCC Audit Committee, and SCC Board of Directors. For instance, medium-term risk is reported on an annual basis, while operational risk is reported on a quarterly basis.

3.2 Climate-Risk Management

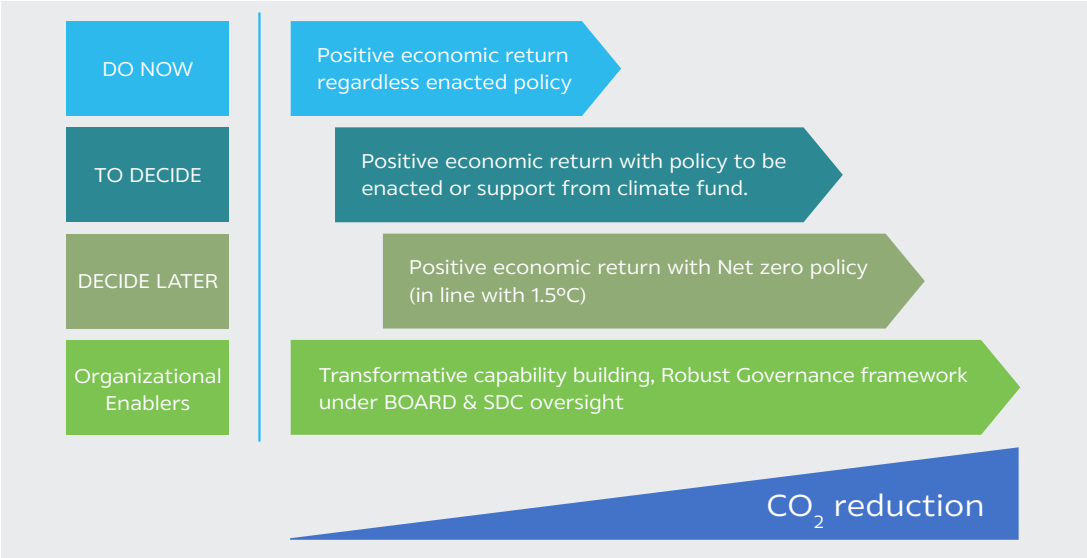
Transition Risk

Business case: Risk management of transitional impact. In order to transition to a low carbon business and more sustainable economy, SCG has to deal with significant changes to its business models, operations, and markets. This is due to important key drivers such as the climate change landscape, laws and regulations, technological advancements, and shifting consumer preferences, which can be addressed as transition risks that may arise in the future.

SCG actively engages with government agencies, policymakers, climate-related task forces, and trade associations and organizations at the national and international levels to closely monitor national climate policy and regulation such as carbon tax, carbon border adjustment mechanism (CBAM), and emissions trading system (ETS) in order to develop business plans and responses to achieve the target of GHG emissions reduction scope 1 and 2 of at least 20% by 2030 (compared to base year 2020) and Net Zero by 2050.

In order to enhance visibility of investment project in the pipeline of SCG decarbonization roadmap in both medium and long term regarding to CO_2 reduction capability, financial return (incremental EBITDA), and risk management.

SCG formulates strategic planning that can inform decision making on investment towards low carbon transition into 3 groups



The strategy comprises:

1. Increase the share of biomass and renewable energy that substitute fossil fuel.
2. Improve or modify processes and equipment to enhance energy efficiency.
3. Technology R&D to achieve Net Zero by 2050.
4. Develop low carbon products, services and solutions across the value chain.
5. Apply economics tools to promote GHG reduction projects.
6. Reforest and recover forest lands onshore and coastlines, seagrass cultivation for biodiversity and carbon sequestration.
7. Raise awareness through activities on energy conservation and climate adaptation for employees and business partners.

SCG has aligned its medium-term target and decarbonization strategies with its medium-term business plan, which addresses strategic business direction and climate-related investments that may have a continuing effect over 3 years or more. Since 2019, SCG has implemented the Internal Carbon Price (ICP) as an economic measure in making investment decisions in projects regarded as contributing to achieving our target of reducing greenhouse gas emissions. SCG has been proactively enhancing energy efficiency, increasing the use of all forms of renewable power, and expanding its use of alternative energy.

In the long term, transitioning towards low carbon businesses and Net Zero by 2050, SCG has to evaluate long-term risks and opportunities by conducting scenario analysis according to the TCFD framework with the assumption of APS and Net Zero. Decision-making on the business plan considers SCG's Internal Carbon Price (ICP) and the anticipation of transitional changes in policy, technology, and the market for long-term investments contributing to net zero by 2050. In addition, SCG has undertaken initiatives to rehabilitate forest resources, biodiversity, and ecosystems through Natural Climate Solutions (NCS) in tandem with research and development efforts to innovate low carbon products and to realize advanced carbon capture, utilization and storage (CCUS) technology.

Mapping with Thailand Taxonomy

On 30 June 2023, the Thai authorities published "Thailand Taxonomy", phase 1, to serve as a reference standard for classifying economic activities deemed as environmentally-sustainable. Passed the definition and screening criteria of traffic lights system grouping activities into 3 levels according to color shades (green, amber and red).

Green Activities	**Substantially Contributing** to the goal of climate change mitigation by operating at or close to the net zero goal by 2050[1]
Amber Activities	**Facilitating Significant** emissions reductions in the short term with a reliable decarbonization pathways and prescribed sunset dates
Red Activities ("stranded")	Currently **not compatible** with net zero trajectory and not going to become compatible anytime soon

[1] Refer to the ASEAN Taxonomy for Sustainable Finance (ASEAN Taxonomy), with which the Thailand Taxonomy is closely aligned, the goal is to "limit the global average temperature increase to well below 2°C, preferably 1.5°C, above pre-industrial levels"

SCG identified aggregate of eligibility and alignment with ASEAN and Thailand Taxonomy at both company-wide level and activity level.

SCG total GHG emission reduction is science-informed target and trajectory to be net zero by 2050.

	Company-wide [1]	Activity Level [2]
ASEAN Taxonomy		
Thailand Taxonomy		

[1] Company-wide covers 100% activities consolidated for greenhouse gas emissions, which is the same boundary for the financial reporting purposes. Covering total FY2022 revenue from sales 569.6 Billion Baht, which was generated from ESG related investment 4,975 Million Baht and expense 3,479 Million Baht (please see Sustainability Report 2022, page 49)
[2] Activity level covers 100% activities of cement productions in accordance with Global Cement and Concrete Association (GCCA) standards.

Thailand Taxonomy is one of the core developments in the sustainable finance landscape. Although it is not a compulsory list of activities or reporting requirement, SCG proactively map our activities to align with its screening criteria.

