

The Siam Cement Public Company Limited
Sustainability Report 2022

A family of five, including two grandparents, two parents, and a young child, are walking together on a lush green grassy field. In the background, there is a futuristic cityscape with tall, modern buildings and several wind turbines, suggesting a sustainable and advanced urban environment. The sky is blue with soft clouds, and a tree branch hangs down from the top right corner.

RISE
TO THE CHALLENGES
THROUGH ESG INTEGRATION

SCG is dedicated to becoming a leading business in ASEAN
by driving its developing of innovative products, services and solutions
that meet consumers' diverse needs.

The Company is committed to grow sustainability by integrating ESG
to contribute to a growth of every society and community where we operate.

Through the passion of everyone in the organization,
the Company has continued to deliver “betterment”
to customers under our promise “Passion for Better.”





CONTENTS

Message from President & CEO and SCG Sustainable Development Committee	04
SCG At a Glance	06
Achievements of ESG Towards Sustainable Business	08

OUR BUSINESS

Cement and Building Materials Business	12
SCGC (Chemicals Business)	14
SCGP (Packaging Business)	16
SCG GREEN CHOICE	18
SCG's Commitment to Sustainable Development Goals	20
Sustainability Performance in 2022	22

OUR STRATEGY

Strategy and Sustainable Value Creation	26
Risk Management	28
Materiality	30
CEO Forward Looking	32
Governance Structure for Sustainability	34
Roles of Sustainability-Related Committees in 2022	36
Sustainable Development Structure	37
Meetings of Sustainability-Related Committees in 2022	38
Voices of Female Executives and Young Executives	39
Stakeholder Engagement	40
2022 Opinion Panel	44
Partnership Synergy Towards Sustainability	46

ESG FOCUS

ESG 4 Plus	50
Energy Transition Towards Net Zero Target with Clean Energy	52
Green Construction Technology for Higher Construction Standards	56
Reducing Inequality: Creating educational opportunity, Improving Job Security, and Enhancing Well-being	60
Enhancing the Power of Collaboration Tackling Crises with ESG	64
Always Commit to Trust and Transparency Leveraged by the Integrated GRC	68

OUR ACTION

Climate Resilience	74
Circular Economy	78
Health and Safety	82
Sustainable Products and Services	86
Customer Experience Creation	88
Supplier Management Towards Sustainable Value	90
Water Management	92
Air Quality Management	94
Biodiversity and Ecosystem	96
Human Rights	98
Employee Caring and Development	100
Community and Social Involvement	102

PERFORMANCE

About This Report	106
Sustainability Performance Data	110
Operating Results of Cement Business in Accordance with Global Cement and Concrete Association (GCCA)	126
Mitigation Actions on Salient Human Rights Issues 2022 of SCG	128
Supplier Governance and Enhance Capacity Towards Sustainability	130
GHG Scope 3	132
Subsidiaries Included in Sustainability Report 2022	133
Assurance Statement	142
GRI Content Index	144
Task Force on Climate-related Financial Disclosures (TCFD)	150
Sustainability Accounting Standards Board Response (SASB)	151

Message from President & CEO

and SCG Sustainable Development Committee

In 2022, the severity of the COVID-19 situation in Thailand and the ASEAN region gradually improved. However, it was also a year of crisis upon crisis. The geopolitical tension caused by the Russia-Ukraine conflict has disrupted the economy and security, causing energy prices to skyrocket and fluctuate. Meanwhile, China had been continuing to face an economic slowdown due to its "Zero COVID" policy. Other crisis that strikes Thailand and countries worldwide were inflation and the petrochemical cycle hitting its lowest downturn in 20 years.

Furthermore, the world has been dealing with the long-term effects of global warming and climate change, which have resulted in more catastrophic natural disasters such as storms, wildfires, floods, and droughts, as well as the degradation and decline of limited natural resources, imbalanced ecosystems, and a loss of biodiversity which leads to increased food security risks and disease outbreaks. As a result, global priority has been given to a goal of Net Zero greenhouse gas emissions and a transition to a low-carbon economy with policy measures such as the determination of environmental taxation and the establishment of standards for the Carbon Border Adjustment Mechanism (CBAM).

The crises that occurred have sent economic, social and environmental shockwaves and widened social inequalities, particularly among those in vulnerable groups, who have more potential and severe risks of facing human rights issues if there is no effective management taken.

Business Resilience in Times of Business Challenges

SCG has closely monitored and quickly adapted to minimize the impacts on the overall business. The mitigation was undertaken through risk management on energy costs throughout the production chains, with a focus on controls over financial stability and careful strategic consideration on investment. This resulted in a strong cash balance of 95 billion baht.

SCG is well aware that challenging crises open the door for business opportunities. Hence, the Company accelerated all efforts to increase its competitiveness and market leadership in the ASEAN region in all business lines. As a result, more eco-friendly innovations, products, services, and solutions, such as clean energy, environmental friendly polymer, energy-saving solutions, and packaging that helps reduce the use of resources, have been developed as part of efforts to match a global trend of a transition to a low-carbon society and the diversity of consumers who adapt to new lifestyles after the COVID-19 pandemic.

SCG always adheres to the sustainable development and prioritizes the Environmental, Social and Governance (ESG) throughout the value chain. Not only the Company has leveraged digital transformation to increase operational effectiveness and reduce production costs, but it also prepares for a robust transition to alternative energy to build more stability and maximize resource consumption in accordance with the principle of circular economy.

Transform Business for a Sustainable World with ESG 4 Plus

SCG sets a goal to achieve Net Zero Greenhouse Gas Emissions by 2050 and has accelerated its business transition to a low-carbon economy to be a part of a global society dealing with the crisis upon crisis situation. The Company continues to operate its business under the values of fairness, transparency and accountability by embedding Four Core Values of SCG in employees handed down from generation to generation. The Four Core Values are "Adherence to Fairness, Dedication to Excellence, Belief in the Value of the Individual, and Concern for Social Responsibility." These values correspond to the sustainable development framework of ESG which is key to driving the business to long-term growth. SCG has clearly determined its business operations in accordance with the ESG and developed the ESG 4 Plus Net Zero – Go Green – Reduce Inequality – Enhance Collaboration Plus Trust through Transparency, with a goal of enhancing collaboration between all stakeholders to cope with the crisis with tangible results and establish the strength of communities and society.

Net Zero

SCG sets its target to achieve Net Zero Greenhouse Gas Emissions by 2050 and 20% Net GHG Reduction by 2030 from base year 2020. In 2022, SCG achieved a reduction of 4.13 million ton CO₂eq in greenhouse gas emissions or 12.5% from base year 2020 by increasing the proportion of low-carbon energy use such as biomass from agricultural wastes, refuse derived fuel (RDF) for cement productions, and solar energy. The Company also made research and investment in deep technologies such as, AI Supervisory 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.

As a member of Thai Cement Manufacturers Association (TCMA), SCG joined the Association in announcing "Mission 2023" as part of the efforts to advance towards carbon neutrality on industrial process and product use including clinker replacement measure by driving for manufacturing of hydraulic cement to achieve GHG emissions reduction of 1,000,000 ton CO₂eq by 2023.

Go Green

SCG aims to increase the proportion of SCG Green Choice products, services and solutions to 67% by 2030, and turn all SCGP packaging products to be recyclable, reusable and compostable by 2050.

The Company is committed to developing wider range of eco-friendly innovation. For example, the SCG Cleanergy company is established to provide power production solutions using solar and wind energy sources in the country and overseas. Another establishment is CPAC Green Solution, a construction solution with reduction of energy use as well as waste reduction and recycling. SCG GREEN POLYMER™ is another eco-friendly solution for chemical products and packaging products that recyclable, reusable and compostable that help reduce use of energy in accordance with the principle of circular economy.

The Company has also launched a packaging solution 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. In 2022, the revenue from sales of SCG Green Choice products increased to 51%, higher than the annual target. All SCG businesses are ready to move forward fully to strengthen their businesses towards low carbon society.

Reduce Inequality

The company aims to help 50,000 people by 2030 to reduce social inequalities in society. This goal will be met by providing career development for in-demand jobs in communities and SMEs. For example, a career training for a truck-driver job is provided by Skills Development School, and a home renovation training is provided by Q-Chang. Career development for jobs, such as nursing assistants, dental assistants, and elderly caregivers, are offered through a scholarship from the Learn to Earn project established by SCG Foundation. In addition, product procession training and online and offline product sale training are offered through the Power of Community projects.

Loan support is also offered to sub-dealers and major contractors through the Siam Saison platform, along with the NocNoc.com and Prompt Plus platforms provided during the COVID-19 crisis to help SMEs have channels to sell their products.

The "Conserving Environments from the Mountain through the Sea" project is continuously organized to help communities improve water management so that they have sufficient water to consume all year by constructing check dams in areas of communities in the network. In 2022, there was a total accumulation of 115,000 check dams. SCG has also continuously organized a project to restore water resources in water scarcity areas at Kho Yai Da in Rayong for 10 years. The project led to sustainable water management, providing sufficient water resources for communities and helping them have more income from agricultural products. It also promotes the development of enterprises of Rayong communities through skill and innovation training that helps improve their products and distribution channels. Through this project, the concept of the Sufficiency Economy is promoted to help communities become self-sustaining communities with sustainable development.

Enhance Collaboration

SCG is committed to drive ESG through several collaborations at national, ASEAN, and international levels to build sustainable value chain and society. For its part, the Company in cooperation with PPP Plastic worked together to manage plastic waste through the recycling process. Another collaboration was made with Thailand Post and Government Pharmaceutical Organization initiated the "reBOX" campaign to recycle unused paper boxes. SCG also joined with Unilever and developed high-quality recycled plastic from household plastic waste to be used in recycled plastic bottle production. A collaboration with Quality Construction Products Public Company Limited (Q-CON) was also made to develop sound barriers from the recycling of lightweight concrete waste from One Bangkok.



Roongrote Rangsiyopash

President & CEO, SCG
Chairman of SCG Sustainable
Development Committee



SCG, made a partnership with Supalai and SC Asset to use SCG Green Choice innovative building materials in over 100 housing and condominium projects.

In addition, SCG continues collaborating with communities under the "The Zero Waste Community" project in Ratchaburi and Rayong. The campaign has extended to another project for students at school under the "Upcycling Milk Pouches". More than 1,700 schools participated in and collected over 1 million milk pouches, weighing 4.2 tons, for recycling.

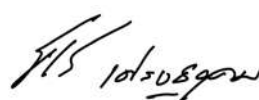
An important activity to raise awareness and encourage all sectors to drive ESG was the ESG Symposium 2022 events in Thailand, Vietnam and Indonesia. For the Symposium held in Thailand, 400 guests from over 315 alliances from the government, private, and civil society sectors joined together at SCG Head Office, Bangsue, while there were 320,000 guests joined the event online. This has established collaboration and brainstorming sessions with all sectors for further leverage and practical implementation as part of the efforts to drive Thailand to achieve Net Zero greenhouse gas emission by 2065.

Plus Trust through Transparency

SCG continues to operate its business under good corporate governance. All activities are organized under the fairness, transparency and accountability notion through the adoption of the Integrated GRC (Governance, Risk Management and Compliance) approach. The Company conducts data disclosure with transparency in compliance with the ESG international reporting standards to establish stakeholder accountability towards SCG business operation. Digital platforms for digital data collection have been developed and utilized to improve ESG data integrity and transparency in all companies. The ESG data and information have been annually verified by third party auditor to ensure accuracy prior to disclose to stakeholders.

Aside for that, SCG places emphasis on embedding SCG Code of Conduct and Four Core Values to all generations to create corporate culture. Ethics e-Testing and e-Policy e-testing were used as preventive systems and establishment of knowledge and understandings of work ethics among employees annually. This is to ensure that employees are able to put notions of morality, Four Core Values, work ethics, and anti-corruption policies into practices, and make appropriate integrated implementation for tangible results.

In 2023, there is a good sign for an economic recovery in Thailand especially the tourism and consumption sectors have bounced back while ASEAN markets have improved after China reopening. As a result, energy prices tend to decrease, and there is a sign of an inflation slowdown. SCG believes that the Company will be able to thrive through short-term and long-term crises in the future with employees, who have learned, developed, adjusted, and accumulated experiences from challenges in the past and present. SCG employees are well prepared to face new challenges and gain advantages from these crises. Under the ESG 4 Plus, SCG continues to progress for the betterment and to play an important role in assisting Thailand and the ASEAN region in their transition to a low-carbon society in a more sustainable way and deliver a better planet for the next generation.



Thammasak Sethaudom

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

SCG At a Glance

SCG was founded in 1913 and started the business of manufacturing cement, the essential construction material for construction projects in Thailand. The company has continually grown with a strong commitment, development and adjustment in accordance with sustainable development principles, under good corporate governance for more than 110 years. This is why SCG has earned widespread recognition as a role model for businesses in the national, ASEAN, and international level. Currently, SCG comprises three core businesses, namely, Cement and Building Materials Business, SCGC (Chemicals Business), and SCGP (Packaging Business).

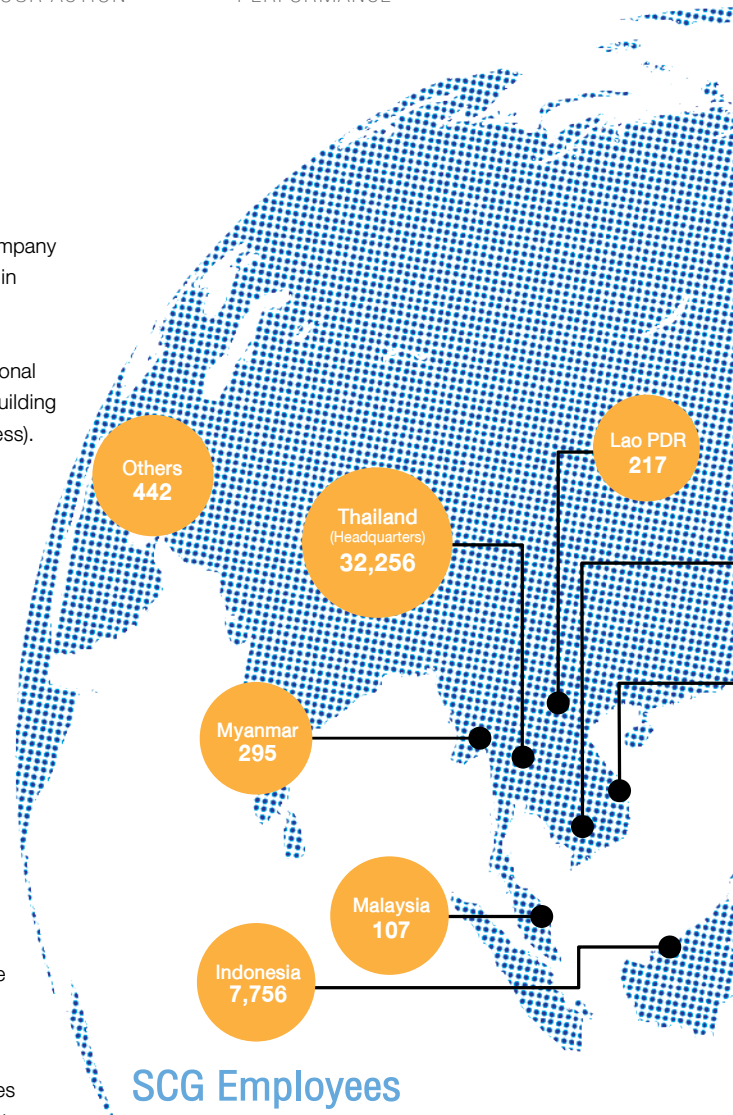
Vision and Mission

SCG is dedicated to becoming a leading business conglomerate in ASEAN by driving its developing of innovative products, services and solutions that meet consumers' diverse needs. The Company is committed to grow sustainable by integrating ESG to contribute to a growth of every society and community where we operate. Through the passion of everyone in the organization, the Company has continued to deliver "betterment" to customers under our promise "Passion for Better."

Impact of the Global Crisis on Business

In 2022, the world faced the multiple crises, especially huge volatility in energy prices due to the Russia-Ukraine conflict and China's low economic growth due to its Zero-COVID policy during the pandemic. This has affected SCG's 3 core businesses: Cement and Building Materials Business, SCGC (Chemicals Business), and SCGP (Packaging Business). SCGC (Chemicals Business) was the most affected due to increasing in oil prices and it uses naphtha as main raw material, an excess of new production capacity over the shrinking demand from China, and the downturn of the petrochemical cycle to its lowest point in 20 years.

SCG believes that the effects of these crises will be less severe than the first wave of the COVID-19 pandemic because nothing was predictable at the time. SCG went through several challenges and learned how to prepare for a crisis. Overall, SCG still maintains its financial stability as the Company prioritizes liquidity management and focuses on investing strategically in businesses with significant potential and sustainable growth.



SCG Employees

• Thailand (Headquarters)	32,256 employees	Total Employees 57,814
• Vietnam	14,453 employees	
• Indonesia	7,756 employees	
• Philippines	1,573 employees	
• Cambodia	715 employees	
• Myanmar	295 employees	
• Lao PDR	217 employees	
• Malaysia	107 employees	
• Others	442 employees	

Crisis Management Plans



1. Short-term Plan

- The Business has developed risk management strategies for energy costs and production cycles and also taken a close look at financial costs as well as debt, interest and cash flow management.
- The Business has adjusted its organization to become more resilient and to adjust more quickly in terms of its manufacturing and prices that change in accordance with the market conditions. SCGC (Chemicals Business) specifically needs business resilience in adjusting prices in accordance with the market mechanism without shortage of supplies by reducing business impacts throughout the supply chain.



2. Long-term Plan

- The Company is determined to achieve its goal of making business changes in order to prepare for global changes including Climate Change and Digital Transformation by integrating ESG throughout the value chain and striving toward the transition to a low-carbon society.
- It is critical to further business expansion in accordance with the goals while maintaining business competitiveness. The development of digital transformation is needed. The company plans to leverage technologies and innovation to increase manufacturing effectiveness and reduce costs. Preparation for alternative energy resources, stability and sustainability of resource consumption and the development of healthcare innovations are also needed to be planned.

Value Creation and Contribution to Society

Cement and Building Materials Business

The business continues to elevate the standards of one-stop services of construction and housing solutions along with corporate social and environmental responsibilities. Product innovations, services, solutions, and distribution channels is accelerated to enhance business competence that meets construction and housing needs of consumers in every group amid changing market situations and consumer behaviors.

SCGC (Chemicals Business)

The Business continues to develop "Chemical Innovations" to drive the region's economy and industry while improving people's quality of life under Sustainable Development Goals (SDGs) and ESG practices, striving toward Chemicals Business for Sustainability.

SCGP (Packaging Business)

SCGP is a leading regional integrated packaging solutions provider, offering a wide range of product and service innovations. The Business places great emphasis on operating the business sustainably ESG (Environmental, Social and Governance) and the principle of the Circular Economy principle in maximizing the efficient use of resources, raw materials and products and preserving the value of these resources through reuse, reduction of use and recycling. This would be a solution for limited natural resources and waste problems and also enhance the competitiveness of the Business as well as sustainability development.

Business Overview

	Cement and Building Materials Business		SCGC (Chemicals Business)		SCGP (Packaging Business)		
Number of employees	26,631		6,516		22,821		
Revenue from sales	204,594 million baht		236,587 million baht		146,068 million baht		
Total assets	228,277 million baht		387,154 million baht		197,280 million baht		
Manufacturing plants	Cement	Ready-mix cement	Olefins	Polyolefins	Packaging Paper	Pulp and Paper	
	10 plants	762 plants	2 plants	9 plants	8 plants	6 plants	
	Ceramic tile	Roof tile	PVC and related	PCR	Fiber Packaging	Consumer and Performance Packaging	Packaging Material Recycling
	19 plants	13 plants	21 plants	2 plants	29 plants	14 plants	1 plant
Services and others	Distributing networks	CPAC Solution Center	R&D center		• SCGP Inspired Solutions Studio		
	509 outlets nationwide	23 centers	4 countries (Italy, United Kingdom, Norway, and Thailand)		• Online e-commerce platforms such as https://festforfood.com https://www.doozyonline.com/		
	• Housing-related online platforms (SCG Home, Q-CHANG, Design Connex)		• i2P Center-Innovation Center Ideas to Products		Remarks: 1,846 other employees		

Achievements of ESG Towards Sustainable Business

International
Level



Member of
**Dow Jones
Sustainability Indices**
Powered by the S&P Global CSA



As of 7 December 2022, SCG achieved the highest score out of 119 companies assessed in the Construction Materials Industry in the S&P Global Corporate Sustainability Assessment. It is also the first organization in ASEAN to have been included as member since 2004.

SCG has been rated at Level A in water security, Level A- in forest management, and Level B in climate change in the chemicals sector by the Carbon Disclosure Project (CDP).

MSCI
ESG RATINGS



SCG received the AA rating on the MSCI ESG Ratings in the Construction Materials Industry for the sixth consecutive year by Morgan Stanley Capital International (MSCI), the world's leading stock index provider.



FTSE4Good

SCG has been recognized as member of the FTSE4Good Index Series based on the assessment of running business by taking its responsibilities on a basis of Environmental, Social and Governance (ESG) by FTSE Russell.



For exemplary practice embracing the Women's Empowerment Principles (WEPs) in Asia-Pacific

SCG has been received the UN Women 2022 Thailand Women's Empowerment Principles (WEPs) Awards by the UN Women. The awards recognize companies who are taking action for gender equality aligned to the Women's Empowerment Principles, corporate governance, social responsibility and reducing inequality.



SCG won an ASEAN Asset Class PLCs Award for the second consecutive year in the 2021 ASEAN CG Scorecard, an initiative of the ASEAN Capital Markets Forum (ACMF) supported by the Asian Development Bank (ADB) recognizing ASEAN listed companies with commendable corporate governance practices.



SCG has been honored on the list of Thailand Sustainability Investment from its management approach under pressure during this crisis, climate resilience as well as creating positive impacts on society and the environment.



SCG won a Sustainability Excellence Award for the seventh consecutive year. SCG received awards in two categories: Sustainability Award of Honor for the fifth consecutive year and Outstanding Investor Relations Awards at the SET Awards 2022, hosted by the Stock Exchange of Thailand, in recognition of its exemplary sustainability practices.



SCG received HRH Princess Maha Chakri Sirindhorn's Trophies for Leadership Excellence, and Human Resource Management Excellence for the 20th consecutive year. It won Thailand Digital Excellence Awards, Company of the Future category, Outstanding Awards for Sustainable Development, Financial Management, Innovation, Product and Service, and SMEs Excellence Awards in cooperation with the CNI Engineering Supply Co., Ltd. from the Thailand Management Association (TMA) and Sasin Graduate Institute of Business Administration of Chulalongkorn University.



SCG has been received Outstanding Award, the highest level in the Low Carbon and Sustainable Business (LCSB) from the Thailand Greenhouse Gas Management Organization (Public Organization) – a testament to SCG's commitment to achieving its target, Net Zero by 2050.



SCG was given an Excellence Awards, Corporation Category of Human Rights Awards for a third consecutive year by the Rights and Liberties Protection Department under the Ministry of Justice in recognition of its respect for the human rights of all in its business operations, its role in promoting human rights through equitable, non-discriminatory treatment for all, and its efforts to extend its human rights practices across its value chain.



OUR BUSINESS

Cement and Building Materials Business

SCGC (Chemicals Business)

SCGP (Packaging Business)

SCG GREEN CHOICE

SCG's Commitment to Sustainable
Development Goals

Sustainability Performance in 2022

Cement and Building Materials Business



Developing Innovative Construction Solutions for Sustainability

Greenhouse Gas Emissions **22.14**
Million Ton CO₂eq

Energy Consumption **113.55**
Petajoules

Alternative Fuel Consumption **23.10%**

Revenue from Sales of SCG Green Choice Products, Services and Solutions **42.0%**

Lost Time Injury Frequency Rate for Employees and Contractors **0.151**
cases/1,000,000 hours worked



Challenges and Goals

Although the COVID-19 situation has improved, raw material costs continue to rise due to the Russia-Ukraine conflict. As a result, the prices of products in building material line keep climbing while the demand and purchasing power of the households has not returned to normal like before the epidemic. In addition, the world also faces a situation of long-term crises like global warming. Cement and Building Material Business needed to adapt and respond quickly to changes. As a result, products, services, and distribution channels were all adjusted to increase competitiveness. The focus was on developing high-value-added products, services, and solutions using technologies and innovations to make a difference and meet consumers' needs. Cost reduction was managed by using renewable or alternative energy sources, adjusting processes of operations, production, and developing products that help reduce greenhouse gas emissions. In 2022, Cement and Building Material business faced several challenges and opportunities. The situation also led to the business adjustment to make its operations more sustainable under the ESG 4 Plus and maintain its position as a leading company in the ASEAN market with international standards.

Becoming a Sustainable Business with ESG 4 Plus



Net Zero



- Increased proportion of the use of renewable energy sources or alternative fuels to reduce imports of high-cost fuels such as renewable fuels like biomass and RDF or energy produced from waste. Renewable energy such as solar energy as well as waste heat generators. There is a plan to get new technologies in renewable energy to reduce production cost and continuously promote an eco-friendly operation.
- Focused on developing green products, such as hybrid cement for structural work, following Thailand's Net Zero Roadmap, which is one of the business priorities. The business is the first cement manufacturer in Thailand to receive "Green Label" for its products that help reduce greenhouse gas emissions, and also "Carbon Reduction Label" for its achievement to reduce of greenhouse gas emissions through the development of low-carbon products, the use of renewable energy in plants, and Eco concrete - low-carbon concrete with the use of fly ash in place of cement to help reduce CO₂ emissions, as well as Eco Terra tiles obtained from 80% cement production waste.
- Became a member of Global Cement and Concrete Association (GCCA) and implemented several guidelines from GCCA, such as reducing CO₂ emissions from clinker production by increasing the proportion of the use of alternative and renewable energy in production process.
- Took part in announcing "Mission 2023", as a member of Thai Cement Manufacturers Association (TCMA), as part of the efforts to advance towards carbon neutrality on industrial process and product use including clinker replacement measure by driving for manufacturing of hydraulic cement to achieve 1,000,000 Ton CO₂eq mitigation in 2023.



BANGKOK CITY TOWER



Go Green

- Developed certified products by SCG Green Choice to be more eco-friendly, offering more options to consumers. At present, there is wider range of products that are certified by SCG Green Choice label, including Tiger Special Plastering Cement, CPAC Swab Cabinet, and CPAC Precast Concrete System Solution.
- Strengthened leadership in smart building technology with more investment in enVerid, a leading provider of indoor air quality solutions. SCG Smart Building Solution worked as a system integrator and solution provider for commercial buildings, optimizing buildings with modern energy-saving technologies by focusing on the well-being of indoor occupants. The collaboration also focused on improving sustainable indoor air quality solutions with technologies. One of them is SCG Bi-ion, an air purifier that is not harmful to residents and pets and can filter out up to 99% of airborne viruses, bacteria, and PM 2.5.



Reduce Inequality

- The 2022 "Conserving Environments from the Mountain through the Sea" project to help communities improve their water management and promote sustainable community strength so that they have access to a sufficient water supply throughout the whole year. Through the project, 5,117 check dams have been constructed in Lampang and Nakhon Si Thammarat provinces in 2022.
- Signed a memorandum of understanding (MOU) with educational institutions across the country to adopt digital construction in teaching and learning management, allowing students to have more opportunities to gain new knowledge and skills that meet the needs of construction labor market in the future. This would open up the door for internationalization in Thailand's construction industry.



Enhance Collaboration

- Signed a memorandum of understanding (MOU) with Quality Construction Products Public Company Limited (Q-CON) to collaborate on the recycling of lightweight concrete waste from One Bangkok, the integrated development project in the central business district of Bangkok, into Q-CON Sound Barriers to be used for an underpass entrance to One Bangkok. This collaboration was initiated with an ambition to achieve "Zero Waste," through sustainable energy consumption, reduce environmental impacts, and drive Thailand's construction industry forward to become more sustainable in the future.
- Fostered a partnership with Supalai and SC Asset with a collaborative effort to build a sustainable low-carbon society. Over 100 housing and condominium projects used innovative building materials certified by SCG Green Choice label, such as CPAC low-carbon concrete, Q-Con light weight bricks, SCG fascia board, and water-saving sanitary ware and faucets products from COTTO.
- Initiated a marine conservation project with the intention of promoting the restoration of marine natural resources by introducing CPAC 3D Printing Solution to produce artificial reefs as coral grounds beneath the sea in the Samesarn area. The project falls under the Plant Genetic Conservation Project under the Royal Initiation of Her Royal Highness Princess Maha Chakri Sirindhorn.
- Made a collaboration with the Department of National Parks, Wildlife and Plant Conservation of Lamphoon, government sectors, and local communities to plant 400 rais of trees in Mae Ping National Park, Lamphoon, to promote forest restoration and carbon sequestration in response to the Natural Climate Solution (NCS) project.

SCGC (Chemicals Business)



Towards a “Chemicals Business for Sustainability”

Greenhouse Gas Emissions **3.62**
Million Ton CO₂eq

Energy Consumption **63.48**
Petajoules

Revenue from Sales of SCG Green Choice Products, Services and Solutions **56.4%**

Lost Time Injury Frequency Rate for Employees and Contractors **0.055**
cases/1,000,000 hours worked

Challenges and Goals

In 2022, SCGC (Chemicals Business) faced significant challenges when the petrochemical cycle experienced a downturn due to the new capacity, especially from China. Furthermore, the Russia-Ukraine conflict caused price volatility of raw materials. The economic recession also led to inflation while China's Zero-COVID policy also had a great impact. As a result, in response to the situation, SCGC (Chemicals Business) has changed its production management by utilizing digital technologies to increase production efficiency and reduce costs and implementing cost and investment controls to maintain its financial strength. The business strives to become ASEAN's leading integrated chemical business for sustainability, and has officially announced its ESG goal. The business has started its efforts toward the efficient use of resources under the principle of circular economy. The business also puts an effort into mitigating global warming impacts through energy efficiency, the use of renewable energy sources, and the development of low-carbon technologies to achieve the goal of carbon neutrality. SCGC is also committed to being part of helping communities improve people's quality of life, promote careers, and establish a low-carbon society.

Becoming a Sustainable Business with ESG 4 Plus



Net Zero

- The business is gearing toward the target of Carbon Neutrality by 2050 and the goal to reach 20% GHG reduction by 2030 (from the 2021 Base Year) through an adaptation of the “Low Carbon, Low Waste” approach. This concept involves improving machinery and energy efficiency processes, replacing fossil fuel with clean energy, developing and investing in low carbon emission technologies, implementing the circular economy principle throughout the value chain, and using carbon offset activities.
- From 2007 to 2022, the Business successfully reduced greenhouse gas emission to 577,130 tons carbon dioxide equivalent per year. In 2022, the additional installation of solar power for electricity generation of 2,920 megawatts per hour was done, for a total of 11,431 megawatts per hour, or by 0.7% of electricity demand.
- Digital technologies have also been adopted to increase the efficiency of operations throughout the value chain. This includes the utilization of artificial intelligence in cost management of raw material, the use of digital technology in production and sales analysis, and the use of Digital Twin & Advanced Process Control to make predictions, perform analysis, and generate production data. Using these technologies allows for the most effective management, a significant reduction of resource and energy use in production, and a decreasing in greenhouse gas emissions.



Created to Save the Environment

SCG GREEN POLYMER™ – Innovative High Quality Post-Consumer Recycled Resin (PCR)
Reduce greenhouse gas emissions, reduce resource consumption, and maximize circularity
Chemicals Business for Sustainability, SCG Chemicals



Go Green

- The Business has accelerated the development of eco-friendly plastic innovation (SCGC Green Polymer™) under the circular economy principle and targeted to reach its sales to 1,000,000 tons per year by 2030. An example of SCG Green Polymer™ includes HDPE resins. These resins from SMX™ Technology for packaging films give a 20% superior strength and can be mixed with 30% recycled HDPE resins. This can reduce 16% of greenhouse gas emissions.
- SCGC has also expanded the market for high-quality Post-Consumer Recycled resins (PCRs) in Thailand and Europe through collaboration with leading brands for global packaging development and signed a share purchase agreement with Sirplaste, Portugal's leading plastic recycle key player, to expand investment in new technologies and machines and increase the production capacity of recycled plastic resins to 45,000 tons annually by the second quarter of 2023 and in collaboration with Recycling Holding Volendam BV or "Kras" a leading waste management company in the Netherlands, which has the ability to supply high quality waste plastic and used paper to expand operations in the value chain based on circular economy principles
- SCGC continues to provide more solutions for social and environmental issues by improving other solutions besides chemical products. An example of other solutions is pontoons for an integrated floating solar farm under the brand "SCGC Floating Solar Solutions." This solution promotes the use of solar power and reduces the use of plastic resins. Other examples include the innovation of the COVID-19 Mobile Isolation Unit developed to minimize the risk of transmission for staff and patients, a wastewater treatment system called Zyclonic — an innovation in waste treatment and sterilization of water from toilets and households through a combination of biological-electrochemical processes. This innovation upgrades the standard of sanitary systems in Thailand and other countries worldwide.



Reduce Inequality

- SCGC established a project to replenish water sources in dry areas in Khao Yai Da mountain in Rayong. The restoration of the area has been continued for ten years under collaboration between communities, government sectors, and experts in water resources. This effort results in sustainable water resource management and brings back sufficient water resources to communities to increase their agricultural productivity, generate more income and have better living standards. The Business also promotes the growth of community enterprises in Rayong under the circular economy principle by utilizing innovations in product improvement and expanding distribution channels to pave the way for them to become sustainably self-reliant communities.
- SCGC continues to promote strong communities through the 'SCGC Fish Home' project which has been active for 10 years. The project promotes innovative fish homes built from PE100 plastic pipes disposed of after the moulding process. The project aims to help restore an abundant marine ecosystem for marine life — an income source for local fisheries and promote marine biodiversity. The project annually increases the incomes of over 930 local fisheries by 63 million baht while community enterprises gained around 400,000 baht per year from fish home installations.



Enhance Collaboration

- SCGC launched the Plant-Cultivate-Protect campaign in the aim to build a low-carbon society. The project was initiated under a collaboration with government sectors, local units, private sectors, educational institutions, youth, local communities, and general volunteers, working together to plant trees in mangrove and terrestrial forests. There were activities to distribute seeds to employees and others for planting. The distribution and planting of seedlings in various communities. Additionally, the project promoted a local network of forest protection volunteers. More than 230,000 trees were planted as a result of this campaign. This would increase carbon sequestration and decrease greenhouse gas emissions by more than 2,995 Ton CO₂eq.
- SCGC continuously extended the "Zero Waste Communities" project to promote sustainable resource consumption. Sixty-five communities, ten temples, eleven schools, two hospitals, one hotel, and three fishing communities joined the project. The project also built an activity for students under the 'Upcycling Milk Pouches,' with 1,700 schools joining. Through this project, 236 tons of waste were recycled, and greenhouse gas emissions were reduced by 483 ton CO₂eq.

SCGP

(Packaging Business)

To Be a Leading
Multinational Consumer
Packaging Solutions
Provider through Innovative
and Sustainable Offerings.

Greenhouse Gas
Emissions **4.36**
Million Ton CO₂eq

Energy
Consumption **60.40**
Petajoules

Alternative Fuel
Consumption **30.66%**

Revenue from
Sales of SCG
Green Choice
Products, Services
and Solutions **48.4%**

Lost Time Injury
Frequency Rate
for Employees
and Contractors **0.419**
cases/1,000,000
hours worked



Challenges and Goals

In 2022, the COVID-19 situation improved, and the ASEAN economy continued to recover. While the energy price is rising and volatility at the same time, China continued to maintain its strict COVID-19 measures. These situations resulted in slowdown in manufacturing and business dynamics in the region. In the meantime, demand for packaging for everyday use continued to grow, such as in the consumer goods industry, agricultural and food products exports, and frozen and processed foods while demand for non-essential products declined, such as in clothing and footwear industry and electronic products. The decrease in consumer demand was a result of a decrease in the purchasing power of consumers within and outside the ASEAN region during an inflation surge. As a result, the Business has made an adjustment in response to the challenges with business growth strategies through M&P investments and expansions in packaging and related business lines, along with the continuous development of packaging and solutions innovations. In addition, the Business also improved the operational efficiency of Supply Chain Integration and established plans for proactive uncertainty management. The Business continues to leverage ESG 4 Plus to achieve its target of Net Zero greenhouse gas emissions by 2050.

Becoming a Sustainable Business with ESG 4 Plus



Net Zero

- The business set a target to reduce 20% of greenhouse gas emissions by 2030, compared with 2020 base year, in businesses both in Thailand and Abroad, and targeted to Net Zero greenhouse gas emissions by 2050 as part of the efforts to limit global temperature rise by 1.5 degree Celsius following the Paris Agreement.
- Promote Carbon Footprint Product Labels (CFP) certified by Thailand Greenhouse Gas Management Organization (TGO). The criteria include consideration of product acquisition, transportation, raw materials, and production. In 2013, 37 products of SCGP (Packaging Business) certified CFP labels. SCGP continues to develop its products with a target of achieving more Carbon Reduction Labels in the future.
- The business encouraged everyone to plant more trees under the Plant Beats Heat. The project's goal was to plant trees in upstream forestlands located in the center of communities to become beneficial areas for communities and sources of water for cultivation. The project was run throughout the year, with 68,863 trees planted in different areas in the provinces where there are SCGP's plants, including Ratchaburi, Kanchanaburi, Prachinburi, and Khon Kaen. SCGP promises to pass on the knowledge of planting trees to ensure their survival and growth sustainably.





Go Green

- Set a target for reducing water withdrawal from external sources 35% by 2025, compared with 2014 base year, under strict continuous supervision and management following an international standard. An operation for industrial waste reduction was also conducted. In addition, the Business also targets to increase the proportion of used paper from consumers for recycling and the volume of recyclable, reusable and compostable packaging products by 100% in 2025.
- Collaborated with the Ministry of Foreign Affairs to design the Green Meeting concept for the APEC 2022 Thailand hosted by Thailand. Recycled papers were used for the materials used in the event, such as venue decorations ranging from entrances, backdrops, photo corners, podiums, and communication materials. These materials were designed to be eco-friendly and durable to be used in the event for a whole year.
- Included in a list of 2022 Thailand Sustainability Investment (THSI) and named in SET THSI Index for the second consecutive year. The Business also received 2 SET Awards from the Stock Exchange of Thailand. The first award is the Best Innovative Company Awards in the Business Excellence category and the second one is the Best Sustainability Award in the Sustainability Excellence category, for conducting business in accordance with sustainable development principles.



Reduce Inequality

- Held a project to promote basketry handicrafts made from Paper Band, the paper tapes produced from waste materials from paper production. In 2022, SCGP and THINKK Studio collaboratively held a "TRANSFORMATION" Waste to Value workshop to promote an upcycling concept in turning waste materials into value-added products. Community enterprises from different communities around SCGP's plants in Kanchanaburi, Ratchaburi, Prachinburi, and Khon Kaen, and university lecturers and students in the design and materials field participated in the workshop to share ideas and create new innovative handicraft products from waste materials. As a result of the event, communities gained earnings of over 720,000 Baht.



Enhance Collaboration

- Created a project to bring back used papers into a recycling process for producing new products. SCGP Recycle teamed up with its alliances to promote sustainable management. The alliances that joined in the project included the Ministry of Industry, the Joint Standing Committee on Commerce, Industry and Banking (JSCCIB), Uniqlo Thailand, Chewathai, and Thailand Post. The project aimed to promote knowledge and become a center for collecting leftover papers for the right recycling processes so that resources are used sustainably under the Circular Economic Principle.
- Organized the "Zero Waste Community" project in collaboration with Ban Pong district and 17 local administration offices in Ratchaburi to build a model community for effective waste management. The project has been held for three consecutive years. In 2022, 20 communities joined the project. At present, there are 61 model communities in total in the project. The project targets to cover 183 communities in Ban Pong district by 2030 and expects to expand to other provinces where SCGP's plants are located, including Prachinburi, Kanchanaburi and Khon Kaen, with 11 communities in total. With SCGP efforts, the project won the first and second prizes in the Zero Waste Community project held by the Department of Environmental Quality Promotion (DEQP) under the Ministry of Natural Resources and Environment. This result is a great drive to promote sustainable waste management in other communities.
- Held the 7th packing design contest at a university level, "SCGP Packaging Speak Out 2022," under the "RETHINK for BETTER NORMAL" concept. The contest opened up an opportunity for Gen Z to show their creative ideas in packaging and take part in making the world and environment better. In the contest, packaging must be designed under the "EASY to RECYCLE" or "UPCYCLE" concepts. There were 267 workpieces submitted in the contest.
- Held the SCGP Packaging Design Speak Out Vietnam 2022 contest at a higher education level after the completion of the contest in Thailand. The event was held in Vietnam for the 2nd year as part of the efforts to promote the development among youth in ASEAN, enhance their creative skills, and provide them a place to demonstrate their packaging design competence.

SCG GREEN CHOICE



CPAC Low Carbon Concrete (Eco formula) can reduce greenhouse gas (CO₂) emission by at least **17** kg CO₂eq/m³ compared with 100% OPC concrete at the same compressive strength.



Tiger Décor White Cement (TiO₃) for plastering reduce CO₂ emission from production process at least **30** kg CO₂eq per ton-cement.



SCG Stay Cool Insulator, 150 mm. contain recycle content at least **80%** (substitute for sand 100%)



Energy and Climate



emisspro® – R series, an emissivity coating material to improve thermal efficiency of fired heaters can reduce energy consumption and greenhouse gas emission at least **2%**.



SCGC™ PP P639 AT Grade Tiger mark less and high flow PP resin used in exterior compound products that can reduce energy consumption at least **80%** from non-painted process.



Circularity



Honeycomb Packing Paper reduces the use of paper per volume by at least **30%**

Supalai Housing Project using construction material certified for SCG Green Choice

- CPAC ready mix concrete 240 KSC, QCON lightweight concrete and SCG eaves, which contribute to reduce GHG emissions in production process of 564 tonCO₂eq

- SCG Stay Cool insulator substituting 21 ton of natural sand
- SCG CPAC concrete roofing substituting 611 ton of cement
- SCG prefabricated roof frame saves 2,148 ton of steel

SCG Green Choice is the labelling system to certify environment-friendly products, services and solutions that enhance well-being. SCG Green Choice is further divided into three sub-categories: energy & climate, circularity, and enhancing well-being.



SCGC GREEN POLYMER™ is high-density polyethylene pellets from SMX™ technology which reduces plastic use for the same performance. SMX551BU grade for IBC vat uses 11% less plastic. S111F for film moulding uses 20% less plastic. Grade S411B for blowing reduces packaging weight by **4–22%**



Paper Exhibition & Life Style products for marketing activities and daily life use that can be **100%** recycled, leading to zero waste.



Bi-Ionization Air Purifier system is capable to reduce germs, bacteria, and virus in the air by at least **80%**.



Elixir : Polymer used to produce water tank is safe, health friendly and free of toxic heavy metals for user.



Retort-able barrier food packaging can preserve food at room temperature for up to **2** years and prevent seepage of chemicals into food.



Retail ready packaging is a packaging that helps reduce ergonomics risk in the process of arranging products on shelf from high to medium level, with at least **50%** lower risk score on REBA method as compare with normal working process.

- Floor tiles and walls, glazed porcelain ceramic, mosaic of all colours and sizes of COTTO save 7,650,132 litres of water from production processes
- COTTO faucets and sanitary wares save household water consumption by 516,787,053 litres per year, equivalent to THB12 million in water bills per year, and to adequate annual water supply per capita for 28,317 persons.

Example of Collaboration with Customers in 2022

SCG's Commitment to Sustainable Development Goals

UN's Sustainable Development Goals serve as a blueprint that all sectors must strive for in order to achieve peace and ensure the prosperity of humanity and the world, both at present and in the future.

SCG strives to generate economic growth alongside the conservation of natural resources and the environment as it believes that the business sector plays a critical role in driving society as a whole towards achieving the United Nation's Sustainable Development Goals (SDGs).

To prioritize SDGs, SCG analyzes its activities across the value chain, taking into consideration positive and negative impacts of its operations on people and the environment, as well as business drivers, issues of materiality. The SDGs and targets are also assessed in relation to SCG's operational targets and business capabilities so as to accelerate the achievement of such goals and maximize positive economic, social, and environmental impact.

Sustainable Development Goals for a Better World



10.2 10.3

Reduced Inequalities

place importance on leveraging its capabilities to solve inequalities and increase opportunities for education, employment, and access to healthcare for people.



11.5 11.6

Sustainable Cities and Communities

strive to make cities and communities inclusive, safe, resilient, and sustainable.



15.1 15.4

Life on Land

promote sustainable use of terrestrial ecosystems to protect and restore ecological balance and halt biodiversity loss.



16.3 16.5 16.6

Peace, Justice, and Strong Institutions

focus on creating a peaceful and inclusive society, which is a cornerstone for sustainable development.



17.17

Partnerships for the Goals

seek to strengthen collaboration for the implementation of sustainable development.



Targets

Environment

GHG Emissions Reduction by

20%

by 2030 compared with the base year of 2020



Net Zero

GHG emissions by 2050



8 million tons

Use of recycled and reusable materials by 2025*

Water Withdrawal Reduction by

23%

by 2025 compared with BAU at the base year of 2014



SCGP products are recyclable, reusable, or compostable

100%

by 2030

Dust Emissions Reduction by

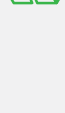
8%

by 2025 compared with BAU at base year of 2020 *



Hazardous and Non-Hazardous Waste to Landfill to

Zero every year*



Tree Plantation

3 million rais

by 2050 to capture GHG and restore ecological balance



* For Thailand operations

Society



Zero

Fatality cases among employees and contractors in workplace



Zero

Transportation fatality case among employees and contractors



3.5 3.6 3.9

Good Health and Well-Being

promote good health and safety in the workplace by continuously implementing risk control measures and cultivating safety habits and a total safety culture. The goal is to ensure healthy lives and well-being for all.



Key Sustainable Development Goals for the Business



7.2 7.3

Affordable and Clean Energy

strive to achieve net zero carbon emission by 2050 by enhancing energy efficiency through the best available technology, reducing reliance on fossil fuels, and increasing the use of alternative energy.



8.3 8.5 8.8

Decent Work and Economic Growth

promote inclusive and sustainable economic growth, placing emphasis on decent, equitable, fair, and productive employment.



9.4 9.5

Industry, Innovation, and Infrastructure

put a premium on applying innovation and technology to elevate operations, enhance long-term competitiveness, and promote inclusive and sustainable industrialization.



12.2 12.4 12.5

Responsible Consumption and Production

apply the principles of circular economy to its business operations to enhance resource efficiency, decrease risks of resource shortages in the future, and minimize environmental impacts.



13.1 13.3

Climate Action

pledge to adapt, take action across various dimensions to reduce greenhouse gas emissions, and joining forces with all sectors to enhance society and communities' adaptability and capabilities to combat climate change and its potential impacts.



Zero

Lost time injury frequency rate among employees and contractors



27%

Female in all management positions by 2025



Reduce social inequalities for

50,000 persons

by 2030



Zero

Human rights violation case

Governance and Economy



Revenue from sales of SCG Green Choice products, services, and solutions

66.7%

by 2030 compared to the total revenue from sales

Suppliers being conducted environment social and governance risk assessments

ESG 100%

of suppliers with procurement spending over million baht



Sales volume of SCG Green Polymers

1,000,000 tons/year

by 2030

Ethics e-Testing learned and passed by employee

100%



Sustainability Performance in 2022

Environmental



GHG Emissions Reduction

(compared with the base year of 2020)

4.13

million tons carbon dioxide

12.05%



Use of Recycled and Renewable Materials*

8.06 million tons



SCGP Products are Recyclable, Reusable, or Compostable

99.8%



Dust Emission Reduction*

11.34%

(compared with BAU at the base year of 2020)



*For Thailand operations

Social



Number of Fatality Work-Related Injury from Workplace, Travelling and Transportation Employee/Contractor

1/4 cases



Lost Time Injury Frequency Rate Employee/Contractor

0.137/0.276

cases/1,000,000 hours worked



Occupational Illness Frequency Rate Employee

0.000

cases/1,000,000 hours worked



Logistics Drivers Trained from "SCG Skills Development School"

17,243 persons

Governance & Economic



"SCG Green Choice" Products and Services

50.9%

of revenue from sales



Circular Economy Products

28.9%

of revenue from sales

High Value Added Products and Services HVA

34.3%

of revenue from sales



Sales volume

137,125 tons





Achieve 2022 Target



Not Achieve 2022 Target

Water Withdrawal Reduction

(compared with BAU at the base year of 2014)

38.04

million cubic meter

24.07%



Hazardous Waste to Landfill*

0 ton



Environmental Expense and Investment

5,292 million baht

0.93%

of revenue from sales

Recycled Water

13.4%

Non-Hazardous Waste to Landfill*

0 ton



Tree Plantation

4,700 rais



Females

in all Management Positions

30.5%



Reduce Social Inequalities

8,746 persons



Number of Check Dam

115,000 Units



Human Rights Violation

1 case



Social Contribution

560 million baht

Promoting Water Management for Community

57,777 households

Carbon Label Certified

213 items

Research and Innovation

Spending

5,704 million baht

1.0%

of revenue from sales

Suppliers Processed through Environmental Social and Governance Risk Assessments

ESG

100%

of suppliers with procurement spend over million baht



Green Procurement Purchased

9,176 million baht



ESG Investment

4,976

million baht

Contributions to Organizations

30.89

million baht



Employees Learned and Passed

Ethics e-Testing

100%



OUR STRATEGY

Strategy and Sustainable Value Creation

Risk Management

Materiality

CEO Forward Looking

Governance Structure for Sustainability

Roles of Sustainability-Related Committees
in 2022

Sustainable Development Structure

Meetings of Sustainability-Related
Committees in 2022

Voices of Female Executives
and Young Executives

Stakeholder Engagement

2022 Opinion Panel

Partnership Synergy Towards
Sustainability

Strategy and Sustainable Value Creation

Financial Capital

- Assets 906,490 Million Baht
- Shareholder's Equity 452,424 Million Baht
- Equity Attributable to Owners of the Parent 374,255 Million Baht



Manufactured Capital

- Cost and Expenses 570,620 Million Baht



Intellectual Capital

- R&D and Innovation Spending 5,704 Million Baht



Human Capital

- Number of Employees 57,814 Persons
- Number of New Employees Hire 2,688 Persons
- Average Hiring Cost per Employee 95,720 Baht/Person
- Average Hours of Training and Development 155 Hours/Person
- Average Amount Spent on Training and Development 13,540 Baht/Person



INPUT



Enhance Collaboration

Drive ESG with collaborations at the national, ASEAN, and international level



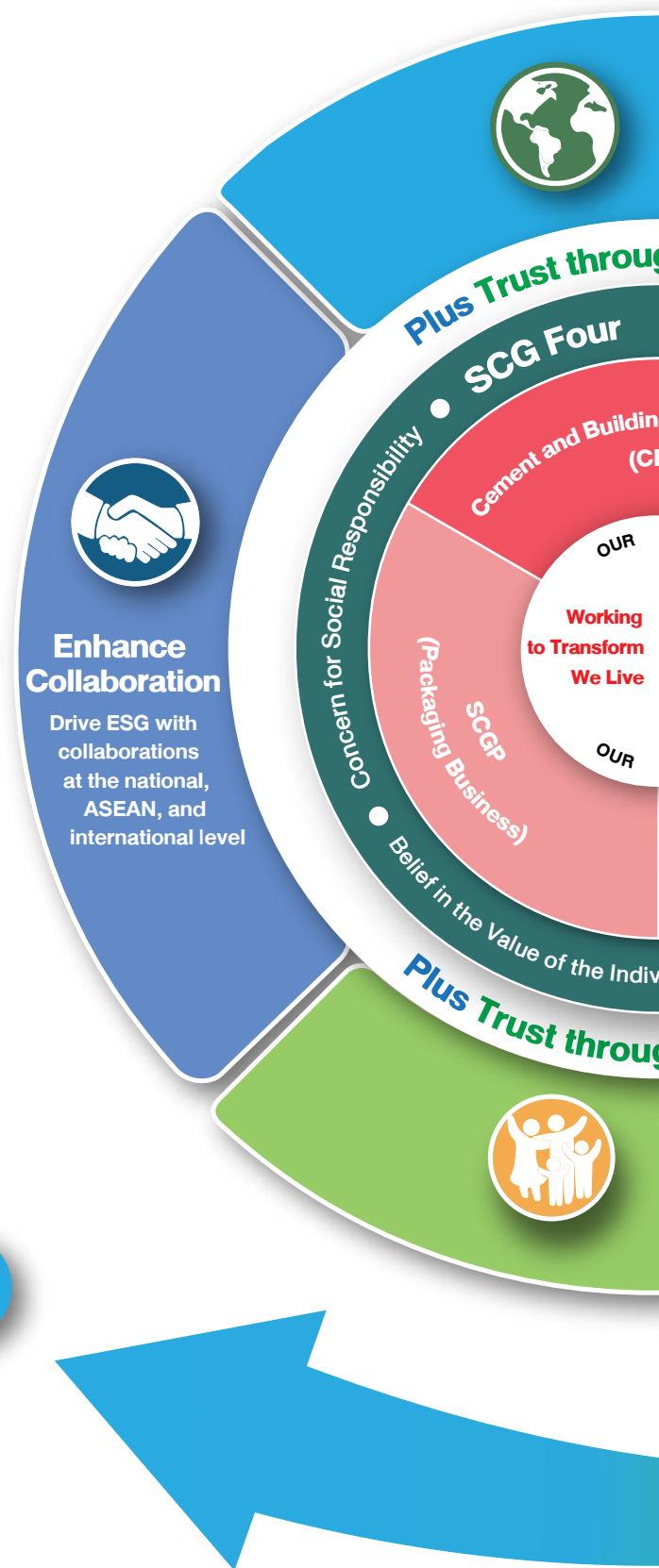
Social and Relationship Capital

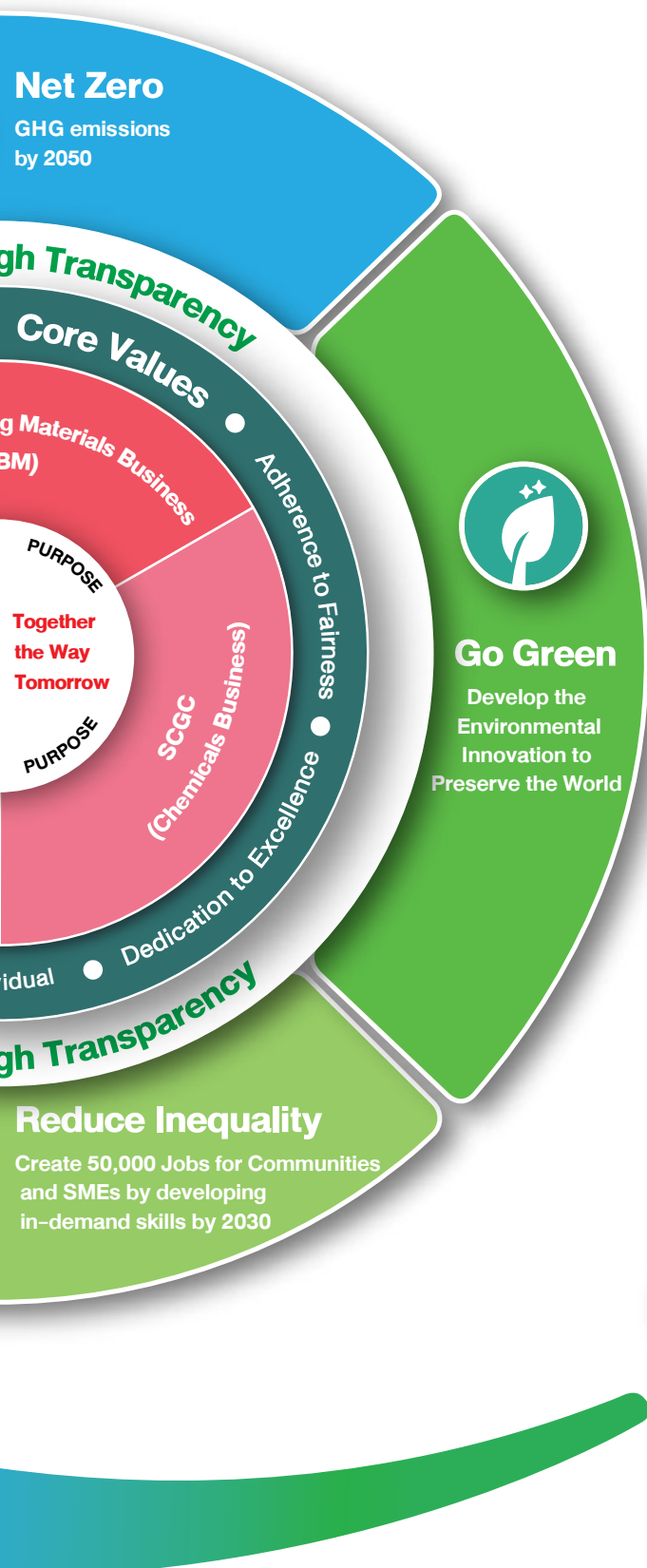
- Contribution for Social and Community Development 560 Million Baht
- Employee Volunteering during Paid Working Hours 54 Million Baht
- In-kind Giving: Products or Services Donations, Projects/Partnerships or Similar 15 Million Baht
- Management Overheads Related to CSR Activity 161 Million Baht



Natural Capital

- Raw Materials 85.89 Million Tons
 - CBM 85%
 - SCGC 9%
 - SCGP 6%
- Total Energy Consumption 237.4 Petajoules
 - CBM 48%
 - SCGC 27%
 - SCGP 25%
- Total Water Withdrawal 120.07 Million Cubic Meters
 - CBM 16%
 - SCGC 21%
 - SCGP 63%





OUTCOME



Financial Capital



- Revenue from Sales 569,609 Million Baht
 - CBM 32%
 - SCGC 42%
 - SCGP 26%
- Profit for the Year 2022
 - CBM 17%
 - SCGC 23%
 - SCGP 20%
 - Others 40%

Manufactured Capital



- Production 80.26 Million Tons
 - CBM 84%
 - SCGC 9%
 - SCGP 7%

Intellectual Capital



- Revenue from Sales of HVA, New Product Development (NPD), and Service Solutions 57.2%
- Revenue from Sales of SCG Green Choice Products and Services 50.9%
- Number of Patents 843

Human Capital



- Total Employee Turnover Ratio 6.2%
- Employee Engagement 69%

Social and Relationship Capital



- Number of Check Dam 115,000 Units
- Reduce Inequality 8,746 Persons
- Promoting Community Water Management 306 Communities

Natural Capital



- GHG Emissions Reduction compared with the base year of 2020 12.05%
- Alternative Fuel 18.96%
- Water Withdrawal Reduction compared with BAU at the base year of 2014 24.07%
- Zero waste to landfill
- Renewable Materials and Recycled Materials 12.48%

Risk Management



Key Trends

Geopolitics

Geopolitical tensions have been affecting and disrupting national economy and security through energy crisis, supply chain disruption, commodities market volatility.

Climate Change

Climate and biodiversity risks resulting from global warming, greater intensity and frequency of natural disasters -- storm, forest fire, flood, drought, rising sea level -- impacting coastal areas, basin, mangrove forests and water sources.

Transition to Low Carbon Economy

Net Zero Emission targets ushered in rigorous rules and regulations including carbon tax, the EU's Carbon Border Adjustment Mechanism (CBAM). These impact business competitiveness if operators fail to adapt.

Management Approach

- Risk management, review of investment, increase financial liquidity, cost and inventory control under the oversight of SCG Risk Management Committee.
- Business Continuity Management (BCM) across the enterprise and in Business Unit, in monitoring, assessing and early warning for those likely to be impacted.
- Prepare and rehearse Business Continuity Plan (BCP), to secure energy sources and alternative raw materials.
- Manage energy cost, increase alternative energy through efficient production technology and waste reduction, and optimization of raw materials use.
- Research to adjust clients' portfolio and bring products and services in line with shifting market trends, alongside seeking new market in Thailand and beyond.

- Apply Taskforce on Climate-related Financial Disclosure (TCFD) framework to manage climate related risks and opportunities.
- Establish direction, strategy, and targets for integrated water management under the oversight of Water Management committee.
- Prepare water scenarios to forecast external water volume in consideration of BCM and BCP.
- Collaborative tracking of water situation and co-plan water resource management with the government, industries, and stakeholders.
- Revive the ecosystem of mangrove forest, coral reef and water catchment areas via the "Conserving Environments from the Mountain through the Sea" project.

- SCG Sustainable Development Committee prioritizes proactive business competitiveness, putting in place Net Zero policy and active performance tracking every quarter.
- Formulate action plans and budget to achieve Net Zero target by 2050, and reduce GHG emissions in Thailand and abroad operations at least 20% by 2030 compared to the base year 2020 according to science-based targets.
- Accelerate clean energy use, including solar and biomass, as well as implementing Internal Carbon Pricing system to assess business risk and opportunity according to TCFD recommendations.
- Set the target of increasing forest cover as carbon sink of 3 million rai by 2050.

In 2022, SCG conducted risk assessment in alignment with the Sustainable Development Framework which covers Environmental, Social and Governance (ESG) aspects.



Natural Resources and Environment Management

Rapid economic growth alongside global warming put further strain on finite natural resources for their rapid depletion. Ecosystems and biodiversity have borne the brunt in the process, aggravating the risk of food security and epidemics.

- Perform risk and impact assessment quarterly and report key findings SCG's Environment Excellence Committee, Sustainable Development Committee and Risk Management Committee.
- Formulate environment strategies, workplan and targets. These include increase use of recycled and renewable materials, waste reduction, zero hazardous and non-hazardous wastes from production to landfill.
- Develop products, services and solutions according to the principles of circularity and Bio-Circular-Green Economy concept under the SCG Green Choice.
- Collaborate with business partners throughout the value chain, including partnership with CECI in the effort to reduce construction waste.

Health and Safety

Changing working circumstance due to changing in environment characteristics, business expansion, and daily lifestyle adapting with changing situation may affect health and safety of employees and contractors.

- Formulate policies, strategies, workplans and targets, tracking performances and analysis using the inputs for improvement.
- Instill the safety culture and consciousness and strengthen compliance with SCG Safety Framework.
- Enforce "Life Saving Rules" among SCG's employees, and business partners, in operations and logistics as well as sanction for those who do not comply.
- Apply GPS, Advanced Driving Assisting System (ADAS and Driving Monitoring System (DMS) to track and monitor drivers' behaviors.
- Develop health and wellbeing innovations in office buildings, for example, SCG Bi-ion which purifies the air and reduces PM 2.5.

Human Rights

Socio-economic changes and highly volatile contexts specifically impact the vulnerable people, raising their vulnerability to human rights violation if this is not well-managed.

- Formation of a Human Rights and Stakeholder Engagement Committee tasked with the preparation and review of policies, strategic goals and indicators related to human rights and stakeholder engagement.
- Promulgation and review of human rights policy, diversity and inclusion policy in line with international norms and driving implementation of these policies.
- Harmonize risk management framework across the enterprise, and conduct Human Rights Due Diligence focusing on preventive aspects.
- Improve Whistleblowing mechanism to better accommodate complaints and data collection concerning human rights violation.

Materiality

2022 Materiality Assessment

Analysis of Stakeholder Expectations

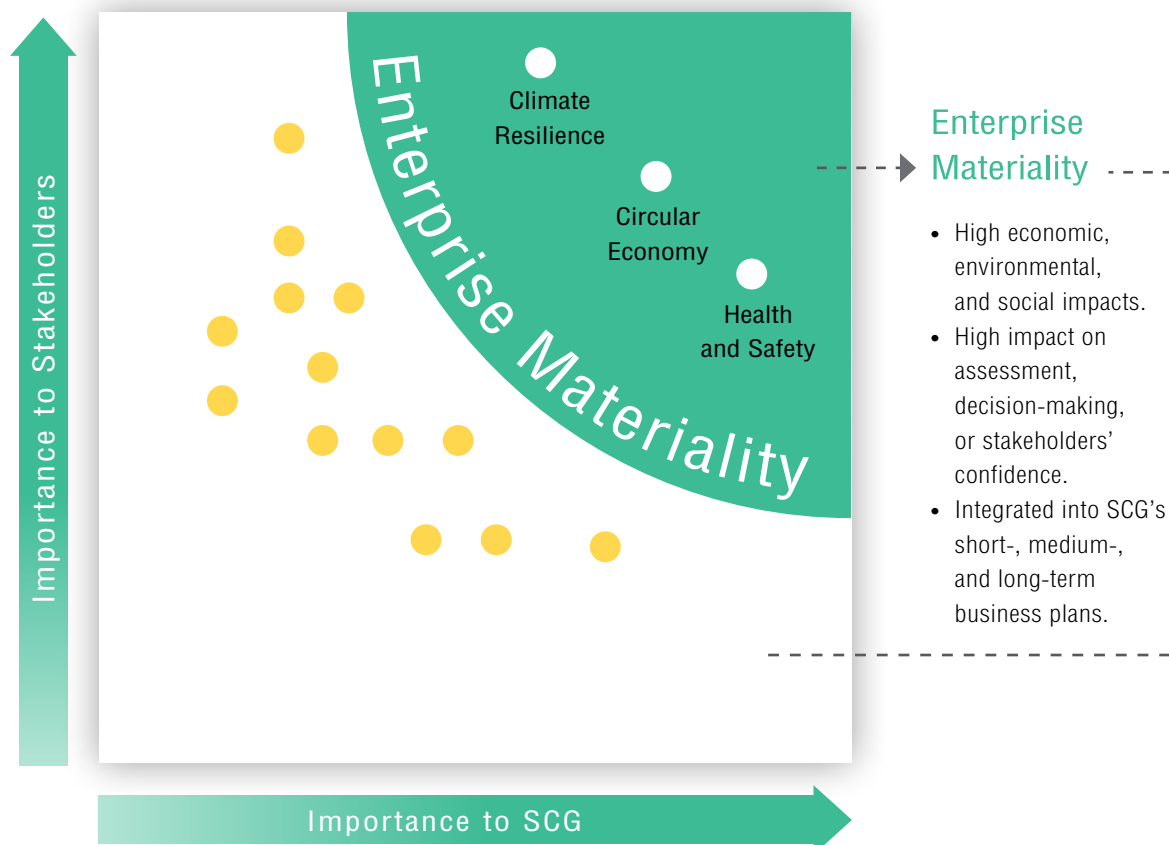
- Key ESG issues related to industry relevant to SCG based on the analysis of leading ESG evaluator, such as S&P Global, Sustainalytics, MSCI, and FTSE4Good
- 2022 Opinion Panel
- Important issues for each group of stakeholders
- Surveys of stakeholder opinions towards SCG's operations, such as pre-event and post-event opinion surveys for ESG Symposium 2022, Supplier Day 2022

Analysis of Business Impacts

- Issues with significant impacts on SCG based on its corporate risk assessment
- Issues that the SCG Sustainable Development Committee highlights and designates as issues that require close monitoring
- Issues that are integrated into short-, medium-, and long-term goals of business plans and the assessment criteria for the remuneration determination of CEO and top executives

Process of Materiality Assessment and Prioritization

Based on the GRI Standards (GRI 3: Material Topics 2021) and Integrated Reporting Framework



Enterprise Materiality



Materiality	Climate Resilience	Circular Economy	Health and Safety
Sustainable Products and Services	•	•	•
Customer Experience Creation	•	•	
Supplier Management Towards Sustainable Value	•		•
Water Management	•	•	
Air Quality Management	•		•
Biodiversity and Ecosystem	•		
Human Rights	•		•
Employee Caring and Development	•		•
Community and Social Involvement	•	•	•

CEO Forward Looking

“ To rise to the challenges,

SCG cannot do it alone. We need the collaborations from across all sectors to bring all units of society through this transition and onto a better path. What is the most important is that no one will ever be left behind.

Roongrote Rangsiyopash
President and CEO, SCG

What were the challenges in 2022?

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 the Russia-Ukraine conflict, but also impacts from climate change and natural disasters that are becoming more severe. This results in a new level of social inequality in various dimensions. It is not a new challenge; we have faced similar difficulties in the past, and these challenges have strengthened the Company's immunity. In other words, for the time being, these challenges become tougher in terms of their severity and broader impacts. This implies that we are also gaining multi-fold increase of business strength.



It is predicted that the global economy in 2023 will still face long-term high inflation, including a recession. How is SCG preparing to deal with this?

SCG prioritizes risk management, coping with rising costs as well as situational resilience, adjustment and business agility. Right-sizing and slim-sizing structures are also applied in an effort to establish effective inventory management that corresponds to current needs. As a first step, an adjustment to an investment plan is essential. There are 3 different project types to take into account. The first type is ongoing and nearly-finished projects. These initiatives shall be carried out and completed. The second type is those that are currently under an operation and will take a longer time to complete. These projects are considered to be put on hold. Finally, there are projects for long-term investment. This project type includes energy transition projects that are linked to the low-carbon strategy, digital solutions for the Net Zero goal, and supply-chain strengthening projects.

How would higher energy costs and a suspended or deficient supply chain affect SCG?

These challenges lead to different impacts on the 3 core businesses of SCG. SCGC (Chemicals Business) is the most affected because of bearing the cost of the rise in energy prices and a direct correlation from its primary raw materials and oil prices. The Cement and Building Materials business is consequently affected in terms of energy costs because of a high increase in coal prices. At the same time, SCGP (Packaging business) is expected to be less affected than the other two as energy is not its primary operating cost while the purchasing behavior of consumers hasn't changed yet, as they believe that the situations do not affect them personally.

Investment on energy transition will probably grow and increase pricing on product. How will SCG balance between business growth competency and competitiveness with the Net Zero goal?

Increasing energy and raw material price trigger the development of new innovations in both process and product transitions that help reduce resource consumption, establish a better future for businesses, and make the world a better place for people. In accordance with the transition to the most environmentally friendly production processes, SCG continuously improved the cement production processes to be able to use biomass energy up to 50% and has applied the digital twin technology use in Petrochemicals operations that is the other good example of a process transition toward energy efficiency in manufacturing process. As a result, the utilization of Digital Twin technology in improving the efficiency of petrochemical production can increase Olefins' capacity by 2-3 tons per hour. In addition, the Industry 4.0 (ID4) solution has been also implemented to

maximize the efficiency of plant operation in SCG's 3 core businesses. SCG's innovation development of Green Construction Solution is an example of a product transition that is used in the reduction of wastes from construction by at least 20-30%. Innovations like Drone Solution, BIM (Building Information Modeling), 3D printing, Ultra High-Performance Concrete (UHPC), and prefabrication are offered along with complete business service solutions. These innovations are the pivotal ones that we hope will transform the construction industry both for Thailand and the Asia-Pacific region.

The global situation is highly uncertain and unlike any previous experiences. What is SCG's perspective, as one of the sectors in the society, on how to deal with such a challenge?

SCG is unable to get through these challenges alone. To bring all units of society through this transition and onto a better path, we need the collaborations from across all sectors. What is the most important is that no one will ever be left behind. We are going to accelerate a transition of the whole ecosystem to a low-carbon society. SCG is ready to work hard to coordinate and connect the dots for building a collaboration across all sectors and units while moving forward together in the value chain. This year, we organized the ESG Symposium 2022 event, which was a new chapter for an SD symposium. The event has been held for the 12th consecutive year to transform ideas into actions. Over 300 coalitions participated in this event to promote Net Zero Roadmap, energy transition, and manufacturing processes that can reduce energy consumption, create a Zero Waste society, develop materials and products to be able to 100% regenerative in circular Economy, and build a sustainable consumption lifestyle in the society.

How much confidence does SCG have with ESG 4 Plus and its implementation in finding solutions for tough challenges that the society is facing in the future?

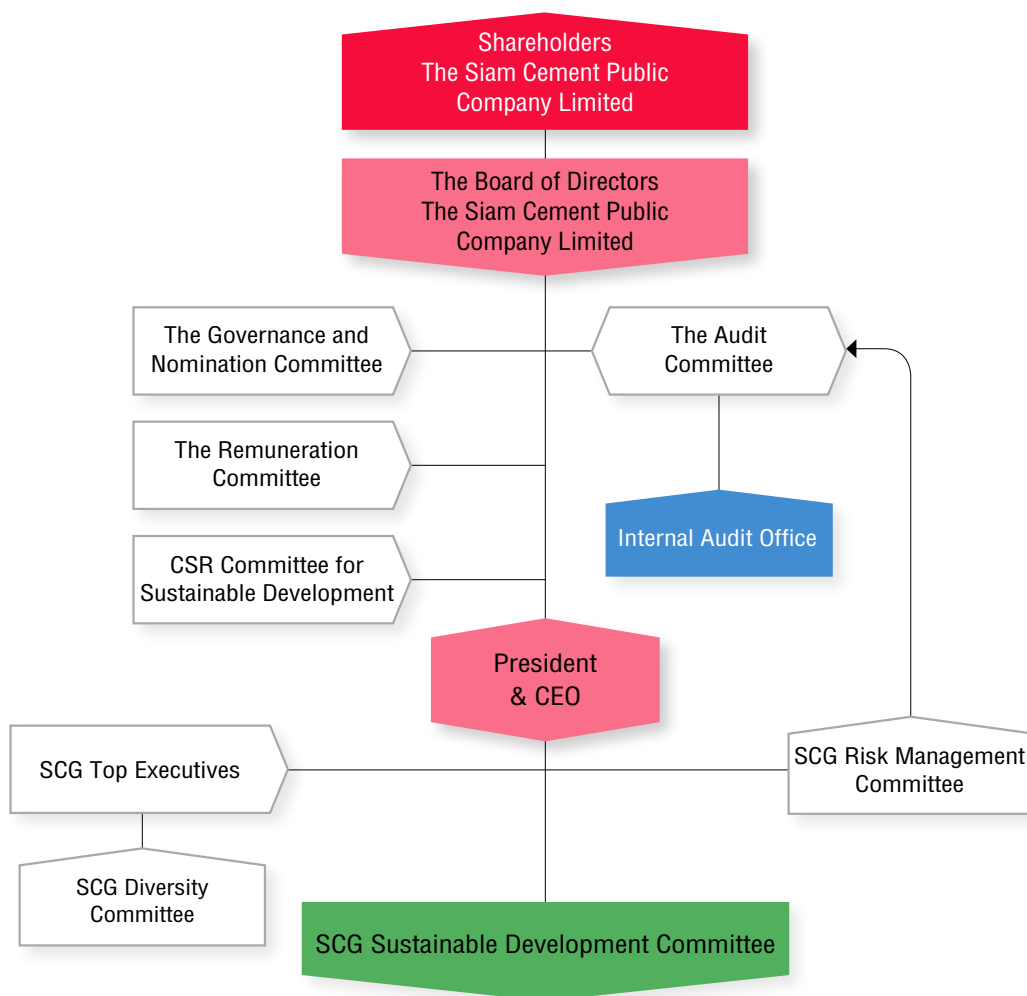
In less than 10 years, we are going to see the unprecedented effects of polycrisis, including global warming, resource scarcity, and inequalities. They will become more severe, and every society in the world will inevitably face these effects. The ESG 4 Plus strategic approach is the integrated solution in terms of social, environmental, economic, and corporate governance dimensions to drive toward the transition to a low-carbon society including conservation and restoration of natural resources, inequality reduction, and a just transition. Especially for people in a new generation who are going to live their lives in the world that people in our generation are trying to make it a greener and better place and also for those in vulnerable groups who are living in countries that might be the most affected from these crises.

Governance Structure for Sustainability

SCG has committed to its long-standing business philosophy and believes that organizational management with responsibility, fairness, and transparency according to the principles of corporate governance constitutes the foundation of the creation of long-term returns and value, promotes competitiveness and growth, and fosters confidence among all stakeholders, with the Board of Directors serving as governance champions.

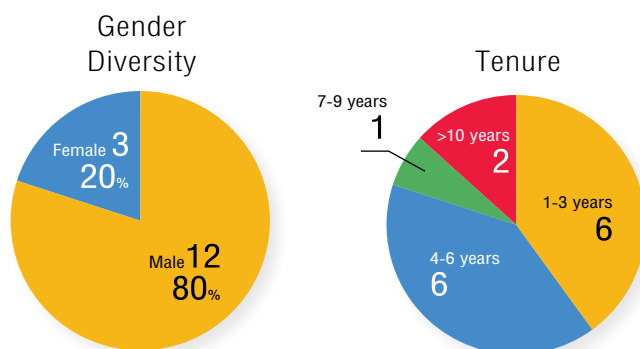
Governance Structure

Within a complex, volatile, and ever-changing business context, SCG's governance structure has been designed to promote operations according to the principles of corporate governance and decision making on the basis of effective and sufficient information. This is to ensure that all directors and executives fulfill their duties with responsibility, prudence, and integrity in compliance with laws, regulations, and shareholders' resolutions as well as any other prescribed policies and guidelines to advance the best interests of the organization, shareholders, and relevant stakeholders. SCG Corporate Governance Handbook, which compiles ethical and socially responsible practices, serves as a framework for organizational management and business development towards becoming a corporate governance role model according to SCG vision.



Structure of the Board of Directors

SCG's Board of Directors consists of individuals with a diverse range of knowledge, competency, expertise, and experience consistent for SCG's business operations. They play a key role in establishing SCG's vision, missions, and business strategies to create sustainable value for both SCG and stakeholders.



Governance Activities of the Board of Directors

The Board of Directors, together with the top executives, establishes strategies, short-term, medium-term, and long-term operational policies, and financial policies, oversees risk management and the overview of the organization, reviews SCG's key policies and action plans on a yearly basis, and steers the allocation of vital resources for the achievement of the established goals. The Board of Directors is also responsible for overseeing, monitoring, and assessing SCG's operations and the performance of the top executives against the prescribed plans while maintaining independence.

Governance Activities of the Board of Directors and the Sub-committees in 2022

Key Topics	The Board of Directors	The Audit Committee	The Governance and Nomination Committee	The Remuneration Committee	CSR Committee for Sustainable Development
Corporate Strategy and Business Direction	•				
ESG and Long-term Strategy	•	•			•
Risk Management	•	•			
Tax	•	•			
Data Privacy and Security	•	•			
Business Ethics	•	•	•		
Human Capital	•			•	
Stakeholder Engagement	•				•
Board and Executive Succession	•		•	•	

Roles of Sustainability-Related Committees in 2022



“Global outlook remains volatile, with crisis upon crisis. We have to conduct business very carefully and cautiously, prioritizing liquidity and investment projects with quick returns as well as seeking new opportunities in renewable energy businesses by setting up of the SCG Cleanergy Co., Ltd.”

Chantanida Sarigaphuti

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



“SCG manages environmental sustainability by fostering collaboration with all actors, in community, public and business sectors, as well as deploying technology for timely and accurate data. SCGP (Packaging Business), for example, has developed disasters Early Warning System for its factories in Kanchanaburi, Ratchaburi, Khonkaen, and an integrated water resource management system with stakeholders.”

Yuttana Jiamtragan

Vice President-Corporate Administration
Environment Dimension Leader



“SCG values our stakeholders as human capital and social capital. We use our potentials in supporting the development of suppliers, contractors and community for job security through skills development, community enterprise management, while addressing inequality issues and respect of human rights.”

Paramate Nisagornsen

Vice President-Distribution
and Retail Business,
Cement and Building Materials Business
Social Dimension Leader



“Rising price of fossil fuels is a key driver in boosting share of alternative fuel use. Cement factories were able to increase the share of alternative fuel from 18% in 2020 to 27% in 2022. This helps reduce fossil-fuels dependency and GHG emissions in line with Net Zero target.”

Mongkol Hengrojanasophon

Chief Operations Officer & Executive
Vice President - Thailand Olefins Chain,
Chemicals Business
Chair of Climate Change and Energy
Committee

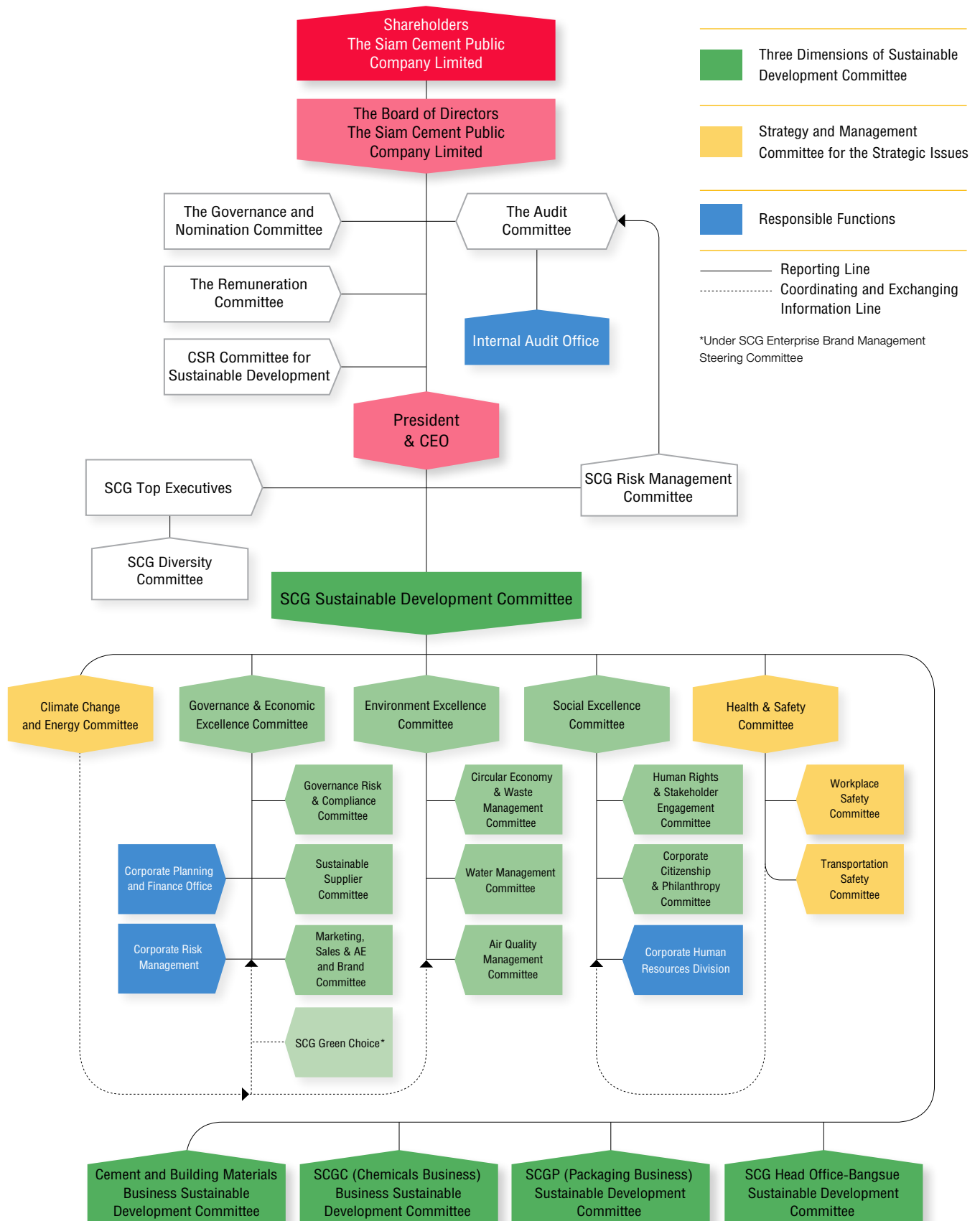


“SCG applies the state of the art technology to manage safety risks in workplace and transport, such as AI Monitoring for rooftop installation, ADAS to monitor truck drivers, and at the same time promoting operational safety discipline.”

Chana Poomee

Vice President-Cement
and Green Solution Business,
Cement and Building Materials Business
Health and Safety Leader

Sustainable Development Structure



Meetings of Sustainability-Related Committees in 2022

Number of Meetings (4 times/year)

Committee	Key Issues
CSR Committee for Sustainable Development	<ul style="list-style-type: none"> Promote ESG activities with an emphasis on collaboration, resilience and self-reliance Maintain environmental balance through the building of check dams in the upstream area, water resource management, tree planting, restoration of marine ecosystem with artificial coral reefs, and promotion of resource efficiency Aim to reduce inequalities in society by 50,000 people by 2030 by providing children more educational opportunity, providing career development with business knowledge together with the creation of value-added products to boost more stable earnings, and improving wellbeing for the society, especially of those in vulnerable groups Strengthen trust and transparency in the business operation through the corporate governance principle, and promote and support networks in businesses to operate their businesses with integrity and transparency
SCG Risk Management Committee	<ul style="list-style-type: none"> Overseeing enterprise risk management to be in accordance with the organizational structures and their roles and responsibilities Consider, review, monitor, approve and report risk profile and its impacts in economic, social and environmental dimensions as well as risk response and mitigation Key risks: Climate change, natural resource and environment management, health and safety, and human rights Emerging risk: Persistent geopolitical conflict, inflation and energy crisis, transition to low-carbon economy, and cyberthreats
SCG Sustainable Development Committee	<ul style="list-style-type: none"> Review materiality, revise sustainability structure, oversee and manage ESG 4 Plus across the value chain, and integrate into business operation Monitor and review ESG performances and apply international ESG evaluation standards such as S&P Global, CDP, MSCI, and FTSE4 Good Index Series to improve performance, and disclose the important information in the sustainability report Enhance collaboration with national and international stakeholders, such as WBCSD, UNGC, Ellen MacArthur Foundation, TBCSD, the Federation of Thai Industries, The Thai Chamber of Commerce and Board of Trade of Thailand and government agencies
Governance and Economic Excellence Committee	<ul style="list-style-type: none"> Develop business long-term plan by integrating risk management framework, and scenario analysis in accordance with the TCFD framework Governance structure of top executives, enterprise risk management, business ethics, transparent disclosure under the overseeing of the Board of Directors Maintain business stability and business adjustment, strategies, investment, and other activities to low-carbon economy and transition to New Zero GHG emissions
Environment Excellence Committee	<ul style="list-style-type: none"> Climate change and energy, eco-efficiency, and biodiversity and ecosystem Circular economy, sustainable products and services, waste management, water management, and air quality management Utilize technology integration in data collection and environmental management
Social Excellence Committee	<ul style="list-style-type: none"> Implement international standards relevant to human rights, such as UNGC, UDHR and ILO, in SCG own operations and joint ventures, including stakeholders across the value chain Monitor, follow up and provide consultation on diversity and inclusion management Determine goals and disclose social information in accordance with international standards and stakeholders' expectations
Climate Change and Energy Committee	<ul style="list-style-type: none"> Set the science-based inform to reduce GHG emissions in line with the Paris Agreement goals Establish GHG emissions reduction roadmap, preparation the technologies, budgeting and internal carbon pricing Collaborate with government agencies and associations to support NDC
Workplace Safety Committee	<ul style="list-style-type: none"> Determine policies, strategies, planning, targets, and indicators in line with relevant international standards and regulations Monitor and follow up, provide consultation to ensure that the business operation is run in accordance with the operational plan and targets, and analyze outcomes gained to provide consultation for further improvement
Transportation Safety Committee	<ul style="list-style-type: none"> Promote practical implementations of SCG Safety Framework, Goods Transportation Standard, Safe Work Standards, and Life Saving Rules in Thailand and Abroad Conduct an analysis of root causes, trends, corrective and preventive measures, provide consultation, and lessons learned sharing for recurrence prevention Build a network to improve safety collaboration among associated stakeholders at all levels in all sectors

Voices of Female Executives and Young Executives

SCG promotes equality and the elimination of unfair gender discrimination and seeks to appoint personnel from diverse backgrounds as directors at all levels.



"Gender, as well as other differences, is not a problem or obstacle for working and growing at SCG. From my experience, I've learned that new creative business ideas can arise when everyone opens their minds and welcomes different perspectives and opinions. You do not need to be expert in everything because you have capable and knowledgeable co-workers across the organization to assist you, thus creating a synergy. We all trust each other and share the same goal, which is the success of our organization."

Anchalee Chavanalikhorn
Head of Housing Products Business,
Cement and Building Materials Business

"In addition to gender, SCG embraces all educational backgrounds. Executives in the petrochemical industry, for instance, do not limit to be engineers. I have been given an opportunity to take on this challenging role to inspire and show everyone that they can do it, too. Our organization focuses on capabilities and determination. The fact that we work closely together as a family with people from different generations has also allowed junior staff to learn from their seniors and vice versa and enabled men to understand the thoughts of their women or LGBTQ colleagues, resulting in harmony and solidarity that transcend age, gender, educational backgrounds, and experience. Everyone is equally vital to the team."

Panchompoo Isarankura
Director - Hydrocarbon & Derivatives,
SCGC (Chemicals Business)

"Today, customers, suppliers, and investors all expect SCG to grow its business while also taking care of the environment and applying research-based knowledge and technologies from both within and outside of the Company to material selection, product design, production as well as logistics. Young executives must always keep their mind open, learn new things, and efficiently allocate funding to ESG investment projects to ensure resource efficiency, which will in turn lead to cost reduction, increased competitiveness, the sustainable growth of the organization in the long term."

Bhakkawat Bhasipol
Strategy and Growth Director,
SCGP (Packaging Business)

"Over the past 2-3 years, the world has been faced with a myriad of crises and changes. As such, young executives cannot simply follow the usual convention in fulfilling their roles but must always adapt, learn new things, and develop themselves. They must foster a corporate culture of creativity and innovation. More importantly, they must serve as a bridge between high-level executives and young employees, foster understanding between them, and inspire the personnel to help advance corporate transformation in order to smoothly turn crises into opportunities."

Narongpand Lisahapanya
Corporate Planning Director
SCG

Stakeholder Engagement

As stakeholders play a vital role in every aspect of SCG operations, SCG has appointed accountable functions for stakeholder engagement and established Stakeholder Engagement Policy and Guidance for Stakeholder Engagement to ensure quality outcomes and obtain insights for use in materiality assessment including to formulate models and guidelines for the creation of shared value between SCG and its stakeholders.