Physical Risk

Business case: In case of drought in Thailand, likelihoods of physical climate impact have been evaluated through scenarios analysis dealing with variables including water levels, probability of droughts in SCG water-stressed areas (direct operation and indirect operation); e.g. number of days of operation shutdown from lack of water supply. SCG performs sensitivity analysis and stress test to evaluate and mitigate impact from physical risks in many scenarios of water shortage. As a result, mitigation and adaptation plans are in place to ensure business reliability. In short term, water management strategy has been integrated in daily operation to ensure water supply in terms of both quality and quantity, water consumption reduction, and sustainable water for community.

The water management strategy comprises

1. Reduce water-related risk through integrated water management process.
2. Reduce water withdrawal by increasing efficiency in production processes and product.
3. Treat wastewater in line with regulatory standards, monitor volume and quality, report incident and investigation and reduce wastewater discharge.
4. Reuse/recycle treated wastewater.
5. Rehabilitate ecosystems related to water resources, and support water supply to community and agriculture.
6. Build awareness of personnel involved in water management.

Water Scarcity Management in Rayong Area, Thailand

SCG has the operations in Rayong Province of Thailand, which major assets of Chemical Business. Water scarcity is a significant risk, especially during El Niño effect 2023-2025.

SCG and other companies in Rayong area have set up Water War Room and Water and Environment Institute for Sustainability (WEIS) for systematic tracking water management such as level of water reservoirs, rain forecast, monthly water usage and forecast the medium- and long-term water consumptions. Then, WEIS has projected to increase the water reservoirs sources, and distribution systems to keep the stability of all members' operations.

SCG has set the target of 23% less water withdrawal by 2025 compared to Business As Usual (BAU) at base year 2014. The medium-term business plan is prepared to ensure achieving the target. In addition, the mitigation plan of worst case scenarios on assumption of limited water supply during drought crisis is in place. For instance, what if water shortage leads to reducing production capacities to minimum service level for a certain period. In long term, SCG collaborates with national and local parties such as Water and Environment Institute for Sustainability, The Federation of Thai Industries, which is a public-private sector collaboration to prepare water management projects. One more specific key factor in 2023-2025, El Niño climate pattern will be significant to lower rain, more drought and higher temperature in Asia Pacific which SCG operations located. This nature phenomenon is integrated in risk process to manage the water scarcity in production process and across value chain such as product distribution via river mode.

4

Metrics & Targets

SCG commits to Net Zero by 2050 of scope 1 and 2 with at least 20% GHG reduction in 2030 from base year 2020 from SCG's operations where we have businesses. SCG has collected and disclosed GHG scope 3 in alignment with GHG scope 3 standard and protocol related to SCG's business.

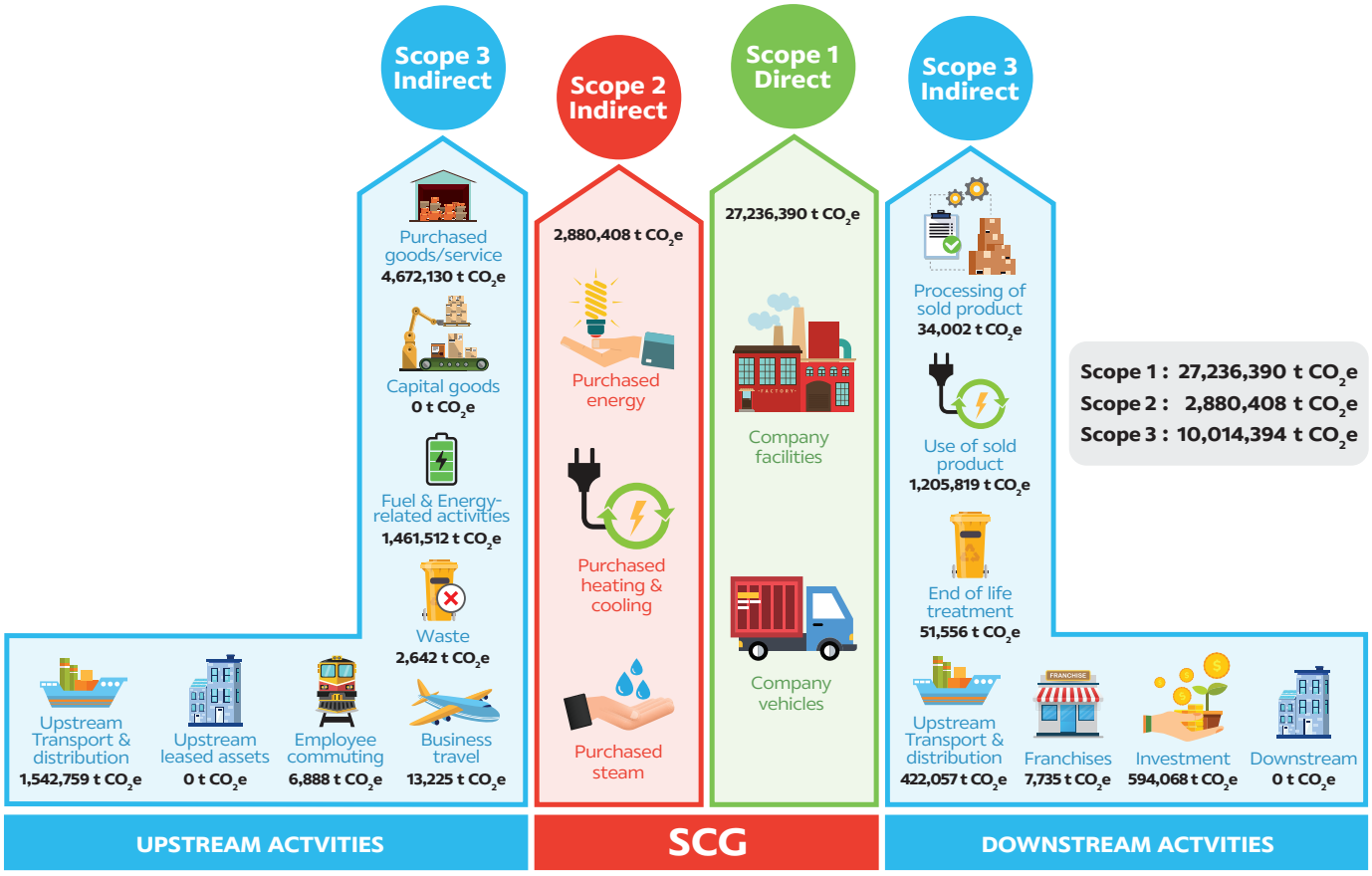
In 2022, SCG reduced 4.13 million tons CO_2 or 12.05% compare to base year 2020 which aligns with science-based well below 2ºC scenario.

Greenhouse Gas Emissions

Performance Data	2018	2019	2020[1],[3]	2021	2022
GHGs Scope 1 and 2 (Million Tons CO_2)[2],[3]	24.54	23.99	34.24	33.53	30.12
GHG Scope 1 (Million Tons CO_2)[2],[3]	22.10	21.59	30.99	30.34	27.24
GHG Scope 2 (Million Tons CO_2)[2]	2.44	2.40	3.25	3.18	2.88
Biogenic CO_2 (Million Tons CO_2)[2]	NA	NA	NA	4.85	5.46
GHG emission reduction compare with base year 2020 (Million Tons CO_2) (%)				0.72 2.10	4.13 12.05

Base year
NA = Not Available
[1] 1st year to Incorporate performance from abroad operations
[2] Within SGS's limited assurance scope (Page 43-44)
[3] Recalculated in term of Gross Emissions

SCG has collected and disclosed 2022 GHG scope 3 of its businesses in Thailand and abroad, which assurance by 3rd party.



SCG has also set other targets which contribute to climate actions.

Water withdrawal reduction at least

23%

in 2025 compared with Business As Usual (BAU) at base year 2014

Energy consumption reduction at least

13%

in 2025 compared with Business As Usual (BAU) at base year 2007

Natural Climate Solution

3 million

Rais area (4,800 sq.km.) in 2050 as carbon sink

GREEN CHOICE

SCG Green Choice target at least

67%

of revenues in 2030. In 2022, SCG Green choice was

50.9%

of revenue from sales.

Energy Consumption

Performance Data	2018	2019	2020	2021[1]	2022
Total Energy Consumption (Petajoules)[2]	189.36	188.82	183.56	257.44	237.43
Non-Renewable Fuel Consumption (Petajoules)[2]	154.25	151.29	147.72	209.10	185.21
Renewable Fuel Consumption (Petajoules)[2]	15.48	18.72	17.96	24.85	31.31
Steam & Heat Consumption (Petajoules)[2]	5.35	4.72	4.44	4.65	2.52
Electrical Consumption (Petajoules)[2]	14.36	14.25	13.88	19.18	18.66
Electricity Sold (Petajoules)[2]	0.07	0.15	0.45	0.35	0.26
Energy Consumption Reduction compare with business as usual (BAU) at base year of 2007 (Petajoules) (%)	 16.08 7.8	 15.31 7.5	 15.00 7.6	 19.75 7.1	 17.12 6.7

[1] 1st year to Incorporate performance from abroad operations
[2] Within SGS's limited assurance scope (Page 43-44)

Water Withdrawal

Performance Data	Water					
	2018	2019	2020	2021[1]	2022	2022 Areas with water stress
Water Withdrawal						
Water Withdrawal by source						
Surface water (Million Cubic Meters)[2] • Freshwater TDS ≤ 1,000 mg/l • Other water TDS > 1,000 mg/l	27.79	26.44	28.45 28.45 0	50.85 50.85 0	50.25 50.23 0.02	0 0 0
Groundwater (Million Cubic Meters)[2] • Freshwater TDS ≤ 1,000 mg/l • Other water TDS > 1,000 mg/l	44.26	41.79	38.01 31.38 6.63	42.31 42.31 0	38.63 38.63 0	0 0 0
Third-party water (total) (Million Cubic Meter)[2] • Freshwater TDS ≤ 1,000 mg/l • Other water TDS > 1,000 mg/l	38.13	35.20	27.83 27.83 0	36.87 36.87 0	31.19 31.19 0	0 0 0
Total Water Withdrawal (Million Cubic Meters)[2]	110.18	103.43	94.29	130.03	120.07	0
Water Withdrawal Reduction compared with business as usual at the base year of 2014 (Million Cubic Meters) (%)	 10.03 8.3	 12.17 10.5	 16.61 15.0	 38.03 22.6	 38.04 24.1	 0 0
Recycled Water (Million Cubic Meters)[2] (%)	11.24 9.3	12.30 10.6	12.33 11.6	17.03 11.9	18.50 13.4	0 0

[1] 1st year to Incorporate performance from abroad operations
[2] Within SGS's limited assurance scope (Page 43-44)

Annex 1:
Global Standard on Responsible Corporate Climate Advocacy

Policy and Commitment

No.	Framework Indicator	SCG Management System Practices [PLAN]
1	Make a public commitment to align all of its climate change lobbying with the goal of restricting global temperature rise to 1.5ºC above pre-industrial levels	SCG commits the long-term goal of achieving Net Zero by 2050 and the near-term target of reducing GHG Scope 1 and 2 emissions by at least 20% by 2030 compared with base year 2020. These goals align with the Paris Agreement to limit global temperature rise to 1.5ºC above pre-industrial levels and contribute to Thailand's Nationally Determined Contribution (NDC) in order to reduce GHG emissions. To achieve our goal, SCG collaborates proactively with associations and organizations to support them in achieving their missions of creating and supporting public policies and regulations, as well as with communities, sectoral business partners, and all key stakeholders to support the long-range net zero transition into a low carbon economy.
2	Apply the scope of this commitment to all of its subsidiaries and business areas, and all operational jurisdictions	SCG's commitment to the Paris Agreement and climate change-related policies and strategies covers all jurisdictions where we have operations including SCG's subsidiaries, joint ventures, associates and other companies located operational jurisdictions, and business areas.
3	Publicly commit to taking steps to ensure that the associations, alliances and coalitions of which it is a member conduct their climate change lobbying in line with the goal of restricting global temperature rise to 1.5ºC above pre-industrial levels	SCG's contributions and support for associations and organizations, alliances, and coalitions by creating and supporting all related public policies and initiatives aim toward achieving Thailand's NDC and the Paris Agreement, as well as continuously accelerating the transition to a long-term net zero and low carbon economy. SCG pursues a robust and comprehensive relationship with these associations to ensure that the associations, alliances and coalitions of which it is a member conduct their climate change activities in line with the goal of restricting global temperature rise to 1.5ºC above pre-industrial levels. SCG actively participates in various organizations at the council board, chairman, executive committee, working group chair, and working group member levels. Our contribution ranges from sharing visions and information, addressing challenges, developing shared solutions regarding sustainable business growth in accordance with ESG while mitigating the impacts of climate change, maximizing resource efficiency, enhancing plastic waste management, and implementing the United Nations Sustainable Development Goals (SDGs).