Accountability

- Corporate Secretary Office/Investor Relations

What Matters to Shareholders/Investors

- Shareholder rights
- Returns from operating results
- Direction of business growth
- Business management and operational efficiency
- Transparent and continuous public disclosure of business information
- Fostering good relations with shareholders and investors

Engagement Approach

- Annual General Meeting of Shareholders
- Quarterly analyst conferences and press conferences
- Two annual activities for the communication of SCG's strategies and directions
- 37 virtual/in-person non-deal roadshows and conferences, consisting of 88 meetings
- 25 virtual/in-person domestic roadshows and conferences, consisting of 65 meetings.
- One-on-one meetings/group meetings and conference calls
- One annual visit to one of SCG's core businesses

Issues/Expectations > SCG's Response

- Annual General Meetings of Shareholders should be held onsite once the COVID-19 pandemic subsides.
> **Taken under advisement to allow shareholders to submit inquiries more conveniently.**
- Company visits should be continued to help shareholders understand SCG's business > **Taken under advisement.**
- Key business issues and an ESG approach to business
> **Organizing activities to communicate and disseminate such information and compiling reports to ensure the completeness of information on a regular basis**

Value for SCG's Capital



Financial capital



Human capital



Social and relationship capital



Accountability

- Human Resources

What Matters to Employees

- Employee caring, retention, development and career growth
- Regular communication on operational directions and business approaches
- Listening to and understanding employee needs





Engagement Approach

- Annual meeting with CEO
- Quarterly meetings with Executives
- Quarterly Leadership Forums
- Employee engagement survey
- Focus group meetings with various employee groups (female employees, LGBTQI+, people with disabilities, Muslims, and key talents)
- Be You Club for exchange of opinion and diversity management
- Forums on different topics, such as ESG Symposium, ESG for Sustainability, Go Green Together
- Sustainability and social responsibility activities, such as reforestation, blood donation, and other CSR activities

Issues/Expectations > SCG's Response

- Clear information and updates > **Continual communication**
- Participation through expression of opinions on various matters > **Constant opinion surveys and employee engagement surveys**
- Participation in activities that benefit the organization and society > **Ongoing social development and sustainability activities**

Value for SCG's Capital

-  Financial capital
-  Manufactured capital
-  Human capital
-  Social and relationship capital



Accountability

- Procurement in Business Units/Corporate Procurement Office/Sustainable Supplier Committee

What Matters to Suppliers and Contractors

- SCG's policies and expectations
- Continuity of business with SCG
- Opportunity for business development and expansion alongside SCG
- Support in the form of new knowledge from SCG





Engagement Approach

- Conducting regular visits and listening to opinions of suppliers and contractors
- Safety culture fostering activities
- Communicating SCG's ESG approach in the Supplier Day 2022 to foster their understanding
- Site visits
- Annual supplier and contractor assessments for the formulation of improvement and development plans for suppliers and contractors

Issues/Expectations > SCG's Response

- Limitations of small- and medium-sized suppliers and contractors in terms of business and ESG capability development > **Continual provision of knowledge and technology and joint formulation of business improvement and development plans**

Value for SCG's Capital

-  Financial capital
-  Human capital
-  Social and relationship capital
-  Natural capital



Accountability

- Marketing Units/Sales Channels Units/ Distributing Units

What Matters to Customers

B2B/B2B2C

- Profit and sales
- Dealer development
- Data for strategy and marketing planning
- Product co-development

B2C

- Quality products, services, and solutions that meet consumer needs
- Information on new products, services, and innovations
- Consultation and troubleshooting for products, services, and solutions

Engagement Approach

B2B/B2B2C

- Weekly business advice
- Co-development of products, services, and solutions that serve sustainable development
- Receiving customers' voice through face-to-face communication, LINE, and the call center
- Offline and online marketing and sales promotion activities

B2C

- Showcases of products, services, and innovations
- Online platforms for customers' convenient access to products and services
- Receiving customers' voice through SCG's online and website around the clock

Issues/Expectations > SCG's Response





B2B / B2B2C

- Situation of market and competition > **Price adjustment to be in line with strategies and market situations**
- Product and service quality and other issues > **Establishing an e-claim system**

B2C

- Product and service quality and other issues > **Improving products, services, and relevant processes**

Value for SCG's Capital

-  Financial capital
-  Human capital
-  Intellectual capital
-  Social and relationship capital



Accountability

- Community Relation Units/ CSR/ Brand Management and CSR Office

What Matters to Communities

- Operational and environmental management to prevent impacts on communities
- Community engagement for the creation of sustainable shared value
- Development of quality of life and well-being in communities surrounding SCG's plants
- Communication and the fostering of relationships between SCG and community leaders





Engagement Approach

- Monthly community visits
- Annual Open House
- CSR activities, such as waste management, reforestation for CO₂ absorption, and collaborative circular economy projects
- Monthly health activities in collaboration with local public health volunteers
- Channels for comments and suggestions from communities, such as LINE groups and Facebook
- Organizing exhibitions on SCG's community projects, such as ESG Symposium and SCG: The Next Chapter Exposition
- Annual community satisfaction survey

Issues/Expectations > SCG's Response

- Waste issues in communities > **Providing knowledge on waste sorting and how to create added value from waste**
- Boosting income for communities > **Promoting community enterprises and providing support for marketing and online sales**
- Scholarships for local youths > **Expand the scope to areas not yet included in the initiative**
- Collaboration between government agencies, private organizations, and communities > **Monthly meetings with the Department of Local Administration and other government agencies**

Value for SCG's Capital

-  Human capital
-  Intellectual capital
-  Social and relationship capital
-  Natural capital



Civil Society Sector, Academia, and Opinion Leaders, NGOs

Accountability

- Sustainability Development

What Matters to Civil Society Sector, Academia, and Opinion Leaders, NGOs

- Leadership for Change
- Listening to comments and suggestions from civil society
- Fostering collaboration to drive sustainability issues

Engagement Approach

- Annual opinion panel
- Fostering collaboration in projects that promote social sustainability
- Activities that build awareness of sustainable development, such as ESG Symposium, SCG: The Next Chapter Exposition, and site visits

Issues/Expectations > SCG's Response

- Leveraging SCG's knowledge and expertise to creating positive change with regard to social sustainability
> **Serving as role models and mentors for other small- and medium-sized organizations**
- Joining hands with the large Corporates and alliances to effect key changes with respect to sustainability
> **Sharing best practices and experience on sustainable development on different platforms and creating an ecosystem for the advancement of sustainable development**
- Building awareness and educating society on climate change > **Communicating SCG's net zero goal and ESG 4 Plus**

Value for SCG's Capital



Human capital



Intellectual capital



Social and relationship capital



Natural capital

Stakeholder-related Chapters

Stakeholders Page

Shareholders/Investors

Our Business	10
Our Strategy	24
Sustainability Performance Data	110

Employees

Health and Safety	82
Human Rights	98
Employee Caring and Development	100

Suppliers and Contractors

Climate Resilience	74
Circular Economy	78
Health and Safety	82
Supplier Management Towards Sustainable Value	90
Human Rights	98

Customers

Climate Resilience	74
Circular Economy	78
Sustainable Products and Services	86
Customer Experience Creation	88

Communities

Climate Resilience	74
Circular Economy	78
Water Management	92
Air Quality Management	94
Biodiversity and Ecosystem	96
Community and Social Involvement	102

Civil Society Sector, Academia, and Opinion Leaders, NGOs

Partnership Synergy Towards Sustainability	46
Biodiversity and Ecosystem	96
Community and Social Involvement	102



2022 Opinion Panel

SCG Sustainable Development Committee annually holds an Opinion Panel to welcome perspectives, opinions, suggestions, and feedback from stakeholders in all sectors to inform the enhancement of SCG's sustainable operations.

In 2022, SCG organized the 12th Opinion Panel, which focused on trends, directions, governance, and business operations in relation to climate change, featuring experts from government agencies, private organizations, academia, and the media.

Opinion Panelist

Phirun Saiyasitpanich, Ph.D.

Secretary-General of the Office of Natural Resources and Environmental Policy and Planning

Veerathai Santiprabhob, Ph.D.

Board Member and Secretary-General of the Mae Fah Luang Foundation under Royal Patronage

Assoc. Prof. Thongtippha Wiriyaaphan
Romtham Khumnurak

Business School, University of the Thai Chamber of Commerce
Founder and Editor of ENVIRONMAN

Summary of Recommendations



Business Transformation and Climate Actions

- The intensifying severity and frequency of natural disasters are affecting livelihoods and the way of life, leading to poverty, health issues, and inequalities, as well as national economic problems.
- The business sector must swiftly adapt to ease the pressure caused by changes in the business environment due to state policies in the countries where a company invests, as well as tax and non-tax trade regulations.
- A business must select material sustainability issues that address environmental and social issues while also creating value for the business in order to sharpen business directions, foster exponential growth, and preemptively prevent potential damage from strategic risks.

ESG Governance

E-Environment

- Scenario analysis is more essential for communicating how climate change will possibly have impacts on the business and the way of life of employees and stakeholders. Such analysis can also be used in communication to raise public awareness through various channels.
- Establishing a carbon offsetting strategy as well as acquire and develop carbon capture, utilization and storage (CCUS) to minimize risks and create business opportunities as those will play a key role in decarbonization, cost efficiency and enhance Thailand's competitiveness.

S-Social

- Income and debt levels, along with issues of inequalities, may pose an obstacle and challenge for those not ready for a climate transition. The business sector needs to work with government sectors to design suitable mechanisms for motivating behavioral changes in society.
- Collaborating with diverse network members for mitigation and adaptation to climate change as well as to create an ecosystem to drive Thailand towards achieving its goal of carbon neutrality by 2050 and its net zero by 2065.
- Supporting communities to be the change agents to expand and accelerate climate resilience efforts.

G-Governance

- Measuring performance in all dimensions and transparently disclose the outcome to the general public.
- Joining hands with government sectors to develop the incentivizing mechanisms and execution structures for GHG emission reduction and carbon capture among business sectors.
- Formulating measures to prevent corruption associated with the creation of a low-carbon economy in order to address climate change sustainably.

Partnership Synergy Towards Sustainability

SCG is speeding up its adaptation in the face of multiple crises ranging from climate change, waste management, biodiversity loss, resource shortage, health, and well-being. We do so by fostering partnership with government, business, and civil society, at community, national and regional levels, to strive for socio-economic balance and sustainable environment, to deliver concrete results quickly and efficiently.

“Amphawa Na Rak”: A Sustainable Tourism Model

SCG and Samut Songkram Provincial Chamber of Commerce through its Young Entrepreneur Chamber of Commerce (YEO) in tourism sector and other partners from the Thai Chamber of Commerce implemented the “Amphawa Model of Sustainable and Circular Economy in Tourism.” Through this partnership, key stakeholders are educated about circular economy and waste separation. Waste collection unit are provided on monthly regular basis to enable communities and tourists to separate and manage garbage in sustainable way targeting plastic waste collection for plastic recycling.



Waste Recycling Network

SCG and CP ALL scaled up its milk pouch recycling pilots towards end-to-end waste management and set-up Thailand's biggest waste-management-ecosystem through the projects "Upcycling Milk Pouches" and "Ton Kla Rai Thung" piloted in 17 provinces and now scaled up to 50 provinces across Thailand. The Green Learning Network which is a component in this partnership has expanded to 5,567 schools nationwide. The flagship waste management application "KoomKah" provides platform that demonstrates results of waste-to-value.



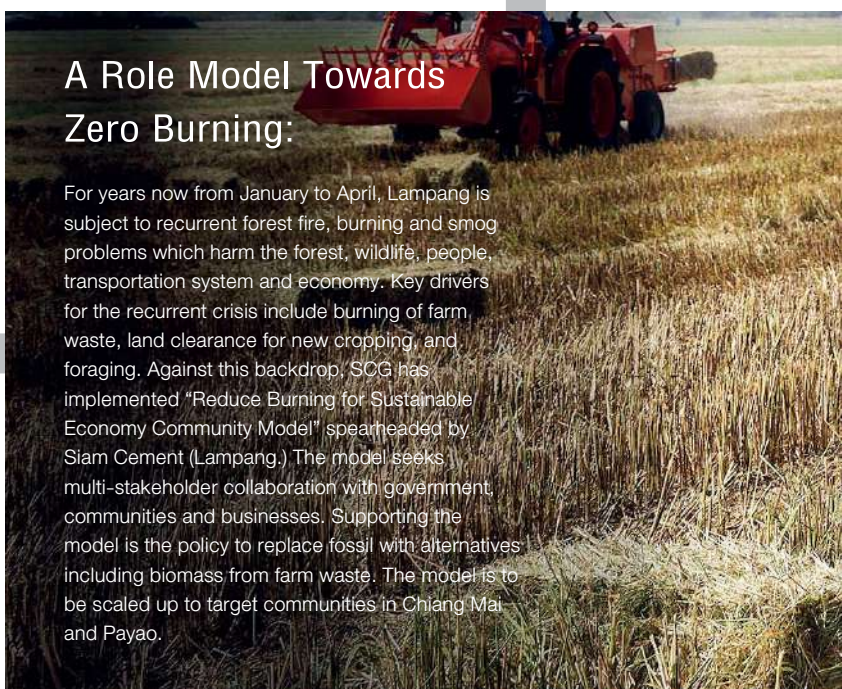
Partnership Towards Thailand's Carbon Neutrality

SCG Cement and Building Materials Business and Thai Cement Manufacturers Association (TCMA) announced "Mission 2023" in which 25 partners in government, business, industry, and academic sectors pledge emissions reduction of 1 million tons CO₂e in 2023 in the sector of industrial processes, product use and substitution of cement clinker, in support of national carbon neutrality goal.



A Role Model Towards Zero Burning:

For years now from January to April, Lampang is subject to recurrent forest fire, burning and smog problems which harm the forest, wildlife, people, transportation system and economy. Key drivers for the recurrent crisis include burning of farm waste, land clearance for new cropping, and foraging. Against this backdrop, SCG has implemented "Reduce Burning for Sustainable Economy Community Model" spearheaded by Siam Cement (Lampang). The model seeks multi-stakeholder collaboration with government, communities and businesses. Supporting the model is the policy to replace fossil with alternatives including biomass from farm waste. The model is to be scaled up to target communities in Chiang Mai and Payao.





Thomas Guillot
Chief Executive
of the Global Cement
and Concrete
Association (GCCA)

"The GCCA 2050 Cement and Concrete Industry Roadmap for Net Zero Concrete" has the objective of facilitating industry's contribution to global GHG emissions reduction effort and keeping world temperature rise to well below 1.5 degrees Celsius. In this context, SCG has played an instrumental role in formulating 'Thailand Chapter: Net Zero Cement and Concrete Roadmap,' with Thailand as the first country to have come up with a concrete workplan that SCG itself has applied to its Cement and Building Materials Business. This will help speed up implementation of GCCA's Roadmap."

S.E.R.T, a Disaster Response Partnership



SCGP (Packaging Business) established SCGP Emergency Response Team (S.E.R.T.) as first responder team operating both internally and externally in light of wide-ranging disasters happening in greater frequency. SCGP is already part of the Public Private Sector Partnerships in Disaster Risk Reduction for Sustainability (PSP) in the provinces of Kanchanaburi and Ratchaburi, and soon to join Khon Kaen and Prachinburi. PSP consists of government agencies such as Department of Disaster Prevention and Mitigation, Army Development Command, Army Engineering Department, and civic organizations such as Ruamkatanyu Foundation, Por Tek Teung Foundation. S.E.R.T. integrates its work with agencies at all levels. It also holds annual disaster-response training and drills with government and private actors while ensuring its constant preparedness.

Drive Decarbonization in Cement and Concrete Industry

SCG participated in Global Cement and Concrete Association (GCCA) CEO Gathering in Atlanta, USA, a leading industry forum. Furthermore, SCG collaborated with the Ministry of Natural Resources and Environment, Thai Cement Manufacturers Association (TCMA), and The Global Cement and Concrete Association (GCCA) to demonstrate the potentials of cement and building materials industry in GHG emissions reduction at Thailand Pavilion during COP27 at Sharm El Sheikh in Egypt. There, the partners unveiled Thailand Chapter: Net Zero Cement & Concrete Roadmap 2050, with Thailand being the first country in the world with Net Zero 2050 goal for the cement industry.

Packaging from Recycled Plastic and Waste Segregation Pilot



SCG and Unilever Thailand announced its partnership to develop and change packaging from HDPE plastic to recycled HDPE packaging. In this pioneering move in Thailand, used household plastic waste has been recycled back as feedstock to make new plastic bottles. In parallel, an ongoing project "Sorting for the Better (Yak Dee Mee Tae Dai)" From 5 June 2021 -5 June 2022 at Bangbuathong Municipality of Nonthaburi, the pilot project has achieved its objective of aggregating over 6,000 kilograms of household plastic waste – 100,931 pieces of HDPE packaging and 77,969 pieces of multi-layered plastic packaging. The effort amounts to CO₂ emission reduction of 5.76 tonCO₂e and generates income of 49,970 Bath for local residents.



Natthinee Netampai,
Senior Corporate
Affairs Advisor,
Unilever Thailand:

"The success of the project 'Sorting for the Better (Yak Dee Mee Tae Dai)' is only possible through strong collaboration of Unilever and SCG along with key players in the circular economy network, including manufacturers, recyclers, plastic packaging processors, municipalities, and communities, of which none can be overlooked. This, however, is just the beginning. Our world's protection must come from our collective efforts to convert post-consumer plastic into an endless supply of renewable resources."



ESG FOCUS

ESG 4 Plus

Energy Transition Towards Net Zero
Target with Clean Energy

Green Construction Technology
for Higher Construction Standards

Reducing Inequality:
Creating educational opportunity,
Improving Job Security, and
Enhancing Well-being

Enhancing the Power of Collaboration
Tackling Crises with ESG

Always Commit to Trust and
Transparency
Leveraged by the Integrated GRC

ESG 4 Plus



Net Zero by 2050

1

 Reduce GHG Emissions **20%** by 2030
  Build **150,000** Check Dams by 2030
  "Plant Beats Heat" Project Plant Trees to Absorb 5 MT CO₂eq by 2050



Investment
2,452 Million Baht
 Expense
988 Million Baht

Invest in energy efficiency and renewable energy projects and R&D in deep technology.



Go Green

2

 Increase Revenue from Sales of SCG Green Choice to **67%** by 2030
  **100%** SCGP Recyclable Packaging by 2025
  **500 MW+** Renewable Energy In Thailand and Abroad by 2023



Investment
2,276 Million Baht
 Expense
2,200 Million Baht

Dedicate to environmental innovation, expand business into circular economy business and invest in renewable energy businesses.



Reduce Inequality

3

 Create **50,000** Jobs by 2030
  Deliver **100,000** Scholarships across ASEAN



Investment
247 Million Baht
 Expense
259 Million Baht

Create jobs for communities and SMEs by developing in-demand skills.



Enhance Collaboration

4



ESG CEO Forum Collaboration for



Expense **31** Million Baht

Contribute to the other organizations in national, ASEAN, and global to drive ESG towards Low Carbon Societies.

Plus Trust through Transparency

Investment **0.39** Million Baht

Expense **0.65** Million Baht

Build up ESG disclosure platform

ESG

4 Plus

SCG is committed to innovate products, services and solutions that match diverse needs of consumers, while driving business growth sustainably according to the ESG practices and leveraging ESG 4 Plus Net Zero-Go Green-Reduce Inequality- Enhance Collaboration- Plus Trust through Transparency for long-term sustainability



Net Zero

Towards Net Zero by 2050 and GHG emissions reduction by at least 20% by 2030 compared with 2020 base year by increasing share of clean energy, stepping R&D and investment in advanced technology, CCUS technology and planting trees as carbon sink.

“With multiple crises affecting the economy, society, and environment, in particular, the climate crisis, we must act urgently. SCG has committed and taken actions to achieve GHG emissions reduction target, stepping up its clean and renewable energy drive in business operations. As a result, the share of clean energy use in its overall portfolio increased from 13% in 2020 to 17% in 2022. This has a positive impact amid the spike and volatility of global fossil fuels price. SCG adopts and applies technology to optimize its production and services, which in turn optimizes unit cost and competitiveness against volatile energy pricing situation.”

Mongkol Hengrojanasophon
Chief Operations Officer & Executive
Vice President - Thailand Olefins Chain,
Chemicals Business
Chair of Climate Change and
Energy Committee



Go Green

Develop innovations that are environment-friendly and bringing consumers on board to reduce GHG emissions through solutions such as electrification solutions from renewable energy, construction solutions for energy-efficiency and waste reduction & recycling, chemical products and reusable packaging for resource optimization according to circularity and health promotion. The target is to increase the share of SCG Green Choice in our portfolio to 67% by 2030.

“Go Green for SCG is about making products and services more environment-friendly, as choices for consumers who wish to participate in caring for planet. Innovation is the key mechanism to improve products and mitigate their impacts in aspects such as reducing GHG emissions, using recycled materials in production, energy efficiency, renewable energy solutions.”

Wachirachai Koonamwattana
Head of Smart System Solution Business,
Cement and Building Materials Business



Reduce Inequality

Set target to reduce inequality for 50,000 individuals by 2030 through skills development of community and SMEs such as truck driving, construction work, practical nurse, dental assistant, caregiver, value adding for products and marketing skills, as well as offering credit extension and contractors matching through Siam Saison platform.

“The covid-19 pandemic and economic crisis caused a drastic effect on household income, and further aggravated issued of inequality in society. SCG prioritizes and takes serious action in tackling inequality in line with ESG4 Plus pathway. Our work focuses on education – creating opportunity and access to education; career opportunity – development of youth potentials and skills towards income security. In 2022, SCG developed professional skills for 8,000 persons in communities and SMEs. We also pursue health and well-being promotion for the vulnerable groups. SCG utilizes our knowledge, technology and innovations to reduce the gap of inequality and to contribute to a self-reliant society and people’s better living.”

Venus Asavasitthithavorn
Director,
Enterprise Brand Management Office



Collaboration

Seeking collaboration nationally, in ASEAN and globally, to implement projects on circularity, waste and material recycling, development and promotion of less emissions products, awareness raising for all stakeholders to be part of ESG drive.

“The climate crisis reached the point where all must come together to tackle it with unprecedented urgency. No single person or group can achieve it alone. SCG believes that even doing by oneself would move fast, doing together with partnership could deliver more impact. This could be done through prioritization and impact analysis to design a collaboration model. Examples of this effect include the energy transition pilot project among business organizations, the project to co-develop with producers to innovate alternative feedstock with the mix of recycled materials, which require collaboration with government, private sectors, and communities that aggregate waste for the purpose.”

Yuttana Jiamtragan
Vice President-Corporate Administration



Trust through Transparency

Driving the organization with good corporate governance continuously in all operations, with transparency, accountability as well as fostering SCG 4 core values throughout all levels and generations of employees as corporate culture.

“Many factors can cause a lack of transparency such as unequal information access, discrimination, unfair enforcement of rules and regulations as well as inadequate data and facts for verification and reference. Now, digital technology allows faster data collection, more efficiency, broader accessibility for users, and instantly validate and verify data. With data analytics, we can conduct early diagnostics by recognizing problems to improve the management system. This will help to strengthen trust and enhance business opportunities.”

Pasunit Pummaneeekorn
Associate Director,
Corporate Innovation Office

Energy Transition

Towards Net Zero Target with Clean Energy



SCG announced the long-term goal of achieving Net Zero emission 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, covering its business in Thailand and abroad. These goals align with national aspiration of Thailand and the international community to keep global temperature rise within 1.5 degrees Celsius to mitigate climate impact. The concerted efforts are meant to prevent reaching disaster that is existential threat to humankind, businesses or any entity.

SCG has its roots in over 110 years of business operation and has survived countless rounds of socio-economic crises domestically in Thailand and internationally. Through these, SCG has leant, adapted and shifted its business strategies to foster continuous growth and resilience alongside the society. Despite hardships brought about by the COVID-19 pandemic, SCG persists with delivery of products and innovations in support of the society.

However, coping with climate crisis impact is a challenge unprecedented.

Even the developed countries have faced the challenges and obstacles to phase out the fossil fuels and transition to clean energy. Due to long term fossil fuels usage since the Industrial Revolution in various activities from production, servicing, transport, logistics, consumption, all aspects are relied on fossil-generated energy.

Yet still there is no other path clearer than clean energy use – solar, wind, biomass, biofuel. This is the answer to achieving net zero target. The challenges are about managing real-life hurdles and obstacles.

SCG has continuously studied and collected experience in clean energy for decades and as such it is clear to the enterprise that clean energy business is the pathway to drive and achieve critical mass, and multisectoral collaboration towards a low carbon society.

Clean Energy Focus Building Expertise from Within

From 2001 SCG started using alternative energy. The first effort is to turn scrap car tyres into fuel, and subsequently biomass development from agricultural wastes such as straw, sugarcane leaf, palm husk, paddy husk, alongside biogas brown water treatment, and turning waste-heat from industrial processes to produce electricity.

In 2012 SCG embarked on Refuse-derived Fuel (RDF) project using community-generated garbage as alternative fuels. Community-based waste separation plant and aggregation site are built to separate combustible rubbish and compress them into RDF to be used instead of coal for cement kiln.

Along the way, SCG has accumulated biomass knowledge and expertise. The latest undertaking is

purchase of farm waste such as straw, sugarcane leaf, corn husk from areas around factories in multiple provinces as feedstock to make Energy Pellets for coal replacement.

Apart from boosting income for farmers, such farm waste management helps mitigate PM2.5 pollution arising from burning of agricultural wastes.

In 2016 SCG started adopting solar energy and advocating its use in SCG-owned factories across business units to speed up emissions cut and global warming mitigation. With Thailand's potential in solar energy – high radiation intensity rate of 18.2 megajoule per square meter per day, solar energy is a more sensible path than wind energy which has more restrictions in terms of locations in Thailand.

SCG stepped up installation of solar farms in the vicinity of its factories. Subsequently it expanded into factory-rooftop installation of solar panels, as it continues to seek other options of unused space. That is the discovery of surfaces in factory wells and reservoirs, giving rise to “floating solar farm” innovation. It was pioneered at SCG Site 3 reservoir in Rayong in 2018. SCG proprietary innovations include the solution of plastic buoys to support solar cell panels, made from durable plastic material that can withstand outdoor intense sunshine while effectively carrying and stabilizing the panels' load. The innovation serves as model for more to come in other factories that typically have reservoir surface spaces.

Development of each solar farm has its own unique characteristics and requires customized solutions. That is why SCG has deepened and enhanced its solar energy expertise which continues until today in support of clean energy focus.

In 2022, SCG has developed and successfully installed bifacial solar cell panel. The top façade of a bifacial panel receives sunshine as usual whereas the lower part functions to absorb solar reflection from the ground, thereby adding a further 5-7% of electricity





Expanding Its Business to Solar Energy Solutions

Building on its expertise in installation and use of solar energy, from 2019 SCG expand business to provide solar rooftop solutions to residential buildings under a new business brand of “SCG Solar Roof Solutions.” It provides end-to-end solutions to customer, along with apps to monitor the system’s performance which generally helps save electricity bills by up to 60%. This is the business that popularizes the use of clean energy among wider public. The business has seen promising growth, particularly during COVID-19 pandemic when people spent more time homebound.

At the same time, for industry-user segment, SCG has developed and offering SCGC Floating Solar Solutions, Thailand’s first end-to-end service starting from design, float production, installation, and maintenance. In 2018-2022, the brand has serviced and completed 54 projects inside and outside SCG, with total capacity to date of 55.1 megawatt, accounting for emissions cut of 38,000 ton CO₂eq per year.

All these demonstrate SCG’s effort to scale up and introduce solar energy to the wider public, while adjusting its business models to accommodate and grow alongside the society’s demand to care more about the planet.

And SCG remains firmly committed to driving clean energy growth.

generation capability. Furthermore, the ground surface is paved by scrap materials from factory made according to Waste-to-Value principle to enhance reflection capability from ground to panel. AI technology is deployed to monitor the system’s performance, tracking errors and alerting maintenance needs for optimal efficiency.

From the starting point to date, SCG has installed solar energy capacity totaling 120 megawatt, cutting greenhouse gas emissions by 57,077 ton CO₂eq per year, in its continuous drive towards Net Zero goal by 2050.

Most important is the accumulation of knowledge, skill and expertise of SCG workforce who play important role in paving the way for SCG’s new business model.





SCG CLEANERGY

Clean Energy Focus, Clean Energy Solutions for All

Fully equipped with knowledge and experience in renewable and clean energy, SCG made the investment decision to establish SCG Cleanergy Company Limited, to function as center of clean energy solutions to serve clients in Thailand and beyond.

On solar energy, it has experience in installation of solar cell, onshore solar farms, rooftop and floating, focusing on industry users, industry estate, and the government, as well as Electricity Generating Authority of Thailand (EGAT).

SCG Cleanergy's strength is in its ability to find and customize solutions that are most suitable to individual customers.

Its end-to-end approach starts from site survey and problem analysis to come up with joint solutions, construction supervision, operation and maintenance service.

The company is able to adapt formation, installation and energy distribution according to localized contexts.

For example, if a factory has adequate rooftop space, solar rooftop solutions are easy. In case of limited rooftop space, a factory may opt to install solar cells in common space nearby such as floating solar farms at an industrial estate's reservoir, with electricity outputs distributed via transmission line to factory.

Or in case a client has two factories located close to each other, the first building needs power but limited rooftop space, whereas the second building has large rooftop space. Solar cells can be installed in the second building and outputs transmitted to the first building.

SCG Cleanergy has its back-office team to monitor energy generation system it installs for customers online, in aspects of efficiency, analysis and trouble shooting. Customers can also monitor performance real-time via applications on computer and smart phone.

At present, apart from those wishing to install solar power system for their own use, we see increasing needs for power producers to be connected and sell to the transmission grid.

SCG Cleanergy is thus developing an energy trading platform in collaboration with EGAT. The idea is to sell electricity into grid from one location to another without limitation of distance.

Operationally, this means a factory in one province can generate electricity and sell to another factory located in a different province.

Such energy trading among private power producers requires a management platform, with smart meter as another crucial component to check and disaggregate inputs into the system to determine whether they are from alternative source or grid source.

Wind energy faces a different set of challenges from solar, chiefly windmill location must be far enough not to disturb community, and wind strength must be commercially viable for a project.

For now, SCG Cleanergy is developing projects to propose to the state, as well as seeking opportunities in the region such as in Vietnam, where the authority promotes offshore wind energy.

Though Net Zero goal by 2050 remains three decades away, the path is fraught with challenges and obstacles.

SCG's commitment to transition from fossil to clean energy, from the nascent stage of R&D and trial towards successful outcome and driving business units to increase renewables in their energy mix. It gives us hope and confidence that SCG as an organization will be able to adapt and advance, while fostering collaboration with all stakeholders in the public, private and civil society.

To arrive at the most challenging milestone in the enterprise and the world's history.

Green Construction Technology

for Higher Construction Standards



Building a house or structure typically starts with design by either an architect, or building owner's discussing needs with builders, and then contracting. A house construction takes about 10-12 months. The bigger the building, the longer it takes.

The most common challenge for medium to small size constructions in Thailand is contractors' abandoning a project when owner said the output is not as planned. Demolition for correction is called for to make things according to plan. Many contractors see this as added costs and losses on their part and so they walked away. Often, completion date is delayed.

Substandard work skill poses yet another hurdle. Roughcasting, angling alignment works may not be smooth, leading to orders for amend. Multiple rounds of fixing may not result in as fine finish as getting it right from the first time.

"Waste" in the course of construction work can be multifold. Loss time, material waste from rounds of making things right, pile up of material excess at worksite, injuries and excessive use of labour – are all qualified as "waste."

In Thailand, construction-related waste is reckoned to be as high as 20-30%.

From a broader perspective, home construction in Thailand is estimated to be worth about 1 trillion baht per year. Construction waste as high as 20% translates into loss in money terms of 200 billion baht.

SCG is therefore committed to improving the standard of construction work to reduce waste and turn waste to wealth through its CPAC Green Solution.

From Drone, BIM, to 3D Printing

CPAC Green Solution has for several years deployed digital technology in the step of building design.

In the past, architects would draw building plans on papers. As such visualization of real-life use and practical utility of a finished building may not be complete. To address this, CPAC Green Solution applies Building Information Modelling (BIM) to assist the design stage to yield 3-dimensional visuals for architectural and structural works of a construction project.



BIM simulates through virtual reality what a real house or building would be like, including position or furniture, AC units. BIM opens the possibility to modify the plan with ease and speed, facilitating communications among engineer, architect, contractor, electrician, building owner. It brings all parties involved on the same page when it comes to visualizing an end product of a building. BIM can also help calculate construction materials required in precision, thereby cost-saving. Ultimately the consumer gets the building they aspire to have.

In the construction site survey step, SCG uses drone to conduct aerial survey to obtain site data that is most realistic in terms of height, wind direction, water course, and general environment around the site.



Chuchoke Sevakunarkon,
President-CPAC Green
Construction Business

“ Suppose we budget construction at THB1 million, but actual output is worth THB800,000. What is missing is unnecessary waste of resource, from which no one benefits and from which incurs the burden of disposal. Labour-wise, instead of a crew of 15 workers to finish the job, 20 are deployed. SCG intends to turn waste into wealth or value. At minimum, loss of waste has to be recouped, and distributed back to stakeholder, so that construction work standard at national level can be improved, through optimization of natural resource use.”

Such a data set serves as accurate aid for building design that minimizes mistakes during actual construction.

From BIM and drone, SCG is now deploying 3D concrete printing technology in construction

“It has been five years since introduction of 3D printing. We started with trial of small pieces such table, stool, plant pots, small furniture pieces and different levels of shapes and complexity. Along the way, we made artificial corals to be placed on seabed, in collaboration with academics to make habitats coral reef, fish and marine life. These are samples of materials that do not bear the construction load. In parallel, we made efforts at 3D printing for human habitat as well,”

said Mr. Chuchoke Sivakunakorn.

Structures that SCG has successfully built using 3D printing technology include: guard post and guard house, bathroom, food stall, coffee kiosk

Among well-known example is Café Amazon outlet inside PTT petrol station on the roadside of Phutthamonthon Sai 3. The building is designed as a unique dome, with 3D printed exterior finish and interior décor. The Bangson outlet of Café Amazon is a similar demonstration.

The prominent characteristics of 3D printing is that it can achieve the level of design that normal structure cannot do. The technology enables printed pieces before assembly and installation. As a result, there is minimal if any construction waste. It yields the high precision outcome of the design, within a definite timeframe.

The challenge ahead after SCG is well versed in 3D printing is the two-storey construction project at the height of 9 meters, the tallest attempted to date in Thailand.

Challenge of the First Two-Storey Building

The 3D printer's injectors gradually released cement in lines, forming layers, spiralling upward.

Instead of ink, inputs are cement, drawing waves, straight lines, according to the design. Outputs are shaped by computer program commands, that prompt injectors to mould the building walls with the designed curves and motifs.

The finished product of this two-storey building was going to serve as the new medical center inside the cement factory in Kaengkhroi District, Saraburi.

This is deemed to be ASEAN's first two-storey building generated by 3D printing technology, and possibly among the pioneers in the world. Except for certain columns and beams, printing is done onsite, instead of assembly from pieces printed elsewhere. Yet still, the worksite is exceptionally tidy, in comparison to construction sites typically littered with heaps of sand, stone and concrete scraps.





The 3D-printed medical center has total utility space of 345 sqms. The ground floor features a central hallway, with medicine dispensary to the right and examination room to the left. Both stories house recuperation room, wound-dressing room, breastfeeding space, toilets, pharmaceutical inventory and meeting rooms.

Moulding of the building walls which total about 150 sqms was completed in 7 days. It is estimated that 3D printing reduces wall construction time by 66% and using 50% less labour.

There is no need to use wood in moulding process, and hence no waste of cement from trimming the mould, roughcasting or any construction material waste along these steps.

The entire project uses SCG's proprietary formula of cement which offers strength and durability, reducing waste and dust generation at construction site. At the same time the formula comes with additional properties for the building envelop such as noise insulation and heat insulation to keep interior temperature cooler by 5-10°C versus outside temperature. This results in energy efficiency in AC use.

The process of cement production involves recycled materials, reducing use of virgin material.

This construction project took 5 months to completion in 2022,

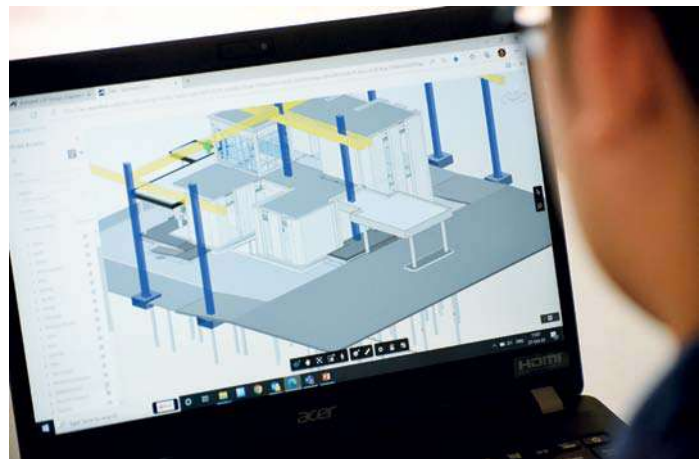
In yet another step forward in SCG's use of 3D printing technology.



“We started with printing the room on the right of first floor, which is a single-storey building without pillar and beam. So we need to use special formula cement to enable the wall to carry the load of the roof. To the left stands a two-storey building. The structure is a pillar to carry the load. Printing and cement injection would then ascend layer by layer, room by room, from bottom to top. Next the injector is moved to the second room, moving from bottom to top, and then continue, moving the injector to another room. In the past we made smaller items such as chair, desk and coral reef homes. Now we can make a two-storey building.”



Kris Sathitpithkul,
Co-Creation and Operation
Development (CCOD)
Director - Urbanized Solution
Business



Pathway to the Future

The 3D printing design front must continue to advance. CPAC Green Solution has its origin in collaboration among professional designers who are committed to trials and study. At the national level though, there is no formal certification system for material used in 3D printing. SCG thus collaborates with The Engineering Institute of Thailand to develop such standard.

“We do not work alone. We work as team with friends with varied expertise, and alongside experienced contractors in many fields including steel work and melding. Our aim is to elevate the standard of construction work among all stakeholders in the sector,” said Mr. Chuchoke Sevakunarkon on the pathway to the future of construction industry in Thailand.

All these efforts are geared towards offering options to consumer.

Options that mitigate environmental impact, and put construction on the path of Green Construction.



UHPC Concrete Bridge by CPAC Won the ACI Excellence in Concrete Construction Awards 2022



CPAC Green Solution under SCG Cement and Building Materials won global accolade of ACI Excellence in Concrete Construction Awards 2022, Infrastructure, organized by the American Concrete Institute (ACI). CPAC Green Solution submitted CPAC Ultra Bridge Solution for bridge building using Ultra-High-Performance Concrete (UHPC) to resolve structural engineering problem for arch bridge with height restriction but able to absorb structural beam of the arch. As a result, there is no need for steel reinforcement, and thin layer, with the thickest section of the bridge measuring 30 cm. and the bridge foot at 2.5 cm thick excluding architectural work. It is deemed the thinnest bridge in Thailand and in ASEAN. Most importantly, use of UHPC technology reduces construction-related CO₂ emissions by at least 20% and can extend the function of structure in the range of over 100 years.

CPAC Won the Autodesk ASEAN Innovation Award 2022

CPAC Green Solution under SCG Cement and Building Materials joins the effort to instill environmental consciousness among younger Thai people. It has invited new-generation architects, engineers, to save the world and disrupt the construction industry using BIM innovation to solve chronic problems such as material waste at construction site. The effort is extended to make younger generation and everyone in the construction ecosystem to pay attention to green products and services in line with ESG 4 Plus pathway. These undertakings are recognized by "Autodesk ASEAN Innovation Award 2022" in Future Pillar of the year category from Autodesk in Singapore.



In addition to innovations to use less natural resource and mitigate emission from construction-related waste, SCG prioritizes energy efficiency innovation and wellbeing of building users through its integrated Smart Building Solution that include:

Smart Building Solution



- **SCG HVAC Air Scrubber** An air quality treatment system and lessening cooling load of air conditioning, this solution helps save energy and electricity bills by 20-30%, saving investment in cooling system improvement by over 12% and enhance indoor air quality. The solution is chosen one of the nine outstanding innovations in Smart Heat & Air category from The Clean Fight 2020 in New York, USA.
- **SCG IoT Sensing Thermostat** Smart, wireless AC control adaptable to different ambiances with motion sensor to open and shut windows and regulating temperature and humidity. These features help save AC costs 20-30%, and AC-related bills by 15-60%.
- **SCG Bi-ion** An ion-sanitization system that can eliminate pathogens in the air, reducing PM2.5 and eliminating ozone gas harmful to respiratory system. It can eliminate up to 99% of pathogens including coronavirus.
- **SCG Wireless Monitoring** This smart wireless monitoring system optimizes building data collection and analysis for the building management. The solution is appropriate for shopping malls and large office buildings with multiple indoors installation such as Gateway for sensor systems data or Cloud Computing.

Reducing Inequality

Creating Educational Opportunity, Improving Job Security, and Enhancing Well-being

"It is beyond my wildest dream that I would be able to help the local people. This is a major turning point. I can really be a president of a company. The Community Power Project has taught me to take stock of my strengths and generate value from what's in my surroundings."

"Pim" Faseri Praphantha,
a farmer who finished Mathayom 3
and the President of Rai Na Fa Endu Co., Ltd.

"Has my income increased? The answer is yes, dramatically. Q-CHANG has enabled me to better plan my work each day and given me more time to spend with my family."

Nat, an electrician

This is part of the feedback from people from different backgrounds who have participated in professional development programs developed by SCG and the SCG Foundation, which seek to enhance their capabilities and offer assistance to the general public and society at large, in line with the ESG 4 PLUS Net Zero - Go Green - Reduce Inequality - Enhance Collaboration Plus Trust through Transparency, which serves as a guideline for sustainable growth alongside a robust society.

"Inequality" is a social issue of Thailand and tend to be more serious. The COVID-19 pandemic is a pivotal event for over 3 years that has exposed the problem of disparities between the privileged and the underprivileged on several fronts. These issues, ranging from income inequality and unequal access to welfare and education.

Recognizing the impact of disparity on the quality of life and Thailand's robust economic system, SCG has made active efforts to be part of the solution to this problem, with the goal of mitigating its impact on 50,000 people by 2030 through three main endeavors: creating educational opportunities, improving job security, and enhancing well-being.

Creating Educational Opportunity

Through the "Sharing the Dream" Project, the SCG Foundation has for over 60 years granted scholarships to underprivileged children and teenagers who demonstrate good conduct and eagerness to learn, with the goal of empowering them to complete their education, find employment, support themselves and their families, and become good citizen of society. As an expansion of the project, the foundation also offers "Learn to Earn" scholarships for disciplines in high demand in the labor market and society that enable the recipients to quickly finish the program and begin their professional career, including scholarships for nursing assistants and dentist assistants, for general career, and for jobs in IT and technology. Currently, over 1,300 scholarships were granted.

SCG also grants scholarships to youths under "Sharing the Dream" Project in six ASEAN countries, namely Vietnam, Indonesia, Cambodia, Myanmar, Lao PDR, and the Philippines.

"Everything can be converted into money. We can sell it on social media. As a farmer who had never seen a million baht in life, that all changed in a year. ... I've made it, and I've cleared all my debt. I feel that I can help my fellow villagers. I don't want to leave all the young children and the elderly to go work in Bangkok. There are jobs in our hometown, too."



"Pim" Fahseri Prapantha,
a farmer who finished Mathayom 3
and the President of
Rai Na Fa Endu Co., Ltd.



Saowalak Thongkuay
Business owner and
member of the Committee
on the Rights of Persons
with Disabilities

"People still think that people with disabilities cannot be entrepreneurs and can only be employees. I am a person with a disability and with passion. Once I got to learn about marketing and entrepreneurship, I decided to launch a food project. My thought is that if we dare to change and take action, society will see that we can do it and that people with disabilities are not like what they thought."



Improving Job Security The Power of Community

“The Power of Community” Project is a training program that seeks to empower communities to develop self-reliance sustainably, create jobs and generate income ethically using the philosophy of sufficiency economy, and transform themselves towards a more mindful way of life. The project also strives to encourage local people to transform what they have in their surroundings to create added value, develop a distinct local identity, take ownership of their products, learn about the market before making and selling their products, expand their sales channels, plan their lives for sustainability, learn from success story of others, and work together to foster a network for knowledge and

product exchange, which will enable them to generate income and narrow the inequality in a sustainable way.

The training is provided by a team of experts on sufficiency economy, folk wisdom, and modern sciences, who closely monitor the activities of the participants and provide them with consultation.

The Power of Community Project began in 2018 in areas surrounding manufacturing facilities in Lampang, Saraburi, Kanchanaburi, and Nakhon Si Thammarat. However, in 2020, as the COVID-19 pandemic brought many businesses to a halt and forced many out of their jobs and back to their hometowns, SCG expanded the professional skill development training to nine more provinces, namely Chiang Rai, Phrae, Udonthani, Ubon Ratchathani, Lamphun, Uttaradit, Buriram, Phitsanulok, Tak, and Rayong thus creating a robust network across 14 member provinces in total.

The project focuses on giving insightful advice and establishing a forum for the exchange of knowledge, perspectives, ideas, and experiences, where members can discuss issues of their own or within their groups so as to find solutions and enable themselves to better utilize what they have and create more added value.

The key success factor lies in the fact that the communities are acting of their own initiative and learning to adapt to the ever-shifting circumstances. At the same time, the network also serves to empower its members in the 14 provinces to share what they have learned and enable them to exchange both raw materials and products among themselves.

Achievements of the Power of Community Project



Over **450** members of the
Community Power Network

Active in **14** provinces,
namely Lampang, Saraburi,
Kanchanaburi,
Nakhon Si Thammarat,
Chiang Rai, Phrae, Udonthani,
Ubon Ratchathani, Lamphun,
Uttaradit, Buriram, Phitsanulok,
Tak, and Rayong

850 products developed

Over **2,250** jobs created

Knowledge passed on to at least
10,200 people

An average monthly
income of **10,000-
100,000** baht per person

Job Creation Project of SCG Foundation

Young Community Developer Project and Livelihood Fund:

The Foundation strives to create a new generation of community developers and transform members of the Livelihood Fund into future community entrepreneurs through upskilling and reskilling and by strengthening a network between community business owners and the government, private, and public sectors. The project also seeks to develop learning centers and enhance the quality of local products to increase their access to modern trade and enable local communities to earn a sustainable income. Currently, the Livelihood Fund has been established in 11 areas with 9 funds and there are 62 young community developers nationwide.

“There were times when I felt discouraged and wondered if this was right for me. I have to reflect every day, hold fast to my goal, and tell myself that I can do this because I grew up here. I can’t grow in the city. I think what I’m doing has strengthened the community as it has created food independence and generated income for the community, fostering sustainability in families.”

“Oum” Kanuengnit Chanamo,
a young community developer
from the self-sufficient farming
training program in Buriram

Skills Development School

While driving heavy trucks can be an opportunity for job seekers, most people lack the proper skills. Also, as the only training the majority of these drivers have is the one given by their fellow drivers, they may fail to develop road safety skills, which can lead to loss of life on the road.

To create opportunities and reduce social inequality, SCG has initiated “Skills Development School”, which offers a truck driving program as part of a professional development project in which people who have become unemployed due to the COVID-19 pandemic can undergo training to acquire truck driving skills and enter the trucking career safely. Upon completing the four-day program, participants will receive a certificate that they can use to apply for a job at a transportation business.

The program utilizes a simulator to familiarize drivers with the actual driving environment and includes a driving test in the actual testing ground. Instruction is conducted by experienced drivers with certificates on safety.

Skills Development School has won a SET Social Enterprise Award and strives to continue to develop the best programs in line with its motto “Beyond learning is practice” to produce quality personnel with safety consciousness, to reduce road accidents, and to serve as a vital learning center for communities and society in accordance with ESG practices.

Q-CHANG

Q-CHANG is a Thai startup platform that seeks to enhance the work quality of handymen and technicians, elevate their quality of life, and foster a sense of pride in their profession with the goal of increasing their job security and job opportunities, enabling them to earn a stable income, and enhancing the professionalization and reliability. With the motto

Achievements of the Skills Development School

The number of truck drivers who have completed the program was **480** with **80%** employment rate, equivalent to **10** million baht in revenue

The number of discharged military personnel from the three armed forces was **2,000** with **50%** employment rate, equivalent to **15** million baht in revenue



“We’ve Got Your Back,” the platform facilitates work and offers greater convenience for handymen.

Q-CHANG operates with a 3S strategy:

Set the Foundation: Q-CHANG elevating professional service standards by training handymen upon entering the platform to develop their hard skills and soft skills, including service and communication skills. The training is conducted by Q-CHANG’s partners – the Department of Skill Development and Boonthavorn Training and Testing Center.

Stability: The Q-CHANG Buddy application makes job acceptance simpler and allows handymen to generate a steady income. Through the app, handymen receive their service fees within two days after job completion and can gain jobs from Q-CHANG’s partners, such as building material marketplaces, SCG HOME, and Urbanice.

Society: The platform gives handymen access to an online community through the private Facebook group “Q-CHANG Installer” as well as the “I AM Q-CHANG” activity, which is organized nationwide to strengthen relations between handymen. The platform also offers benefits and welfare to its members, such as accident insurance and a credit line for the purchase of professional equipment.

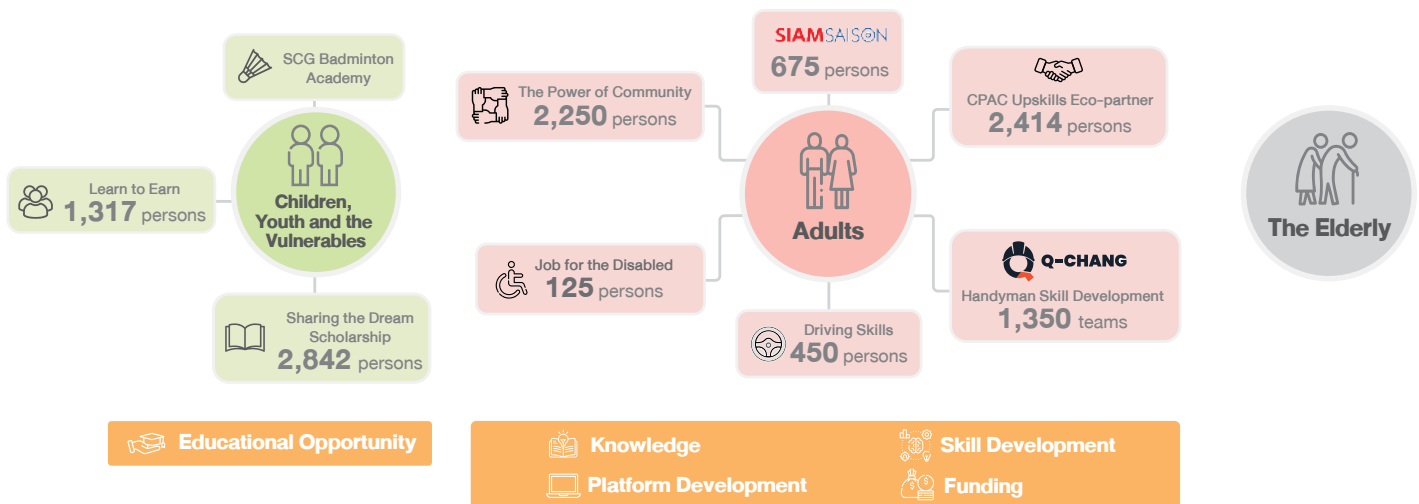
Therefore, Q-CHANG is not only a leader in the construction industry but also contributes to the job security of handymen and thus helps to establish a foundation for a strong and sustainable society.

Enhancing Well-being

Despite advances in medical technology, healthcare services remain out of reach for many people

The SCG Foundation offers medical and healthcare assistance to the underprivileged, including children, people with disabilities, and the elderly, giving them access to proactive medical





Achievements of Q-CHANG



“Everyone trusts the Q-CHANG brand. Customers trust us and feel comfortable letting us into their houses. We also get gifts sent to us on New Year, making us feel that we’re part of the family. Q-CHANG’s got our back.”

Dew, an air conditioner technician

The platform has over **1,350** teams, with **4,800** handymen combined, across the 77 provinces nationwide.

The number of jobs has increased **4** times to **50,000** jobs.

The platform has generated **130** million baht in income for handymen, enhanced the work standard and trust, and achieved a retention rate of **24%** and a service recommendation rate of **70%**

care. The Foundation works with its network partners to distribute and provide prompt medical care such as heart surgery and individuals with a cleft lip or palate, to reduce burden on the state in a preventive manner.

In addition, the SCG Foundation promotes healthcare at the community level and has launched the Community Caregiver Project in collaboration with the Rural Doctor Foundation to develop caregivers who can take care of and help prevent complications among bedridden patients and people with disabilities or chronic diseases, such as diabetes and hypertension. These caregivers are given a scholarship to undertake academic and practical training lasting over six months. The project aims to give equal access to healthcare services in Nam Phong and Ubonrat Districts in Khon Kaen and distribute medical equipment to community hospitals in 23 districts across 17 provinces as well as to educate local

people on how to foster food security in order to achieve self-reliance.

In 2022, SCG collaborated with the Crown Property Bureau and private sectors to dispatch a mobile eye surgery and dental service unit to three provinces, namely Ubonratchathani, Uthaitхани, and Phetchabun. The unit performed eye surgery for 725 patients and provided dental services to 571 people.



Achievements at Nam Phong and Ubonrat Districts in Khon Kaen

“I’m not a doctor or a nurse. My job is to take care of the elderly and bedridden patients in the hospital. I’ve undergone both theoretical and practical training and tried to apply my knowledge to patients in the community. My goal is to heal them or improve their condition. Hopefully, there will be more caregivers in the future to carry on the mission of caring for the elderly in our community.”

Sunanta Bussarakam (Mae Yen), a 55-year-old community caregiver under the Rural Doctor Foundation, Khon Kaen

10 community caregivers have been trained to take care of over **1,000** local families.

Each community caregiver takes care of at least **100** local families.

Enhancing the Power of Collaboration

Tackling Crises with ESG



At ESG Symposium 2022, the private and government sectors, civil society, and world-class partners came together to enhance power of collaboration on advance environmental, social, and governance (ESG) initiatives - the only solutions to the current crises: global warming, natural resource scarcity, food shortages, COVID-19, inflation, and soaring energy prices.

It is the first time in Thailand to upgrade version of the SD Symposium, organized for the 11th consecutive year, to ESG Symposium 2022, which sought to connect global partnerships to the national level to tackle these crises, effect change, and produce tangible outcomes.

"Given the urgency and gravity of these crises, all sectors in society need to work together to actively collaborate, brainstorm and take action. We cannot simply use traditional solutions, but we need an evolution, a disruption, and the power of collaboration across the entire ecosystem, driven by an ESG pathway. Most importantly, ESG Symposium 2022 will serve as a platform for expanding collaboration to action taking us to the goal of saving the world."

That was the opening speech by **Roongrote Rangsiyopash**, President and CEO of SCG, at ESG Symposium 2022, which was organized on July 19, 2022 at SCG Headquarters in Bang Sue. The event was attended by 400 people in person and over 320,000 virtual participants.

The speech highlighted the urgency of this mission and how collaboration would be indispensable in restoring balance to the world, as everyone also contributed to the issue.

ESG Symposium – Global Sharing Experiences and Inspiration for sustainability

The goal of ESG Symposium 2022 was to accelerate collaborative power to action.

The symposium showcased innovations by network members who collaborated with SCG for ESG advancement and featured talks where world-class executives, leaders from the business sectors, and young generations shared their lessons learned and ESG inspirations. The event concluded with a panel session on collaboration for a low-carbon society, innovation toward Net Zero, and social inequality reduction.

Peter Bakker, President and CEO of the World Business Council for Sustainable Development (WBCSD), one of the executives of a world-class organization joining the event, stated in his remark on opportunities in a crisis, "As the post-COVID world is facing many uncertainties, we cannot wait but need to change today. However, in these challenges lie





opportunities that we can seize if we can revolutionize the production process and value creation, reduce high-carbon energy use, and adopt the circular economy. For leapfrog reformation, the business sector must work collaboratively to transform the global supply chain.

On changing the world for the better, **Aminta Permpoonwiwat**, a UN Youth for Climate representative of Thailand, said, "So far, we often have chosen to evade or deny responsibilities. We don't need to revolutionize but to refresh our knowledge. What we need to do is not to build a new world but to use the tool and the power in our hands."

The symposium was warmly attended by as many as 315 alliance, due to COVID-19. The event was held as a hybrid combining both offline and online.

The success of the symposium was the culmination of a series of brainstorming sessions that took place earlier between various sectors. As it was believed that to foster true collaboration, it was vital to have a forum to discuss and share ideas for seeking solutions together, which could not be created in a single-day event.

Establishing a Brainstorming Space for Sustained Collaborative Action

Discussion and brainstorming for ESG Symposium 2022 began two months prior to the actual event from May to June, during which various sectors met to brainstorm on the following four key thematic:

1. Innovations toward Net Zero
2. World-Changing Ideas
3. Women Empowerment to drive Sustainable Economy
4. Collaboration for a Low-Carbon Society

A series of brainstorming sessions were held in each thematic, fostering the close collaboration necessary to address complex and significant challenges.

One of interesting collaborative project from the "Innovations toward Net Zero" thematic was the Innovation Roadmap for Industrial Decarbonization workshop by SCG in partnership with the Office of National Higher Education Science Research and Innovation Policy Council (NXPO).

Dr. Kitipong Promwong, NXPO President, invited related parties across government, private, education, and research sectors to discuss issues and provide recommendations that would lead towards the development of a roadmap towards decarbonization innovations in order to achieve the net-zero goal within the defined timeframe. It was concluded that focus would be placed on four core groups of technologies and innovations as follows:



1. **Fuel Switching:** Transition away from fossil fuel in co-generative systems
2. **Electrification:** Promoting green and clean electricity
3. **Carbon Capture Utilization and Storage (CCUS):** Prioritizing the use of technology for carbon capture, utilization, and storage
4. **Hydrogen:** Driving hydrogen-fueled energy systems

In this thematic, key factors promoting the development of innovations, such as policies, regulations, standards, and support measures like tax incentives were addressed, as well as mechanisms for advancing the initiatives, such as domestic and international partnerships and transfer of new high-efficiency technologies.

A Space for Youths' Creative Ideas

Young people are a key thematic of stakeholders who will almost inevitably have to face with global crises, including social and environmental issues, when they grow up. However, they will also play a pivotal role in tackling them.

As such, ESG Symposium 2022 also provided a platform for youth both from Thailand and regional countries to demonstrate their potential and propose solutions to social and environmental issues in the form of an ESG-based innovation competition for the enhancement of the quality of life and opportunities for the disadvantaged and vulnerable groups. A total of 262 teams, comprising over 780 members from Thailand, Indonesia, and Vietnam, participated in the competition. The entries demonstrated a diverse range of ideas and capabilities that could help address inequality and improve the quality of life for people across Southeast Asia.

Khananet Wechawithi,

a 12 grader at Montfort College, and his team developed a sign language interpretation program that improved convenience and the quality of life for people with disabilities, along with an educational online game. On solving global problems, he remarked:

"Youths that currently accounts for 33% of the global population but will be 100% of the world's population in the future. I would like adults to not limit our thoughts, to listen, and to empower youth because they are going to be the most affected group by environmental impacts. ... The world is sick because education is boring and because of a lack of knowledge and understanding. It is now time to change by introducing innovation to education to make it entertaining."



Promoting Women's Roles in Driving the Economy and Tackling Crises

The world has always been driven by women, not only in the family but also in the workforce, pushing the economy forward at both community and national levels. However, a large number of women are facing challenges in a society marked by glaring inequalities.

Fahseri Prapanta, President of

RAINAFA ENDU Co., Ltd., who transformed her paddy fields and fostered sustainability for herself and



her communities, said in the brainstorming session on women:

"Women do not give up. My paddy fields and my produce were once destroyed by a flood. I found myself in millions of baht in debt. However, I didn't give up. The important thing is when you encounter an obstacle, you need to learn and give yourself an opportunity to acquire knowledge to solve that problem. Don't be afraid that you won't be able to do it. Learn from capable people and learn from failure and apply it. You'll be able to overcome everything and achieve success."

The conclusion of the brainstorming session was that what prevented women to fully utilize their potential was their mindset, beliefs, and fears, which had been passed on through culture and patriarchal values. Solutions were also proposed for women empowerment:

- Change the beliefs: Women have high ability but are afraid to use it.
- Celebrate new values and promote more opportunities for women in society: Adjust the culture to promote appreciation for the value of women and reduce prejudices against women in society.
- Create women role models for inspiration: Communicate stories of successful women, their way of thinking, their capabilities, and their courage to create inspiring female role models.
- Create a network to enhance women's potential: Foster a network to support women and create a forum where they can fully demonstrate their potential.



CEO Collaboration for a Low-Carbon Society

The business sector is a major driver of the sustainable growth of the economy.

If organization leaders believe in sustainable development, appreciate the significance of ESG and a low-carbon society, and take part in making real changes, success can be achieved.

At ESG Symposium 2022, SCG opened a forum for CEOs from various leading companies and organizations, including industrial councils and chambers of commerce, to join forces to bring about a low-carbon society, which also entails alternative fuel and the circular economy, both of which promote sustainable consumption.

“To bring every dimension to fruition, everyone needs to take action and come together, not just the private sector or private organizations. What we desperately need is the government’s support, from the formulation of a master plan all the way to the amendment of laws and regulations to promote the realization of a low-carbon society, such as BOI certificates and tax benefits. The government can also encourage the widespread use of eco-friendly products by spearheading green procurement,” remarked Paradorn Chulajata, Honorary Chairman of the Plastic Industry Club under the Federation of Thai Industries.



The Next Step of Collaborative Power

SCG intended for ESG Symposium 2022 to be not just a forum for opinion exchange but also a venue for inspiration, for fostering collaboration, and for creating actionable outcomes.

The brainstorming sessions of all sectors involved at ESG Symposium 2022 culminated in two scalable and practicable actions to driving Thailand towards achieving net-zero GHG emissions by 2065.

The first action is to establish Thailand’s first net-zero innovation acceleration group through an industrial and academic consortium in partnership with state agencies as well as global and national private organizations, consisting of scholars; high-ranked executives from various sections, including energy, transportation, electricity, petrochemistry, construction, and commodity; the Massachusetts Institute of Technology (MIT); the Global Cement and Concrete Association (GCCA);



the Federation of Thai Industries; the Ministry of Energy, the Office of Natural Resources and Environmental Policy and Planning; and the Ministry of Natural Resources and Environment, with the Office of National Higher Education Science Research and Innovation Policy Council (NXPO) as the driver.

The goal of this action is to establish a roadmap for the development of decarbonization innovation for use in Thailand, including carbon capture, utilization, and storage (CCUS) technology, fuel switching, electrification, and hydrogen energy.

The second action is to synergize and expand the partnership network for a low-carbon society, in which over 60 private organizations work with the government sector to implement 10 initiatives for a low-carbon society, such as building infrastructure conducive to the use of clean and renewable energy, providing funding support and low-interest loans for clean energy, establishing efficient waste management systems, promoting household waste separation, and providing knowledge and technology for green product development.

.....

ESG Symposium 2022 marked an important milestone for the creation of a forum for collaboration for the advancement of ESG and an evolution of this international sustainability conference, organized over many consecutive years by SCG. Roongrote Rangsiyopash, SCG’s President and CEO, demonstrated his commitment to bringing about collaboration to empower society and stated:

“SCG will serve as a coordinator for all parties and utilize our resources to gather your suggestions in order to advance this matter and achieve tangible progress. We are trying to build and make Thailand a country where our posterity can live happily.

This effort may be just the first step of the long and arduous journey ahead, but we must move forward together as the fate of the world and every life depends on it.

Always Commit to Trust and Transparency



Leveraged by the Integrated GRC

SCG has over 50,000 employees.

There are approximately 140 companies in Thailand and 160 companies operated in Abroad.

SCG works with over 10,000 business partners and distributors to deliver products and services to more than 100,000 customers.

Each year, SCG generates revenue more than 5 billion baht and has the assets of over 900 billion baht. SCG has been recognized as a leading organization in the region with a strong business foundation that has been grown for more than 110 years.

Since founded in 1913, SCG has conducted business in accordance with the Business Philosophy, which SCG employees always uphold. "Adherence to Fairness, Dedication to Excellence, Belief in the Value of the Individual, and Concern for Social Responsibility". These ethical core values are the cornerstone of the company in conducting business in accordance with the guidelines for sustainable development and the principles of corporate governance. SCG is committed to creating social value, developing products, services and solutions with eco-friendly innovations, and fostering economic growth through fairness and transparency.

Having to expand the business with sustainable growth during the transition to a low-carbon society in the midst of volatility in the economy, environment, and modern society has strengthened SCG's commitment to operating its businesses under the sustainable development principles through ESG 4 Plus, which is

Net Zero - Go Green - Reduce Inequality - Enhance Collaboration Plus Trust through Transparency.

SCG has applied GRC (Governance, Risk Management and Compliance) to management under the supervision of the Board of Directors and top executives as part of its efforts to achieve sustainable development goal in accordance with the ESG. In addition, SCG always works to ensure that its data integrity and transparency are conducted in compliance with the ESG international reporting standards to establish stakeholder's trust towards SCG business operation.

As a result, SCG encourages its employees at all levels, both in Thailand and Abroad, to recognize the GRC concept, understand their work goals, and be able to assess and know the risks, work in compliance with rules and regulations, and constantly apply the GRC concept at works in order to promote desirable behaviors at the workplace and in daily life.

Integrated GRC

SCG targets Net Zero GHG emissions by 2050.

This means that SCG must accelerate its proactive adaptation in order to prepare for the transition of policy, technologies, and markets that will direct us to a low carbon society with just transition. Currently, the number of companies under the group has risen as SCG continues its business expansion and merger, emphasizing SCG's responsibility to ensure its effective corporate governance.

As a result, SCG has reviewed its relevant policies and operational guidelines to correspond to the direction as mentioned earlier to ensure that business operations and activities are carried out with fairness, transparent, and accountability in accordance with SCG Code of Conduct and SCG Corporate Governance handbook, with The Board of Directors and top executives being a role model.

In order to ensure ability to execute the strategies and achievement of targets, the Board of Directors and top executives closely oversee risk management,





compliance management, and internal controls in order to ensure that they are carried out effectively, sufficiently and appropriately in line with the SCG's current business expansion plans. All business activities will apply the Integrated GRC concept which is the holistic integration of governance, risk management and compliance as well as the Three Lines Model approach, and several systems, including Ethics e-Testing and e-Policy e-Testing, which are conducted annually, whistleblowing system, and GRC Helpline which provides consultation from experts in order to ensure accurate work practices. These solutions will enhance the efficiency and effectiveness of business operations and provide reports of complaints to internal and external stakeholders.

GRC Collaboration Project

SCG has been carrying out an implementation of the Integrated GRC approach since 2017. In 2020, SCG started to develop the MD GRC Guidebook, the GRC-related practice guideline for the employees at the management level, and GRC e-Rulebook, the GRC guidelines and instructions for employees at all levels. SCG also established the GRC Helpline, a channel to assist employees in performing their jobs accurately from the beginning.

As part of the efforts to accelerate the practical GRC implementation to achieve effective results, from 2021 to 2022, SCG collaborated with PricewaterhouseCoopers ABAS Ltd (PWC), One of the largest audit and assurance service provider in the world, and initiated the GRC Collaboration project as a channel for PWC to provide GRC knowledge that are relevant for a utilization in cement and building materials businesses. The project began with the Green Construction Solution business, which has adjusted its direction in response to a transition to a low-carbon society. Through the project, its strategies and operational procedures in relevant units were assessed in accordance with the GRC international approaches. The results of the assessment were utilized as a direction for improving work processes at each level. Additionally, outcomes gained from the project were compiled into SCG's knowledge that can be applied and advanced in other units subsequently.



Better Decision Making with GRC



According to the assessment results, for the corporate governance assessment, the structure and roles & responsibilities of GRC Committee and experts in each work area are defined and written.

For the risk management, a risk register in which the enterprise risks and the project risks are linked. The risk mitigation plans are defined in order to manage risk within the acceptable level.

In a compliance aspect, guidelines, communication approaches, indicators, and follow-up plans were determined to mitigate regulatory non-compliance.

The guidelines include the planning of Knowledge Management projects, a system for the GRC database, data exchanges between teams in different units (divisions) as part of the efforts to build continuous technology improvement.

In term of GRC technology, an implementation of GRC integration in daily work through the Embed GRC checkpoint on the working platforms, and follow-ups through a Dashboard to monitor and improve our performance such as Heat Map and Risk Notification.

These improvements pertain to the 2P2S management approach, covering the improvement in the structure, system, process, and, most significantly, people dimensions. Digital platforms were also utilized

to enhance an effectiveness of operations and build up transparency in data exchange.

The important thing is how to develop employees, ranging from their knowledge, skills, behaviors, and mindset, to become GRC people with an

Awareness – “I see what is going to change or become different from the past and also its impact. I know why I need to change.”

Knowledge – “I know how to change.”

Skill – “I have skills and self-confidence to follow a new guideline.”

And embedding those notions in my everyday practice to create a corporate culture – “I work differently and I see my supervisor works differently.”

Along with developing employees with potential to become a coach, through the “Train the Trainer” program, so that they can help expand and pass on the notions to other employees extensively and rapidly.

After a training, employees are required to pass a post-training test at least 80% of all programs taken. They are expected to gain knowledge and understanding of essential basic GRC key laws and contracts relating to construction and building regulations of SCG, as well as a risk analysis for construction and building operations. Besides, there were also seminars for employees to share their experiences with internal and external professionals. The GRC Day event was held on September 14, 2022. PwC and SCG experts shared knowledge and raised awareness of the importance of GRC to business operations to employees.

During the seminar, the PwC experts emphasized the importance of GRC that, “GRC improves the competitiveness of the company, and enables the Company to see all of business and operational risks. If we can eliminate all potential risks, more business opportunities would arise. The important thing is how to meet the expectations and needs of all stakeholders.”



Pitaya Chanboonmi, Director of Internal Audit Office, SCG mentioned at the seminar about building GRC People while communicating with employees that “Senior employees have a duty to build up

corporate culture in order to help junior employees to eliminate risks. This can be done by growing an entrepreneur mindset that if it were our own company, would we do it? At what level of risk would it be acceptable? We need discipline and a standard guidebook. Compliance with rules and regulations is essential to building trust and reputation as we are representatives of SCG.”



GRC Expansion to Abroad Operations

SCG has consistently expanded its international operations. There are currently over 160 abroad companies, particularly in the ASEAN region, including Indonesia and Vietnam, which are regarded as major strategic countries of SCG. The business expansions come in a variety of options while the number of stakeholders in the value chain have grown. As a result, potential risks of business operations grow in correspondence with the requirement of laws and regulations of a particular country as well as the ESG issues that gain an attention in all countries.

In 2022, SCG enhanced the risk management practice by improving the organizational structure to enable effective assessment of key country risks. A Focal point unit was established as a center to report risks to the Country Director, the management team in each country and SCG's Risk Management Committee. Exchanges of significant risk information e.g. key risk trends were also been arranged.

In addition, SCG collaborated with the Indonesia Corporate Office to organize an online risk management

workshop as part of the efforts to promote good corporate governance. A collaboration with the Vietnam Corporate Office and the Focal Points in the Philippines, Cambodia and Myanmar were also established to improve risk reporting, risk dashboard and exchange of key challenges in order to increase efficiency and effectiveness of risk management.

In terms of compliance, SCG began an implementation of the Compliance Management System (CMS) in Vietnam in 2019, and in Cambodia in 2022. An implementation is planned to start in Indonesia in 2023. Due to a number of the laws relating to abroad operations, an effective management system is essential to ensure that SCG operates its business in compliance with those laws to mitigate risks of non-compliance. CMS will enable and ensure the company's efficiency in compliance with the law. Furthermore, we have a system for tracking changed regulatory to ensure proper and prompt compliance.

In promoting SCG Code of Conduct, SCG continues to place emphasis on fostering an awareness of SCG Code of Conduct among abroad operations. In 2022, the Code of Conduct team collaborated with the abroad Focal Point to establish the SCG Code of Conduct manual in local languages for Indonesia, Vietnam, Cambodia, and the Lao PDR People's Democratic Republic. Communications with employees were also established in an effort to promote compliance of SCG Code of Conduct among abroad subsidiaries which is appropriate to the contexts of each country.

.....

SCG strongly apply the GRC concept and plans to extend an implementation to other functions in the future in order to build “trust and transparency in all operations” both in the country and abroad.

SCG's goal to move forward to sustainability under the ESG in the 21st century is Net Zero - Go Green – Reduce Inequality – Enhance Collaboration Plus Trust through Transparency cannot achieve without accountability, transparency and fairness.





OUR ACTION

Climate Resilience

Circular Economy

Health and Safety

Sustainable Products and Services

Customer Experience Creation

Supplier Management Towards
Sustainable Value

Water Management

Air Quality Management

Biodiversity and Ecosystem

Human Rights

Employee Caring and Development

Community and Social Involvement

Climate Resilience

Promoting Biomass as Coal Substitute and Move Forward to Net Zero

SDGs 7 9 12 13 15 17

Target	2022 Performance
Net Zero by 2050	30.12 million ton CO ₂ eq emission
At least 20% reduction by 2030 from base year 2020	12.05%
13% less energy use by 2025 from BAU 2007	6.73%

Strategy

1. Increase the share of biomass and clean energy replacing fossil fuel.
2. Improve or modify processes and equipment for higher 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.

Management

- Set emissions reduction target aligned with the Paris Agreement, and keeping global temperature rise to well below 1.5 degrees Celsius and Net Zero by 2050.
- Drive energy efficiency continuously in all business units.
- Prepare and disclose climate-related according to international guidelines (TCFD, SBTi).
- Oversee implementation of climate preparedness by the Board of Directors and top executives in their quarterly meeting.
- Drive and steer climate-related actions under oversight of Climate Change and Energy Committee which meets quarterly.



Global warming and climate crisis are impacting more intensely quality of life of people across the world. All countries participating in efforts to meet the Net Zero by 2050. Furthermore in 2022, there was also an energy crisis caused by the effects of war. This affects fossil fuel prices higher and more volatile and triggers the transition to renewable energy. Thus, all BUs of SCG focuses on implementing the strategy that, in particulars, accelerates the use of alternative fuels to replace coal, uses clean energy instead of electricity from burning fossil fuels, increases the energy efficiency that has been in operations for decades, and prepare carbon credits as a complementary approach to achieve the long-term Net Zero goal.

Zero Coal Strategy

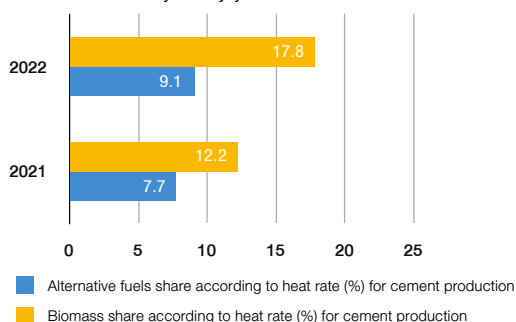
SCG is determined to increase biomass or alternative fuels use to achieve the target of 100% substitution of coal.

- **Machinery improvement to accommodate alternative fuels.** Cement and Building Materials has steadfastly implemented increase of alternative fuels in its energy mix. In 2022 the share of substitute fuel according to heat rate increased from 19.9% to 26.9% in cement production. Cement factories have installed and improved machinery for clinker burning processes to boost the capacity to use higher quantity and wider variety of alternative fuels. For example, installation of additional Chloride Bypass System at Siam Cement (Kaeng Khoi) to increase volume of RDF use, installation of digestion machines to process different fuel types appropriately. Feeders and fuel loading for cement kilns are adjusted for wider range of fuels including RDF from residential waste, industrial waste, agricultural waste and other types of biomasses. Automation and machine learning are deployed to enhance production efficiency, thereby improving quality control in production processes.



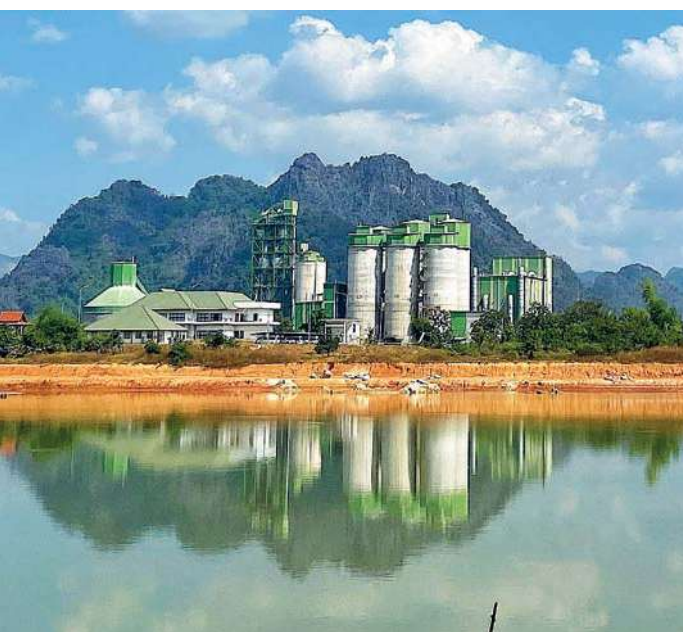
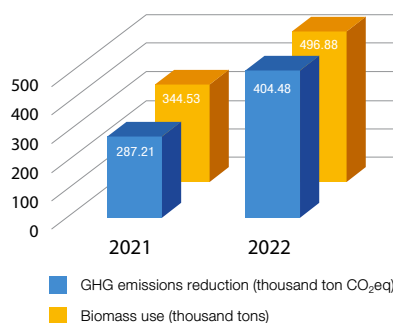
• From Waste to Biomass Fuels

- **Cement and Building Materials** collaborates with community and partners to collect and turn agricultural farm waste such as paddy husk, straw, saw dust, sugarcane leaf, corn leaf, into biomass. Residential and industrial waste are processed into RDF to substitute coal in cement production. The share of biomass in energy mix has been increasing consistently every year.



- **SCGP (Packaging Business)** boosts biomass in energy mix through a scheme to purchase sugarcane leaf from farmers as feedstock. Its research shows heat capacity of wood pallet to be proximate to coal, and higher than bark, therefore suitable as substitute in boiler at a higher proportion than bark.

GHG Emissions Reduction from Biomass in SCGP



SCG Packaging's business in Indonesia, PT Fajar Surya Wisesa Tbk. is committed to emission reduction through factory improvement to increase energy efficiency and substitute fuel use through the following:

- **Machinery replacement for higher efficiency.** Installation of Turbo Air Vacuum using high-speed wind replacing the older system in the process of removing water from paper. This results in less use of electricity, and anti-scaling chemicals. The undertaking saves energy by 172,214 gigajoules per year while reducing GHG emissions by 13,239 ton CO₂eq per year.
- **Change wastewater treatment system to anaerobic digestion.** Aerobic wastewater treatment system needs electricity to pump air, which consumes a lot of energy and builds up sediment. The company replaced this with anaerobic which does not require electricity to pump air in, while using biogas to generate electricity. These reduced coal use by 22,000 tons per year and cutting GHG emissions by 36,000 ton CO₂eq per year.

Production Process Improvement for Energy Efficiency

SCG studied production processes to constantly enhance its efficiency, with investment to modernize equipment and apply digital technology to ever increase electricity saving.

- **Cement and Building Materials** Siam Cement (Kaeng Khoi) Company Limited adopts Advanced Process Control (APC) and Machine learning for real-time forecast of clinker quality, using the data for kiln optimization. As a result, it is able to reduce heat rate per production unit of 15 kcal/kg-clinker, equivalent to emissions cut of 9,438 ton CO₂eq per year. On energy efficiency drive, it has further enhanced the program for automated adjustment of appropriate feeding for a total of 6 raw mills and cement mills of Siam Cement (Kaeng Khoi) and Siam Cement (Lampang). These actions reduced energy use per production unit by 1%, equivalent to GHG emissions reduction of 3,427 ton CO₂eq per year.
- **SCGC (Chemicals Business)** Rayong Olefins Company Limited worked on adjusting its Dilution Steam Generator (DSG). Consuming high energy, DSG generates dilution steam before material entry into kiln. A joint study among inter-disciplinary experts came up with an energy-saving guideline for DSG. In essence, the key is to modify the pressure of DSG to align with appropriate equipment use while maintaining the product quality. The effort results in emissions reduction of 3,000 ton CO₂eq per year. A further study is underway to improve certain equipment parts that will further reduce pressure and energy consumption of DSG.
- **SCGP (Packaging Business)** increases drainage efficiency from boiler in paper production processes – from the previous system of constant drain to digitally controlled and automated drainage, with silica value measured real-time to regulate it within benchmark. The implementation results in reduction of heat waste from drainage, more than the previously constant drain system. This similar project implemented in five factories in Thailand, Vietnam and Indonesia, is found to have save 78,732 gigajoules of energy per year, while reducing GHG emissions by 7,978 ton CO₂eq per year.



Towards Net Zero, Scaling Up Solar Energy Capacity

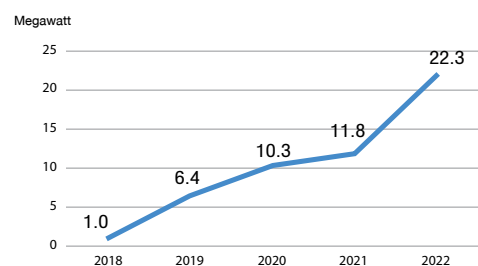
SCG's business units are determined to roll out solar energy use in all factories. They can be in the form of solar farm, floating solar, and rooftop solar solutions, with the goal of increasing clean energy use and cut greenhouse gas emissions.

- **Cement and Building Materials** scaled up solar energy installations: Siam Cement Co., Ltd.(Ta Luang) installed an 8 megawatt capacity solar farm; Siam Cement (Thung Song) installed 7 megawatt solar farm; and 10 megawatt at Siam Cement (Kaeng Khoi). A total of 25 megawatt solar energy systems generated as much as 31,000 megawatt hours output, equivalent to emission cuts of over 15,000 ton CO₂eq per year. Siam Fibre-Cement Group installed an 8.7 megawatt solar farm at Ta Luang Factory to generate electricity for in-house consumption, using bifacial solar cells which boost capacity by 5-7% compared with the conventional monofacial type. Furthermore, factory scraps are aggregated to make flooring underneath the solar farm to increase the bifacial panels' reflective capacity. This has turned 6,947 tons of factory waste into use according to circularity principle. This project shaves off GHG emissions by 5,654 ton CO₂eq per year, and saving electricity bills of THB 33.14 million a year.



- **SCGC (Chemicals Business)** Map Ta Phut Olefins Company Limited installed floating solar farm at the reservoir of RIL Industrial Estate, located close to its factory. The farm has 2 megawatt capacity, making use of hitherto unused reservoir surface. The farm helps reduce evaporation of water inside the reservoir. Solar panels are guaranteed to function for 25 years. The project achieves GHG emissions reduction of 1,200 ton CO₂eq.
- **SCGP (Packaging Business)** steadily increases its solar energy systems installation from 2018. In 2022 it added seven more totaling 10.5 megawatts in its facilities. In all, its 22.3 megawatts of solar capacity reduce GHG emissions by 10,238 ton CO₂eq per year.

SCGP (Packaging Business): Solar Energy Capacity Increase



Note: License pending to energize 2.46 MWp

Internal Carbon Pricing as Incentive

SCG adopts Internal Carbon Pricing (ICP) as tool to support investment decision in projects that can cut greenhouse gas emission. It has adjusted calculation from US\$18 to US\$25 per ton CO₂eq to accelerate program support.

In 2022 SCG has a total of 16 ICP-approved projects, investment value of THB 1,719 million, that can reduce emissions by 149,446 ton CO₂eq per year.

Carbon Credit Registration for Sequestration Activities

SCG supports Thailand Voluntary Emission Reduction Program- T-VER by Thailand Greenhouse Gas Management Organization (Public Organization) or TGO. Under the scheme, voluntary emission reductions are quantified as carbon credit.

- **Cement and Building Materials** partnering with Department of National Parks, Wildlife and Plant Conservation (DNP) and Lamphun Province organized a “Sustainable, Participatory Forest Conservation” project on a 400 rai plot of land where Ban Gor community is located. The project focuses on comprehensive stakeholders engagement – the community, local authority, Mae Ping National Park, Faculty of Forestry Kasetsart University and many more. The community’s livelihoods and income are supported by related activities such as cultivation of saplings, forest maintenance. CPAC Green Solutions are applied for conservation including CPAC Drone Solution, Water Solution. The project’s carbon sequestration value is being evaluated to apply for carbon credit as SCG’s carbon sink. Ban Gor Model is likely to be replicated elsewhere as forest conservation approach.

- **SCGC (Chemicals Business)**

- Collaborating with Department of Marine and Coastal Resources implements a forestation project to rehabilitate degraded forest and increase mangrove area as carbon sink, with total coverage of 1,100.56 rai. The project engages with experts, communities and authorities for its sustainability. Preparations are underway for carbon credit registration as carbon credit offsetting greenhouse gas emissions. This is a component in a conservation project that aims to plant 1,000,000 trees.



- Switching 2 diesel-engine to electric shuttle buses for staff. While improving safety, the action reduces emissions by 210 ton CO₂eq over seven years, averaging 30 ton CO₂eq per year. This has already been T-VER certified.
- **SCGP (Packaging Business)** jointly with Siam Forestry Company Limited applied for T-VER certification for its forest conservation project in Kampangphetch. The 684.4 rai-agroforestry coverage has carbon sequestration baseline capacity of 14,315 ton CO₂eq in 2021. In 2022 the project was scaled up to sites owned by Wang Sala and Banpong factories, Siam Kraft Industry, Phoenix Pulp and Paper (PCL) and Siam Forestry, bringing total coverage to 7,138 rais. Its T-VER application is being processed for 2023.

Collaboration Focus: Waste-Free with LESS

SCGC (Chemicals Business) supports Zero Waste Community continuously. The project engages the community and stakeholders in waste collection and segregation through the Garbage Bank platform which functions as a community-based enterprise. Through this endeavor, villagers and members earn supplementary income, while reducing amount of waste to landfill and greenhouse gas emissions. In 2022, SCGC took the project further by conducting evaluation according to waste separation and emission reduction criteria and entering the project for Low Emission Support Scheme (LESS) certified by TGO. This has brought pride and joy to the community and stakeholders.



Emissions Reduction According to LESS (ton CO₂eq)

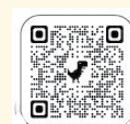
Khao Pai Community Enterprise	89.368
Noenphayom Garbage Bank	25.130
Khod-hin 2 Community Enterprise	5.808



Hug tree

HUGTREE is an application developed by Cement and Building Materials’ CPAC as platform to document tree planting and care data to engage “everyone” to participate in planting trees and taking care of them properly, increase green space, and become a carbon sink for society. Currently, we invite the employees and general public who love planting trees to come together to plant trees and communicate in social media. In addition, the platform is able to record the number of trees and their location. After that, the system will automatically calculate the amount of CO₂ sequestered in a tree and provide basic knowledge of proper tree care as a gift. (www.hug-tree.com)

Download hugtree



Circular Economy

Enhance Sustainable Resources Consumption While Reducing Waste Generation through Circular Economy Principles.

SDGs 9 11 12 13 17

Target	2022 Performance
8 million tons of recycled and renewable material in 2025*	8.06 million ton
Share of recyclable, reusable or compostable packaging of SCGP achieve 100% in 2025	99.8%
Sales volume of SCG GREEN POLYMER™ of SCGC (Chemicals Business) is 1,000,000 tons per year in 2030	137,125 ton
Zero hazardous waste from production to landfill annually*	0 ton
Zero non-hazardous waste from production to landfill annually *	0 ton

* For Thailand operations



Environmental problems have been intensifying and happening continuously. Finite resources, accompanied by ever-increasing volumes of waste and mismanagement of disposal exacerbate the climate crisis, along with all forms of pollution. These problems arise from behaviours, lifestyle and habits of all of us. Many countries are paying attention and finding solutions, as well as coming up with policy and regulations to manage natural resources. At the same time, efforts are being made to promote recycling, reducing waste generation and more use of alternative, substitute materials according to circular economy principles. SCG applies circular economy in processes across its value chain. It invests in research and development of innovation and solutions to reduce and optimize resource use, and effective waste disposal, in tandem with integrated recycle and reuse of materials in collaboration with internal and external partners.

Strategy

1. Reduce waste at source, and zero industrial waste to land fill.
2. Manage waste according to 3Rs and circular economy principles, both hazardous and nonhazardous waste inside SCG to the best effort.
3. Develop circular-economy products and services to foster and optimize materials value.
4. R&D focus on reuse of waste and waste to value
5. Change the business models in line with circular economy.

Management

- Reduce waste at source, and zero industrial waste to land fill.
- Manage waste according to 3Rs and circular economy principles, both hazardous and nonhazardous waste inside SCG to the best effort.
- Develop circular-economy products and services to foster and optimize materials value.
- R&D focus on reuse of waste and waste to value.
- Change the business models in line with circular economy.



R&D Focus on Production Processes, Waste as Substitute Materials to Optimize Resource

- **Circular Plus, a solution to manage resource circularity.**

- **Make-Use-Return refractory materials**

The Siam Refractory Industry Company Limited uses recycled materials from refractory and other industries to make refractory materials. This is achieved through feedstock development, quality improvement of recycled materials, as well as putting in place a quality assurance system to enable a variety of feedstocks to be used while maintaining properties of good products. The outcome is a range of use of recycled materials, such as used refractory brick, sanitaryware scraps, insulators, molds from glove industry. Currently the company is able to use improved recycled materials as substitutes to make refractory materials by 11,000 tons per annum, and able to substitute virgin material by 38% with the target of ramping up to 50% within 5 years. Refractory materials from recycled feedstocks have good quality according to ISO standards, with certain items certified SCG Green Choice such as highly refractory fire-clay brick, High-Alumina Castable type of concrete.

- **Soil Multi-Nutrient by Circular Plus Cement and Green Solution Business** uses by-products generated by chemical reaction from substitute fuel use with feedstock in cement production to make soil nutrition branded "Multi-Nutrient" for plants. The product is rich in key nutrients such as calcium, potassium. The undertaking helps mitigate impact of two-fold price rise of potassium fertilizer in 2022. In 2022, 450 tons of Multi-Nutrient have been piloted in farm plots, with plans to scale up its use of up to 1,000 tons in 2023.

- **Green Liquid Fuel**, a technology to turn industrial waste into liquid fuel, replacing coal. Cement and Green Solution has developed Green Liquid Fuel (L 25) using a combination of various liquid industrial waste as constituents. The approach is to formulate the combination to generate energy and fluidity appropriate for use as substitute fuel for cement clinker. In 2022 the application of this technology



turned over 8,400 tons of industrial into this type of liquid fuel, cutting CO2 emissions by over 7,700 tons.

- **From Acrylic Scraps to New Product**

Acrylic production process of SCGC (Chemicals Business) involves cutting and trimming resulting on saw dusts as waste. A project was implemented to install a small cutting machine that can trim acrylic edges into strip instead of saw dust. With this, new products can be sold for revenue of THB500,000 per annum, while reducing 44 tons of waste per annum.

From Waste to Value Creation

SCG continuously generates waste-management innovations and solutions through research into properties of waste with the aim to processing them into appropriate products to add value and cut disposal costs.

- **SCG X MAHANAKHON special collection, from cement bag to creative product**

SCG joins force with Mahanakhon brand to realize the "Rethink, Redesign, Revival" concept by jazzing up the secondhand Elephant Brand cement bag, Special Centenary Edition, through Street Art to make a range of products including t-shirt, cap, tote, key chain. The aim is to add value to waste with green touch and contemporary look.



• **Transforming fibre cement scraps into orchid bed**

Siam Fibre Cement Group collaborating with the Orchid Exporters' Association of Thailand turned fibre cement scraps in quantity of 3,600 tons per year into "orchid-growing beds" substituting concrete block. The new product is lighter in weight, durable and allowing orchid growers to move more orchids per transport trip, while reducing costs of orchid bed.

• **Ratchaburi Pottery from ceramics-industry sediment**

SCG Ceramics Public Company Limited uses soil sediments that are waste generated in the ceramics production processes at about 100 tons per month as materials to create "Pottery from Sediments" in collaboration with well-known pottery makers Thao Hong Thai and Ruangsilp 3 in Ratchaburi. This artistic creation adds value to 1,200 tons of waste per annum.



• **Soil nutrients from raw water sediment**

Rayong Olefins and Map Ta Phut Olefins managed raw water sediment which accounts for the highest portion at 40% of all waste from factory. Research shows the sediment has properties to function as soil nutrients. Following trial and demonstration at factory sites, these nutrients are proven to substitute chemical fertilizers. All 2,300 tons of raw water sediments per annum can now be turned into soil nutrients.



Circular Mark and ISCC Plus Certification

SCG is committed to developing circular-economy products over years and to date it has multiple choices that have been certified Circular Mark and ISCC Plus.

- **CIRCULAR MARK** is a national standard launched in 2022 to certify that products are circularly designed, made, used and managed end-of-life. The mark signifies optimization of resource use, waste reduction and less emissions. SCG is the first in Thailand to be certified Circular Mark.



- SCGC (Chemicals Business) is certified with its HDPE plastic resins under the brand SCGC GREEN POLYMER namely SMX551BU, SX002J/JA, S111F and S119F
- SCGP (Packaging Business) products certified are Idea Green photocopy paper, paper bag for consumer goods, Fest Bio food packaging from natural fibre, Laminated Mono-Material (R1) plastic bag and pet shampoo bottles made from HDPE 100% PCR.
- CBM Cement and Building Materials products certified under SCG brand are Smart Wood partition, heat insulator for electric appliances, Prestige X-Shield range of concrete roof tile. Under COTTO brand, the certified product is its integrated set of sanitaryware.

- **ISCC PLUS** is the standard by International Sustainability and Carbon Certification (ISCC) for an organization that manages carbon elimination and sustainability across its supply chain.



- Prepack Thailand Company Limited is certified ISCC PLUS for its flexible packaging for food industry. The product is made from recycled plastic raisins from ISCC-certified manufacturers, with a quality assurance system in place and Mass Balance traceability.
- SCGC (Chemicals Business) is ISCC PLUS certified across its high-quality plastic production supply chain. This starts from sourcing and aggregation of used plastic by RIL1996 Company Limited, for entry into advanced recycling process which yields recycled feedstock for petrochemical business by Circular Plas Company Limited. The feedstock is input into plastic raisin production by Map Ta Phut Olefins Company Limited and Thai Polyethylene Company Limited. The outcome is plastic raisin made through recycling across the supply chain and traceable using the Mass Balance Approach from upstream to downstream.

"Collaboration" as Key Circular Driver for Sustainability

SCG is determined to drive the society towards sustainability through collaboration in circularity with partners in state and private sectors. This aligns with the national Bio-Circular-Green Economy policy or BCG.





- SCG X One Bangkok** SCG collaborates with Quality Construction Products Public Company Limited to collect lightweight concrete scraps from One Bangkok construction project for recycling to produce Q-CON Sound Barrier that is used in the entry tunnel of the project. A total of 200 tons of lightweight concrete waste can be turned into 1,850 sqms sound barrier. Furthermore, parts of the collection are used as sand substitutes and water treatment nutrients. These efforts constitute optimization of resource use and environmental impact mitigation, with a view to achieving zero waste from construction activity.
- King Bridge Tower** SCG and CECI jointly drive the King Bridge Tower Rama III construction project. SCG is one of the members of the advisory panel to inject circularity into every step of the product undertaking, starting from design, procurement, construction and post-construction. For this project, SCG provides BIM in aid of design planning, which helps with resource optimization and waste reduction at construction site as well as shortening the construction period. At present the design is complete, construction underway with innovative solutions to reduce resource use and waste, estimated to be equivalent to emissions cut of 310 ton CO₂eq.



- Milk Bag for the World Project**
 SCGC (Chemicals Business) joining with public-private sectors and schools nationwide implements a model waste management project according to circular economy.