Governance

No.	Framework Indicator	SCG Management System Practices [DO]
4	Assign responsibility at board level for oversight of its climate change lobbying approach and activities	The Board of Directors and top executives promote the fostering of corporate governance and SCG Code of Conduct knowledge and awareness and encourage the use of GRC principles in understanding the targets of assignments, in fostering risk awareness and conducting risk assessments, and in complying with relevant rules to ensure strict adherence among all personnel. According to SCG Code of Conduct, SCG maintains political neutrality and does not support or make contributions, financial or otherwise, to any particular political party, political coalition, person with political influence, or political candidate on a local, regional or national level, either directly or indirectly.
5	Assign responsibility at senior management level for day-to-day implementation of its climate change lobbying policies and practices	SCG Sustainable Development Committee (SDC) is the highest-level overseeing climate change advocacy. The committee comprises of CEO, who is the Board member, and all executives from all business units. The SDC role and responsibility includes the collaboration with national and international climate related stakeholders.
6	Establish an annual monitoring and review process to ensure that all of its direct and indirect climate change lobbying activities across all geographies are consistent with the goal of restricting global temperature rise to 1.5ºC above pre-industrial levels	The SDC regularly monitors and reviews process on quarterly basis to assess whether our direct and indirect climate change activities and trade associations' public policy engagements across all SCG's operations are aligned with Thailand's NDC and the Paris Agreement as included in SCG climate policy. SCG confirmed its association management within each trade association and organization to which we contribute by assuring continuous oversight of their advocacy, confirming alignment with our positions, and ensuring that our commitment to responsible and constructive advocacy is shared by the associations to which we are a member.
7	Establish a process for engaging with stakeholders related to setting and reviewing its climate change lobbying policies, positions and activities	SCG regularly engages stakeholders, including government agencies, civil society sector, opinion leaders, industry peers, and members of trade associations and organizations, in setting up and reviewing our climate change policies, positions, and activities through regular meeting, seminar, public hearing and then report the results to the SDC.
8	Establish a clear framework for addressing misalignments between the climate change lobbying positions adopted by the associations, alliances and coalitions of which it is a member and the goal of restricting global temperature rise to 1.5ºC above pre-industrial levels	SCG established SCG net zero roadmap by 2050 which aligns with the goal of restricting global temperature rise to 1.5ºC above pre-industrial levels. SCG has put a clear framework in place and regular review for addressing misalignments between the climate change positions adopted by the associations, alliances, and coalitions of which we are members. If misalignments are significant issues, SCG will report to the SDC and conduct extensive discussions with the association's committees, and signal our engagement reconsideration in order to achieve a more successful alignment or demand that the association not take a position. In addition, SCG will also assess the association's performance and the value of its membership before deciding if exiting the organization is appropriate.

Action

No.	Framework Indicator	SCG Management System Practices [CHECK & ACT]
9	Publish a detailed annual review covering the company's assessment and actions related to the 1.5°C-alignment of: (a) its own climate change lobbying activities; (b) the climate change lobbying activities of the associations, alliances, coalitions or thinktanks of which it is a member or to which it provides support	SCG conduct a review of both climate change lobbying activities and those done by our associations, alliances, coalitions or thinktanks, in 2022, SCG has no climate related lobbying activities. For the climate change lobbying activities of the associations, alliances, coalitions or thinktanks of which it is a member or to which it provides support. SCG regularly review their consistency with the Paris Agreement. The objective of other organizations contribution is to support sustainable development actions. In particular, initiatives that need to be accelerated in building a network of cooperation, such as climate change adaption and transition to low carbon economy, circular economy, and health & safety in order to achieve tangible results.
10	Recognize the existence of and report on action to address any misalignments between its climate change lobbying and/or the climate change lobbying activities of its trade associations, coalitions, alliances or funded thinktanks and the goal of limiting global temperature rise to 1.5°C above pre-industrial levels	SCG has identified misalignment of our no climate lobbying activities and also misalignment between our position to promote Thailand's NDC and the Paris Agreement and our trade associations' positions.
11	Create or participate in coalitions that have the specific purpose of lobbying in support of the goal of restricting global temperature rise to 1.5°C above pre-industrial levels	SCG actively collaborates with government agencies, trade associations and organizations, and industry peers to develop all climate-related public policies and initiatives at the corporate level aimed toward achieving Thailand's NDC and the Paris Agreement, as well as tangible and intangible ESG performance. SCG's key memberships in trade associations and organizations are the Alliance to End Plastic Waste (AEPW), the World Business Council for Sustainable Development (WBCSD), the Global Cement and Concrete Association (GCCA), the UN Global Compact (UNGC), and Thai associations and organizations such as the Thai Cement Manufacturers Association (TCMA), The Thai Chamber of Commerce and Board of Trade of Thailand. Regarding to the Chief Sustainability Officer (CSO) of SCG is a chairman of the Thai Cement Manufacturers Association (TCMA), SCG works closely with TCMA members, Thailand Concrete Association (TCA), government agencies and academic sectors in collaboration with the Global Cement and Concrete Association (GCCA), the world's leading organization for cement and concrete, as well as performing programs related to supporting them in the establishment of flagship initiatives as Thailand Chapter: Net Zero Cement & Concrete Roadmap 2050 aligned with the Paris Agreement.
12	Publicly disclose, for all geographies, its membership of, support for and involvement in all associations, alliances and coalitions engaged in climate change-related lobbying	SCG engages in climate change-related policies and initiatives through our membership, support, as well as involvement in the following trade associations, which address the following 2 main issues: **1. Driving the Circular Economy** • Alliance to End Plastic Waste (AEPW) SCG works openly to put the circular economy into practice in the business sector and to initiate a paradigm shift toward circular economy principles by increasing public awareness, encouraging behavioral changes in manufacturing and consumption, and demonstrating how the circular economy has been applied in the past. This is the key to achieving sustainable development as well as continuously accelerating the transition to a long-term net zero and low carbon economy.

No.	Framework Indicator	SCG Management System Practices [CHECK & ACT]
		SCG currently takes part in a number of projects that aim to maximize the value of resources while minimizing the use of new resources through the creation of a series of circular approaches, including re-processing, re-designing, value-added innovation, collaboration with business and non-business partners, and reuse. **2. Driving sustainable business growth and the long-term net zero transition into a low carbon economy** • Thai Cement Manufacturers Association (TCMA) • World Business Council for Sustainable Development (WBCSD) • Global Cement and Concrete Association (GCCA) • The Federation of Thai Industries (F.T.I.) • UN Global Compact (UNGC) • The Thai Chamber of Commerce and Board of Trade of Thailand SCG has been facing several challenges as same as the other businesses across the nation and the world that have been doing business under global polycrisis, including not only economic challenges in terms of inflation as a result of geopolitical conflict but also impacts from climate change and natural disasters that are becoming more severe. SCG always adheres to sustainable development and prioritizes environmental, social, and governance (ESG) throughout the value chain, as well as preparing for a robust transition to a net-zero transition into a low carbon economy. SCG contributes to these trade associations and organizations to develop all public policies and initiatives at the corporate level aimed toward achieving tangible and intangible ESG performance and the United Nations Sustainable Development Goals (SDGs), as well as the long-term goal of achieving net zero by 2050, which align with Thailand's NDC and the Paris Agreement. Please see; SCG Contributions to Organization https://www.scgsustainability.com/en/business-ethics-en/
13	Publicly disclose, for each of these organisations : (a) how much it pays to them on an annual basis; (b) those organisations where it sits on the board or plays an active role in committees or other activities related to climate change	**SCG's contributions to each organization** and position & engagement details have been publicly disclosed on the company's website at the following link: https://www.scgsustainability.com/en/business-ethics-en/ **Active role of SCG to promote the net zero ambition in other organizations** The CEO, who is also a member of the Board, represents on the TCNN's Council Board. The objective of the TCNN is to foster collaboration between the Thai government, private sector, and local sectors/communities in order to achieve the goals of the Paris Agreement. In addition, he assigns and oversees SCG executive management as members of these associations and organizations to develop all climate related policies and promote initiatives and activities at the corporate level as following; • Chairman of TCMA • Vice-chairman of the F.T.I. • Chairman of Committee on Circular Economy and Environmental, The Thai Chamber of Commerce and Board of Trade of Thailand