The main aim is to instill awareness among young people in schools on waste separation at source and wise resource use. The project starts with collection of milk bags at schools for recycling. SCGC's R&D expertise in polymer technology turns the materials for reuse to make pieces such as chairs, plant pots. In 2022, a total of 1,700 schools across Thailand join this project which has widened its reach to collaborate with the following partnership:



- Rak Pun Sook Junior project by Baimaipunsook Foundation of Bangchak Corporation.** The partnership manages circular waste management model in 35 target schools in 18 provinces, resulting in waste collection of 6,000 kgs and cutting greenhouse gas emissions by about 1,600 kg CO₂eq, with Milk Bag for the World as learning venue for hands-on workshop of all participating schools.
- SCGC x CPALL** creates Thailand's largest waste management ecosystem to date through Milk Bag for the World Project and Tonkla Rite Thung. The project is scaled up from its coverage of 17 to 50 provinces across Thailand. Its Green Learning Network expands its partnership with 5,567 CONNEXT ED schools under Future of Education Foundation. The collaborative efforts are facilitated and managed through SCGC's garbage bank application KoomKah.
- The Ministry of Industry's 80th Anniversary Project to Recycle 8,000 Kgs Back to Society** To mark its 80th anniversary, the Industry Ministry joins with SCGP (Packaging Business) to launch a project to collect and separate scrap papers as feedstock for industry and products. Campaigning and activities on circularity have been conducted jointly with seven partners. BCG training workshops were conducted for 324 beneficiaries from 133 public and private stakeholder organizations. During the project period, SCGP managed to aggregate a total of 11,596 kgs of scrap papers – higher than the target amount of 8,000 kgs. SCGP recycled and made them into products such as paper, box, paper furniture set, that are distributed to 8 recipient public good organizations and schools. This undertaking is estimated to have cut carbon emissions by about 7,885 kg CO₂eq. SCGP and Industry Ministry have plans to scale up similar project to many other provinces in Thailand in 2023.

Health and Safety

Elevating Occupational Health and Safety Management Both Thailand and Abroad

SDGs 3 8 9

SCG strives to apply occupational health and safety management systems, standards, and technologies in order to achieve its safety goals of zero fatality, lost time injury, and occupational illness (Mission Zero) both in Thailand and Abroad. The majority of accidents have been caused by Abroad business expansions and operational restructuring towards to service solutions business. Efforts have also been made to promote skill development among employees and work system improvements in order to continuously enhance SCG's capabilities in suit the operation of each business unit and the shifting business models, placing emphasis on maximizing effectiveness. In 2022, SCG announced an Occupational Health and Safety Policy (OHS Policy), encompassing all SCG's operations in its sites of operation, new projects, modification projects, service solutions, as well as travelling and transportation in Thailand and Abroad. The new policy applies to all SCG's employees and under supervision contractors as well as all stakeholders.

Target	2022 Performance
Zero fatality of employees and contractors	<p>1 case of fatality of employees</p> <p>2 cases of fatality of workplace contractors</p> <p>2 cases of fatality of direct transportation contractors</p> <p>0 case of fatality of other transportation contractors</p>
Zero lost time injury frequency rate of employees and contractors both in Thailand and Abroad by 2024	<p>Employee 0.137 cases/ 1,000,000 hours worked</p> <p>Contractor 0.276 cases/ 1,000,000 hours worked</p>
Zero occupational illness frequency rate of employees	<p>Employee 0 cases/ 1,000,000 hours worked</p> <p>Contractor 0 cases/ 1,000,000 hours worked</p>
All companies under SCG pass the Safety Performance Assessment Program (SPAP) at the Standard level and higher.	74%

Strategy

1. Elevate the implementation of the Occupational health and safety management system, standards, Life Saving Rules, and transportation safety to ensure effectiveness both Thailand and Abroad.
2. Create engagement and promote quality of risk identification and management by individual employees to foster an organization-wide safety culture.
3. Apply the Safety Performance Management System (PMS) in order to ensure the actual implementation of safety policies and establish shared goals for use in safety performance assessment.
4. Utilize digital technology to improve operational efficiency and support business growth to reduce risks of accidents, injuries, and occupational illnesses and diseases.

Management

- The Workplace Safety Committee and the Transportation Safety Committee establish policies, strategies, short-, medium-, and long-term plans, targets and indicators as well as monitor target achievement and plan implementation and analyze outcomes to improve effectiveness.
- Report occupational health and safety performance to the top management, the Audit committee and the Board of Directors on a quarterly basis.
- Establish mechanisms for regular self-auditing to ensure ownership and continuous improvement.
- Foster a network for management collaboration, develop experts in each business unit, and enrich the knowledge and capabilities of employees and contractors in order to bring about the exchange of knowledge and technology for collaborative risk management both Thailand and Abroad.

Amendment of the Life Saving Rules on Marijuana, Cannabis, and Kratom

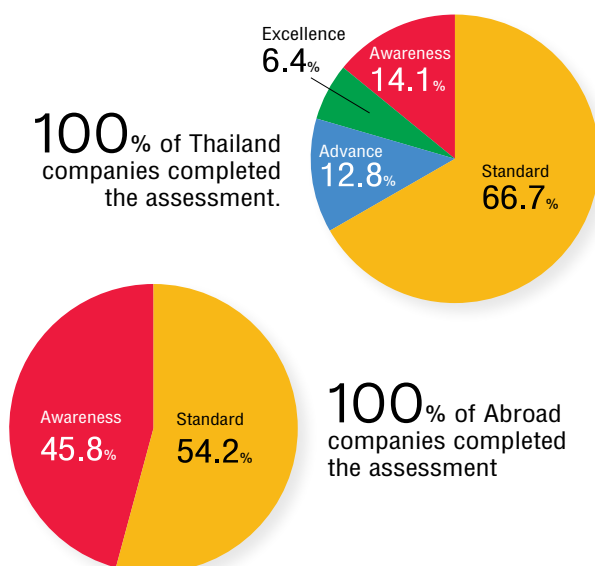


SCG has updated its Life Saving Rules to address potential risks from the use of such substances during operations resulting from the recent legalization of Marijuana, Cannabis, and Kratom in Thailand. The new rules required employees and contractors to "Do not drink alcoholic beverages or use addictive substances including psychoactive drugs or substances such as Marijuana, Cannabis, Kratom, etc., before and during work or driving vehicles including carrying into the company's premises or vehicles used in the company's business." The amendment is made with care and ensure that everyone is safe at work.

Promoting SPAP Self-declaration and Certification

SCG promotes its Safety Performance Assessment Program (SPAP) both in Thailand and Abroad in compliance with the revised SCG Safety Framework 2021, which prescribes self-declaration and certification for every company. The system was first introduced to Thailand companies in 2021 and expanded to Abroad companies in 2022. SCG Safety Framework was launched to issue communications, offer SCG Safety Framework clinic session for online consultation, and address questions submitted by Thailand and Abroad companies before each company implemented the system. Each company was required to complete SPAP self-declaration by September of every year, so that the corporate function could assess and verify the assessment results by the end of 2022. In addition, SCG has developed a Web Intranet Platform as a channel for data recording, processing, and analysis to enhance convenience and speed.

SPAP Self-declaration Results in 2022



Abroad Activities



In response to higher rates of accidents resulting from SCG's business expansion abroad, especially the acquisition of two cement plants in Vietnam –

Accident Reduction in Vietnam

Song Gianh Cement Joint Stock Company and Vietnam Construction Materials Joint Stock Company by the Cement and Building Materials Business, SCG has analyzed the root cause and established control measures. These include the restructuring of occupational health and safety functions, assigning all units the responsibility of overseeing its own occupational health and safety (Line responsibility) in compliance with SCG Safety Framework instead of delegating such responsibility only to safety staff. SCG has also defined leading KPIs in accordance with the risks of each unit, revised risk assessment methods to ensure they meet standards, and monitored the control and reduction of the top five risks every month. In addition, online training sessions and seminars have been held to provide knowledge and recommendations for operational skill development. A safety awareness building activity was also held on Vietnamese New Year Day. As a result, the rate of accidents in 2022 reduced by over 89% compared with 2019.

Development of Safety Together Application



SCG promotes safe work behaviors through safety observation (SO).

As Abroad manufacturing facilities began conducting SO reports in paper beginning in 2019, SCG in 2020 started developing a prototype application on Appsheet and later in 2021 developed a web application entitled Safety Together to support the inspection and reporting of safety observation, unsafe conditions, near misses, and safety contact. The application supports six languages: Thai, English, Vietnamese, Khmer, Myanmar, and Indonesian, and is accessible via SCG's main website. At present, the application has at least 280 users across the countries where SCG operates, thus enhancing operational monitoring and governance as well as safety efficiency.

Developing the Safety Management for Service Solutions Standard

- Establishing the Safety Management for Service Solutions Standard:** Accompanying the expansion of service solutions businesses are the increasing number of contractors for such businesses and greater risks of accidents. In 2022, SCG introduced the Safety Management for Service Solutions Standard, co-developed by all business units. The standard consists of three management components: 1) Procurement/ hiring, in which a business must take into account safety by including risk assessments into the planning process, identifying safety requirements, and selecting capable contractors; 2) Supervision, including pre-operation preparations and control during the operation; and 3) Assessment, encompassing job handover and contractor performance assessment to maintain work quality and prevent injuries or fatalities.



- Enhancing Professional Roof Installation:** The Cement and Building Materials Business, which provides roof maintenance and solar rooftop installation services for residential customers, has set a goal of achieving no accidents and no damage to customers' properties while providing services in order to foster confidence in the service quality among customers. To this end, it has put in place a stringent safety management system, which includes a daily check-in system and the Roof+ application, through which operators can check their preparedness before and during work and report the condition of the site at the end of each day. In addition, technology has been employed for high-risk tasks, including a helmet equipped with a real-time camera to ensure the safety of the technician remotely. SCG has also held site visits, in which site advisors assess the performance of over 280 teams of technicians. At least one site visit, either onsite or online, is held monthly for each team. Furthermore, SCG has launched the "WOW Awards" to promote proper safety behaviors at work and boost the morale of technicians who work safely and professionally. Through this award program, the participants can redeem their points for everyday use items. SCG also communicates with the technicians through LINE groups and LINE @Professional Technicians to foster safety awareness.



Digital Safety Platforms



- Elevating SAFEsave:** This digital platform for safety management has been developed by SCGP (Packaging Business) to facilitate occupational health and safety operations, reduce redundancies, reduce errors in the data provided by users, and address the issue of the lack of a centralized database for retrospective examination. In 2022, the system was enhanced with additional modules, namely Safety & Health Risk Assessment, Transportation Safety, Confined Space (IoT), Working at Height (IoT), and Near Miss. As the existing module for near miss reporting was plagued by functional limitations, it was gamified to enhance engagement, and a report tracking function through Line Management Accountability was added to allow for systematic and efficient root cause analysis and prevention.
- ePTW – Electronic Permit to Work:** SCGC (Chemicals Business) strives to continuously improve safety standards and conducts assessment and monitoring to ensure the efficiency of its systems. However, to minimize risks resulting from operations and decisions made by operators, SCGC has developed the digital platform ePTW, which includes a digital workflow that can help reduce errors and link with a Contractor Safety Management System, which verifies that the operators meet all qualification and registration requirements. The system also provides real-time visualization of permit requests for risky operations, making it possible to identify issues requiring prompt attention and providing data that can be used and analyzed to further improve operational efficiency.
- CiRA Core:** The artificial intelligence-powered safety inspection system can learn from data collected and analyzed irregularities in machinery and human behaviors. Functioning in conjunction with sensors, such as cameras, it can notify responsible persons or stop machines to prevent damage. SCG has researched and introduced CiRA Core to several projects to reduce risks against operators, such as machinery inspections in a confined space and inspections of operators working in cable tunnels, at height, such as when providing roof maintenance services, and in a close proximity to a risk area, such as near machines, trucks, and cranes.





Goods Transportation Safety

SCG still strives to reduce injuries and fatalities resulting from transportation accidents to zero by 2023, including accidents during operation hours, mainly caused by risky behaviors and a lack of operational discipline, and off-the-job accidents, attributable primarily to motorcycle accidents. The leading KPIs consist of the number of tickets and alerts from the Logistics Command Center (LCC) of SCG Logistics.

To this end, SCG has implemented standards as well as accident reporting and investigation systems to prevent recurrence; the safety standards in transportation activities in the work sites of SCG's customers, such as loading-unloading, lifting, and transferring; measures to control and reduce tickets through announcements and disciplinary actions, measures to reduce alerts from LCC through driver behavior monitoring and control during goods transportation and travelling using SCG's vehicles; as well as operational disciplines (OD). In addition, SCG has conducted carrier assessment and improved the assessment checklist to better align with carrier selection, annual assessment, and post-operation assessment. New technologies will be developed and introduced to various activities to maximize operational efficiency.

- **Logistics Command Center (LCC):** This AI-powered command center controls driver behaviors throughout 24 hours each day and helps to reduce risk factors potentially leading to road accidents as well as loss of life and damage to property for all parties, including facilitates fleet scheduling

and route planning to maximize efficiency and safety. Currently, a new platform for LCC is being developed in order to collect data of the vehicles and environment, such as traffic and weather conditions. The big data obtained will then be analyzed by machine learning to establish measures to optimize driving behavior and safety.

- **Advanced Driving Assistance System (ADAS) and Driver Monitoring System (DMS):** These systems, installed in conjunction with two-way GPS cameras, are deployed to monitor driver behavior. In 2022, SCG studied and expanded the use of platforms by other providers to obtain advanced technology at reasonable prices as well as developed an AI camera-enabled accident alert system to alert drivers when the vehicle veered into another lane, check the distance from the vehicle in front, and enhance the facial expression-based detection system of drowsiness and mobile phone usage, all of which enhanced the accuracy of the alert system and significantly reduce risk behaviors.
- **Truck Driver Fatigue Management:** The system controls work hours, rest hours and helps reduce fatigue-induced accidents. In 2022, SCGC (Chemicals Business) enhanced its operation planning with the Smart Delivery Application (SDA) and stepped up its standard implementation, communications, control, and inspection to ensure that drivers had at least 10 hours of rest before beginning work in the following day.



Abroad Activities

- SCG introduced the Goods Transportation Safety Standards for Abroad in 2022, which were adjusted in accordance with the local law of each country.
- SCG communicated the Good Transportation Safety Standard to Vietnam and Indonesia.
- SCG developed a carrier audit checklist for carrier assessment in Vietnam and Indonesia.

Health Management System

All business units of SCG have developed a health management system to collect health data, health checkup result, health risk assessment, industrial hygiene monitoring, and analyze trends of occupational illnesses among employees so as to develop efficient health management plans suitable for each business unit. Examples include the introduction of the Digital Health Platform Database System of the Cement and Building Materials Business to facilitate management; the deployment of My Health application by SCGC (Chemicals Business); and the implementation of the Safety and Health Risk Assessment Program by SCGP (Packaging Business). These initiatives demonstrate SCG's determination to protect all employees against occupational illness & disease.



Sustainable Products and Services

Awareness Raising through Carbon Label and SCG Green Choice Certification

SDGs 3 9 11 12 13

Products, services, and solutions certified green:

Target 2022 Performance

Revenue from sales of SCG Green Choice products, services and solutions account for 66.7% of total sales revenue in 2030

51%

Revenue from sales of SCG Green Choice which directly benefit to customer accounts for 33.3% of total revenue from sales in 2030

13%

Products, services and solutions certified for SCG Green Choice

249 products



Carbon Footprint Reduction (CFR) products
33 products



Energy-Efficiency products
121 products



Green Label products
37 products



Carbon Footprint of Products (CFP)
180 products

SCG is committed to develop and design products that are environment-friendly and safe to enhance well-being, as required by consumers in Thailand and beyond who are increasingly more conscious about sustainability. Global warming and climate change have given rise to laws enabling low-carbon products. SCG promotes assessment of greenhouse gas emissions across its supply chain and seeks to have more of its products certified SCG Green Choice to foster business competitiveness and meeting its Net Zero target.

Strategy

- Develop products, services and solutions that address the consumer's need, enhancing their well-being, climate resilience and circularity.
- Advance business processes across the value chain to bring them in line with international standards.
- Apply innovation in the development products, services and solutions to create new business opportunity.
- Accounting for environmental impacts and safety of products, services and solutions throughout their lifecycles.
- Promote and increase direct delivery of green products to customers.
- Communicate and advocate for consumers to shift to green products, services and solutions.

Management

- Use innovation and digital technology to optimize operational efficiency, product development and cost-cutting.
- Apply circular economy principles for optimization of resources, energy, water and waste reduction.
- Review capital expenditures to accelerate transformation.
- Apply Eco-Design thinking from the process of design to production, packaging, safe use, waste minimization and reuse.

Driving Product Certification through Carbon Label

Greenhouse gas emissions data of products are important in managing pathway towards Net Zero. SCG therefore promotes products to be certified Carbon Footprint Reduction label operated by Thailand Greenhouse Gas Management Organization (TGO). These data sets form evidence to develop more of such products in the future.

- In 2022, Cement and Building Materials Business has 10 products certified with Carbon Footprint of Product and 29 products certified with Carbon Footprint Reduction (CFR).
- SCGP (Packaging Business) has 37 packaging products that are certified with Carbon Footprint of Product.
- SCGC (Chemicals Business) has 133 products certified with Carbon Footprint of Product and 4 CFR and sets the target that all its subsidiaries be certified with Carbon Footprint Reduction in 2025, and promoting well-being through SCG Green Choice certification.



Less-Emission Products

SCG is committed to innovating products, services and solutions that reduce greenhouse gas emissions to generate direct and indirect benefits to the customer such as:

- CPAC Low Carbon Concrete is made from processes that involve less GHG emission. Hybrid formula is made from hydraulic cement for general purpose, reducing carbon by at least 3.9 kg CO₂eq/m³, compared with concrete using Type 1 Portland cement (OPC), but which yields similar strength. Eco formula is ready-mixed concrete from Type 1 Portland cement and fly ash (PFA). It optimizes material use, reducing carbon by at least 17 kg CO₂eq/m³ compared with OPC100% formula, and with similar strength. These two formulas receive SCG Green Choice and CFP label from the TGO.
- SCGC (Chemicals Business) seeks to contribute to reduction of plastic leakage into the environment through product innovation under SCG Green Polymer line of products including SMX innovation type S411B HDPE for Lightweight Container. The product is resin for packaging that can reduce the weight of packaging by 22% with the same strength and resilience, as such reducing resin use and GHG emissions up to 12%.

Circular Economy Solutions

SCG has developed solutions matching consumers' needs and lifestyle, environment-friendly and circular including:

- **CPAC Compacting Wall System** is bespoke solution according to client's need, with tap water and power systems installed within factory wall. Thereafter these wall pieces are assembled onsite. This allows for easier roughcasting, shorter construction period and reducing material waste at construction site by as much as 40% compared with conventional roughcast approach.

- **Paper Exhibition and Lifestyle Products.** Marketing communication materials and lifestyle paper products for marketing activity as well as daily use such as future, pet products, decorative items are made from corrugated cardboard with recycled pulp as content. These products are strong, and efficient. After use, they are recyclable suitable for eco-conscious customers.



Products for Wellbeing

- **SCG Bi-ionization Air Purifier (SCG Bi-ion)** This air purification system eliminates up to 99% of germs, both virus and bacteria including corona species, as well as mitigating PM 2.5, with certification of efficiency and safety from leading institutions in Europe. It is energy-efficient and can lengthen the product lifespan of air conditioning system.
- **Optisorb-X™** is packaging that extends lifespan of bakery and food with fat content. It reduces oxidation therefore slowing deterioration and extending lifespan of food while reducing stale. It is suitable for dry and semi-dry food items such as bakery, pastry, nuts, dry fruits, cheese product. As such it contributes to reduction of food waste.

Safety of Products and Services

SCG develops employees' knowledge and competencies via Product Stewardship Training Program to implement actions that ensure safety and environmental impact of its products through hazard assessment and audit throughout life cycle – production, transportation, storage, use and end-of-life disposal. This is aimed at planning and prevention from the stage of product design, production and labelling according to international standard. There is a mechanism to hear and investigate complaints and preparedness in case complaints or emergency arise. As a result, no complaint of significance relating to violation of health and safety regulations is received to date.

Mariwasa Siam Ceramics Company in the Philippines, part of Cement and Building Materials Business, is certified Green Choice label from NELP-GCP for 10 consecutive years.

Cement and Building Materials Business in Indonesia, PT Semen Jawa and PT Keramika Indonesia Asosiasi, Tbk, are certified Green Label, Gold Level, from Green Product Council (GPCI)

**Abroad
Activities**

Customer Experience Creation

Enhancing Customer Satisfaction Capabilities for the Post-COVID Era

SDGs 3 8 9 11

Target	2022 Performance
Overall customer satisfaction based on surveys via SCG Contact Center	100%

Strategy

1. Deliver a good experience by innovation to customers for Business to Business to Consumer (B2B2C).
2. Offer “Best-Better-Good” options in line with lifestyles of consumers for Business to Consumer (B2C).

Management

- Analyze and monitor customer experiences, ranging from customer’s problems, needs, purchasing behaviors, and use of products, services, and solutions; including conducting satisfaction surveys on products, services, and solutions.
- Adopt digital technology to support services provided to business partners, suppliers and all customer groups.
- Connect customer experience with online channels and service centers to ensure maximum convenience and customer satisfaction.
- Offer innovative products, services and solutions that meet customer needs sustainably.



As multiple crises impact our business customers (B2B) and consumer (B2C), SCG has developed various business models and solutions to assist all customer needs. This is to elevate our business operation and enhance capabilities and competitiveness of products and services development as well as environmental-friendly business solutions to reduce greenhouse gases (GHGs) emissions and cost of operation.



Enhancing Skills among Construction Customers

Tiger Brand Wall and Floor Technology Center (WFTC) under Cement and Building Materials business, located in Saraburi, is the first wall and floor construction training institute in Southeast Asia. Its primary objectives are to develop knowledge of the cement wall and floor construction and finishing and foster a network of cement masons, and serve as an experience exchange center to elevate the professional masonry standard sustainably.

In 2022, WFTC provided training and skill development workshops where new techniques were introduced to the general public, masons, contractors, and real estate developers, and foster confidence in Tiger Cement’s products among domestic and international customers. The center has also been authorized as a Level 1 skill testing center in five areas including bricklaying, plastering, autoclaved aerated concrete installation, terrazzo work, and wall and floor tiling. In addition, the center also promotes the circular economy by transforming waste materials from training process to pieces, for instance, tuff blocks and plant pots, were donated in projects such as Sharing Opportunities, Drawing the Future” Program, where waste from activities within the center is recirculated into the manufacturing process.

Meeting B2B2C Needs with Integrated Innovations and Solutions

SCG responds customer needs through a comprehensive range of products, services, and solutions and has deep insights into both B2B and B2C customers.

- **SCG Solar Roof Solutions:** SCG offers an integrated one-stop solar roof installation service solar power to SMEs Factory and residential





customers with confidence and convenience through One Stop Service. This process includes the entire solar permit application ,pre-installation inspection, design for maximum production capacity, an installation by professionals using technologies that prevent leakage, and aftersales services, consultation, and inspection with a 25-year warranty. Two packages are available according to customer preference. The Smart Package offers a 12-year warranty on the solar panels and The Premium Package offer Solar Fix installation innovation and a 25-year warranty on solar panel. Customer will also have access to mobile applications which can track power usage, production, and the amount of money saved in real-time.

- **Supalai Project:** SCG and Supalai Plc., a leading real estate developer, have joined hands to advance the concept of green design for energy efficiency and environmental friendliness and towards Supalai goal to reduce GHG emissions by 25% in three years (2022-2024) through the use of building materials certified with a SCG Green Choice label in the Climate Resilience and Circularity categories across over 100 of its residential and condominium projects nationwide. This project is expected to reduce GHG emissions from material production by over 560 tons of carbon dioxide.

Creating Positive Experience through Online and Offline Channels

- **K 2022 Exhibition :** SCGC (Chemicals Business) joined the global industrial plastic and rubber innovation trade fair in Düsseldorf, Germany from October 19-26, 2022, where SCGC showcased SCGC GREEN POLYMER™ products under the theme "Innovation That's Real," and met with over



1,600 customers from 157 countries forming across the world, including plastic business operators, designers, and brand owners from across various industries, from packaging to infrastructure.

- **Expanding Sales Channels:** SCGP (Packaging Business) has expanded its sales channels through www.doozyonline.com, which brings together a comprehensive range of high-quality packaging products, and collaborated with banks and delivery service providers, such as Robinhood and Grab, to deliver efficient services at every step. For health products, such as the Almind alcohol spray and Holis dietary supplements, new online sales channels have been added for more convenience, such as Lazada, Shopee, and JD Central. More payment gateways have also been added to cater to more customer groups, enabling them to make online payments for products and services through their bank account and reducing the time to conduct transactions at banks.

ESG for Customer

ESG Calculation

Customer Name:

Contact Person:

Project Description: ESG Calculation Test

Date: 18/08/2022

Salesperson:

Designer:

SCGP

BOARD 1

BOARD 2

COMPARE BOARD

BOARD COMBINATION

KA230/C5110/KA230/C5110/KA230-BC

KA230/C5110/KA185/C5110/KA230-BC

BW BOARD WEIGHT

1006.8 gsm

961.8 gsm

0.4%

BOARD WEIGHT CHANGED BY

PRODUCT WEIGHT

0.503 kg/pc

0.481 kg/pc

-0.023 kg/pc

PRODUCT WEIGHT CHANGED BY

RECYCLE CONTENT

84.4%

RECYCLE CONTENT OF BOARD

84.8%

-0.3%

RECYCLE CONTENT CHANGED BY

WOOD CONSUMPTION

0.0027 tree/pc

0.0025 tree/pc

-6.5%

WOOD CONSUMPTION CHANGED BY

CO₂ CARBON EMISSION

0.733 kg/pc

0.704 kg/pc

-0.029 kg/pc

CARBON EMISSION CHANGED BY

That Contains Group Co., Ltd. All rights reserved.

Calculated based on paper specification at 21 Degree Celsius and 40%RH condition

CO₂ rate is supposed to be used as a guideline. Not a number

ESG Guideline Toolkit: As customers are increasingly seeking information on carbon footprint of pulp and paper packaging products, SCGP (Packaging Business) has developed an ESG Guideline Toolkit in an Excel format to disclose basic information on carbon emissions and environmental impacts, such as the proportion of recycled material used and wood usage per product, to support customers interested in ESG and offer convenience to designers and customer service staff.

Assistance to SMEs: In response to economic fluctuations, SCGP (Packaging Business) has developed financial assistance tools through the crowdfunding platform Siam Validus and the financial service platform Siam Saison to enhance liquidity for SMEs and stores that are SCGP's business partners in Thailand and Vietnam.

Supplier Management Towards Sustainable Value

Advancing Supplier Towards ESG 4 Plus for a Low-carbon Society

SDGs 3 8 12 13 16 17

Target

2022 Performance

100% of supplier in procurement spend over million baht processed through the annual Environmental, Social, and Governance (ESG) assessment

100%

Strategy

Commitment to empowering supplier's business management on ESG that is fair, transparent, and creating value to stakeholders across the value chain sustainably along with risk management to increase business opportunity through the followings:

1. Supplier selection and assessment for those with potentials to do business sustainably.
2. Risk assessment and supplier segmentation to formulate strategy and supplier development plan aligned with risks.
3. Develop and enhance supplier's capacity towards ESG-focused sustainability.
4. Raising awareness, knowledge and competency among procurement staff.

Management

- Annually and continually, conduct risk assessment and certification of every single supplier, on the basis of enterprise risk management framework and act according to "SCG Sustainable Procurement Framework" that addresses ESG aspects alongside spend analysis.
- Segmentation of supplier into four groups: tier 1 supplier, critical supplier, high potential sustainability (ESG) risk supplier and critical non-tier 1 supplier.
- Formulate plans to enhance supplier's capacity in sustainable business effectively addressing ESG issues, continually and effectively.
- Foster business collaboration in accordance with ESG by regularly communicating with supplier through activities such as workshop, seminar.
- Establish a committee to advance knowledge and competency of staff in the professions of procurement, supply and logistics, as well as organize sharing of knowledge and practice with public and private sector procurement bodies.

SCG has been working with suppliers to ensure delivery of products and services to the consumer, while generating positive impact to society and environment. SCG has collaborative plans with supplier to advance their potentials, through promotion and integrated practice of ethics, social and environmental responsibility, aimed at sustainability throughout the value chain aligned with ESG 4 Plus towards Net Zero – Go Green – Reduce Inequality – Enhance Collaboration Plus Trust through Transparency in all operations.



Updating SCG Supplier Code of Conduct

First compiled in writing in 2013, the SCG Supplier Code of Conduct is hereby revised in 2022 to improve the clarity and alignment with the current situation as well as SCG's ESG pathway. It continues to serve as guideline for suppliers to conduct business while taking care of social and environment as well as climate resilience according to international standards.

Supplier Day 2022

SCG organized Supplier Day 2022 on 15 December 2022 to sensitize and support ESG integration into suppliers' business conduct operation. A total of 123 participants joined the event consisting of tier 1 supplier (20%); 31% suppliers with potential for collaboration and suppliers with ESG risk but with the potential to improve. Key contents of the event include corporate governance and business ethics, climate change and human rights. Participants conducted self-assessment on their preparedness to implement what is learnt. There are those who are readily prepared to implement all and partially. The Post-Event survey showed that participants rated 4.5 out of 5 in the satisfaction survey.



Towards Net Zero: Developing Supplier's Capacity to Provide EV Services.

To achieve Net Zero, SCG develops supplier's capability to jointly replace conventional with electric vehicles (EV).



- Limestone Trucking EV**
 Cement and Building Materials Business collaborates with suppliers to pilot the first fleet of six EV Mining Trucks in Thailand for delivery of limestone, the main material for cement production. It achieves GHG emissions

reduction by 108 ton CO₂eq per vehicle per year, equivalent to planting 11,333 trees per year. Working with supplier, SCG studied EV usage to plan and analyze numbers and optimal positioning of charging stations. The target is set to replace all conventional with EV fleet in the operation of Siam Cement (Thung Song) Co.,Ltd. by 2025, and subsequently scaling up to other cement factories. This project promotes and aligns with the Green Mining Policy of the Industry Ministry and Department of Primary Industries and Mines.

- EV Fleet** SCGP (Packaging Business) and its supplier studied and piloted use of EV trucks instead of diesel-engine trucks since 2021 to transport pulp and paper rolls between factories in Ratchaburi and Saraburi. The objective is to analyze routing and planning of optimal fleet management. SCGP invested in set-up of charging station at the start and terminal locations of routes and plans to roll out trucking of finished products in the first phase in 2023 and then scaling up to other groups of products.
- EV Forklift** SCG trialed EV Forklift in 2021. At present, it has been able to replace 400 conventional forklifts with electric ones. Ceramic factory under Cement and Building

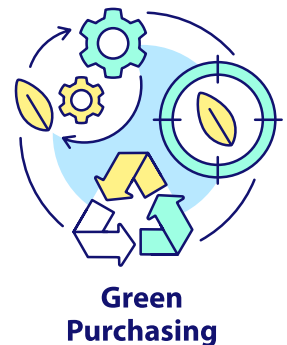


Materials Business piloted EV forklifts to test performance in different functions alongside collection of emissions data for the next phase of development. The target is to replace an existing fleet of 30 conventional forklifts whose contract expires in 2023 with EV forklifts and identify potential suppliers for providing EV forklift service that meets requirements of factories.

Towards Net Zero: Tackling Supply Chain Emissions

SCG is working with supplier to reduce GHG Scope 3 emissions. This starts with SCGC (Chemicals Business) partnering with suppliers who are traders in chemicals and packaging accounting for over 80% of procurement value (128 suppliers) to collect emissions data as baseline for project development.

Go Green: Increasing Green Supplier



SCG has selected potential suppliers for the environment development, supporting them to be certified by ISO 50001, ISO14001, the Industry Ministry's Green Industry Standard, and listing in SCG's Green Procurement registry. This is done through auditing, provision of advisory service and support until the supplier meets the criteria and benchmarks. For example, in 2022, SCGC (Chemicals Business) worked with 8 suppliers developing 7 items (6 products and 1 service) to the SCG Green Procurement list, boosting green procurement share in SCGC's total procurement value from 14% to 17%. The next step is to develop a re-assessment performance process to ensure that the company maintains the green procurement practices.

Trust through Transparency

- Supplier Portal Development** SCG is developing a Supplier Portal as communication platform and tool to manage its supplier. Start with SCG Distribution Co., Ltd., developing its supplier portal in 2022 to optimize supplier management through Process Automation. This enables the supplier to transparently track the progress of the work at each step along the process. At present, 66 of 129 target suppliers are using the portal, with plans to reach 300 suppliers by 2025.

Water Management

Collaboration and Technology Development for Water Management

SDGs 6 9 12 14 15 17

Target	2022 Performance
Reduction of water withdrawal by 23% by 2025 compared with BAU base year 2014	24.07%

Strategy

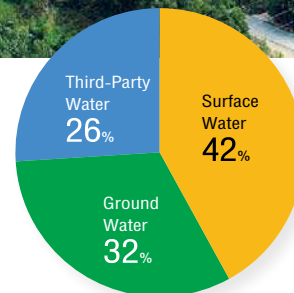
1. Reduce water-related risk through integrated water management.
2. Reduce water withdrawal by increasing consumption efficiency in production processes and product.
3. Treat wastewater in line with regulatory standards, monitor volume and quantity, incident reporting and investigation for remediation,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

Management

- Water Management Committee defines guideline and strategy for integrated water management.
- Assess water-related risks and impact quarterly and report to Environment Excellence Committee, SCG Sustainable Development Committee and SCG Risk Management Committee.
- Conduct water scenarios analysis to forecast water volume in external sources, alongside Business Continuity Management (BCM) and Business Contingency Plan (BCP) for water.
- Jointly monitor water situation and trends, and collaborate in water resources management efforts with the state, industries and key stakeholders.



Proportion of External Water Withdrawal



120.07
Million Cubic Meters

Climate impacts continue to manifest in water-related disasters as flooding and drought, affecting community livelihoods, social wellbeing and SCG's production. SCG places top priority to integrated water resources management and application of technology, to lead good practice in the field.

Scaling up Early Warning System in and beyond Thailand

SCGP (Packaging Business) has developed Multi Hazards Early Warning System (EWS) that integrates government's data analytics, distributed to business sector, community and society, to assess disaster risks for early warning and post-disaster. The development represents a step further in preparedness and mitigation for the benefit of individuals, business, community and sustainable environment.

In 2022, SCG scaled up its EWS to cover all SCG businesses inside Thailand and abroad. This is so that businesses can strengthen preparedness and mitigate both direct and indirect impact, while having the capability to support at-risk clients and communities within the radius of SCG premises.

Less Water Usage in Production

All SCG business units are strongly committed to the 3Rs principles to strive for using less water in their production.

SCGP (Packaging Business)

- Scale up the use of treated wastewater in production processes such as sealing water system, chemical preparation system or floor cleaning. These efforts result in reduction of 4 million cubic meters of water usage per year.
- “Reuse RO Reject” project aiming at reuse of RO Reject reduced 0.4 million cubic metres of water usage per year.
- Scaling up application of APM Water Ring an innovation to stop leakage at shaft neck helps reduce cooling water for sealing. This device has been installed in all SCGP owned factories resulting in reduction of 1.6 million cubic metres of water per year.

SCGC (Chemicals Business)

- Up-Cycle Cooling System. In its effort to use less water, Thai MMA Co.,Ltd. in Rayong conducted an analysis and found that the factory’s water consumption concentrates at the cooling tower. It then studied measures to regulate chloride (Cl) and calcium (Ca) at an appropriate level and then add chemicals to improve water quality. As a result, the factory saved 94,608 cubic meters of water, 26% of total factory’s consumption, and saving THB2.2 million in water bills per year.



for further information on SCGC’s water risk management

CPAC Collaboration in Community Water Solutions Development

SCG Cement and Building Materials Business through CPAC signed an agreement with Hydro Informatics Institute (Public Organization) for collaboration in technology development for water management and enabling affected communities nationwide access to such technology. The collaboration focuses on two key categories of solutions:

1. Survey technology. The collaboration aims at “model driverless boat” to conduct survey in high-risk or difficult to access areas to address safety concerns.
2. Community water management solutions. These include water distribution to ensure comprehensive coverage of agricultural area. In 2022 the partners developed a water distribution tower that is 7.5 metres tall with 12,000-liter capacity. This knock-down, easy to assemble kit can be put together in one day and is installed at Phetnamnuang community in Phetchaburi. Another collaboration features small water pump system that is solar-powered and can be assembled within 3 hours.



Pictorial book about Mae Than Model is downloadable using this QR Code



Community Water Management and Supply

“Mae Than Model” demonstrates collaboration between Cement and Building Materials Business, the community and government. Upon end of mining concession at Mae Than in Lampang in 2019, mining pits have been repurposed as water reservoirs and serving in various projects to ease the impact of droughts on nearby communities.

Water-Saving Products from COTTO

Cement and Building Materials Business continues to come up with water-saving products with enhanced efficiency

- X-POSH faucet won the Red Dot Design Award 2019 in Germany. It is energy efficient and water saving at the use rate of 4.09 litre per minute, a 30% saving compared with the standard rate of 6 litre per minute.
- VERSO model of COTTO Smart Toilet. Its Powerful Jet system increases efficiency for 3.8 litre of water per minute, a 35% saving compared with the standard of 6 litre per minute. Ultra Clean Plus veneer helps eliminate bacteria build-up by 99% within 24 hours for better hygiene.



for further information on water-saving products



Modular Zyclonic Integrated Wastewater Treatment System



SCGC’s innovation of small-scale wastewater treatment can be easily

installed and does not require connection to central power grid. This modular system disinfects and treats water, removing sludge and odor, to yield treated wastewater that can be reused for various purposes such as making soil nutrients, toilet flush water, gardening, irrigation, or treating wastewater prior to discharge to mitigate health and environment impact of surrounding areas.



Air Quality Management

Holistic Air Pollution Control for Better Air Quality

SDGs 3 9 11 12

Target	2022 Performance
--------	------------------

Reduce dust emission by 8% compared with the base year of 2020 within 2025.

11.34%

Strategy

1. Set air pollution emission targets according to international norms among peer companies, and not exceeding the legal limit.
2. Use best-in-class technology solutions in managing air pollution, aiming at both prevention at source and emission, as well as continuous inspection of air quality.
3. Community and stakeholders' engagement, to listen to their views on air pollution.

Management

1. Air Quality Management Committee, with representatives from Business Units to jointly prepare strategy, targets and action plan.
2. All business units enforce Continuous Emission Monitoring Systems (CEMs) instead of spot check approach, and organize for verification by external party.
3. Train Air Quality Supervisor for air quality management according to regulations of the Department of Industrial Works.
4. Allow community members to visit factory, to foster good ties and reassuring the community of factory management.



Air pollution has far-reaching impact on health, beyond workers inside a factory but on surrounding communities and environment. Laws have been updated to enforce more rigorous compliance. SCG is therefore committed to developing air-pollution control technology and scaling up its action in all its factories inside Thailand and overseas, to ensure business growth alongside wellbeing of the community and society.

Air Quality Control at Source

Industrial factories must prioritize management of carbon dioxide (CO₂), sulfur dioxide (SO_x), nitrogen oxide (NO_x), dust, volatile organic compounds (VOCs) and odor. SCG applies technology to reduce volume of these pollutants at all point sources.

Cement and Building Materials Business

- Replace Electrostatic Precipitator (ESP) with Bag Filter that is resistant to corrosion from hot air and more efficient, for all cement kilns since 2021.
- Install and use Low NO_x Burner technology that reduces NO_x from white cement production processes by controlling maximum heat of flame, O₂ volume and reduces the duration of residual gas at high temperature.

SCGC (Chemicals Business)

- Install and apply Ultra Low NO_x Burner technology that reduces NO_x generation, as well as clean fuel choice such as fuel gas at higher proportion than fuel oil to control emission of NO_x, SO_x and dust to achieve higher result than benchmark.

Advanced Technology in Odor Management

SCGP (Packaging Business) takes action continuously when it comes to odor management from its factories, by using technology to manage odor in production processes, and by constant monitoring.

- Scaling up of Wet Scrubber system at Wangsala Factory of Thai Paper Co., Ltd. and deploying it at factory of Phoenix Pulp and Paper PCL, to dilute odorous gas from pulp cleaning process



- Phoenix Pulp and Paper PCL together with SCGC (Chemicals Business) jointly developed an Advance Scrubber system to reduce order from vaporization of Black Liquor through gas temperature adjustment and enhancing performance of odor filter, to the extent that it can achieve dilution of hydrogen sulfide (H_2S), Ammonia (NH_3) and mercaptan (CH_3SH) according to the target. This steps also saves the cost of odor management by 526,000 baht per year in comparison with use of chemicals to achieve similar result.
- Install innovation for integrated odor tracking and alert (DOM) in all factories of the Pulp and Paper Group in 2022.

VOCs Recycling

SCGC (Chemicals Business) is committed to management of VOCs to control and minimize their emissions, alongside recycling of VOCs which reduces import of virgin material and mitigation of pollutant emission.

- Reuse of hydrocarbon scraps as substitute material at its olefins factory. Reduce VOCs emission from flare minimization by 1,200 tons and achieve reuse of 11,974 tons of Process Vent/Stack hydrocarbon scraps at polyethylene and olefins factors.
- Use Vapor Recovery Unit (VRU) at storage tank and chemical loading processes to reuse the VOCs

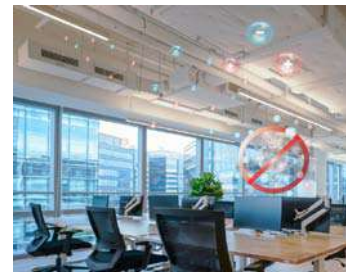
Abroad Activity



SCGP (Packaging Business) scaled up installation of Continuous Emission Monitoring Systems (CEMs) in its pulp and paper factories in Indonesia and Philippines to control air quality above domestic legal standard.

Air Purifier Product

- SCG Bi-ionization Air Purifier (SCG Bi-ion)** purifies air inside building, working against virus, bacteria and Corona virus at the rate of up to 99%. The product is certified in both performance and safety by leading research entities in Europe. It can mitigate particulate matters including PM 2.5. It is energy-efficient and making air conditioning system last longer.



Reducing Air Quality Problem from PM2.5

- With intensifying impact on air quality due to PM2.5 pollution, SCG collaborates with internal and external stakeholders in various actions including bag filters installation in its cement factories, collaborating with community and agencies concerned to turn typically burned farm waste such as paddy straw, sugarcane leaf and corn husk into alternative fuel, thereby reducing burning which generates PM2.5
- Cement and Building Materials Business' Model Community Project has been able to reduce burning practice in areas of 6,300 rai and its Energy Pellet Project stops farm-waste burning in 236,140 rai.
- SCGP organized a project to buy sugarcane leaf from farmers in the provinces of Kanchanaburi, Ratchaburi, Suphanburi and Phetchaburi, reducing burning in 680 rai.



Collaboration with Community and Networks

To operate with efficiency, transparency and sustainability, SCG is committed to engaging multiple channels of collaboration including:

- Cement and Building Materials Business organized a seminar on "Industry Ministry's Regulation Requiring Factory to Install Special Equipment or Device to Report Air Pollution from Factory Chimney B.E.2565 (2022)" to sensitize the workforce of SCG
- SCGC (Chemicals Business) jointly with public and private sectors in Map Ta Phut, Rayong Province implemented a pilot project to manage benzene 1,3-butadiene and control VOCs from preventive maintenance.
- SCGP (Packaging Business) communicates with community via Line application to hear complaints and inform the community prior to any task that may emit odor. As a result, it receives less complaints regarding odor.



Biodiversity and Ecosystem

Biodiversity Survey and Rehabilitation for Sustainability

SDGs 9 13 14 15 17

Target	2022 Performance
Net Positive Impact in post-closure mining area, with the first such quarry in 2052	—
Similarity Index at the range above 60%	70.5%
FSC Biodiversity coverage of at least 10% of agroforestry zone	14.4% 3,856 Rai

Strategy

1. Manage biodiversity sustainably, benchmarked against international indicators.
2. Engage community and stakeholder to raise awareness and understanding of ecosystem and biodiversity conservation.
3. Be a role model in biodiversity conservation, to replicate the practice in other areas.

Management

1. The Quarry Rehabilitation and Biodiversity Working Group provides oversight to ensure compliance with international standards on biodiversity management.
2. Foster “Net Positive Impact” in all relevant processes.
3. Organize a quarry rehabilitation fund for research into rehabilitation, handover of mining zone after closure, and other social activities.
4. Communicate with the community and external entities so they are informed and understand about SCG’s action in ecosystem conservation and biodiversity.





SCG is committed to acting according to international standards and focusing on fostering collaboration towards Net Positive Impact and biodiversity rehabilitation, alongside continuous monitoring and ensuring ecosystem integrity.

Biodiversity Survey for Management

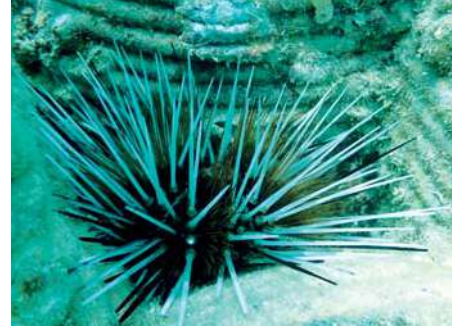
Biodiversity rehabilitation requires long-term commitment, supported by evidence-based, regular monitoring of changes, in a process of gathering and using inputs to plan and manage according to circumstances.

• Thung Song Limestone Quarry

Rehabilitation Cement and Building Materials Business conducted surveys to track wildlife and resources inside the quarry of Siam Cement (Thung Song) Company Limited, with technical support from experts of Prince Songkla University with a view to gather data as inputs for the wildlife management plan inside the quarry to mitigate impact of mining activity on wildlife and to propagate rare indigenous species. Survey results from sample areas show an increase of wildlife species presence compared with data collected in 2020 survey.

		2020	2022
Mammal		24	26
Bird		62	67
Amphibian		7	10
Reptile		11	18





• **Survey and Assessment of New Forest**

Conservation Site SCGP (Packaging Business)'s Siam Forestry Co.,Ltd originally operated two conservation sites: Huaysaphansamakki Community Forest and Kampangphetch Agroforestry. In 2022 the company planned the third conservation site the size of 109.5 rai at Khao Cha-ang in Nongphai Subdistrict, Danmakhamtia District in Kanchanaburi province. The biodiversity survey and assessment in preparation for conservation undertaking established High Conservation Value (HCV, divided into 6 levels) at Level 5 (Basics Need), which means having resources to support community's basic need. The Shannon-Weiner Diversity Index measuring diversity of fauna species in the area established the value at 3.56, deemed high. Data from the survey shall inform the biodiversity management plan for the area.



Fauna Species **100** species,
74 taxonomy and **30** family



Mammal **13**



Reptile **7**



Bird **71**



Amphibian **7**

Marine Biodiversity Recovery

• **10th Anniversary of SCGC Fish Home Innovation.**

SCGC (Chemicals Business) implemented the Fish Home project since 2012 through innovation solution of using PE100 pipe scraps from testing process to add value according to circularity principle. From the material, the project constructed fish homes as requested by local fishing communities. To date, a total of 2,230 have been installed in coastal areas in the provinces of Rayong, Chonburi, Chanthaburi, Trat and Ranong. These fish homes provide habitat for marine species recovery while adding to diversity of marine life. As a result of the effort, the ecosystem affected by human activities has been restored. The latest round of biodiversity survey in 2022 documented the presence of 177, up 139 from 2019, including

economically important species, fancy fish, juvenile marine animals and plankton. The Fish Home project generates supplementary income for coastal fishing communities, and a network of over 41,000 volunteers to build and maintain the fish homes nationwide.

- **Coral Reef House.** Cement and Building Materials Business aims to install 1,250 coral reef houses, innovated from 3D Cement Printing Technology by 2023 in several areas including Samaesan Island in Chonburi, Koh Phi Phi in Krabi. In 2022, it added 131 sets in eight areas. The biodiversity survey in locations where such coral reef houses were laid before in Koh Maiton, Phuket showed that two years afterword, 430 coral colonies emerged (averaging 3-5 c.m. deemed healthy) alongside discovery of 15 fish species and 31 plankton species.

Forest Recovery: Biodiversity Boost

- **Reforestation at Mae Ping National Park** Cement and Building Materials Business collaborated with Mae Ping National Park authority and the community of Kor Subdistrict in Lampun province rehabilitated a 400-rai tract of indigenous forest within Mae Ping National Park. The undertaking is part of research project with Kasetsart University's Faculty of Forestry. In preparation for the indigenous forest rehabilitation, the University conducted a biodiversity survey of flora and fauna and insect species, and carbon sequestration capacity. This project forms part of SCG's target to increase indigenous forest cover to 1.5 million rai by 2050.
- **Increase Food Sources for Wildlife** SCGC (Chemicals Business) working with communities around Khao Yai Da mountain range which covers 7 subdistricts and 2 districts in Rayong has been working to rehabilitate the watershed area forest of Khao Yai Da since 2007, by building check dams and reforestation. These actions evolve into a sustainable water resource management model. The focus in 2022 is to boost biodiversity by increasing food plants for wildlife. SCGC and communities jointly prepared 14,000 saplings of indigenous trees and fruit trees that are food sources for animals, to be planted around Khao Yai Da within 2023.

Human Rights

Elevating Human Rights Management in Thailand and Abroad

SDGs 3 5 8 10 16

Target	2022 Performance
Zero case of human rights violation	1 case
100% of employees undergo human rights training and pass Ethics e-Testing	100%
Female employees in all management positions account for 27% by 2025	30.5%



UN WEPs Award in the Community Engagement and Partnerships Category

Strategy

1. Integrate human rights, diversity, and inclusion into business operations across the value chain both in Thailand and abroad.
2. Foster value and initiate human rights programs for all stakeholders across the value chain and society.
 - Employees: Respect rights as a fundamental principle and enhance diversity and inclusion.
 - Contractors: Minimize risk of human rights violation and enhance quality of life in work environments with respect to labor, health and safety, and well-being.
 - Suppliers: Elevate human rights risks management that may affect the value chain.
 - Communities: Foster engagement based on respect for fundamental rights and enhance quality of life.
 - Customers: Deliver products, services, and solutions that offer quality and safety, which are part of fundamental rights, and promote quality of life.
 - Stakeholders: Continuously undertake human rights risk management to prevent adverse impacts that SCG has caused or contributed to or directly linked to its activities across the value chain.
3. Serve as a model and share human rights experience with other organizations.

Management

1. SCG has announced and reviewed SCG Human Rights Policy and SCG Diversity and Inclusion Policy in line with United Nations Global Compact (UNGC), the International Labor Organization (ILO) Declaration on Fundamental Principles and Rights at Work, Organization for Economic Co-operation and Development (OECD), and other international standards, as well as driven implementation of such policies through SCG Sustainable Development Committee.
2. SCG has established a unified organization-wide risk management framework and carried out human rights due diligence process in all facets in a proactive manner to prevent human rights violation.

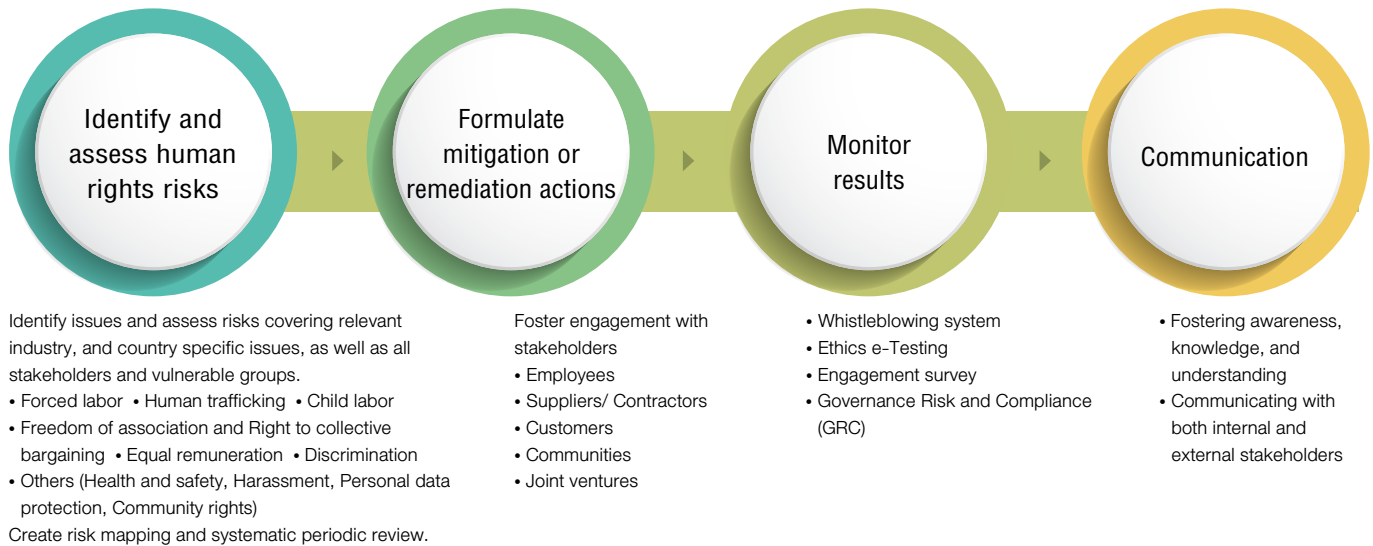
With heightened expectations regarding human rights issues and greater potential impact on business operations resulting from new investments or mergers and partnership abroad, it is necessary to understand the human rights standards and management approach of each specific country as they can vary according to social context. In response, SCG committed to elevate its practices to cover own operations, suppliers, contractors, joint ventures, and stakeholders across the value chain as well as to new investments in Thailand and abroad. As part of this effort, SCG has reviewed its policies, operational frameworks, and human rights due diligence process to align with international standards as well as the national action plan on business and human rights, and being a role model for further implementation.

Reviewing Policies and Guidelines to Elevate Human Rights Execution According to International Standards

SCG has reviewed its policies, operational frameworks, and guidelines to ensure comprehensiveness and alignment with international standards and cover all relevant topics in all business activities of SCG as well as its contractors, suppliers, and joint ventures.

- Human Rights Policy
- Diversity and Inclusion Policy
- SCG Supplier Code of Conduct
- Human Rights Framework

Human Rights Due Diligence Process



SCG has reviewed its human rights due diligence process through engagement with relevant stakeholders, from risk identification and assessment all the way to the formulation of mitigation actions and the monitoring of the effectiveness of such actions across all businesses both in Thailand and abroad (more information on page 128-129). In addition, SCG has communicated its Supplier Code of Conduct including mitigation actions guideline to its contractors and suppliers to enable to implement effective risk management in Supplier Day 2022.

Enhance employees engagement with empathy

SCG has collaborated with external consultant to obtain insights into the needs and experience of vulnerable groups, such as women, people with disabilities, LGBTQI+, and people of different religion, and etc. In order to develop new initiatives/ projects and conduct effective communications.

In addition, SCG also hires employees with disabilities and provides various inclusive facilities to ensure universal accessibility such as restrooms, ramps, parking spaces, and etc. and support diverse employees, contractors, and visitors covering people with disabilities, pregnant women, and etc.

Elevating Awareness on Human Rights, Diversity and Inclusion in the organization

SCG trains and tests their employees on human rights through Ethics e-Testing on an annual basis as well as organizes activities and issues communications through various channels to raise awareness and understanding of human rights, and diversity and inclusion that lead to new initiatives or opportunities creating including competitive advantages. SCG promoted women empowerment as a starting point and extended to other facets of diversity and also promoted the role of women in driving the economy on the public and national levels through various key projects.

- “SCG Women in Leadership Inspiration Talk” was broadcast live to raise awareness among employees of non-discrimination and zero tolerance towards all forms of harassment and foster acceptance of diversity in the organization.
- “BE YOU Club” is a space of diversity where everyone can share identity-affirming stories. Live talks are also hosted to inspire acceptance of diversity and support a work environment where everyone can work together happily.

In addition, GRC Helpline has been launched to provide consultation for employees with questions about human rights practices in the workplace. SCG has also put in place effective and up-to-date whistleblowing channels for employees and external parties covering an incident escalation process of discrimination and harassment and provide protection measures for whistleblowers reporting on human rights violation related on SCG and informants in accordance with SCG Whistleblowing Policy.

Salient Human Rights Issues in 2022

There were four salient human rights issues as follows:

1. Employment conditions
2. Health and Safety
3. Forced labor
4. Protection of migrant workers

In addition, SCG has established a Human Rights Due Diligence Process Guideline for each company, including new investments, mergers and partnership, as well as joint ventures, contractors, and suppliers in the value chain to use in risk assessment, mitigation action formulation, auditing, monitoring, and communicating on human rights impacts and how impacts are addressed in order to keep the risk level within the risk appetite and prevent human rights violation.



Human Rights Award (Outstanding Achievement) for a third consecutive year from the Rights and Liberties Protection Department, the Ministry of Justice

Employee Caring and Development

Talent Attraction, Development, and Retention for Sustainable Growth

SDGs 5 8 9

Target	2022 Performance
Employee engagement rate based on the total number of employees exceeds 70%	69%
100% of employees in Thailand receive a competency assessment and have an Individual Development Plan (IDP) on the Learning Management System (LMS) continuously every year.	100%

Strategy

1. Create value for the organization to attract talents and competent prospective employees.
2. Ensure that employee care is equitable and thorough to foster employee engagement.
3. Enhance employee competencies to meet the Company's competitive needs and enable them to work happily and work in a team effectively.
4. Foster a culture of learning by giving employees an opportunity to develop themselves according to their interest using the most suitable learning method for themselves through hard skill and soft skill courses and through diverse learning channels.
5. Create a conducive learning factor with the Learning Management System (LMS) to ensure uniform quality and standards both in Thailand and abroad.

Management

- SCG provides courses and activities to promote learning and self-development for employees in a short amount of time and foster a positive mindset both for working individually and with others as well as social and environmental responsibility, with supervisors, coaches, mentors, co-workers, and team members supporting the learning process.

In response to the economic crisis and the volatility of the global economy, the post-COVID 19 era as well as various abrupt changes, SCG is required to restructure and adjust its business strategies by encouraging self-development and adaptability among employees at all levels to ensure their people can keep up with the shifting business landscape. SCG has also been working to foster employee engagement to retain our people, who are key resource for driving sustainable growth, by adopting employee caring good practices to take care of them while working with SCG and after their retirement.

Post-COVID 19 Employee Caring and Development

SCG upskills and reskills employees to ensure they can adapt to the new modes of work effectively, including the hybrid workplace and hybrid collaboration, and can develop a hybrid mindset to maintain adaptability to the situation. With the COVID-19 pandemic on the decline, SCG has placed emphasis on work conditions and the physical and mental health of its employees. To this end, it has adjusted work formats and provided assistance in key areas, such as:

Workplace: SCG has introduced a new hybrid workplace policy and designed new co-working spaces/ collaborative zones.

Finance: SCG has provided special allowances for all employees up to the first-line manager level in response to rising living costs and inflation.

Physical health: SCG promotes preventive healthcare by conducting health education workshops, activities promoting exercising, annual health checkups, and fitness tests.

Mental health: SCG has introduced "Caring Check" and "Doctor Anywhere" mental health caring online systems to provide access to counseling services by psychiatrists and psychologists and established a healthcare center where employees can make an appointment to see counselors in person.





Revising Courses and Learning Formats for the Post-COVID 19 Era

In 2022, as employees began to return to the office, SCG began adjusting the course structure, objective, and learning topics to better suit the current situation with fiercer competition in the market and accommodate the future of work as well as to develop a teamwork mindset for the sustainable growth of the organization. Emphasis was still placed on online digital (e-Learning) and virtual classrooms, with the addition of live learning sessions, site visits, workshop simulations, coaching, and project assignments. A hybrid learning approach was utilized to accommodate both on-site and online participants simultaneously, and the 70:20:10 blended learning was maintained. Examples of key courses and learning topics:

Mindset: Growth Mindset, Agile Mindset, ESG and Sustainability Mindset, etc.

Customers: Strategy and Customer Centricity, Successful Customer Empathy with the Expert, Customer Insight, etc.

AI/ Data Analytics: Data Springboard, Big Data, AI-powered Solution, etc.; data analytics courses have been designed for employees both in Thailand and abroad.

Providing continuous support for key talents

SCG has consistently reviewed and improved its key talent engagement, including assessment, development, motivation building, and opportunities for career advancement. Key activities in 2022 were as follows:

- Increasing the number of assessor up for 360° assessment and raising the weight of peer assessment score from 40% to 50%.
- Allowing key talents to choose mentors from a provided list and rotate to a position in the career path that interested them.
- Giving assignments that were connected to the organization's strategies.

Learning Case: Business solutions from The Management Acceleration Program (MAP)

MAP is a top executive development program co-developed by SCG and DUKE Corporate Education, USA, with the objectives of fostering leadership and adaptability among executives and developing their broad business perspective. In response to COVID-19, the program was adjusted to virtual formats, including e-Learning, virtual classrooms, and project assignments. In 2022, To enhance their ability to understand customers, the topics of customer centricity and customer sciences were added. In addition, hybrid learning was introduced, while virtual classrooms were replaced by face-to-face classrooms and site visits to world class companies. Digital format (e-Learning) and project assignments were retained. Employees who completed MAP were able to use the knowledge gained to develop a practical business solution – CPAC Precast Column & Beam Solution. The solution involved pre-casting concrete columns and beams at the factory for on-site installation, which reduced leftover wood planks required for column and beam casting by at least 90%, saved both labor and construction time, and generated over 100 million baht in sales. The employee development initiative also fostered a teamwork mindset as it required members from various teams who had different competencies and opinions to work together towards the same goal and direction. The program also fostered skills in line with the current business direction, including design thinking, and placed emphasis on empathy as well as engagement and collaboration with both internal and external stakeholders, such as customers and construction workers, enabling the participants to gain insights into the pain points and, in response, develop products and services that addressed the demand most effectively.

Community and Social Involvement

Supporting Communities in Line with ESG 4 Plus and Co-creating Value with Society

SDGs 1 3 4 6 12 17

Target	2022 Performance
Monetary contribution to society	560 million baht
Goods and services contributed to society	15 million baht
Employee involvement in CSR activities	222,056 hours, equivalent to 54 million baht

Strategy

1. Utilize SCG internal expertise and external competent experts to enhance community self-reliance as well as care for society.
2. Foster engagement among employees and all relevant sectors to create sustainable value for society.
3. Develop innovation to serve the needs of communities and tackle social issues.
4. Develop models for sustainable development and scale up to other community networks.

Management

- The CSR Committee for Sustainable Development, consisting of members of the Board of Directors and SCG top executives, is responsible for formulating policies and guidance on sustainability-oriented social development activities.
- SCG Foundation carries out a key mission focusing on maximizing human capability and equipping them with knowledge and integrity.
- The Community Relations Unit carries out activities that enhance the potential of neighboring communities of SCG's operational sites to attain better life quality and sustainable self-reliance.



The ever-intensifying climate change and economic downturn have not only increased social inequality but also impacted every sector, particularly civil society and the way of life.

It is thus essential for preparedness to economic, social, and environmental impacts resulting from relevant physical risks and transition risks. In response, SCG has introduced ESG 4 Plus, consisting of Towards Net Zero – Go Green – Reduce Inequality – Enhance Collaboration Plus Trust through Transparency, to enhance the quality of life and safety as well as promote self-reliance in communities.

Towards Net Zero and Go Green for a Low Carbon Society

- **Cement and Building Materials Business** has developed a low carbon community model to instill awareness of climate change and organized various activities to generate additional income through simple and practical ways for three communities, namely Ban Rai Neua and Wang Khri Communities in Thung Song District, Nakhon Si Thammarat, and Ban Mod Tanoi Community in Kantrang District, Trang, such as waste sorting and selling, value adding to coconut shells, and organic vegetable farming. In 2022, the low carbon community project prevented the emission of 25,183 kilogram carbon dioxide in total and was awarded with a certificate under the Low Emission Support Scheme (LESS) by the Thailand Greenhouse Gas Management Organization (Public Organization). SCG also planned to carry out projects promoting the use of alternative energy in place of electric power in low-carbon communities.
- **SCGC (Chemicals Business)** expanded its "Waste-free Community Project" to 65 communities, encompassing 10 temples, 11 schools, 2 hospitals, 1 hotel, and 3 fishery groups, to integrate waste management across Rayong, using the "KoomKah" application, which SCGC had developed to facilitate the management of community waste banks. At present, 13 waste banks are in operation, with 3,785 user accounts combined and a cumulative amount of recycled waste of over 240 tons logged in the system, which helped reduce landfilling equivalent to over 480,000 kilogram carbon dioxide of greenhouse gas emissions reduction. The initiative was also extended to students through the "Milk Pouch for a Greener World Project", which aimed to instill habits of resource efficiency into young children. Under this project, used milk pouches from schools were recycled into plastic products, such as chairs and plant pots. There are currently more than 1,700 participating schools, and 1,050,000 milk pouches weighing 4,200 kilogram (4.2 tons) have been collected and recycled.



Reinforcing Collaboration for Public Safety

Recognizing the importance of road safety, SCG leveraged its transportation safety management expertise through its Logistics Command Center (LCC) and its AI-enabled driver behavior tracking innovation to improve the safety of school buses and ambulances in collaboration with the Ministry of Education, the Ministry of Interior, and the Ministry of Public Health.

- **Smile Kid School Bus:** To prevent children from getting trapped or being left in school buses, which can result in injury or death, this platform uses RFID devices to track all students boarding and exiting the vehicle. The platform also allows for real-time tracking of the vehicle. So far, 300 school buses from 210 schools have joined the platform.
- **Smart Safety Solution:** This COVID-19 and infectious disease management and prevention platform identifies at-risk individuals before travel to ensure the safety of students and educational personnel. The project was piloted in Suphanburi, Ratchaburi, Nakhon Pathom, Ang Thong, Chiang Mai, Chonburi, Trat, Ayuthaya, Nakhon Si Thammarat, and Buriram.
- **Ambulance Safety Solution:** Designed for ambulance fleet safety management, this platform was first piloted Na Wang Community Hospital Commemorating His Majesty the King's 80th Birthday Anniversary in Nong Bua Lamphu and later expanded to hospitals nationwide. Currently, 896 ambulances from 233 hospitals are on the platform, with 666 more vehicles from 101 hospitals in the process of joining it. The platform has won the first prize in the Copyright Category at the Intellectual Property Champion 2020, hosted by the Department of Intellectual Property.

Reduce Inequality Job Development for Income Security



• Cement and Building Materials Business

initiated the "Zero Burn Community" Project in the northern region of Thailand, which not only mitigated the problem of dust but also enabled the communities to earn income from the sales of 780 tons agricultural waste, such as rice straw and dry leaves, to The Siam Cement (Lampang) Co., Ltd. for use as alternative fuels, which saved 19,148 baht in energy cost for the company. In 2022, a total of seven communities participated in the project and earned 900,000 baht from such sales. The project prevented agricultural burning on a total of 6,300 rai of land and reduced health impacts from dust. Furthermore, local communities were able to generate additional income from afforestation activities in Mae Ping National Park in Lamphun.

- **SCGC (Chemicals Business)** carried out a project in 12 member communities in Rayong to help them develop products in line with the BCG (Bio Economy, Circular Economy, and Green Economy) with the goal of generating revenue for the locals while also conserving the environment sustainably. To this end, SCGC enlisted the help of experts



from government agencies and educational institutions to conduct training sessions on a variety of topics, including innovation-driven product design and development, as well as online and offline marketing. Participants included Ban Thap Ma Stingless Bee Farming Promotion Community Enterprise and Song Saleung Salak in Syrup

and Dried Salak Community Enterprise. In addition, SCGC broadened access to the local products by promoting their sales channels and launching the "Rayong Shop-Hi Facebook Fan Page, an online marketplace for a variety of Rayong specialties and delicacies". The project draws 1,000 participants annually and has generated 8,612,659 baht in revenue for the community enterprises.

- **SCGP (Packaging Business)** has carried out a project promoting paper band weaving since 2014, for which it provides paper bands – a waste material from paper production – as materials for local communities to transform into woven handicrafts in their own unique traditional style. SCGP has also established a learning center to improve design and weaving abilities with the aim of creating more contemporary designs as well as enhanced international distribution channels. SCGP currently provides the communities with 4,500 kilogram of paper bands annually and helps them generate over 1.2 million baht per year.

SCGP also held the university-level packaging design contest called SCGP Packaging Speak Out for a seventh consecutive year in Thailand and a third consecutive year in Vietnam. Through the years, the contest has drawn 2,702 participants from 41 educational institutions and accepted 1,841 entries combined. For 2022, the "Upcycle" and "Easy to Recycle" themes were used to raise awareness among Gen Z – who will play a pivotal role on the future of the world – and inspire them to use creativity in packaging design with the principles of circular economy. The winning entry of the "Best of Challenge" award in Thailand was Shoes-Able by Interior Design students from Silpakorn University — a shoe box that can be upcycled as a two-shelf shoe case which help minimize storage space.





PERFORMANCE

About This Report

Sustainability Performance Data

Operating Results of Cement Business
in Accordance with Global Cement
and Concrete Association (GCCA)

Mitigation Actions on Salient
Human Rights Issues 2022 of SCG

Supplier Governance and Enhance
Capacity Towards Sustainability

GHG Scope 3

Subsidiaries Included in Sustainability
Report 2022

Assurance Statement

GRI Content Index

Task Force on Climate-related
Financial Disclosures (TCFD)

Sustainability Accounting Standards
Board Response (SASB)

About This Report

SCG has published annual sustainability report since 2011 focusing on three core units namely Cement and Building Materials Business, SCGC (Chemicals Business) and SCGP (Packaging Business). Sustainability performance in this Report is SCG's information which the top management deems relevant and of value to stakeholders.

Reporting Scope

Economic information covers performance of SCG's subsidiaries, joint ventures, associates and other companies located in Thailand and abroad, in line with SCG Annual Report.

Environment, health and safety data herein cover those from subsidiary companies over which SCG has controlling in Thailand and abroad, as listed in page 133-141, for the period of 1 January to 31 December 2022.

The report is compiled and prepared in accordance with Global Reporting Initiatives (GRI Standards 2021), and incorporating performance reporting prescribed by relevant international standards including:

- Task Force on Climate-related Financial Disclosures (TCFD) in page 150
- Sustainable Development Goals (SDGs) in page 20
- Global Cement and Concrete Association (GCCA) in page 126-127
- Sustainability Accounting Standards Board (SASB) in page 151-152

Sustainability Management System

SCG applied the management system according to various international standard in operations such as quality management system standards, environmental management system standards, occupational health and safety management system standards, etc. To ensure that SCG has a sustainable management system covering the entire organization, SCG has established sustainable development guidelines such as the Sustainable Development Guidelines, Environmental Management Guidelines, Occupational Health and Safety Management Guidelines. Subsidiaries under business units of SCG have been certified international management standards, i.e. ISO 9001 - Quality Management System, ISO 14001 - Environmental Management System, OHSAS/TIS 18001/ISO 45001 - Occupational Health and Safety Management System, and ISO 50001 - Energy Management System.

In 2022, 100% subsidiaries have been certified for Quality Management System, 98% for Environmental Management System and 91% for Occupational Health and Safety Management System.



SCG Sustainable Development Framework



SCG Environmental Management Framework



SCG Safety Framework

Reporting Assurance

Financial data in this report are from similar sources as in SCG Annual Report and verified by certified public accountants.

Environmental and social performance data are verified as accurate and compatible substantively with GRI Standards version 2021 by third party as detailed in page 142-143

Environment

Environment data presented here are from activities deemed to have significant impact, reported by companies with production processes, excluding reports with no significant impact from entities such as sales offices, R&D laboratories, services and holding companies.

Data sources, i.e., accounting evidence, meter reading, production process data, evidence-based estimation are presented in absolute value. For specific consumption/emission, disclosure since 2016 has been improved for clarity, by comparing the year performance with that of Business As Usual (BAU) of base year. We use 2007 as base year for energy consumption, 2014 for water withdrawal, and 2020 for air emission.

For climate actions, targets are set in absolute terms, with Net Zero GHG emissions target in 2050, and targeting at least 20% emission reductions in 2030 compared with 2020 base year.

Reporting of cement business within SCG Cement and Building Materials Business follows Global Cement and Concrete Association (GCCA) guidelines. Air emission and heat consumption performance are calculated from clinker tonnage. GHGs and water consumption performance are calculated from cementitious tonnage since 2016.

Energy

Total energy consumption includes thermal energy and electricity used in the companies/factories areas. Volume and share of alternative energy are incorporated in the thermal energy portion. From 2018, renewable energy and non-renewable energy are captured.

Thermal energy consumption =
fuel weight or steam volume
(estimated from volume purchased or stockpile
variance) x heat value of fuel type (lab test results
or supplier's data)

Greenhouse Gas Emissions (GHGs)

GHGs data in this report represent emissions from operations calculated according to guidelines in WRI/WBCSD GHG Emissions Protocol:

1. Reporting Scope

1.1 Direct Scope 1 emissions from manufacturing processes and activities that are owned and controlled by SCG. Examples include combustion of coal or natural gas in boilers, furnaces, vehicles; emissions associated with chemical reaction in production processes such as calcination in cement plant. Excluded are combustion of fuel from renewable materials.

1.2 Indirect Scope 2 are emissions from purchased energy such as electricity, steam and hot air.

2. GHG Inventory

2.1 Direct Scope 1 emissions are calculated from

- Combustion

- Reporting of fuel use (weight or volume) such as amount of oil or natural gas x emission factor referenced to TGO (Thailand Greenhouse Gas Management Organization, Public Organization, and outside of TGO's either IPCC 2006 or GCCA.

- Fuel consumption (based on heating value) for instance amount of coal x heating value x TGO emission factor; otherwise, IPCC 2006 and GCCA.

- Carbon mass balance from fuel consumption

- Chemical reaction in production process, i.e., limestone is calculated using mass balance.

- Cement business reporting is reference with GCCA guideline.

2.2 Indirect Scope 2 emissions are calculated on the basis of purchased electricity, steam or hot air consumption x GHG emission factors based on TGO, manufacturers or suppliers.

3. Types of GHG emissions reported include CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ which are converted and reported as CO₂ equivalent by Global Warming Potential (GWP) referenced with IPCC-defined GWP factors.

Air Emissions

Air emissions are the quantity of air pollution such as NO_x, SO_x and particulate matters from combustion and are part of the production process. Types of air pollutants depend upon each production process in which chemical substance is produced. Results and measurement method conform with the law requirements such as US EPA, or equivalent standard.

Air emission quantity reported is calculated based on concentration measured from random spot check being conducted by laboratories certified by and registered with Department of Industrial Works, multiplied by hot air flow rate and production hours.

In addition, Chemicals Business, Packaging Business and Cement Business measure their air emissions from stack using (Continuous Emission Monitoring Systems, CEMs). Cement Business references measurement to GCCA guideline. (Details in page 126-127)

Water

Water management consists of the amount of water withdrawal, recycled water and effluences.

“Water withdrawal” means quantity of water drawn from various types of external sources namely surface water, groundwater, and third-party water. In terms of category, fresh water means water with less than 1,000 mg/L. of total dissolved solid while “other waters” contain over 1,000 mg/L. of total dissolved solid. Water withdrawn from water-stress area is estimated based on Aqueduct Water Risk Atlas.

“Recycled water” means the quantity of treated water returned to the process, excluding non-treated reused water such as cooling water.

“Water discharge” means quantify of effluences discharged into water sources such as surface water, groundwater, and third-party water, from the first reporting year of 2020, with reporting of discharge into stress area and effluent types in terms of Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), and Total Suspended Solids (TSS).

Industrial Waste

Industrial waste reporting is divided into hazardous and non-hazardous waste according to laws and regulations in each country where SCG operates, in terms of waste generation, waste management and waste in the storage to demonstrate production efficiency and waste management efficiency according to the following:

“Diverted from disposal” consists of reuse, recycling and treatment

“Waste directed to disposal” consists of incineration for energy output, non-energy generating incineration, landfill and other disposal operations.

The amount of waste generation from production process is calculated using appropriate method on weighing, calculating or evidence-based estimation; whereas weighing of waste directed to disposal using scale yielded more precise result.

Social

Health and Safety

Numbers of Employees and Contractors

1. Employee is full time employees according to contract, consisting of operational level, supervisory and technical staff level, and managerial level as well as intern (probationary) and special-contract employee.

- Operational level is a front-line worker who uses skills and technique in their daily operations.
- Supervisory and technical staff level is a front-line manager responsible for daily management or with subordinates.
- Managerial level is a manager responsible for addressing business strategies or policies, delegating and controlling supervisory and technical staff who implement policy and daily work.
- Special contract employee is temporarily employed for a specific period.

2. Contractor is a person who consented to work or provide service or benefit to the company apart from the company's employee per the definition above, which could be divided into 3 types of contractors are as follow:-

1) Workplace Contractor is a contractor working for the company, whose work and/ or workplace is controlled by the company (excluding Transportation Contractor).

2) Direct Transportation Contractor is a transportation contractor with operation under SCG's brand.

3) Other Transportation Contractor is a transportation contractor without operation under SCG's brand.

Workplace Contractor data covered in the report are calculated for number of hours worked. Transportation Contractor data under SCG Logistics Management Co., Ltd. are reported in kilometer.

Third Party is other people, neither employee nor contractor, who are not working for the company and not covered in this report.

Hours Worked Calculation

1. Data from a clock-in system, HR database, accounting, or relevant administrative functions.

2. In case the companies/plants do not have a clock-in system or database system, or other record document the formula below is applied to estimate hours worked.

Number of hours worked =
(number of worker x number of working days x
number of normal hours worked per day)
+ total number of overtime hours worked (if any)

Health and Safety Data Recording

SCG records the following data on work-related health and safety as follow:-

- 1) Fatality Work-Related Injury and Occupational Illness & Disease Rate from workplace is number of work-related injury and occupational illness & disease that result in fatality case (person) per 1,000,000 hours worked.
- 2) Total Recordable Work-Related Injury and Occupational Illness & disease Rate from workplace is the total number of work-related injury and occupational illness & disease that results in fatality, lost time, restricted work or medical treatment case (person) per 1,000,000 hours worked.
- 3) Number of Fatality Work-Related Injury is the number of work-related injury that result in fatality regardless of sudden death or suffering consequences and subsequent death.
- 4) Fatality Work-Related Injury Rate from workplace is the number of work-related injury that result in fatality case (person) per 1,000,000 hours worked.
- 5) Total Number of Recordable Work-Related Injury from workplace is total number of Work-Related injury that results in fatality, lost time, restricted work or medical treatment.
- 6) Total Recordable Work-Related Injury Rate from workplace is total number of work-related injury that results in fatality, lost time, restricted work or medical treatment case (person) per 1,000,000 hours worked.
- 7) Number of High-Consequence Work-Related Injury from workplace is total number of work-related injury that result in high-consequence, excluding fatality.
- 8) High-Consequence Work-Related Injury Rate from workplace is total number of work-related injury that result in high consequence excluding fatality case (person) per 1,000,000 hours worked.
- 9) Lost Time Injury Frequency Rate from workplace is total number of work-related lost time injury case (person) per 1,000,000 hours worked.
- 10) Severity Work-Related Injury Rate from workplace is total number of lost workday (day) from work-related lost time, injury per 1,000,000 hours worked.
- 11) Number of Fatality Occupational Illness & Disease from workplace is number of occupational illness & disease that result in fatality regardless of sudden death, or suffering consequences and subsequent death.
- 12) Total number of Recordable Occupational Illness & Disease Rate from workplace is total number of occupational illness & disease that results in fatality, lost time, restricted work or medical treatment.
- 13) Total Recordable Occupational Illness & Disease Rate from workplace is total number of occupational illness & disease that results in fatality, lost time, restricted work or medical treatment case (person) per 1,000,000 hours worked.
- 14) Near Miss Frequency Rate is number of near miss case per 1,000,000 hours worked.

Lost Time is work-related injury, occupational illness & disease that causes the injured absence from work on the next working day or the following shift, as well as the case that such injury, occupational illness & disease leads to leave of absence as the person is incapable of returning to work after the incident.

High-consequence work-related injury is injury that results in a fatality or in an injury from which the worker cannot, does not, or is not expected to recover fully to pre-injury health status within six months.

Employees

Average Wage Ratios

Employees refers to persons who work full time for the company as specified in the employment contract and can be categorized into executives, management employees, and non-management employees. The term encompasses employees of Cement and Building Materials Business, SCGC (Chemicals Business), and SCGP (Packaging Business).

Wage refers to salary paid on a monthly basis to employees as prescribed by the company.

Other remuneration refers to any remuneration in addition to salary, given as incentives or special performance-related pay, as well as other monetary rewards such as bonus.

Reporting of average wage ratio calculated solely on salary, and average remuneration ratio calculated on salary and other remuneration throughout the year, and comparative average between female and male employees in different levels including gender pay gap analysis, is in accordance with GRI 405-2.

This report and its predecessors can be downloaded from www.scg.com

For more information please contact:

SCG Sustainable Development Committee

1 Siam Cement Road, Bangsue, Bangkok 10800
THAILAND

Tel: 066-2586-3333, 066-2586-4444

Fax : 066-2586-2974

E-mail: info@scg.com and website: www.scg.com

Sustainability Performance Data

Economic Performance

SCG continues to maintain the increasing of revenue from sales. Regarding to crisis upon crisis and geopolitical tensions, leads to increasing of energy and raw material costs, resulting in, the decreasing of profit for the year form 2021.

Performance Data	2018	2019	2020	2021	2022	GRI Standards	S&P Global CSA ⁽¹⁾	SASB
Revenue from sales (Billion Baht)	478.4	438.0	399.9	530.1	569.6	GRI 201-1	0.1	
Profit for the year (Billion Baht)	44.7	32.0	34.1	47.2	21.4	GRI 201-1		
EBITDA (Billion Baht)	86.6	75.1	74.6	91.9	61.9	GRI 201-1		
Employee compensation comprising salary, wage, welfare, and regular contributions (Million Baht)	43,960	48,139	46,796	47,921	50,732	GRI 201-1		
Dividend to shareholders (Million Baht)	21,600	16,800	16,800	22,200	9,600	GRI 201-1		
Interest and financial expenses to lender (Million Baht)	6,836	6,442	7,082	6,758	7,523	GRI 201-1		
Taxes to government and local government authorities such as income tax, local maintenance tax, property tax and other specific taxes (Million Baht)	6,630	6,143	7,190	8,430	6,685	GRI 201-1		
Tax privilege and others from investment promotion, and research and development (Million Baht)	1,905	1,388	1,149	1,829	1,054	GRI 201-4		
Non-compliance case through SCG Whistleblowing System (Cases)	21	30	38	30	51	GRI 205-3	1.4.8	
Customer Satisfaction - SCG Contact Center (%)	100	100	100	100	100		3.8.1	
Average Customer Satisfaction - All business unit (%)	93	94	94	94	94		3.8.1	
Contributions to organizations (Million Baht) ⁽²⁾	9.8	22.2	13.79	11.31	30.9		1.5.1 1.5.2	
Contributions to political activities (Million Baht) ⁽³⁾	0	0	0	0	0		1.5.1 1.5.2	
Suppliers that assessed Environmental, Social and Governance (ESG) Risks (% of procurement spending)	100	100	100	100	100		1.6.4	
Procurement Spending by Geography (% of procurement spending)								
• Domestic	50	58	57	40	50		1.6.6	
• Regional	50	42	43	60	50			
Revenue from Sales of High Value Added Products and Services (Billion Baht)	185.0	179.2	126.1	182.7	195.5			
(%)	38.7	40.9	31.5	34.5	34.3			
Revenue from Sales of SCG Green Choice Products and Services (Billion Baht)	202.4	128.8	130.4	216.0	289.7			EM-CM-410a.2
(%)	42.3	29.4	32.6	40.7	50.9			
Revenue from Sales of Products and Services designed for use-phase resource efficiency (Billion Baht) ⁽⁴⁾	NA	NA	0.022	4.870	27.46			RT-CH-410a.1
(%)	NA	NA	0.02	2.00	11.6			
Revenue from Sales of Sustainable Construction Products and Services (Billion Baht)	65.5	60.4	59.6	69.4	71.8		2.7.2	EM-CM-410a.1
(%)	13.7	13.8	14.9	13.1	12.6			

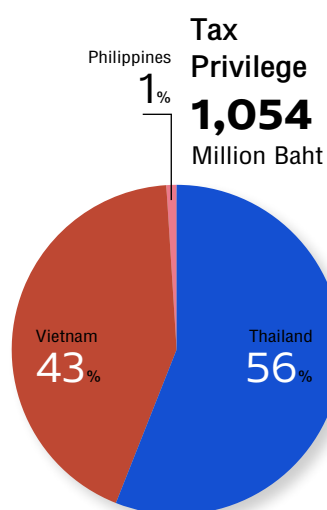
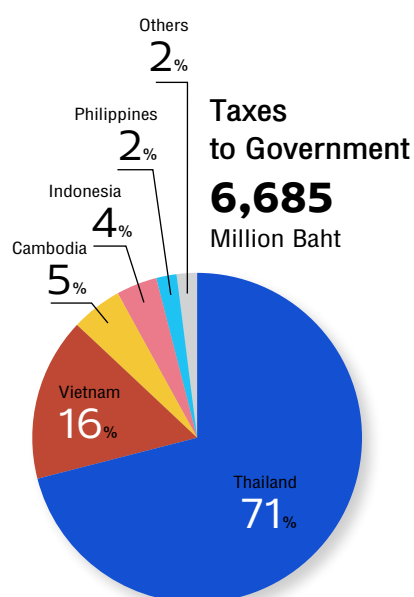
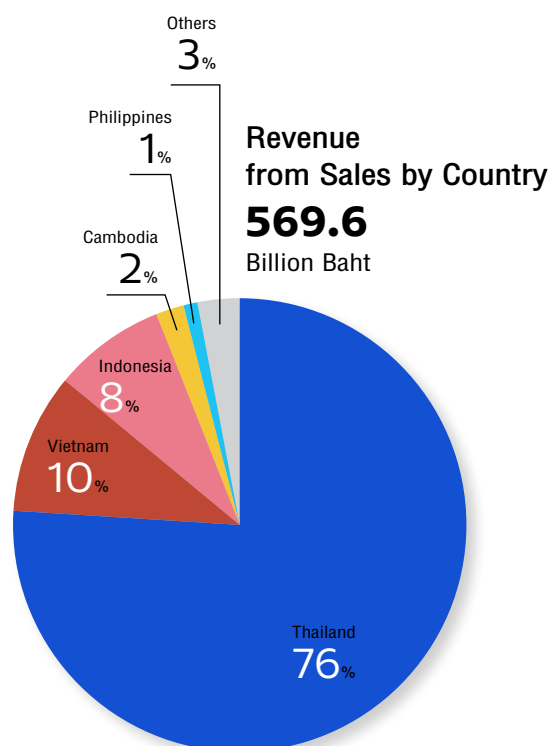
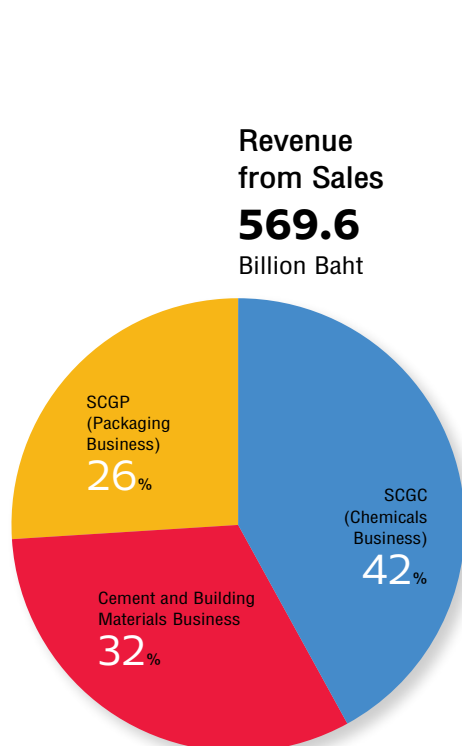
NA = Not Available

⁽¹⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽²⁾ The top seventh organizations contributed by SCG are Alliance to End Plastic Waste (AEPW), Thai Cement Manufacturers Association (TCMA), World Business Council for Sustainable Development (WBCSD), Global Cement and Concrete Association (GCCA), The Federation of Thai Industries, Global Compact Network Thailand, and The Thai Chamber of Commerce and Board of Trade of Thailand. The objective 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. SCG does not provide support to influence any organization or represent a stakeholder in that organization's operations.

⁽³⁾ SCG remains politically neutral, and set policy which does not give financial or any kind of supports to any political party, political group, or candidates in local, regional or national levels or person with political influence or lobbying or interest representation or similar and other categories (such e.g. election campaign, spending related to ballot measures, voting activities, or referendums). In addition, SCG establishes definition and prohibition of facilitation payments in Anti-corruption policy which means any action that may influence or motivate an unfair decision making and treatment.

⁽⁴⁾ Only SCGC (Chemicals Business)



Environmental Performance

Production and Raw Materials

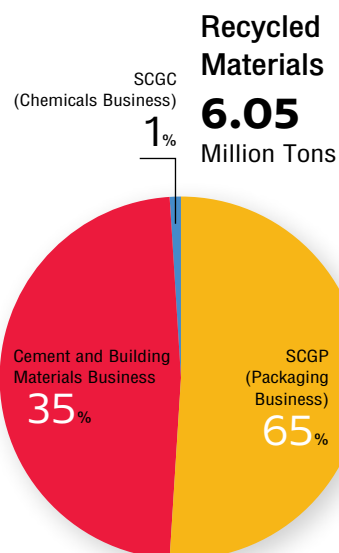
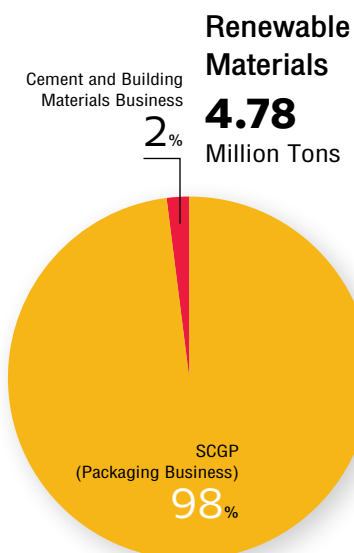
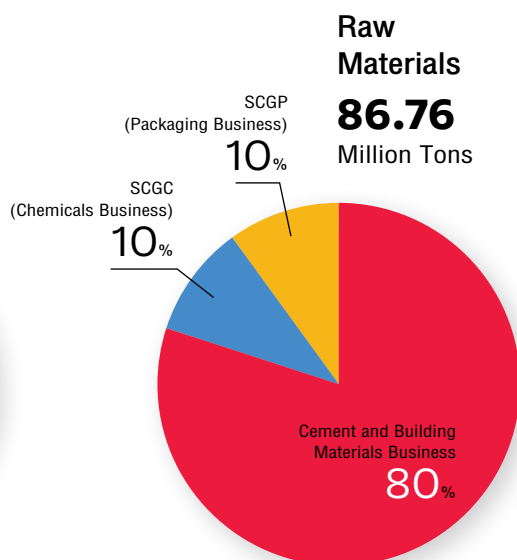
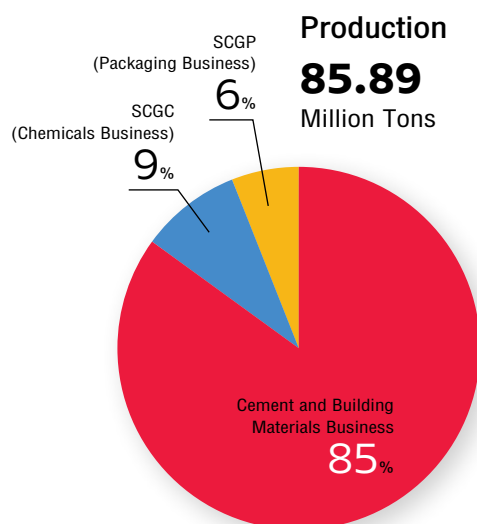
By embedding Circular Economy Principle into business, SCG can increase the amount of recycled materials.

Performance Data	2018	2019	2020	2021	2022 ⁽¹⁾	GRI Standards	S&P Global CSA ⁽²⁾	SASB
Production (Million Tons)	43.22	43.14	39.85	83.40 ⁽¹⁾	85.89		0.1	EM-CM-000.A
Raw Materials (Million Tons)	50.98	51.39	52.77	71.34	86.76	GRI 301-1		
Renewable Materials (Million Tons)	NA	NA	NA	NA	4.78	GRI 301-1		
(%)	NA	NA	NA	NA	5.51	GRI 301-1		
Recycled Materials (Million Tons)	3.73	4.25	5.65	3.76	6.05	GRI 301-2		RT-CP-410a.1
(%)	7.3	8.3	10.7	5.3	6.97			
Renewable Materials and Recycled Materials (Million Tons)	NA	NA	NA	NA	10.83			
(%)	NA	NA	NA	NA	12.48			

NA = Not Available

⁽¹⁾ 1st year to incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire



Greenhouse Gas Emissions

Towards the net zero in 2050, Greenhouse gas emissions decreased 4.13 million tons CO₂ compare with base year 2020.