No.	Framework Indicator	SCG Management System Practices [CHECK & ACT]
14	Publicly disclose its overall assessment of the influence that its climate lobbying has had on (a) supporting ambitious public climate change policy; (b) the company's ability to deliver its own corporate transition strategy	SCG supports ambitious public climate change policy to achieve our long-term goal of achieving Net Zero by 2050 and near-term target of reducing GHG Scope 1 and 2 emissions by at least 20% by 2030 compared with base year 2020 through our membership and support of trade associations and organizations. The contributions focusing on supporting the long-term net zero transition into a low carbon economy align with the Paris Agreement to limit global temperature rise to 1.5ºC above pre-industrial levels and driving sustainable business growth in accordance with ESG, which are addressed in the 2 main issues; • Driving the Circular Economy • Driving sustainable business growth and the long-term net zero transition into a low carbon economy Regarding our contributions, SCG conducted the following activities to formulate the transition to a net zero strategy; • Set the SCG Net Zero Roadmap in line with the science-informed emission reduction target to be Net Zero by 2050 and its trajectory by 2030. • Formulate decarbonization strategies, including the development of clean and green technologies, budgeting, and internal carbon pricing. • Developed of a business long-term plan by integrating the risk management framework and scenario analysis in accordance with the TCFD framework. • Establish governance structure of top executives, enterprise risk management, business ethics, and transparent disclosure under the oversight of the Board of Directors. • Maintain business stability and business adjustment, strategies, investments, and other activities for a low carbon economy and the transition.

Annex 2:
Physical Scenario Analysis

Baseline Data

Baseline natural hazard and climate change risk likelihood

	Water Scarcity	Urban Floods	Riverine Floods	Coastal Floods	Extreme Heat	Cyclones	Landslide
Operations							
Nam Phong, Khon Kaen	1	3	3	N/A	2	1	1
SCG Tha Luang (Ban Mo), Saraburi	2	3	3	N/A	3	2	1
Wat Bandai Jetty Operation (Sena), Ayutthaya	2	1	3	N/A	3	2	1
Map Ta Phut Complex (SCGC), Rayong	1	3	1	3	2	3	2
Fajar, Jawa Barat, Indonesia	2	3	3	N/A	2	1	3
VKPC, Binh Duong, Vietnam	1	3	3	N/A	2	3	1
UPPC, Bulacan, Philippines	1	3	3	3	2	3	3
Vietnam Construction Materials JSC, Quang Binh, Vietnam	1	2	3	3	3	3	3
Mariwasa Siam Ceramics, Batangas, Philippines	1	2	1	3	2	3	3
Long Son Petrochemicals (LSP), Ba Ria Vung Tao, Vietnam	1	3	N/A	3	2	3	1
Surabaya, Java Timur, Indonesia	2	2	2	3	2	N/A	1
Upstream							
Starch Wealth, Kumphawapi, Udon Thani	1	2	2	N/A	2	1	1
Bukit Baiduri Energi, East Kalimantan, Indonesia	1	3	3	3	2	1	3
Critical Supplier, Kanagawa, Japan	1	3	3	2	2	N/A	3
Critical Supplier, Niigata, Japan	1	3	3	3	2	3	3
Downstream							
Thai Beverage, Khlong Khlung, Kamphaeng Phet	1	2	3	N/A	3	1	1
Taweesub, Bang Nam Prieo, Chachoengsao	1	3	3	2	3	2	1
Export Customers, Queensland, Australia	1	3	3	3	3	3	3
Domestic Customers, Bang Phli, Samutprakran, Thailand	2	1	1	3	3	3	1

Score	Normalized Hazard Category
3	high
2	Medium
1	Low
0	No Hazard
N/A	Not Applicable