Performance Data	2018	2019	2020 ^{(1),(4)}	2021	2022	GRI Standards	S&P Global CSA ⁽²⁾	SASB
GHGs Scope 1 and 2 (Million Tons CO ₂) ^{(3),(4)}	24.54	23.99	34.24	33.53	30.12			
GHG Scope 1 (Million Tons CO ₂) ^{(3),(4)}	22.10	21.59	30.99	30.34	27.24	GRI 305-1	2.3.1	EM-CM-110a.1
GHG Scope 2 (Million Tons CO ₂) ⁽³⁾	2.44	2.40	3.25	3.18	2.88	GRI 305-2	2.3.2	
Biogenic CO ₂ (Million Tons CO ₂) ⁽³⁾	NA	NA	NA	4.85	5.46	GRI 305-1		
GHG emission reduction compare with base year 2020 (Million Tons CO ₂)				0.72	4.13	GRI 305-5		
(%)				2.10	12.05			

Base year

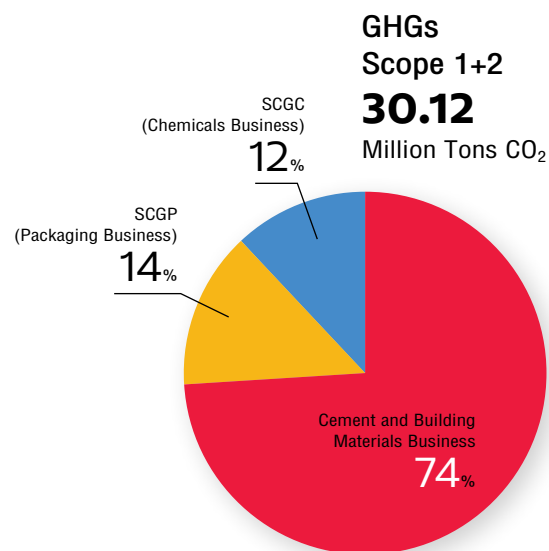
NA = Not Available

⁽¹⁾ 1st year to Incorporate performance from abroad operations

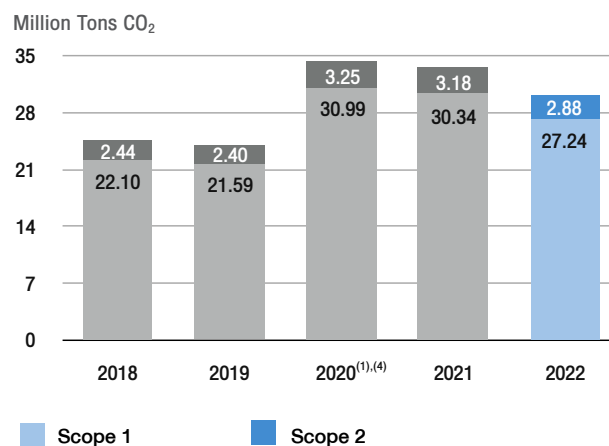
⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽³⁾ Within SGS's limited assurance scope (Page 142-143)

⁽⁴⁾ Recalculated in term of Gross Emissions



Greenhouse Gas Emissions



⁽¹⁾ 1st year to Incorporate performance from abroad operations

⁽⁴⁾ Recalculated in term of Gross Emissions

Energy Consumption

Increasing of renewable fuels to phase down of non-renewable fuels.

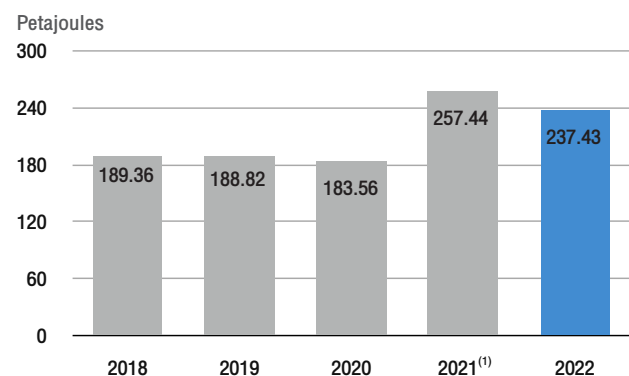
Performance Data	2018	2019	2020	2021 ⁽¹⁾	2022	GRI Standards	S&P Global CSA ⁽²⁾	SASB
Total Energy Consumption (Petajoules) ⁽³⁾	189.36	188.82	183.56	257.44	237.43	GRI 302-1	2.3.3	EM-CM-130a.1
Non-Renewable Fuel Consumption (Petajoules) ⁽³⁾	154.25	151.29	147.72	209.10	185.21	GRI 302-1		EM-CM-130a.1
Renewable Fuel Consumption (Petajoules) ⁽³⁾	15.48	18.72	17.96	24.85	31.31			
Steam & Heat Consumption (Petajoules) ⁽³⁾	5.35	4.72	4.44	4.65	2.52			
Electrical Consumption (Petajoules) ⁽³⁾	14.36	14.25	13.88	19.18	18.66			
Electricity Sold (Petajoules) ⁽³⁾	0.07	0.15	0.45	0.35	0.26	GRI 302-1		EM-CM-130a.1
Energy Consumption Reduction compare with business as usual (BAU) at base year of 2007 (Petajoules)	16.08	15.31	15.00	19.75	17.12	GRI 302-4		
(%)	7.8	7.5	7.6	7.1	6.7			

⁽¹⁾ 1st year to Incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

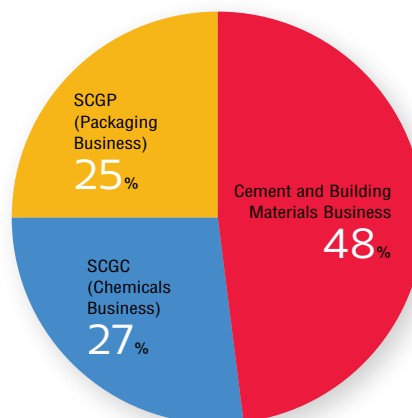
⁽³⁾ Within SGS's limited assurance scope (Page 142-143)

Total Energy Consumption

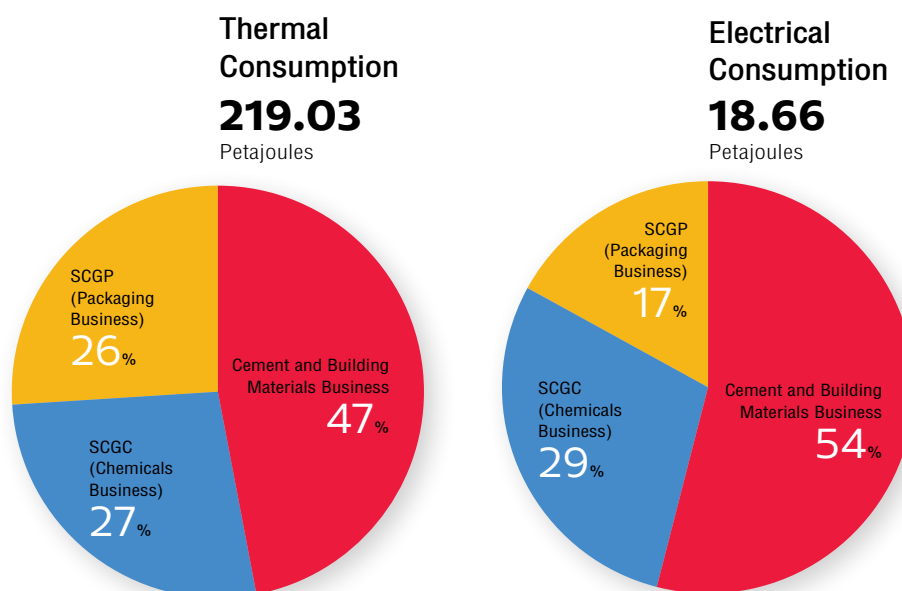


⁽¹⁾ 1st year to Incorporate performance from abroad operations

Total Energy Consumption
237.43
Petajoules



Energy Consumption



Co-processing Performance of Cement and Building Materials Business

Significant proportion of alternative fuels and raw materials utilization in cement and cement products resulting in GHG reduction.

Performance Data	2018	2019	2020	2021 ⁽¹⁾	2022	GRI Standards	S&P Global CSA ⁽²⁾	SASB
Alternative fuel used to replace the fossil fuel (as % of total heat consumption)								
• Alternative fossil fuel	11.90	17.50	18.30	19.90	26.90		2.5.1	
• Biomass	4.90	6.20	6.60	7.70	9.11			
	7.00	11.30	11.70	12.20	17.79			
Alternative raw materials contained in cement (%)	13.80	9.60	8.40	8.40	10.10		2.5.1	
Alternative raw materials contained in concrete (%)	2.01	1.21	1.29	1.09	0.94		2.5.1	
Clinker-to-Cement ratio (%)	74.80	74.40	72.90	74.20	71.82		2.5.1	
Alternative raw materials contained in other building materials (%)	14.10	14.70	15.40	11.20	8.79		2.5.1	

⁽¹⁾ 1st year to Incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

Water Withdrawal and Effluent Quality

With our efforts on water efficiency improvement and increasing of water recycling capacity, In 2022 SCG can reduce total water withdrawal.

Performance Data	Water						GRI Standards	S&P Global CSA ⁽¹⁾	SASB
	2018	2019	2020	2021 ⁽¹⁾	2022	2022 Areas with water stress			
Water Withdrawal									
Water Withdrawal by source									
Surface water (Million Cubic Meters) ⁽³⁾ • 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	GRI 303-3	2.3.4	EM-CM-140a.1
Groundwater (Million Cubic Meters) ⁽³⁾ • 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	GRI 303-3	2.3.4	EM-CM-140a.1
Third-party water (total) (Million Cubic Meter) ⁽³⁾ • 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	GRI 303-3	2.3.4	EM-CM-140a.1
Total Water Withdrawal (Million Cubic Meters) ⁽³⁾	110.18	103.43	94.29	130.03	120.07	0	GRI 303-3	2.3.4	
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) ⁽³⁾ (%)	11.24 9.3	12.30 10.6	12.33 11.6	17.03 11.9	18.50 13.4	0 0			EM-CM-140a.1

⁽¹⁾ 1st year to Incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽³⁾ Within SGS's limited assurance scope (Page 142-143)

Performance Data	Water						GRI Standards	S&P Global CSA ⁽¹⁾	SASB
	2018	2019	2020	2021	2022 ⁽¹⁾	2022 Areas with water stress			
Water Discharge (Only Thailand Operations)									
Water Discharge by destination ⁽³⁾									
• Surface water (Million Cubic Meters)	NA	NA	35.57	48.25	66.27	0	GRI 303-3	2.3.4	
• Groundwater (Million Cubic Meters)	NA	NA	1.16	0.001	0	0	GRI 303-3	2.3.4	
• Seawater (Million Cubic Meters)	NA	NA	NA	NA	0.15	0			
• Third-party water (total) (Million Cubic Meters)	NA	NA	4.76	4.15	3.21	0			
---Third-party water sent for use to other organizations (Million Cubic Meters)	NA	NA	4.62	3.81	2.91	0	GRI 303-3	2.3.4	
Water Discharge by freshwater and other water ⁽³⁾									
• Freshwater TDS ≤ 1,000 mg/l (Million Cubic Meters)	NA	NA	5.45	7.84	18.59	0	GRI 303-3	2.3.4	
• Other water TDS > 1,000 mg/l (Million Cubic Meters)	NA	NA	36.04	44.56	51.04	0			
Total Water Discharge (Million Cubic Meters) ⁽³⁾	NA	NA	41.49	52.40	69.63	0	GRI 303-3	2.3.4	
BOD (Tons) ⁽³⁾	240	165	176	211	765	NR			
COD (Tons) ⁽³⁾	5,390	4,422	3,875	4,411	6,445	NR			
TSS (Tons) ⁽³⁾	793	588	549	490	1,105	NR			

NA = Not Available

NR = Not Relevance

⁽¹⁾ 1st year to Incorporate performance from abroad operations

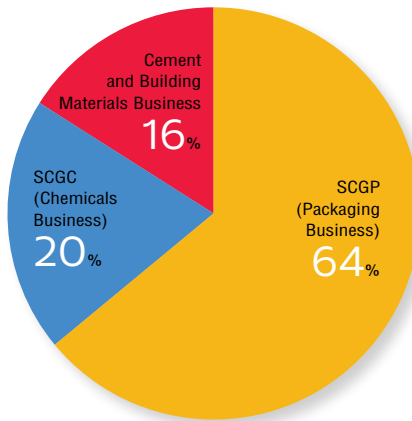
⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽³⁾ Within SGS's limited assurance scope (Page 142-143)

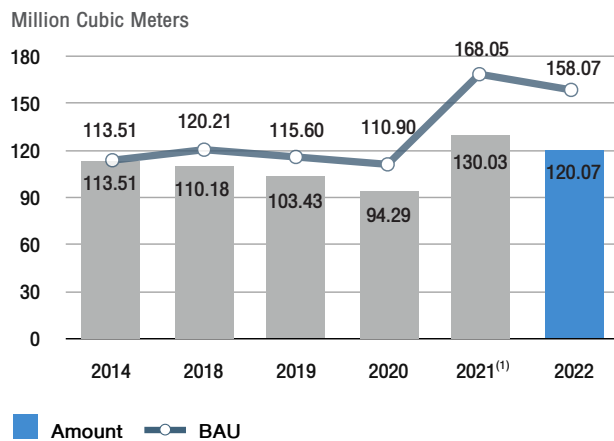
Water Withdrawal

120.07

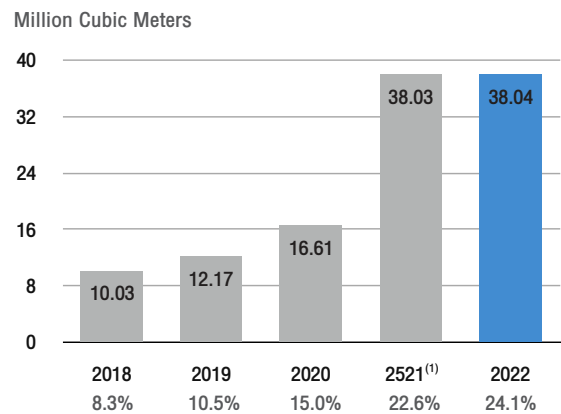
Million Cubic Meters



Water Withdrawal



Water Withdrawal Reduction



⁽¹⁾ 1st year to Incorporate performance from abroad operations

Waste Management

Small amount of hazardous and non-hazardous waste from operations abroad are still ended up in landfill due to different waste management approach and legal requirement from Thailand.

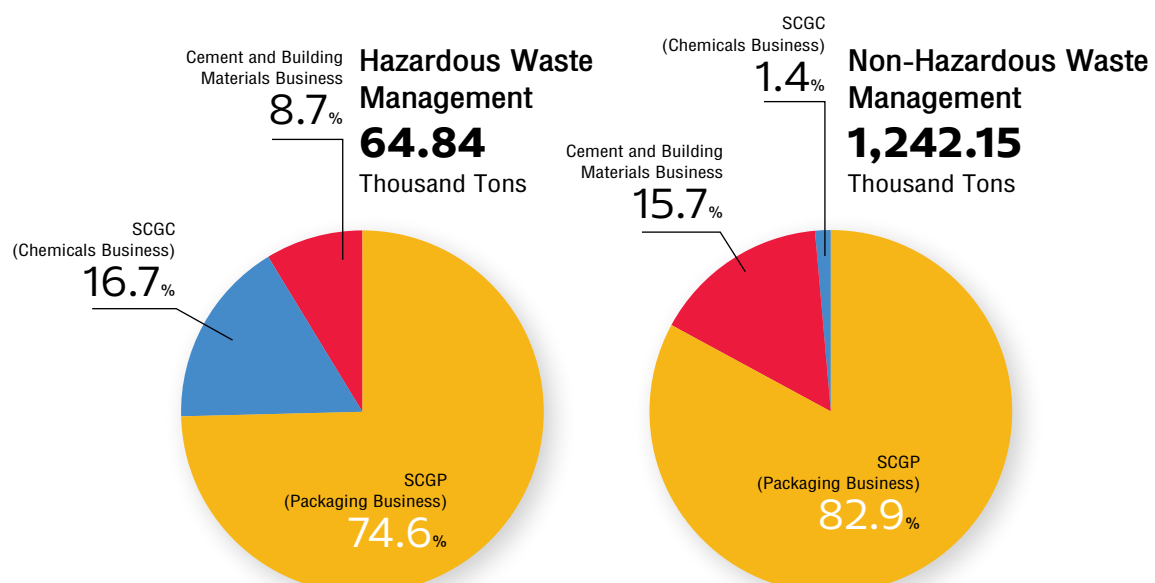
Performance Data (Only Thailand Operations)	2018	2019	2020	2021		2022 ⁽¹⁾		GRI Standards	S&P Global CSA ⁽²⁾	SASB
				Onsite	Offsite	Onsite	Offsite			
Hazardous Waste Generation (Thousand Tons) ⁽³⁾	13.94	11.70	17.90	14.23		65.04		GRI 306-3	2.3.5	EM-CM-150a.1
Hazardous Waste Management (Thousand Tons) ⁽³⁾	13.62	11.38	17.79	4.93	9.04	11.74	53.10	GRI 306-2	2.3.5	EM-CM-150a.1
Diverted from Disposal (Thousand Tons) ⁽³⁾	12.31	11.00	17.59	1.19	3.25	0.78	37.98	GRI 306-4		
• Reuse				0.00	0.03	0.00	0.03			
• Recycled				1.19	2.48	0.78	37.09			
• Other recovery				0.00	0.74	0.00	0.86			
Directed to Disposal (Thousand Tons) ⁽³⁾	1.31	0.38	0.20	3.74	5.76	10.96	14.84	GRI 306-5		
• Incinerated with energy recovery	NA	NA	NA	3.74	5.76	10.67	5.60			
• Incinerated without energy recovery	1.31	0.38	0.20	0.0018	0.0293	0.24	0.32			
• Other disposal	NA	NA	NA	0.0026	0.00	0.00	0.18			
• Landfilled	0.00	0.00	0.00077	0.00	0.00	0.05	8.74			
Hazardous waste in the storage at the end of the year (Thousand Tons)	NA	1.16	1.24	1.24		0.20		GRI 306-2		
Non-Hazardous Waste Generation (Thousand Tons) ⁽³⁾	1,414.24	1,527.06	1,190.68	1,209.62		1,710.66		GRI 306-3	2.3.5	EM-CM-150a.1
Non-Hazardous Waste Management (Thousand Tons) ⁽³⁾	1,354.88	1,542.30	1,217.63	783.25	458.90	954.25	726.65	GRI 306-2	2.3.5	EM-CM-150a.1
Diverted from Disposal (Thousand Tons) ⁽³⁾	1,172.79	1,318.96	1,206.66	436.39	265.94	647.58	513.77	GRI 306-4		
• Reuse				6.26	0.13	6.61	12.43			
• Recycled				430.03	265.79	631.76	501.34			
• Other recovery				0.10	0.03	0.04	0.00			
Directed to Disposal (Thousand Tons) ⁽³⁾	182.1	223.3	11.0	346.86	192.95	320.84	212.89	GRI 306-5		
• Incinerated with energy recovery				346.85	192.50	318.87	130.52			
• Incinerated without energy recovery	2.11	1.36	0.11	0.01	0.32	0.03	35.72			
• Other disposal	NA	NA	NA	0.00	0.00	0.43	0.70			
• Landfilled	179.98	221.97	10.86	0.00	0.13	1.51	45.92			
Non-Hazardous waste in the storage at the end of the year (Thousand Tons)	NA	191.84	164.78	132.24		29.76				

NA = Not Available

⁽¹⁾ 1st year to incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽³⁾ Within SGS's limited assurance scope (Page 142-143)



Air Emissions

The boundary of air quality data assurance has been expanded to cover operations abroad to gain confidence and ease of strategic, targets and action plan setting.

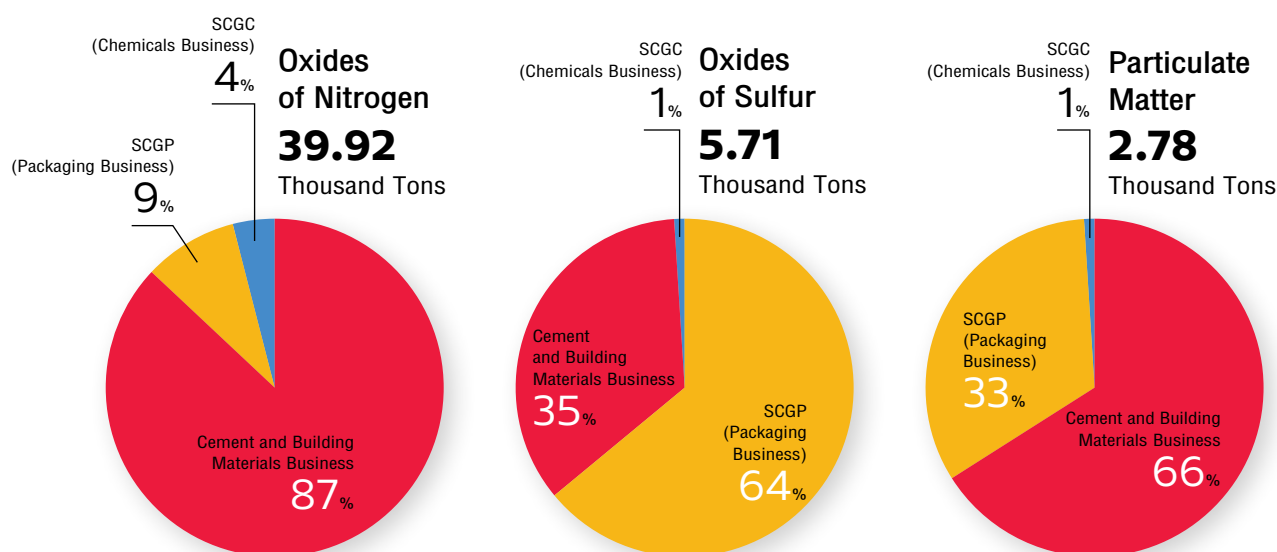
Performance Data	2018	2019	2020	2021	2022 ⁽¹⁾	GRI Standards	S&P Global CSA ⁽²⁾	SASB
Oxides of Nitrogen (Thousand Tons) ⁽³⁾	27.23	25.72	30.80	34.50	39.92	GRI 305-7	2.3.6	EM-CM-120a.1
Oxides of Sulfur (Thousand Tons) ⁽³⁾	2.88	2.75	3.71	3.13	5.71	GRI 305-7	2.3.7	EM-CM-120a.1
Particulate Matter (Thousand Tons) ⁽³⁾	1.25	1.36	1.39	1.53	2.78	GRI 305-7	2.3.9	EM-CM-120a.1
Mercury (Kilograms) ⁽³⁾	112.28	84.21	32.95	29.51	10.24	GRI 305-7	2.3.8	EM-CM-120a.1

NA = Not Available

⁽¹⁾ 1st year to incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽³⁾ Within SGS's limited assurance scope (Page 142-143)



Biodiversity/Environmental Expenditures and Benefits/Violations of Legal Obligations and Regulations

Environmental investment in 2022 are mainly contributed from the installation of cleaner energy such as solar system on rooftop, on ground and floating.

Performance Data (Only Thailand Operations)	2018	2019	2020	2021	2022	GRI Standards	S&P Global CSA ⁽¹⁾	SASB
Quarries with Biodiversity Management Plan in place (Number of Sites)	4	4	4	4	4		2.4.2	EM-CM-160a.2
(%)	100	100	100	100	100			
Operating Expenses – Environmental (Million Baht)	2,190	2,192	2,676	2,657	3,176		2.2.4	
Capital Investment – Environmental (Million Baht)	1,275	2,593	1,220	1,643	2,116		2.2.4	
Total Expenses – Environmental (Capital Investment + Operating Expenses) (Million Baht)	3,465	4,785	3,896	4,300	5,292	GRI 305-7	2.2.4	
Savings, cost avoidance and tax incentives linked to environment investment (Million Baht) ⁽²⁾	1,441	2,242	9,611	34,084	76,429			

⁽¹⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽²⁾ Savings, cost avoidance and tax incentives linked to environment investment include Revenue from sales of SCG Green Choice, provide directly value to customer

Performance Data	2018	2019	2020	2021 ⁽¹⁾	2022	GRI Standards	S&P Global CSA ⁽²⁾	SASB
Total actual and opportunity costs (e.g., forgone income) from water-related incidents (Million Baht)	0	0	0	0	0		2.7.5	
Number of violations of legal environmental obligations/regulations (over USD 10,000) (Number of Cases)	0	0	0	0	0		2.2.5	

⁽¹⁾ 1st year to incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

Social Performance

Health and Safety

Zero fatality of employees in workplace, and occupational illnesses & diseases.

Lost time injury frequency rate of employee is decreased from the previous year and aims to achieve zero in 2024.

Performance Data	2018	2019	2020	2021 ⁽¹⁾	2022	GRI Standards	S&P Global CSA ⁽²⁾	SASB
From Workplace								
Hours Worked ⁽³⁾ (Million Hours Worked)								
• Employee	83.18	79.55	79.72	118.31	117.17			
• Contractor	110.63	110.95	124.97	140.43	134.29			
Total Recordable Work-Related Injury and Occupational Illness & Disease Rate (Cases/1,000,000 Hours Worked)								EM-CM-320a.1 RT-CH-320a.1
• Employee ⁽³⁾	0.854	0.880	0.840	0.947	0.785			
• Contractor	1.094	0.793	0.608	0.869	0.923			
Fatality Work-Related Injury and Occupational Illness & Disease Rate (Cases/1,000,000 Hours Worked)								RT-CH-320a.1
• Employee ⁽³⁾	0.000	0.000	0.000	0.017	0.000			
• Contractor	0.018	0.018	0.032	0.057	0.015			
Total Number of Recordable Work-Related Injury ⁽³⁾ (Cases)								
• Employee	71	70	67	112	92	GRI 403-9		
• Contractor	121	88	76	122	124			
Total Recordable Work-Related Injury Rate ⁽³⁾ (Cases/1,000,000 Hours Worked)								
• Employee	0.854	0.880	0.840	0.947	0.785	GRI 403-9		
• Contractor	1.094	0.793	0.608	0.869	0.923			
Number of Fatality Work-Related Injury ⁽³⁾ (Cases)								
• Employee (Male : Female)	0 : 0	0 : 0	0 : 0	1 : 1	0 : 0	GRI 403-9	3.7.4	
• Contractor (Male : Female)	2 : 0	1 : 1	3 : 1	8 : 0	2 : 0			
Fatality Work-Related Injury Rate ⁽³⁾ (Cases/1,000,000 Hours Worked)								
• Employee	0.000	0.000	0.000	0.017	0.000	GRI 403-9		
• Contractor	0.018	0.018	0.032	0.057	0.015			
Number of High-Consequence Work-Related Injury ⁽³⁾ (Cases)								
• Employee	NA	NA	0	2	1	GRI 403-9		
• Contractor	NA	NA	4	7	7			
High-Consequence Work-Related Injury Rate ⁽³⁾ (Cases/1,000,000 Hours Worked)								
• Employee	NA	NA	0.000	0.017	0.009	GRI 403-9		
• Contractor	NA	NA	0.032	0.050	0.052			
Lost Time Injury Frequency Rate ⁽³⁾ (Cases/1,000,000 Hours Worked)								
• Employee	0.192	0.239	0.113	0.389	0.137		3.7.5	
• Contractor	0.279	0.279	0.216	0.249	0.276		3.7.6	
Severity Work-Related Injury Rate (Days/1,000,000 Hours Worked)								
• Employee	2.685	4.890	2.960	6.246	2.330			
• Contractor	6.000	5.714	5.609	8.780	10.849			
Total Number of Recordable Occupational Illness & Disease (Cases)								
• Employee ⁽³⁾	0	0	0	0	0	GRI 403-10		
• Contractor	NA	NA	0	0	0			

Performance Data	2018	2019	2020	2021 ⁽¹⁾	2022	GRI Standards	S&P Global CSA ⁽²⁾	SASB
Occupational Illness Frequency Rate (Cases/1,000,000 Hours Worked)								
• Employee ⁽³⁾	0.000	0.000	0.000	0.000	0.000			
• Contractor	NA	NA	0.000	0.000	0.000			
Number of Fatality Occupational Illness & Disease (Cases)								
• Employee ⁽³⁾	0	0	0	0	0	GRI 403-10		
• Contractor	NA	NA	0	0	0			
Number of Reported Cases of Silicosis (Cases)								
• Employee ⁽³⁾	0	0	0	0	0			EM-CM-320a.2
• Contractor	NA	NA	0	0	0			
Near Miss Frequency Rate (Employee & Contractor) (Cases/1,000,000 Hours Worked)	NA	NA	17.524	20.213	58.044			EM-CM-320a.1
Process Safety Incident Count (PSIC) ⁽⁴⁾ (Cases)	NA	NA	0	0	0			RT-CH-540a.1
Process Safety Total Incident Rate (PSTIR) ⁽⁴⁾ (Cases/1,000,000 Hours Worked)	NA	NA	0	0	0			RT-CH-540a.1
Process Safety Incident Severity Rate (PSISR) ⁽⁴⁾ (Cases/1,000,000 Hours Worked)	NA	NA	0	0	0			RT-CH-540a.1
From Travelling and Transportation								
Number of Fatality Work-Related Injury ⁽³⁾ (Cases)								
• Employee (Male : Female)	0 : 0	0 : 0	0 : 0	0 : 0	1 : 0	GRI 403-9	3.7.4	
• Direct Transportation Contractor (Male : Female)	2 : 0	0 : 0	1 : 0	0 : 0	2 : 0			
• Other Transportation Contractor (Male : Female)	1 : 1	4 : 0	2 : 0	0 : 0	0 : 0			
Number of Transport Incident (Cases)	NA	NA	33	24	16			RT-CH-540a.2
Logistics Drivers Trained from SCG Skills Development School (Persons)	17,024	18,224	8,989	8,969	17,243			
From Workplace, Travelling and Transportation								
Number of Fatality Work-Related Injury ⁽³⁾ (Cases)								
• Employee (Male : Female)	0 : 0	0 : 0	0 : 0	1 : 1	1 : 0	GRI 403-9	3.7.4	
• Contractor (Male : Female)	4 : 0	1 : 1	4 : 1	8 : 0	4 : 0			
Others								
Product that have under gone a Hazard Assessment ⁽⁴⁾ (%)	NA	NA	100	100	100			RT-CH-410b.1
Revenue from Products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) ⁽⁴⁾ (%)	NA	NA	100	100	100			RT-CH-410b.1

⁽¹⁾ 1st year to Incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽³⁾ Within SGS's limited assurance scope (Page 142-143)

⁽⁴⁾ Only SCGC (Chemicals Business)

Employee : A full time employee according to an employment contract such as operational level, supervisory and technical staff level, and managerial level including Intern (probationary) and special contracted employee.

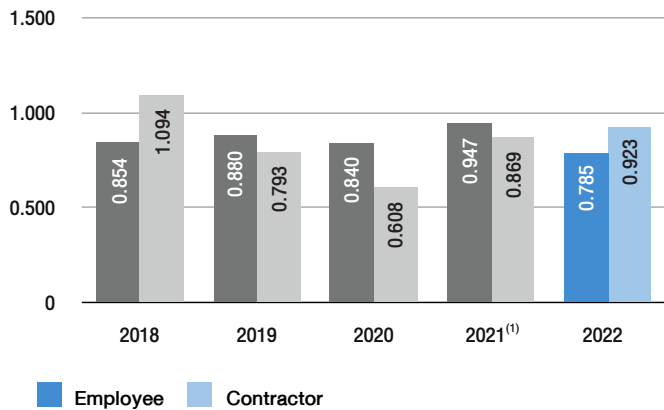
Workplace Contractor : A contractor that works for the organization, and whose work and/or workplace is controlled by the organization (exclude transportation contractor).

Direct Transportation Contractor : Transportation contractor with operation under SCG's brand.

Other Transportation Contractor : Other transportation contractor without operation under SCG's brand.

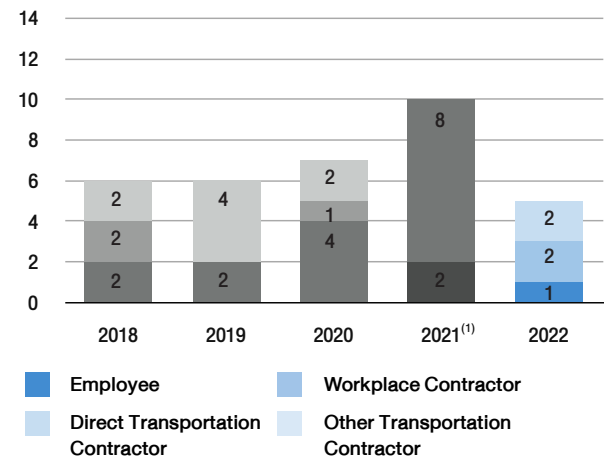
Total Recordable Work-Related Injury and Occupational Illness & Disease Rate

Cases/1,000,000 Hours Worked



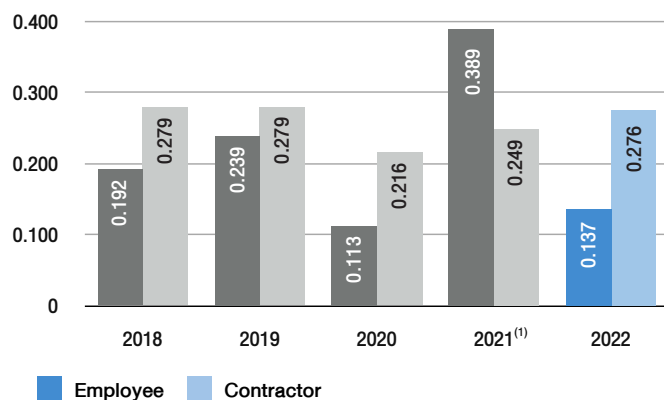
Number of Recordable Work-Related Injury

Cases



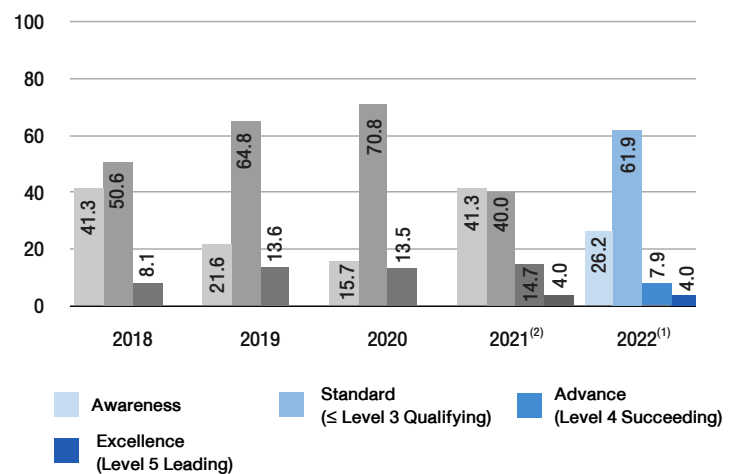
Lost Time Injury Frequency Rate

Cases/1,000,000 Hours Worked



SPAP Certified Companies

Percent



⁽¹⁾ 1st year to Incorporate performance from abroad operations

⁽²⁾ Safety performance level corresponding to SCG Safety Framework 2021

Workplace Contractor : A contractor that works for the organization, and whose work and/or workplace is controlled by the organization (exclude transportation contractor).

Direct Transportation Contractor : Transportation contractor with operation under SCG's brand.

Other Transportation Contractor : Other transportation contractor without operation under SCG's brand.

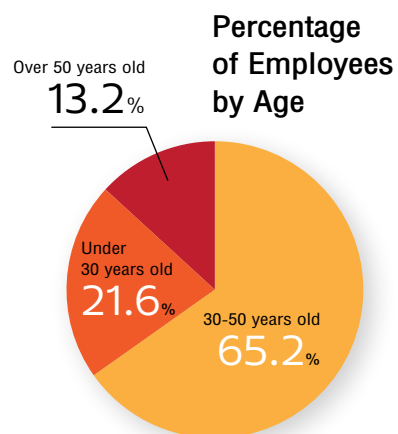
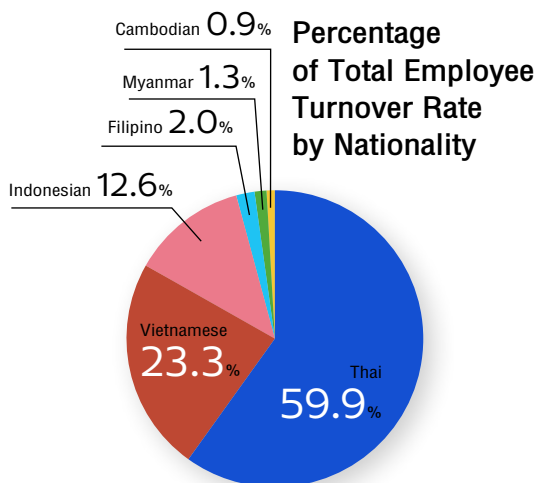
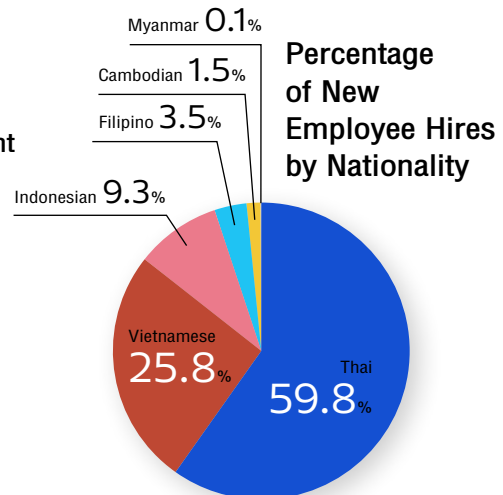
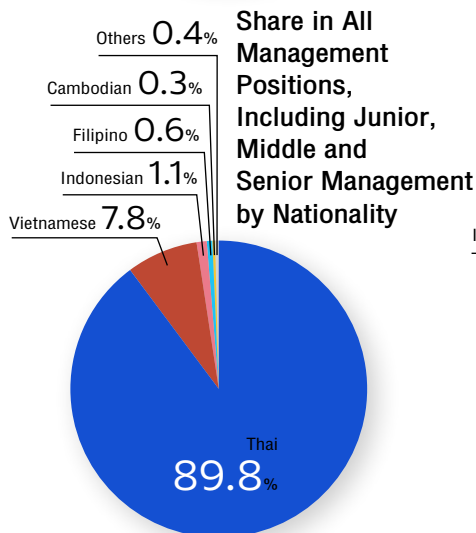
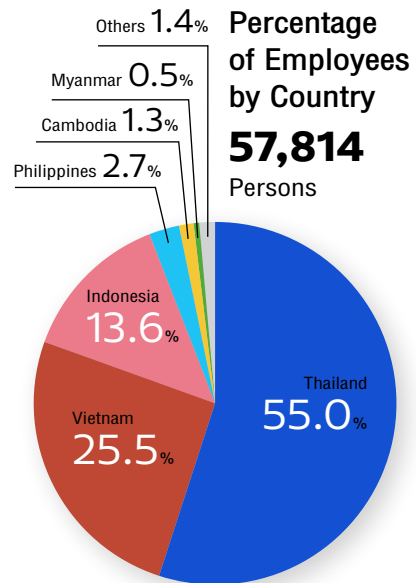
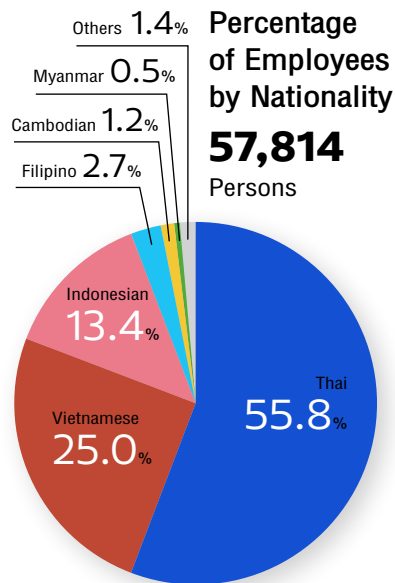
Labor and Social Development

Performance Data	2018	2019	2020	2021	2022	GRI Standards	S&P Global CSA ⁽¹⁾	SASB
Number of employees (Persons)	52,971	54,224	49,754	58,283	57,814	GRI 2-7		
Female share of total workforce (%)	22.8	21.9	23.0	22.4	24.4	GRI 405-1b	3.2.2	
Female in all management positions (%)	24.8	24.7	24.9	24.8	30.5	GRI 2-7	3.2.2	
Female in junior management position (%)	26.3	26.1	26.4	26.6	32.6		3.2.2	
Female in top management position (%)	13.3	13.1	13.1	12.9	14.8		3.2.2	
Female in management position in revenue-generating functions ⁽²⁾ (%)	19.2	19.5	19.5	18.3	23.3		3.2.2	
Female in Science, Technology, Engineering and Mathematics positions (STEM-related positions) (%)	NA	NA	24.2	26.3	13.2		3.2.2	
Proportion of local senior management ⁽³⁾ (%)	0.3	0.5	0.9	0.4	1.1	GRI 202-2		
Number of employees with disability ⁽⁴⁾ (Persons)	40	39	35	31	30		3.2.4	
Remuneration of female to male (only Thailand operations) ⁽⁵⁾						GRI 405-2	3.2.5	
• Ratio of average salary of female to male (Executive Level) (base salary only) ⁽⁶⁾	0.995	1.015	0.973	1.086	1.017			
• Ratio of average salary of female to male (Executive Level) (base salary + other cash incentives) ⁽⁶⁾	NA	NA	0.973	1.133	1.098			
• Ratio of average salary of female to male (Management Level) (base salary only) ⁽⁶⁾	0.910	0.921	0.924	0.995	0.938			
• Ratio of average salary of female to male (Management Level) (base salary + other cash incentives) ⁽⁶⁾	0.911	0.921	0.924	1.004	0.929			
• Ratio of average salary of female to male (Non-management Level) (base salary only) ⁽⁶⁾	1.110	1.124	1.130	1.138	1.108			
• Ratio of average salary of female to male (Non-management Level) (base salary + other cash incentives) ⁽⁶⁾	NA	NA	1.129	0.987	0.965			
Employees represented by an independent trade union or covered by collective bargaining agreements ⁽⁵⁾ (%)	86.2	84.1	88.0	85.6	78.7		3.2.6	
Proportion of Absence by Type								
• Sick leave (%)	14.0	12.7	10.6	9.1	10.0			
• Work-related leave (%)	0.1	0.1	0.1	0.0	0.0			
• Others (%)	85.9	87.2	89.3	90.9	90.0			

Performance Data	2018	2019	2020	2021	2022	GRI Standards	S&P Global CSA ⁽¹⁾	SASB
Number of new employees hire (Persons)	855	927	482	854	2,688	GRI 401-1a	3.5.1	
• Percentage of total employees (%)	1.8	2.0	1.0	1.5	4.6			
• by Gender (Female : Male) (%)	29 : 71	27 : 73	37 : 63	39 : 61	44 : 56			
• by Employee level (Management level : Other level) (%)	1.8 : 98.2	1.7 : 98.3	1.5 : 98.5	1.3 : 98.7	0.7 : 99.3			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	79.8 : 19.1 : 1.1	69.3 : 30.3 : 0.4	70.3 : 29.5 : 0.2	74.4 : 25.5 : 0.1	74.4 : 25.5 : 0.1			
Number of positions filled by internal candidates (Rotation/Promotion) (Persons)	2,946	2,532	2,012	2,232	11,418		3.5.1	
• Percentage of total employees (%)	5.6	4.7	4.0	3.8	19.7			
• by Gender (Female : Male) (%)	29 : 71	27 : 73	26 : 74	26 : 74	30 : 70			
• by Employee level (Management level : Other level) (%)	7.2 : 92.8	11.7 : 88.3	7.9 : 92.1	10.9 : 89.1	21.8 : 78.2			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	26.7 : 69.9 : 3.4	21.0 : 73.3 : 5.7	17.4 : 77.5 : 5.1	14.6 : 79.1 : 6.3	12.4 : 75.4 : 12.2			
Average hiring cost per employee (Baht/Person)	123,000	97,264	98,140	85,542	95,720		3.5.1	
Voluntary employee turnover (Persons)	1,599	1,560	1,180	849	2,304	GRI 401-1b	3.5.7	
• Percentage of total employees (%)	3.0	2.9	2.4	1.5	4.0			
• by Gender (Female : Male) (%)	26 : 74	27 : 73	27 : 73	29 : 71	35 : 65			
• by Employee level (Management level : Other level) (%)	1.4 : 98.6	1.5 : 98.5	2.6 : 97.4	3.3 : 96.7	1.0 : 99.0			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	40.5 : 55.2 : 4.3	33.2 : 61.6 : 5.2	24.8 : 64.3 : 10.9	27.0 : 68.9 : 4.1	38.4 : 57.3 : 4.3			
Total employee turnover (Persons)	2,340	1,880	1,804	1,323	3,575	GRI 401-1b	3.5.7	
• Percentage of total employees (%)	4.4	3.5	3.6	2.3	6.2			
• by Gender (Female : Male) (%)	26 : 74	26 : 74	23 : 77	27 : 73	40 : 60			
• by Employee level (Management level : Other level) (%)	2.9 : 97.1	3.4 : 96.6	5.4 : 94.6	5.5 : 94.5	6.0 : 94.0			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	30.1 : 50.1 : 19.8	28.9 : 54.0 : 17.1	17.3 : 53.5 : 29.2	18.4 : 57.3 : 24.3	34.8 : 52.1 : 13.1			
Return to Work after Parental Leave ⁽⁶⁾						GRI 401-3		
• Number of employees taken parental leave (Persons)	339	492	306	250	267			
• Number of employees returned to work after parental leave (Persons)	311	461	303	246	251			
Employee engagement level ⁽⁷⁾ (%)	67	68	71	70	69		3.5.8	
• by Gender (Female : Male) (%)	NA	NA	66 : 73	64 : 72	59 : 72			
• by Employee level (Management level : Other level) (%)	NA	NA	76 : 71	74 : 69	68 : 69			
• by Service year (0-5 yr/over 5-20 yr/over 20 yr) (%)	NA	NA	67 : 68 : 79	64 : 67 : 77	68 : 66 : 75			
Employee engagement level by ethnic group of employees (Thai : Others) (%)	NA	NA	70 : 76	69 : 74	66 : 77			
Average hours of training and development (Hours/Person)	104	136	124	82	155	GRI 404-1	3.4.1	
• Mandatory (Hours/Person)	NA	NA	104	42	112			
• Non mandatory (Hours/Person)	NA	NA	20	40	43			
Average amount spent on training and development (Baht/Person)	28,766	23,933	15,794	9,569	13,540		3.4.1	
Number of sites where human rights risks have been identified with mitigation plans (Company)	49	47	34	50	33		3.3.4	
Contribution for social and community development (Million Baht)	748	719	669	700	560	GRI 201-1	3.6.3	
• Contribution by SCG (Million Baht)	494	414	326	388	401			
• Contribution by SCG Foundation (Million Baht)	254	305	343	312	159			
Employee volunteering during paid working hours (Million Baht)	82	82	40	28	54		3.6.3	
In-kind giving: product or services donations, projects/partnerships or similar (Million Baht)	46	132	124	147	15		3.6.3	
Management overheads related to CSR activity (Million Baht)	233	152	167	157	161		3.6.3	

NA = Not Available

⁽¹⁾ Reference based on S&P Global CSA 2022 Questionnaire⁽²⁾ Revenue-generating functions e.g. marketing, sales, production⁽³⁾ Calculate from number of local Management Level abroad over total number of management level⁽⁴⁾ Visual and physical impairment and movement disability or other, e.g. hearing impairment, mental disability, communication disability⁽⁵⁾ Employees joining trade union or working with companies covered by Welfare Committee⁽⁶⁾ Under Thai laws, only female employees can take parental leave⁽⁷⁾ Employee engagement level by Gender is available since 2020⁽⁸⁾ Within SGS's limited assurance scope (Page 142-143)