Climate Change Risk: Results & Trends – RCP 2.6

	Water Scarcity				Urban Floods				Riverine Floods				Coastal Floods				Extreme Heat				Cyclone				Landslide			
Operations Province	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050
Nam Phong, Khon Kaen	1	1	1	1	3	1	1	1	3	-2	-1	-1	N/A	N/A	N/A	N/A	2	1	1	2	1	1	1	1	1	-2	-1	-1
SCG Tha Luang (Ban Mo), Saraburi	2	1	1	1	3	3	3	3	3	2	3	3	N/A	N/A	N/A	N/A	3	1	1	1	2	1	1	1	1	2	3	3
Wat Bandai Jetty Operation (Sena), Ayutthaya	2	1	1	1	1	3	3	3	3	2	3	3	N/A	N/A	N/A	N/A	3	1	1	1	2	1	1	1	1	2	3	3
Map Ta Phut Complex (SCGC), Rayong	1	1	1	1	3	2	2	3	1	3	3	3	3	1	1	1	2	1	1	1	3	1	1	1	2	3	3	3
Fajar, Jawa Barat, Indonesia	2	-1	-1	-1	3	-1	2	3	3	1	1	1	N/A	N/A	N/A	N/A	2	1	1	1	1	1	1	1	3	1	1	1
VKPC, Binh Duong, Vietnam	1	1	1	1	3	1	1	2	3	2	3	3	N/A	N/A	N/A	N/A	2	1	1	1	3	1	1	1	1	2	3	3
UPPC, Bulacan, Philippines	1	-1	-1	-1	3	1	1	1	3	-1	-1	-2	3	1	1	1	2	1	1	1	3	1	1	1	3	-1	-1	-2
Vietnam Construction Materials JSC, Quang Binh, Vietnam	1	1	1	1	2	1	3	3	3	-2	1	2	3	1	1	1	3	1	1	2	3	1	1	1	3	-2	1	2
Mariwasa Siam Ceramics, Batangas, Philippines	1	-1	-1	-1	2	1	1	2	1	-2	-1	1	3	1	1	1	2	1	1	1	3	1	1	1	3	-2	-1	1
Long Son Petrochemicals (LSP), Ba Ria Vung Tao, Vietnam	1	1	1	1	3	3	3	2	N/A	N/A	N/A	N/A	3	1	1	1	2	1	1	1	3	1	1	1	1	3	2	2
Surabaya, Java Timur, Indonesia	2	-1	-1	-1	2	3	3	3	2	1	1	1	3	1	1	1	2	1	1	1	N/A	N/A	N/A	N/A	1	1	1	1
Upstream Province																												
Starch Wealth, Kumphawapi, Udon Thani	1	1	1	1	2	1	2	3	2	-1	1	1	N/A	N/A	N/A	N/A	2	2	2	1	1	1	1	1	1	-1	1	1
Bukit Baiduri Energi, East Kalimantan, Indonesia	1	-1	-1	-1	3	3	3	3	3	3	3	3	3	1	1	1	2	1	1	1	1	1	1	1	3	3	3	3
Critical Supplier, Kanagawa, Japan	1	-1	-1	-1	3	2	3	3	3	-2	1	2	2	1	1	1	2	1	2	2	N/A	N/A	N/A	N/A	3	-2	1	2
Critical Supplier, Niigata, Japan	1	-1	-1	-1	3	-1	1	1	3	-2	-1	-1	3	1	1	1	2	2	2	2	3	1	1	1	3	-2	-1	-1
Downstream Province																												
Thai Beverage, Khlong Khlung, Kamphaeng Phet	1	1	1	1	2	-3	-2	1	3	-3	-1	2	N/A	N/A	N/A	N/A	3	1	1	1	1	1	1	1	1	-3	-1	2
Taweesub, Bang Nam Prieo, Chachoengsao	1	1	1	1	3	3	3	3	3	-1	1	2	2	1	2	2	3	1	1	1	2	1	1	1	1	-1	1	2
Export Customers, Queensland, Australia	1	1	1	1	3	2	3	3	3	3	3	3	3	1	1	1	3	1	2	2	3	1	1	1	3	3	3	3
Domestic Customers, Bang Phli, Samutprakran, Thailand	2	1	1	1	1	3	3	3	1	2	2	3	3	1	2	2	3	1	1	1	3	1	1	1	1	2	2	3

Legend and Hazard Score:

	Category	Drought (Change in annual drought probability)	Riverine & urban floods (Change in 1 day and 5 day maximum rainfall)	Coastal floods and sea level rise	Extreme heat (Change in annual average maximum temperature)	Cyclone (Change in sustained wind speed)
3	Significant Increase	<-1	>10%	>50cm	>2°C	>5%
2	Moderate Increase	<-0.5	>5%	>25cm	>1°C	>2.5%
1	Slight Increase	<0	>0%	>0cm	>0°C	>0%
0	No Change	0	0%	0cm	0°C	0%
-1	Slight Decrease	>0	<0%	<0cm	<0°C	<0%
-2	Moderate Decrease	>0.5	<-5%	<-10cm	<-1°C	<-2.5%
-3	Significant Decrease	>1	<-10%	<-20cm	<-2°C	<-5%

Climate Change Risk: Results & Trends – RCP 4.5

	Water Scarcity				Urban Floods				Riverine Floods				Coastal Floods				Extreme Heat				Cyclone				Landslide			
Operations Province	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050
Nam Phong, Khon Kaen	1	1	1	-1	3	-1	1	1	3	-2	-1	2	N/A	N/A	N/A	N/A	2	1	2	2	1	2	2	2	1	-2	-1	2
SCG Tha Luang (Ban Mo), Saraburi	2	1	1	-1	3	2	3	3	3	2	3	3	N/A	N/A	N/A	N/A	3	1	2	2	2	2	2	2	1	2	3	3
Wat Bandai Jetty Operation (Sena), Ayutthaya	2	1	1	-1	1	1	2	3	3	1	3	3	N/A	N/A	N/A	N/A	3	1	2	2	2	2	2	2	1	1	3	3
Map Ta Phut Complex (SCGC), Rayong	1	1	1	-1	3	3	3	3	1	3	3	3	3	1	1	1	2	1	2	2	3	2	2	2	2	3	3	3
Fajar, Jawa Barat, Indonesia	2	-1	-1	-1	3	3	3	2	3	1	2	2	N/A	N/A	N/A	N/A	2	1	1	2	1	2	2	2	3	1	2	2
VKPC, Binh Duong, Vietnam	1	1	1	1	3	-1	-2	-2	3	3	3	3	N/A	N/A	N/A	N/A	2	1	2	2	3	2	2	2	1	3	3	3
UPPC, Bulacan, Philippines	1	-1	-1	-1	3	1	1	1	3	1	-1	-1	3	1	1	1	2	1	1	2	3	2	2	2	3	1	-1	-1
Vietnam Construction Materials JSC, Quang Binh, Vietnam	1	1	1	1	2	2	2	2	3	3	3	3	3	1	1	2	3	-2	-2	-2	3	2	2	2	3	3	3	3
Mariwasa Siam Ceramics, Batangas, Philippines	1	-1	-1	-1	2	1	2	2	1	-2	-2	-2	3	2	2	2	2	1	1	2	3	2	2	2	3	-2	-2	-2
Long Son Petrochemicals (LSP), Ba Ria Vung Tao, Vietnam	1	1	1	1	3	3	2	1	N/A	N/A	N/A	N/A	3	1	1	2	2	-2	-1	-1	3	2	2	2	1	2	3	3
Surabaya, Java Timur, Indonesia	2	-1	-1	-1	2	3	3	3	2	1	2	2	3	1	1	2	2	1	1	2	N/A	N/A	N/A	N/A	1	1	2	2
Upstream Province																												
Starch Wealth, Kumphawapi, Udon Thani	1	1	1	-1	2	1	1	-1	2	-1	-1	1	N/A	N/A	N/A	N/A	2	1	2	2	1	2	2	2	1	-1	-1	1
Bukit Baiduri Energi, East Kalimantan, Indonesia	1	-1	-1	-1	3	-2	-2	-1	3	3	3	3	3	1	1	2	2	1	1	2	1	2	2	2	3	3	3	3
Critical Supplier, Kanagawa, Japan	1	-1	-1	-1	3	3	3	3	3	1	2	2	2	1	2	2	2	1	2	2	N/A	N/A	N/A	N/A	3	1	2	2
Critical Supplier, Niigata, Japan	1	-1	-1	-1	3	-1	1	2	3	-1	-1	1	3	1	2	2	2	2	2	2	3	2	2	2	3	-1	-1	1
Downstream Province																												
Thai Beverage, Khlong Khlung, Kamphaeng Phet	1	1	1	-1	2	-3	-1	1	3	-1	2	3	N/A	N/A	N/A	N/A	3	1	2	2	1	2	2	2	1	-1	2	3
Taweesub, Bang Nam Prieo, Chachoengsao	1	1	1	-1	3	3	3	3	3	2	2	2	2	3	3	3	3	1	2	2	2	2	2	2	1	2	2	2
Export Customers, Queensland, Australia	1	1	1	1	3	-1	-2	-3	3	2	3	3	3	1	1	1	3	2	2	2	3	2	2	2	3	2	3	3
Domestic Customers, Bang Phli, Samutprakran, Thailand	2	1	1	-1	1	3	3	3	1	3	3	3	3	3	3	3	3	1	2	2	3	2	2	2	1	3	3	3

Legend and Hazard Score:

	Category	Drought (Change in annual drought probability)	Riverine & urban floods (Change in 1 day and 5 day maximum rainfall)	Coastal floods and sea level rise	Extreme heat (Change in annual average maximum temperature)	Cyclone (Change in sustained wind speed)
3	Significant Increase	<-1	>10%	>50cm	>2°C	>5%
2	Moderate Increase	<-0.5	>5%	>25cm	>1°C	>2.5%
1	Slight Increase	<0	>0%	>0cm	>0°C	>0%
0	No Change	0	0%	0cm	0°C	0%
-1	Slight Decrease	>0	<0%	<0cm	<0°C	<0%
-2	Moderate Decrease	>0.5	<-5%	<-10cm	<-1°C	<-2.5%
-3	Significant Decrease	>1	<-10%	<-20cm	<-2°C	<-5%

Annex 3:
Assurance Statement

ASSURANCE STATEMENT

SGS (THAILAND) LIMITED'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE SIAM CEMENT PUBLIC COMPANY LIMITED'S FOR 2022

NATURE OF THE ASSURANCE/VERIFICATION
SGS (THAILAND) LTD. (hereinafter referred to as SGS) was commissioned by The Siam Cement Public Company Limited (hereinafter referred to as SCG) to conduct an independent assurance of the SCG Sustainability Report 2022 (hereinafter referred to as the Report) for the year ended December 31, 2022 in accordance with the reporting criteria.

INTENDED USERS OF THIS ASSURANCE STATEMENT
This Assurance Statement is provided with the intention of informing all SCG's Stakeholders.

RESPONSIBILITIES
The information in the Report and its presentation are the responsibility of the directors or governing body (as applicable) and the management of SCG. SGS has not been involved in the preparation of any of the material included in the Report. Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification with the intention to inform all SCG's stakeholders.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE
The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally recognised assurance guidance and standards. Assurance has been conducted at a limited level of level of scrutiny.
The assurance of this report has been conducted according to the following Assurance Standards:

- ISAE 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information
- ISAE 3410, Assurance Engagements on Greenhouse Gas Statements

SCOPE OF ASSURANCE AND REPORTING CRITERIA
The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:

- GRI Standards 2021 (In Accordance with)
- WBCSD/WRI Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard
- GCCA Sustainability Framework Guidelines, October 2019
- Sustainability Accounting Standards Board ("SASB")

SPECIFIED PERFORMANCE INFORMATION AND DISCLOSURES INCLUDED IN SCOPE
SCG's Sustainability Report are adequately in line with the Sustainability Reporting Standard and fulfills all the required content and quality criteria for the identified aspects listed as below;

a) Environmental dimension performance indicators expressed numerically or in descriptive text
   - Energy consumption (petajoules)
   - Greenhouse gas emissions scope 1 & 2 (million tons)
   - Water withdrawal (million cubic meters) and recycled water (million cubic meters)
   - Water discharge (million cubic meters)
   - Water discharge by quality (BOD, COD and TSS (Ton))
   - Total weight of waste by type and disposal method (thousand tons)
   - Oxides of Nitrogen (NO_x), Oxides of Sulfur (SO_x), dust and other significant air emissions data including VOCs (tons)

b) Social dimension performance indicators or in descriptive text
   - Number and rate of fatality work-related Injury, high-consequence work-related Injury, lost time injury, recordable work-related Injury and number of hours worked
   - Number of fatality work-related occupational illness & disease and occupational illness & disease frequency rate
   - Ratio of the basic salary and remuneration of women to men and gender pay gap

ASSURANCE METHODOLOGY

SGS's assurance engagements are carried out in accordance with assurance procedure.

The assurance comprised a combination of

- SCG's Management interviews, including the Sustainable Development team with responsibility for performance in the areas within scope
- Interview with data owners &/or managers responsible for internal data collection and reporting databases
- Document review of relevant systems, policies, and procedures where available
- Understanding, analysing and sample testing the key data collection, aggregation, validation and reporting systems, processes, procedures, and controls
- Sampling evidence to confirm the reliability of the selected reporting standards, selected 8 sites of 3 business units for onsite visit as below:
    - Cement-Building Materials Business
        - 2 sites of Cement business, including The Siam Cement (Thung Song) Co., Ltd. and PT Semen Jawa
        - 2 sites of Building Materials business, including Siam Sanitary Ware Industry Co., Ltd. and Prime Dai Loc Joint Stock Company
    - 2 sites of SCGC (Chemicals Business) including, Thai Polyethylene Co., Ltd. and TPC Vina Plastic and Chemical Corporation Ltd.
    - 2 sites of SCGP (Packaging Business) including, Siam Kraft Industry Co., Ltd. (Ratchaburi) and PT FAJAR SURYA WISESA Tbk.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

LIMITATIONS AND MITIGATION

Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process. Note here any other specific limitations for the assurance engagement and actions taken to mitigate those limitation. Some statements and data within the scope were not assured due to lack of accessible records during the timescale allowed for assurance, and these are clearly marked throughout the Report

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from SCG, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 9001, ISO 14001, ISO 45001, ISO 50001, ISO 14064-1, ISO 14067, ISO 26000, WFP, SA 8000 and experience on the SRA Assurance service provisions

ASSURANCE/VERIFICATION OPINION

On the basis of the methodology described and the verification work performed, nothing has come to our attention that causes us to believe that the specified performance information included in the scope of assurance is not fairly stated and has not been prepared, in all material respects, in accordance with the reporting criteria. We believe that the organisation has chosen an appropriate level of assurance for the selected indicators for the year ended December 31, 2022 included in their reporting.

Signed:
For and on behalf of SGS (Thailand) Limited

Montree Tangtermsirikul
General Manager
100 Nanglinchee Road Chongnonsee Yannawa, Bangkok 10120 Thailand
21 February 2023

WWW.SGS.COM

ASSURANCE STATEMENT

related to the Siam Cement Public Company Limited Greenhouse Gas Assertion Scope 3 for Greenhouse Gas Inventory for calendar year ended December 31, 2022

NATURE OF THE ASSURANCE/VERIFICATION
SGS (THAILAND) LTD. (hereinafter referred to as "SGS") has been contracted by The Siam Cement Public Company Limited (hereinafter referred to as "SCG") to assure its Greenhouse Gas Assertion for scope 3 (hereinafter referred to as "the GHG Assertion") for the year ended December 31, 2022 in accordance with the reporting criteria.

RESPONSIBILITIES
The management of SCG is responsible for the organization's GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information and the reported GHG emissions. SGS's responsibility was to carry out an assurance engagement on the GHG Assertion and GHG inventory in accordance with our contract with SCG. SGS has not been involved in the preparation of any of the GHG Assertion and GHG inventory included in the Report.

LEVEL OF ASSURANCE
The level of assurance agreed is that of limited assurance.

SCOPE OF ASSURANCE AND CRITERIA
SCG has commissioned an independent verification by SGS of reported GHG emissions arising from their Thailand and abroad activities, to establish conformance with the verification criteria within the scope of the verification as outlined below. Data and information supporting the GHG assertion were both historical in nature (proven by evidence) or estimated based on the best available data and in accordance with the methodology defined by SCG.

- GRI 305-3 Other indirect (Scope 3) GHG emissions
- World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard (hereafter referred to as the GHG Protocol)
- ISO 14064–1:2018 - Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals (hereafter referred to as ISO 14064-1)

This engagement covers verification of emission from anthropogenic sources of greenhouse gases included within the organization's boundary and is based on ISO 14064-3:2019

- The organizational boundary was established following the operational control approach
- Title or description of activities: Cement-Building Materials Business, SCGC and SCGP
- Location/boundary of the activities: Thailand and abroad
- GHG sources, sinks and/or reservoirs included: Other indirect (Scope 3) GHG emissions - Purchased goods & services, Fuel and energy-related activities, Upstream transporatation & distribution, Waste generated in operations, Business travel, Employee commuting, Upstream leased assets, Downstream transportation & distribution, Processing of sold products, Used of sold products, End-of-life treatment of sold products, Downstream leased assets, Franchises and Investment
- Types of GHGs included: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3
- GHG information for the following period was verified: 01 January 2022 to 31 December 2022
- Intended user of the verification statement: internal, investors, general public

Table 1. Summary of Scope 3 GHG Emissions Report 2022

The emission is described as below: Unit: tonnes of CO_2e

Scope of other indirect (Scope 3) GHG emissions	GHG emissions
1. Purchased goods & services	4,672,130
2. Fuel and energy-related activiities	1,461,512
3. Upstream transportation & distribution	1,542,759
4. Waste generated in operations	2,642
5. Business travel	13,225
6. Employee commuting	6,888
7. Upstream leased assets	0
8. Downstream transportation & distribution	422,057
9. Processing of sold products	34,002
10. Used of sold products	1,205,819
11. End-of-life treatment of sold products	51,556
12. Downstream leased assets	0
13. Franchises	7,735
14. Investment	594,068
Total emissions	**10,014,394**

Note: This statement is issued, on behalf of Client, by SGS (Thailand) Ltd under its General Conditions for Greenhouse Gas Verification Services available at https://www.sgs.com/en/terms-and-conditions. The findings recorded here on are based upon an verification performed by SGS. A full copy of this statement, the findings and the supporting GHG Assertion may be consulted at SCG. This statement does noy relieve client from compliance with any bylaws, federal, national or regional acts and regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its client.

MATERIALITY

The materiality required of the verification was considered by SGS to be below 5%, based on the needs of the intended user of the GHG Assertion. Materiality assessment did not take into consideration uncertainty inherent in the methodologies applied to determine GHG emissions data including the use of modelling for scope 3 emissions and estimates based on proxies where actual data were not available for Scope 1 and 2 data.

ASSURANCE METHODOLOGY

Our objective of this verification exercise are, by review of objective evidence, to independently review:

- Whether the GHG emissions are as declared by the organization's GHG assertion
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

The assurance engagement was conducted as a sampling exercise, focusing on the following activities:

- Review of the processes to measure, collect, consolidate, report and control GHG emissions used at the SCG businesses which included assessment of GHG information system, monitoring and reporting plan/protocol. For the specific scope of this engagement, SGS has not performed verification of GHG emissions data at the installation level.
- Onsite visits to SCG's head office in Thailand to interview relevant corporate staff and to understand and evaluate the data management systems and processes (including data collection and internal review processes) used for collecting and reporting the GHG emissions data, and to review the accuracy of the data consolidation.
- Verified the other indirect GHG emissions data included in the 2022 GHG inventories, using data and information available at the SCG corporate and individual business level.

ASSURANCE/VERIFICATION OPINION

The GHG assertion for scope 3 provided by SCG, for the period 01/01/2022 – 31/12/2022 disclosing gross emissions of 10,014,394 metric tonnes of CO_2 equivalent are verified by SGS to a limited level of assurance, consistent with the agreed verification scope, objectives and criteria.

SGS' approach is risk-based, drawing on an understanding of the risks associated with modeling GHG emission information and the controls in place to mitigate these risks. Our examination included assessment, on a sample basis, of evidence relevant to the voluntary reporting of emission information.

We planned and performed our work to obtain the information, explanations and evidence that we considered necessary to provide a limited level of assurance that the CO_2 equivalent emissions for the period 01/01/2022 – 31/12/2022 are fairly stated.

We conducted our verification with regard to the GHG assertion of SCG which included assessment of GHG information system, monitoring and reporting plan/protocol. This assessment included the collection of evidence supporting the reported data, and checking whether the provisions of the protocol reference, were consistently and appropriately applied.

SGS concludes that based on the work undertaken, no evidence has been identified that would result in the conclusion that the presented SCG CO_2 equivalent assertion is not materially correct and is not a fair representation of the CO_2 equivalent data and information. No evidence was identified to suggest that the inventory is not prepared in accordance with the verification criteria.

This statement shall be interpreted with the GHG assertion of SCG as a whole

Signed:
For and on behalf of SGS (Thailand) Limited

Montree Tangtermsirikul
General Manager
100 Nanglinchee Road Chongnonsee Yannawa, Bangkok 10120 Thailand
22 May 2023

WWW.SGS.COM

SCG

PASSION FOR BETTER

The Siam Cement Public Company Limited (Corporate Headquarter)
1 Siam Cement Road, Bangsue, Bangkok 10800 Thailand
Tel: 66-2586-3333, 66-2586-4444 Fax: 66-2586-2974
www.scg.com