Operating Results of Cement Business in Accordance with Global Cement and Concrete Association (GCCA)

	Unit	2018	2019	2020	2021	2022 ⁽¹⁾	S&P Global CSA ⁽²⁾
Number of facilities adopting GCCA Cement CO ₂ Protocol	number of factory	6	6	6	16 ⁽¹⁾	16	
	%	100	100	100	100 ⁽¹⁾	100	
Absolute CO ₂ emissions-Gross	million tons of CO ₂	16.17	15.74	15.49	21.15 ⁽¹⁾	19.35	
Absolute CO ₂ emissions-Net	million tons of CO ₂	15.91	15.42	15.15	20.61 ⁽¹⁾	18.79	
Specific CO ₂ emissions-Gross	kgCO ₂ /ton Cementitious	669	647	630	639 ⁽¹⁾	612	
Specific CO ₂ emissions-Net	kgCO ₂ /ton Cementitious	658	634	616	623 ⁽¹⁾	594	
Heat consumption	MJ/ton clinker	3,455	3,479	3,448	3,466 ⁽¹⁾	3,567	
Alternative fossil fuel	% by heat	4.9	6.2	6.6	7.7 ⁽¹⁾	9.1	2.5.1
Biomass	% by heat	7.0	11.3	11.7	12.23 ⁽¹⁾	17.79	2.5.1
Alternative raw material in clinker produced	%	1.3	1.4	1.5	1.6	2.0	
Alternative raw material in cement produced	%	13.8	9.6	8.4	8.4	10.1	2.5.1
Total alternative raw material	%	4.5	3.5	3.4	3.5	4.4	
Clinker factor (cementitious)	%	74.8	74.4	72.9	74.2 ⁽¹⁾	71.8	2.5.1
Clinker produced with monitoring of Dust, NO _x , SO ₂ , VOC/THC, Heavy Metal, PCDD/F (KPI1)	%	99.24	99.29	99.41	99.41	57.32	
Clinker produced using CEMs measurement of Dust, NO _x and SO ₂ emissions (KPI2)	%	90.15	87.31	95.82	80.97	59.74	
Dust emissions (KPI3)	tons	635	767	794	807	1,197	
Specific dust emissions (KPI3)	g/ton clinker	34	41	42	44	50	
NO _x emissions (KPI3)	tons	22,631	21,602	26,406	29,680	33,641	
Specific NO _x emissions (KPI3)	g/ton clinker	1,201	1,155	1,409	1,632	1,416	
SO ₂ emissions (KPI3)	tons	561	760	992	1,035	1,351	
Specific SO ₂ emissions (KPI3)	g/ton clinker	30	41	53	57	57	
Clinker produced with monitoring of Dust, NO _x , SO ₂ (KPI4)	%	100	100	100	100	100	
VOC/THC emissions (KPI3) ⁽⁵⁾	tons	632	641	385	430	291	
Specific VOC/THC (KPI3) ⁽⁵⁾	g/ton clinker	34	34	21	24	18	
Mercury emissions (KPI3) ⁽⁵⁾	kg	112.28	84.21	32.95	29.51	10.24	2.3.8
Specific Mercury emissions (KPI3) ⁽⁵⁾	mg/ton clinker	6.00	4.50	1.72	1.63	0.62	
Clinker produced with monitoring of VOC/THC and Mercury (KPI4) ⁽⁵⁾	%	99.24	99.29	99.41	99.41	99.30	
Dioxin emission (PCDD/F) (KPI3) ⁽⁵⁾	mg	271	72	89	99	128	
Specific Dioxin (PCDD/F) (KPI3) ⁽⁵⁾	mg/ton clinker	14.47	4.81	5.54	5.47	7.76	
Clinker produced with monitoring of Dioxin (KPI4) ⁽⁵⁾	%	92.14	79.86	99.41	76.1	82.16	
HM1 emission ^{(3),(5)}	kg	NA	NA	NA	23.41	40.79	
Specific HM1 emission ^{(3),(5)}	mg/ton clinker	NA	NA	NA	1.29	2.48	
HM2 emission ^{(4),(5)}	kg	NA	NA	NA	527.94	892.25	
Specific HM2 emission ^{(4),(5)}	mg/ton clinker	NA	NA	NA	29.2	54.22	

	Unit	2018	2019	2020	2021	2022 ⁽¹⁾	S&P Global CSA ⁽²⁾
Quarries where rehabilitation plan is implemented	number of site	4	4	4	4	11	
	%	100	100	100	100	100	
Quarries with community engagement plan in place	%	100	100	100	100	100	
Quarries with high biodiversity value where biodiversity management plan is implemented	number of site	4	4	4	4	4	2.4.2
	%	100	100	100	100	36	
Total water withdrawal	million cubic meter	10.24	10.12	10.28	9.89	13.04	
Specific water withdrawal	liter/ton cementitious	433	433	418	413	412	
Health and Safety							
Number of Fatality Work-Related Injury (From Workplace and Transportation)							
- Employee	cases	0	0	0	0	1	3.7.4
- Contractor	cases	0	2	5	3	3	3.7.4
- Third party	cases	3	9	1	2	0	
Fatality Work-Related Injury Rate of Employee	cases/10,000 employees	0	0	0	0	1.142	
Lost Time Injury Frequency Rate of Employee	cases/1,000,000 hours worked	NA	0.15	0.16	0.076	0.114	3.7.5
Lost Time Injury Frequency Rate of Workplace Contractor	cases/1,000,000 hours worked	0.07	0.25	0.06	0.124	0.187	3.7.6
Severity Work-Related Injury Rate of Employee	days/1,000,000 hours worked	NA	6.70	0.98	3.058	2.055	

Within SGS Thailand limited assurance scope (Page 142-143)

NA = Not Available

⁽¹⁾ 1st year to Incorporate performance from abroad operations

⁽²⁾ Reference based on S&P Global CSA 2022 Questionnaire

⁽³⁾ HM1 included Cadmium (Cd) and Thallium (Tl)

⁽⁴⁾ HM2 included Antimony (Sb), Arsenic (As), Lead (Pb), Chromium (Cr), Cobalt (Co), Copper (Cu), Manganese (Mn), Nickel (Ni), and Vanadium (V)

⁽⁵⁾ Required to monitor and measure by Thailand regulation

Mitigation Actions on Salient Human Rights Issues 2022 of SCG

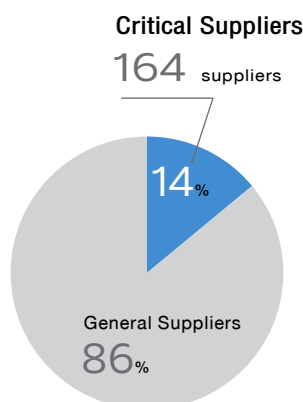
Scope	Salient Human Rights Issues	People Affected and Number of Companies	Mitigation and Remediation Actions	Results Monitoring
SCG's Own Operations	<ul style="list-style-type: none"> Employment conditions 	<ul style="list-style-type: none"> Employees of SCG and subsidiaries (298) companies) 	<ul style="list-style-type: none"> Adjust work formats through the arrangements of flexible working hours or part-time work options, as appropriate. Develop leadership skill for employees at Leader/ Manager/ Supervisor level and provide for proactive counselling in the form of coaching for employees. Organize activities and measures to reduce work-related stress, and enable work life balance such as avoiding meeting on Friday afternoons, and avoid work-related talking outside of working hours. Full freedom of expression and association of employees through various committee to hear and collect feedbacks, suggestions for improvement. 	<ul style="list-style-type: none"> 69% Employee engagement rate based on the total number of employees.
	<ul style="list-style-type: none"> Health and safety Lost time and fatality, injury, and occupational illness & disease 	<ul style="list-style-type: none"> Employees of SCG and subsidiaries (298) companies) 	<ul style="list-style-type: none"> Communicate, educate to raise awareness and safety culture through the Occupational Health and Safety Management System or SCG Safety Framework in both Thailand and abroad. Communicate, educate and monitor compliance with standards for high-risk operations and SCG Life Saving Rules in production process, service solutions, workplace, travelling and transportation. Promote incident investigation and analysis to identify root causes and establish corrective/ preventive measures to avoid recurrence. Mitigate work-related risk using technology to advance safety in workplace and transportation including use of AI monitoring for high-risk operations, Smart Safety Pod system, Smart Access Control System for transportation such as Advanced Driving Assistance System (ADAS), and platform development for operations. 	<ul style="list-style-type: none"> 100% of SCG's plants/ subsidiaries within the scope of assessment passed SPAP assessment. 1 subsidiary company with fatality work-related case. 11 subsidiary companies with lost time work-related cases.
	<ul style="list-style-type: none"> Migrant workers' rights 	<ul style="list-style-type: none"> Employees of SCG and subsidiaries (298) companies) 	<ul style="list-style-type: none"> Communicate, educate to raise awareness on safety, and welfare migrant workers are entitled to. Conduct assessment according to The Sedex Members Ethical Trade Audit (SEDEX) in four aspects namely labor standards, health and safety, business ethics and environment. 	<ul style="list-style-type: none"> 13 subsidiary companies passed the audit.

Scope	Salient Human Rights Issues	People Affected and Number of Companies	Mitigation and Remediation Actions	Results Monitoring
Operations of Contractors and Suppliers	<ul style="list-style-type: none"> • Health and safety Lost time injury and fatality in Workplace and Transportation 	<ul style="list-style-type: none"> • SCG's contractors/ carriers (1,213 companies) 	<ul style="list-style-type: none"> • Develop contractor safety management system and service solutions safety standard for comprehensive coverage starting from safety planning, contractor selection and contracting. Pre-work preparation, audit and control suppliers from pre-work, during work and post-work, and conduct assessment periodically. • Establish goods transportation safety standard. Control and assess carriers to ensure compliance with regulations and standards. • Encourage carriers to comply with laws and constantly monitor their drivers through GPS and In-Cab Camera. • Review carrier assessment guideline to enhance safety and promote professionalism in transportation. • Promote incident investigation and analysis to identify root causes and establish corrective/ preventive measures to avoid recurrence. 	<ul style="list-style-type: none"> • 90% of operation contractors certified under Contractor Safety Management. • 100% of major carriers have assessed. • 4 of contractors/ carriers with fatality work-related injury. • 20 of contractors/ carriers with lost time work-related injury.
	<ul style="list-style-type: none"> • Employment conditions 	<ul style="list-style-type: none"> • SCG's contractors/ suppliers (9,270 companies) 	<ul style="list-style-type: none"> • Review SCG Supplier Code of Conduct, and communicate to demonstrate commitment to work with contractors/ suppliers in Supplier Day. • Regulate and ensure that new and major contractors/ suppliers are committed continuously to comply with the SCG Supplier Code of Conduct. 	<ul style="list-style-type: none"> • 94% of contractors and suppliers demonstrate commitment to comply with SCG Supplier Code of Conduct.
	<ul style="list-style-type: none"> • Forced labor 	<ul style="list-style-type: none"> • SCG's contractors/ suppliers (9,270 companies) 	<ul style="list-style-type: none"> • Conduct ESG risk assessment that includes human rights risk assessment. • Promote and advise contractors/ suppliers to mainstream human rights into their business conduct. 	<ul style="list-style-type: none"> • 100% of contractors and suppliers with procurement spending of over 1 million baht processed through ESG Risk assessment.
	<ul style="list-style-type: none"> • Migrant workers' rights 	<ul style="list-style-type: none"> • SCG's contractors/ suppliers (9,270 companies) 		
Operations of Joint Ventures	<ul style="list-style-type: none"> • Health and safety 	<ul style="list-style-type: none"> • SCG's joint ventures (89 companies) 	<ul style="list-style-type: none"> • Communicate and share good practices in order to scale up and strengthen the execution and performance. • Disseminate high-risk operations safety standards in production process, workplace, travelling, and transportation as well as Life Saving Rules to be aware of acceptable operational guidelines. <p>Note: In 2022 SCG conducted a human rights implementation survey to track the status, performance, and provide consultation to develop improvement plan.</p>	<ul style="list-style-type: none"> • 0 company with fatality work-related injury.

SCG continues to track and monitor the effectiveness of actions to respond to 2021 salient human rights issues alongside other issues which fall outside of the salient human rights issues.

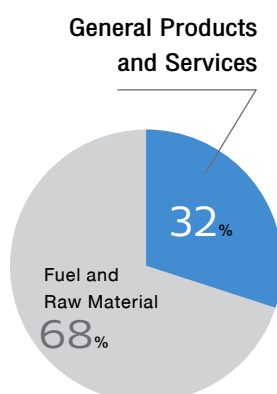
Supplier Governance and Enhance Towards Sustainability

Ratio of Procurement Spend on Products and Services by Group of Suppliers in 2022

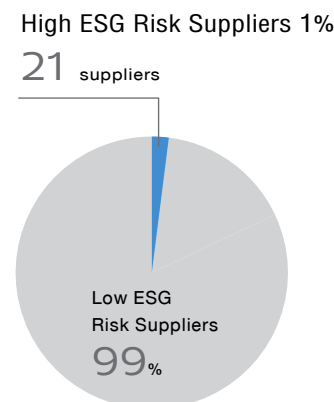


Active suppliers in 2022
9,270 suppliers

Ratio of Procurement Spend on Products and Services by Category in 2022

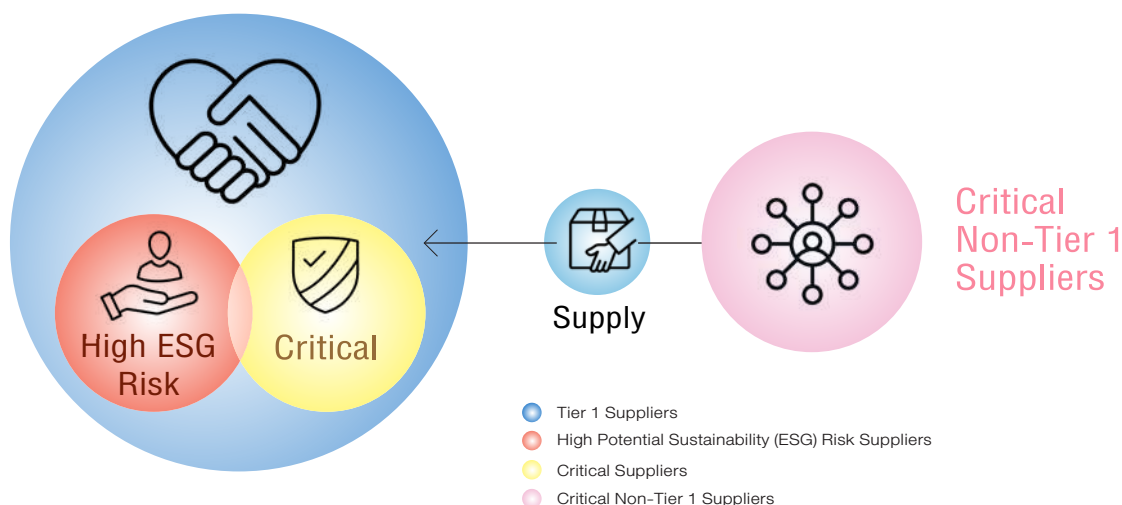


Ratio of Procurement Spend of High Potential Sustainability Risk Suppliers in 2022



Sustainability risk found relates to safety. Corrective actions have been monitored under the oversight of Sustainable Supplier Committee and Transportation Safety Committee.

Tier 1 Suppliers



Critical Suppliers

refer to manufacturers and distributors of products and services that are significant to SCG's business operations, such as high purchasing volume, critical component, or non-substitutable products.

High Potential Sustainability (ESG) Risk Suppliers refer to manufacturers and distributors that are likely to cause negative impacts from their improper operations in the social (e.g. human rights, employee and labor care), environment (e.g. waste management) and governance (e.g. legal compliance) aspects.

Sustainability Risk	Number of Suppliers	Corrective Action
Work-related safety	0	<ul style="list-style-type: none"> Utilize digital technology to detect and notify unsafe acts. Set up safety target, implement as plan and monitor result closely with contractors/carriers. Utilize rewarding system to encourage drivers who achieve monthly safety target.
Travel and transport related safety	21	

	Strategy	Implementation	Measurement	2018	2019	2020	2021	2022	Target
Economic	• Select and assess suppliers with the capability for sustainable business.	• Evaluate vendors in terms of quality, cost and delivery (QCD Supplier Evaluation).	• Evaluate suppliers under Approved Vendor List (AVL) with vendor evaluation (QCD Supplier Evaluation).	100%	100%	100%	100%	100%	100% suppliers under Approved Vendor List (AVL) receive vendor evaluation (QCD Supplier Evaluation).
	• Conduct risk assessment and supplier segmentation to formulate strategy and supplier development plan corresponding with the risk.	• Conduct a supplier assessment program and segmentation of critical suppliers with a systematic approach.	• Assess and classify critical suppliers.	100% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	
		• Conduct sustainability risk assessment and supplier segmentation since 2013.	• Assess sustainability risks (ESG Risk).	100% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	100% supplier of procurement spend processed through the annual Environmental, Social, and Governance (ESG) assessment.
Environment	• Develop and enhance supplier's capability towards sustainability.	• Promote and audit suppliers for registration in the Green Procurement List.	• Green procurement and products on the Green Procurement List.	9,698 million baht	7,852 million baht	8,579 million baht	9,548 million baht	9,176 million baht	-
		• Purchase products and services according to the Green Procurement List. 100%.		84 products	84 products	84 products	92 products	95 products	
		• Promote and support suppliers to participate in the assessment of Green Industry (GI). ⁽¹⁾	• Suppliers achieve the Green Industry Level 2 or higher certification.	883 suppliers	1,053 suppliers	458 suppliers	481 suppliers	752 suppliers	-
Social	• Develop and enhance supplier's capability towards sustainability.	• Raise awareness and behavioral change to create safety culture.	• Operation contractors certified under Contractor Safety Management.	91%	87%	90%	85%	90%	100% Operation contractors certified under Contractor Safety Management every year from 2012 onwards.
		• Use safety management system to uplift contractors safety standard.							
		• Having contractors informed and signed for Life Saving Rules in every access for work.	• Major carriers processed through Fleet Carriers Standards assessment.	100%	100%	100%	100%	100%	100% major carriers processed through Fleet Carriers Standards assessment.
Governance	• Select and assess suppliers with the capability for sustainable business.	• Launched SCG Supplier Code of Conduct in 2013 and updated the latest version in 2022.	• Suppliers committed to comply with SCG Supplier Code of Conduct.	83% procurement spend	93% procurement spend	91% procurement spend	93% procurement spend	94% procurement spend	95% of the procurement spend comes from suppliers who commit to comply with SCG Supplier Code of Conduct by 2023.
		• Started supervising new and main suppliers to commit to comply SCG Supplier Code of Conduct continuously since 2014.							
			• Lost Time Injury Frequency Rate (LTIFR) for contractors.	0.279 cases/1,000,000 Hours Worked	0.279 cases/1,000,000 Hours Worked	0.216 cases/1,000,000 Hours Worked	0.249 ⁽²⁾ cases/1,000,000 Hours Worked	0.276 cases/1,000,000 Hours Worked	Reduce Lost Time Injury Frequency Rate of contractors and target for zero by 2024.

⁽¹⁾ Green Industry: certification developed by the Ministry of Industry (Thailand) to encourage the industrial sector to operate a green business for sustainable development.

⁽²⁾ 1st year to incorporate safety performance from abroad operations.

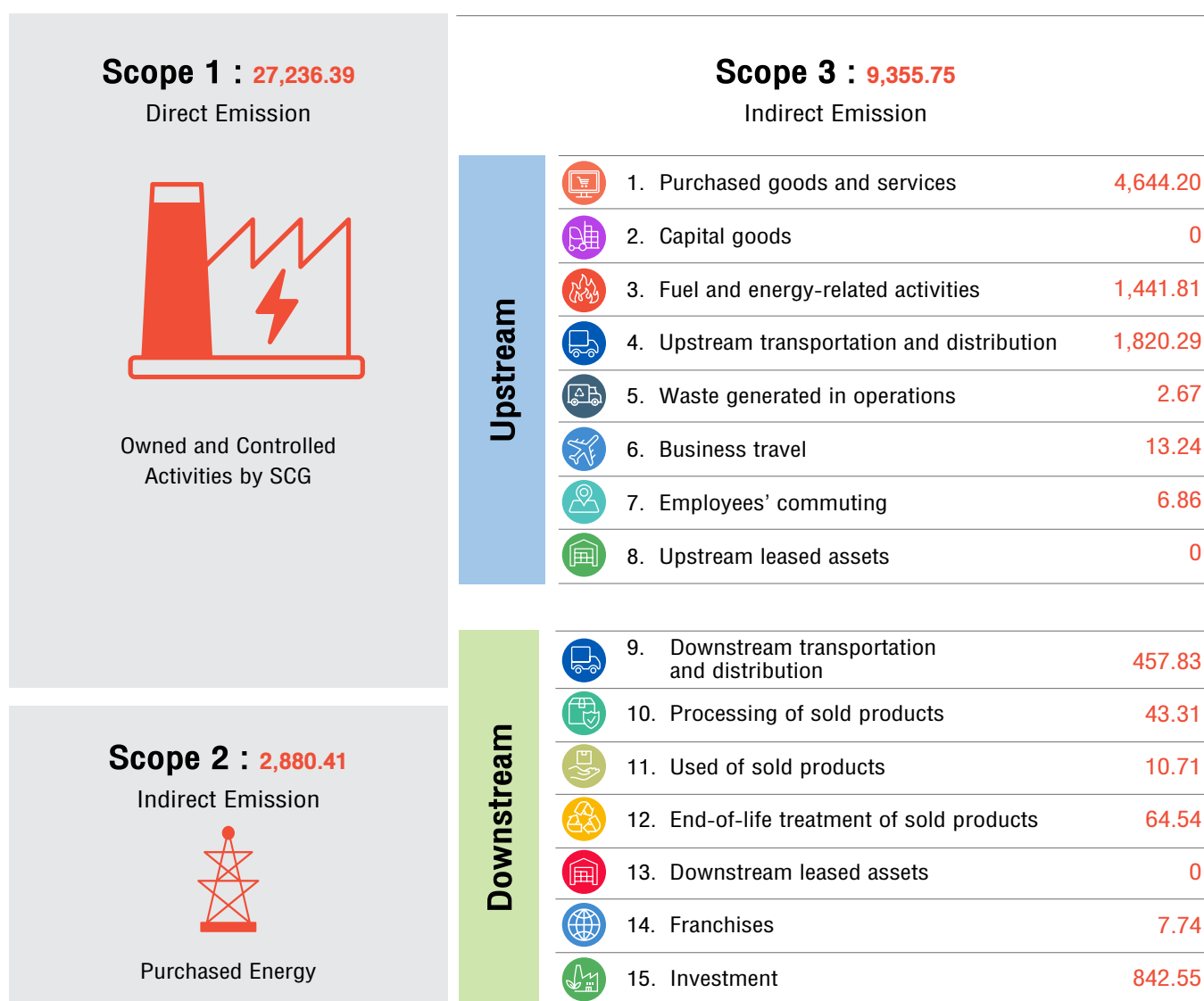
GHG Scope 3

SCG has expanded its greenhouse gas emissions reporting to include GHG scope 3 in aligning with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard (WRI/WBCSD). As such, it has collected and reported scope 3 emissions data of the carbon footprint of its products and of the organization using the guidelines of the Thailand Greenhouse Gas Management Organization (Public Organization).

SCG has a plan to verify GHG scope 3 data by 3rd party within 2023. SCG has managed GHG scope 3 across the value chain through collaboration with significant suppliers and related stakeholders. In 2022, SCG has started to engage with supplier in Supplier Day. It will be the first step to raise the climate awareness and GHG reduction.

2022 GHG Scope 3 emissions

Unit: thousand tons carbon dioxide equivalent



GHG Scope 3 Reporting Guidelines

1. Corporate Value Chain (Scope 3) Accounting and Reporting Standard
2. Technical Guidance for Calculating Scope 3 Emissions (Version 1.0)
3. Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain
4. Cement Sector Scope 3 GHG Accounting and Reporting Guidance

Subsidiaries Included in Sustainability Report 2022* (Thailand)

Business/Company		Production	Raw Materials			Environment													Safety	Occupational Illness and Disease
			Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste			
						Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
SCG																				
1	The Siam Cement Public Company Limited																			
Cement and Building Materials Business																				
1	SCG Cement Co., Ltd.																	✓	✓	
2	The Concrete Products and Aggregate Co., Ltd.	✓	✓	✓	✓	NR	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	
3	The Siam Cement (Kaeng Khoi) Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	
4	The Siam Cement (Ta Luang) Co., Ltd. (Ta Luang/ Khao Wong)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	
5	The Siam Cement (Thung Song) Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	
6	The Siam Cement (Lampang) Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	
7	The Siam Refractory Industry Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	✓	✓	✓	
8	Eco Plant Services Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	
9	SCI Eco Services Co., Ltd.	✓	NR	NR	NR	NR	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	
10	Q Mix Supply Co., Ltd.																	✓	✓	
11	Silathai Sanguan (2540) Co., Ltd.																	✓	✓	
12	Silasanon Co., Ltd.																	✓	✓	
13	CPAC Construction Solution Co., Ltd.																	✓	✓	
14	SCG Building Materials Co., Ltd.																	✓	✓	
15	Cementhai Gypsum Co., Ltd.																			
16	MRC Roofing Co., Ltd.																			
17	Cementhai Ceramics Co., Ltd.																			
18	The Siam Fibre-Cement Co., Ltd.																	✓	✓	
19	Siam Fibre Cement Group Co., Ltd. (Saraburi/ Ta Luang/Thung Song/Nongkae/Lumpang)	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
20	SCG Landscape Co., Ltd. (Khonkaen/Thung Song/ Ladkrabang/Lamphun/Sriracha/Nongkae/Fence)	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	
21	Siam Fiberglass Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	
22	SCG Roofing Co., Ltd. (Saraburi/Saraburi Nuestile/ Nakorn Prathom/Chonburi/Nakorn Rajchasrima/ Lamphun/Khonkaen/Nakorn Sri Thammaraj/Nongkae)	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
23	The Siam Sanitary Fittings Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	
24	SCG Cement-Building Materials Company Limited																	✓	✓	
25	SCG Distribution Co., Ltd.																	✓	✓	
26	SCG International Corporation Co., Ltd.																	✓	✓	
27	SCG Building and Living Care Consulting Co., Ltd.																	✓	✓	
28	Nexter Living Co., Ltd.																	✓	✓	
29	Nexter Digital Co., Ltd.																	✓	✓	
30	BetterBe Marketplace Co., Ltd.																			
31	Nexter Ventures Co., Ltd.																			

Business/Company		Production	Raw Materials			Environment													Safety	Occupational Illness and Disease
			Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste			
						Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
32	SCG Living and Housing Solution Co., Ltd. (Formerly: Nexter Retail Co., Ltd.)																		✓	✓
33	SCG Experience Co., Ltd.																		✓	✓
34	SCG Skills Development Co., Ltd.																			
35	SCG Retail Holding Co., Ltd.																			
36	Siam Sanitary Ware Co., Ltd.																		✓	✓
37	Siam Sanitary Ware Industry Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	✓
38	Siam Sanitary Ware Industry (Nongkae) Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	✓
39	SCG Logistics Management Co., Ltd.																		✓	✓
40	SCG Express Co., Ltd.																		✓	✓
41	SCG Ceramics Public Company Limited (HK plant/NK1 plant/NKIE plant)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
42	Sosuco Ceramic Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	✓
43	Saraburirat Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
44	Green Conservation Solution Co., Ltd.																		✓	✓
45	SCG Home Retail Co., Ltd.																		✓	✓
46	SUSUNN Smart Solution Co., Ltd.																		✓	✓
47	SCGT Automobile Co., Ltd.																			
48	Quality Construction Products Public Company Limited (Bang Pa-In/Nong Kae)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
49	Q-Con Eastern Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
50	Rudy Technology Co., Ltd.																			
51	SCG-PSA Holdings Co., Ltd.																			
52	Panel World Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	✓	✓	✓
53	Jumbo Barges and Tugs Co., Ltd.																		✓	✓
54	SCG-Sekisui Sales Co., Ltd.																		✓	✓
55	Zifisense Asia Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR		
56	SCG-Boonthavorn Holding Co., Ltd.																			
57	Thai Connectivity Terminal Co., Ltd.					✓	✓	✓						✓	✓	✓	✓	✓	✓	✓
58	Bangkok Interfreight Forwarding Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
SCGC (Chemicals Business)																				
1	SCG Chemicals Public Company Limited	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
2	Rayong Engineering & Plant Service Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
3	Protech Outsourcing Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
4	Repco Maintenance Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
5	Texplore Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
6	Vina SCG Chemicals Co., Ltd.																			
7	WTE Company Limited																			
8	SMH Co., Ltd.																			
9	Total Plant Service Co., Ltd.																			
10	Rayong Pipeline Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
11	Kation Power Co., Ltd.																			

Business/Company		Production	Raw Materials			Environment													Safety	Occupational Illness and Disease
			Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste			
						Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
12	Flowlab & Service Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	
13	SENI Ventures Company Limited																			
14	Thai Polyethylene Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	
15	RIL 1996 Co., Ltd.	NR	NR	NR	NR	NR	✓	NR	NR	NR	✓	NR	NR	✓	✓	✓	✓	✓	✓	
16	Thai Plastic and Chemicals Public Company Limited	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
17	TPC Paste Resin Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
18	Nawaplastic Industries Co., Ltd. (Rayong/ Saraburi)	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19	Nawa Intertech Co., Ltd.	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	✓	
20	SCG ICO Polymers Company Limited	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	✓	
21	Map Ta Phut Tank Terminal Co., Ltd.	NR	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	
22	Rayong Olefins Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
23	Map Ta Phut Olefins Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	
24	Circular Plas Company Limited																			
SCGP (Packaging Business)																				
1	SCG Packaging Public Company Limited																	✓	✓	
2	SKIC International Co., Ltd.																			
3	Siam Kraft Industry Co., Ltd. (Kanchanaburi/ Ratchaburi)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4	Vexcel Pack Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	✓	
5	Precision Print Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓	
6	Invenique Co., Ltd.																			
7	SCGP Excellence Training Center Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	
8	SCG Paper Energy Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	
9	SCGP Solutions Co., Ltd.																			
10	SCGP Rigid Plastics Co., Ltd.																			
11	International Healthcare Packaging Co., Ltd.																			
12	Thai Cane Paper Public Company Limited (Kanchanaburi/Prachinburi)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
13	Thai Containers Group Co., Ltd. (Navanakorn/ Ratchaburi/Samut Prakarn/Pathumthani/Songkhla/ Chonburi/Prachinburi/Saraburi/Kamphaeng Phet)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
14	Thai Containers Khonkaen Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	
15	Thai Containers Rayong Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	
16	Orient Containers Co., Ltd. (Samutsakorn/Omnoi/ Nakorn Pathom)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	
17	Phoenix Pulp & Paper Public Company Limited	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
18	Phoenix Utilities Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19	Thai Paper Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	
20	The Siam Forestry Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	✓	
21	Panas Nimit Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
22	Thai Panason Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
23	Thai Panadorn Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
24	Thai Panaram Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

Business/Company		Production	Raw Materials			Environment													Safety	Occupational Illness and Disease
			Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste			
						Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
25	Suanpa Rungsaris Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
26	Siam Panawes Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
27	Thai Panaboon Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
28	Thai Wanabhum Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
29	Prepack Thailand Co., Ltd. (Samutsakorn/ Samut Songkhram/Rayong)	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓
30	TC Flexible Packaging Co., Ltd.																			
31	SCGP-T Plastics Co., Ltd.																			
32	Tawana Container Co., Ltd.	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓
33	Conimex Co., Ltd.	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
Others																				
1	Cementhai Holding Co., Ltd.																			
2	Cementhai Property (2001) Public Company Limited																			
3	Property Value Plus Co., Ltd.																			
4	SCG Accounting Services Co., Ltd.																			
5	SCG Legal Counsel Limited																			
6	CTO Management Co., Ltd.																			
7	SCG Cleanergy Co., Ltd.																			
8	Megatric Co., Ltd.																			
9	Jieng Cleanergy Co., Ltd.																			
10	T-Volt Co., Ltd.																			
11	NP Watt Co., Ltd.																			
12	CN Watt Co., Ltd.																			
13	BNN Energy Co., Ltd.																			
14	SCG Learning Excellence Co., Ltd.																			
15	Add Ventures Capital International Co., Ltd.																			
16	A.I. Technology Co., Ltd.																			
17	Add Ventures Capital Co., Ltd.																			
18	SCG HR Solutions Co., Ltd.																			
19	Bangsue Industry Co., Ltd.																			
20	Cleanergy ABP Co., Ltd.																			
21	Siam GNE Solar Energy Co., Ltd.																			

* List of subsidiaries company according to One Report 2022

NR = Non Relevance (The data is not relevant or has no significance to the overall performance of SCG or is not included this year)

Office/Investment/Sales/Service where the collection of environmental, safety and occupational illness data is not necessary

Greenfield (less than 3 years) or newly acquired companies (less than 4 years) is not required to incorporate data into SCG

Subsidiaries Included in Sustainability Report 2022* (Abroad)

Business/Company		Country	Production	Raw Materials			Environment													Safety	Occupational Illness and Disease		
				Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste					
							Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS						
Cement and Building Materials Business																							
1	SCG International Middle East Trading L.L.C	United Arab Emirates																					
2	SCG Logistics Philippines, Inc.	Philippines																					
3	SCG Ceramics – Ly Heng Chhay (Cambodia) Co., Ltd	Cambodia																					
4	Khammouane Cement Co., Ltd.	Lao PDR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	✓	✓	✓	
5	PT SCG Pipe and Precast Indonesia	Indonesia	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	✓	NR	
6	PT Semen Lebak	Indonesia	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				
7	PT SCG Readymix Indonesia	Indonesia	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	✓	NR	
8	PT CPAC Surabaya	Indonesia	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				
9	The Concrete Products and Aggregate (Vietnam) Co., Ltd.	Vietnam	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				
10	SCG Cement-Building Materials Vietnam Limited Liability Company	Vietnam																					
11	Vietnam Construction Materials Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	
12	Song Gianh Cement Joint Stock Company	Vietnam	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	
13	Mien Trung Cement One Member Company Limited	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	
14	Danang Cement One Member Company Limited	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	✓	NR	
15	Phu Yen Cosevco Cement Company Limited	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	✓	NR	
16	Cementhai Ceramics Philippines Holdings, Inc.	Philippines																					
17	Cementhai Gypsum (Singapore) Pte. Ltd.	Singapore																					
18	SCG Concrete Roof (Vietnam) Co., Ltd.	Vietnam	✓	NR	NR	NR	✓	✓	NR	✓	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓	NR	
19	SCG Concrete Roof (Cambodia) Co., Ltd.	Cambodia	✓	NR	NR	NR	✓	✓	NR	✓	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓	NR	
20	SCG Cement-Building Materials Philippines, Inc.	Philippines	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
21	PT SCG Lightweight Concrete Indonesia	Indonesia	✓	NR	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	
22	SCG International Australia Pty. Ltd.	Australia																					
23	SCG International China (Guangzhou) Co., Ltd.	China																					
24	SCG International Hong Kong Limited	Hong Kong																					
25	SCG International (Philippines) Corporation	Philippines																					
26	SCG International USA Inc.	USA																					
27	PT SCG International Indonesia	Indonesia																					
28	SCG International Laos Co., Ltd.	Lao PDR																					
29	SCG Marketing Philippines Inc.	Philippines																					
30	SCG International Malaysia Sdn. Bhd.	Malaysia																					
31	SCG International (Cambodia) Co., Ltd.	Cambodia																					
32	SCG International Middle East DMCC	UAE																					
33	SCG International Vietnam Co., Ltd.	Vietnam																					
34	SCG International India Private Limited	India																					

Business/Company		Country	Production	Raw Materials			Environment													Safety	Occupational Illness and Disease
				Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste			
							Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
35	Oitolabs Technologies Private Limited	India																			
36	Unify Smart Tech Joint Stock Company	Vietnam																			
37	Myanmar CBM Services Co., Ltd.	Myanmar																			
38	Prime Group Joint Stock Company	Vietnam																			
39	Prime Trading, Import and Export One Member Limited Liability Company	Vietnam																			
40	SCG Home Vietnam Co.,Ltd	Vietnam																			
41	Prime - Ngoi Viet Joint Stock Company	Vietnam																		✓	NR
42	Prime Pho Yen Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	NR
43	Prime - Yen Binh Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
44	Prime - Tien Phong Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
45	Prime - Vinh Phuc Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
46	Prime - Truong Xuan Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	NR
47	Buu Long Industry and Investment Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	NR	NR	NR	NR	NR	✓	✓	✓	NR
48	PT Semen Jawa	Indonesia	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
49	SCG Logistics Lao Co., Ltd.	Lao PDR																	✓	✓	NR
50	SCG Logistics Management (Cambodia) Co., Ltd.	Cambodia																	✓	✓	NR
51	Mawlamyine Cement Limited	Myanmar	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
52	Prime Dai An Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	NR
53	PT KIA Serpih Mas	Indonesia	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
54	Kampot Cement Co., Ltd.	Cambodia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
55	PT KIA Keramik Mas	Indonesia	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
56	PT Keramik Indonesia Asosiasi, Tbk.	Indonesia	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
57	PT Kokoh Inti Arebama Tbk.	Indonesia																			
58	Prime Dai Viet Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR
59	Prime Thien Phuc Joint Stock Company	Vietnam	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
60	Prime Phong Dien Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR
61	Prime Dai Loc Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR
62	CPAC Cambodia Co., Ltd.	Cambodia	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR
63	Mariwasa-Siam Ceramics, Inc.	Philippines	✓	NR	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR
64	SCG Myanmar Concrete and Aggregate Co., Ltd.	Myanmar	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR
65	PT Surya Siam Keramik	Indonesia	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
66	SCG Builk One Philippines, Inc.	Philippines																			
67	Prime Hao Phu Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	NR
68	SCG-Boonthavorn (Cambodia) Co., Ltd.	Cambodia																			NR
69	Prime Dai Quang Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	NR
70	SCG-Shwe Me Logistics (Myanmar) Co., Ltd.	Myanmar																	✓	✓	NR
71	Jumbo Barges (Cambodia) Co., Ltd.	Cambodia																	✓	✓	NR
72	SCG International Bangladesh Company Limited	Bangladesh																			
73	Mingalar Motor Co., Ltd.	Myanmar																			
74	PT Siam-Indo Gypsum Industry	Indonesia	✓	NR	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR
75	PT Siam-Indo Concrete Products	Indonesia	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR

Business/Company		Country	Production	Raw Materials			Environment													Safety	Occupational Illness and Disease
				Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste			
							Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
76	PT Pion Quarry Nusantara	Indonesia	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	✓	NR	
77	Home Center Quang Ninh Joint Stock Company	Vietnam																			
78	PT SCG Barito Logistics	Indonesia																	✓	NR	
79	PT Renos Marketplace Indonesia	Indonesia																			
80	PT Tambang Semen Sukabumi	Indonesia	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	
81	Kampot Land Co., Ltd.	Cambodia																			
SCGC (Chemicals Business)																					
1	Recycling Holding Volendam B.V.	The Netherlands																			
2	Kras Investments B.V.	The Netherlands																			
3	Krasgroup Vastgoed B.V.	The Netherlands																			
4	Kras Belgium B.V.	Belgium																			
5	Kras Asia Ltd.	Hongkong																			
6	Sirplaste - Sociedade Industrial de Recuperados de Plástico, S.A.	Portugal																			
7	REPCO NEX (Vietnam) Company Limited	Vietnam																			
8	Long Son Petrochemicals Co., Ltd.	Vietnam																			
9	Norner AS	Norway																			
10	Norner Research AS	Norway																			
11	PT TPC Indo Plastic and Chemicals	Indonesia	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR	
12	Chemtech Co., Ltd.	Vietnam	✓	✓	✓	✓	NR	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR	
13	Xplore S.R.L. (Formerly: HTEExplore S.R.L.)	Italy																			
14	SENI UK Limited	UK																			
15	Grand Nawaplastic Myanmar Co., Ltd.	Myanmar	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
16	Viet-Thai Plastchem Co., Ltd.	Vietnam	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR	
17	TPC Vina Plastic and Chemical Corporation Ltd.	Vietnam	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR	
18	Nawaplastic (Cambodia) Co., Ltd.	Cambodia	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR	
19	Binh Minh Plastics Joint Stock Company	Vietnam	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	NR	
20	North Binh Minh Plastics Limited Company	Vietnam																			
21	PT Berjaya Nawaplastic Indonesia	Indonesia																			
22	SCG Chemicals Trading Singapore Pte.Ltd.	Singapore																			
23	SCG Chemicals (Singapore) Pte. Ltd.	Singapore																			
24	Tuban Petrochemicals Pte. Ltd.	Singapore																			
25	Hexagon International, Inc.	USA																			
26	SENI Norway AS	Norway																			
27	SCGN AS	Norway																			
28	SENI Swiss GmbH	Switzerland																			
29	PT Nusantara Polymer Solutions	Indonesia																			
30	Kras Gemert B.V.	The Netherlands																			
31	Kras Hoek van Holland B.V.	The Netherlands																			
32	Kras Polymers B.V.	The Netherlands																			

Business/Company		Country	Production	Raw Materials			Environment													Safety	Occupational Illness and Disease
				Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste			
							Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
33	Kras Recycling B.V.	The Netherlands																			
34	REKS LLC	Kosovo																			
SCGP (Packaging Business)																					
1	Jordan Trading Inc.	United States of America																			
2	Peute Recycling B.V.	The Netherlands																			
3	Peute Papierrecycling B.V.	The Netherlands																			
4	Peute Plasticrecycling B.V.	The Netherlands																			
5	Peute Recycling International B.V.	The Netherlands																			
6	Peute Portugal, Unipessoal Lda	Portugal																			
7	Peute Recycling Spain S.L.	Spain																			
8	Go-Pak UK Limited	United Kingdom																			
9	Go-Pak Vietnam Limited	Vietnam																			
10	Go-Pak Paper Products Vietnam Co., Ltd.	Vietnam																			
11	SCGP Solutions (Singapore) Pte. Ltd.	Singapore																			
12	SCGP Rigid Packaging Solutions Pte. Ltd.	Singapore																			
13	Deltalab Global, S.L.	Spain																			
14	Deltalab, S.L.	Spain																			
15	Keylab, S.L.U.	Spain																			
16	Nirco, S.L.	Spain																			
17	Envases Farmaceuticos, S.A.	Spain																			
18	Equilabo Scientific, S.L.U.	Spain																			
19	Sanilabo, S.L.U.	Spain																			
20	United Pulp and Paper Co., Inc.	Philippines	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR	
21	Vina Kraft Paper Co., Ltd.	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	
22	New Asia Industries Co., Ltd.	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR	
23	Alcamax Packaging (Vietnam) Co., Ltd.	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR	
24	AP Packaging (Hanoi) Co., Ltd.	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	
25	Packamex (Vietnam) Co., Ltd.	Vietnam	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
26	PT Indoris Printingdo	Indonesia	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	
27	Peute UK Limited	United Kingdom																			
28	PT Indocorr Packaging Cikarang	Indonesia	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR	
29	Duy Tan Plastics Manufacturing Corporation	Vietnam																			
30	Duy Tan Long An Co., Ltd.	Vietnam																			
31	Duy Tan Precision Mold Co., Ltd.	Vietnam																			
32	Duy Tan Binh Duong Plastics Co., Ltd. (Formerly: CLF Plastics Co., Ltd.)	Vietnam																			
33	Mata Plastic Co., Ltd.	Vietnam																			
34	TCG Solutions Pte. Ltd.	Singapore																			
35	Interpress Printers Sendirian Berhad	Malaysia	✓	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	

Business/Company		Country	Production	Raw Materials			Environment														Safety	Occupational Illness and Disease
				Total Raw Materials	Raw Mat Recycled	Raw Mat Renewable	Energy		Air				Water					Waste				
							Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS					
36	PT Primacorr Mandiri	Indonesia	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR		
37	Bien Hoa Packaging Joint Stock Company	Vietnam																				
38	PT Fajar Surya Wisesa Tbk.	Indonesia	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR		
39	PT Dayasa Aria Prima	Indonesia																				
40	PT Indonesia Dirlajaya Aneka Industri Box	Indonesia																				
41	PT Bahana Buana Box	Indonesia																				
42	PT Rapipack Asritama	Indonesia																				
43	Tin Thanh Packing Joint Stock Company	Vietnam	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR		
Others																						
1	Cementhai Captive Insurance Pte. Ltd.	Singapore																				
2	A.I. Tech Inter Private Limited	Singapore																				
3	SCG Vietnam Co., Ltd.	Vietnam																				
4	PT SCG Indonesia	Indonesia																				

* List of subsidiaries company according to One Report 2022

NR = Non Relevance (The data is not relevant or has no significance to the overall performance of SCG or is not included this year)

Office/Investment/Sales/Service where the collection of environmental, safety and occupational illness data is not necessary

Greenfield (less than 3 years) or newly acquired companies (less than 4 years) is not required to incorporate data into SCG



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

GRI Content Index

Statement of use		The Siam Cement Public Company Limited has reported in accordance with the GRI Standards for the period 1 Jan 2022 to 31 Dec 2022.				
GRI 1 used		GRI 1: Foundation 2021				
GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			ASSURANCE
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
General disclosures						
GRI 2: General Disclosures 2021	2-1 Organizational details	SR 06-07				
	2-2 Entities included in the organization's sustainability reporting	SR 133-141				
	2-3 Reporting period, frequency and contact point	SR 106-109				
	2-4 Restatements of information	SR 106-109				
	2-5 External assurance	SR 142-143				
	2-6 Activities, value chain and other business relationships	SR 26-27				
	2-7 Employees	SR 06-07, 123-125				
	2-8 Workers who are not employees		a, b, c	Confidentiality constraints	This information is for internal use.	
	2-9 Governance structure and composition	SR 34-38				
	2-10 Nomination and selection of the highest governance body	AR 157-162				
	2-11 Chair of the highest governance body	AR 184				
	2-12 Role of the highest governance body in overseeing the management of impacts	AR 188-197				
	2-13 Delegation of responsibility for managing impacts	AR 197				
	2-14 Role of the highest governance body in sustainability reporting	SR 38				
	2-15 Conflicts of interest	AR 191-193, 219-220				
	2-16 Communication of critical concerns	AR 191-193, 219-220				
	2-17 Collective knowledge of the highest governance body	AR 163-166				
	2-18 Evaluation of the performance of the highest governance body	AR 161-162				
	2-19 Remuneration policies	- CEO and Executive Compensation Management ; https://file.scgsustainability.com/wp-content/uploads/2022/02/27131514/Executive_Compensation_Management.pdf				
	2-20 Process to determine remuneration	- CEO and Executive Compensation Management ; https://file.scgsustainability.com/wp-content/uploads/2022/02/27131514/Executive_Compensation_Management.pdf				
	2-21 Annual total compensation ratio		a, b, c	Confidentiality constraints	This information is for internal use.	
	2-22 Statement on sustainable development strategy	SR 04-05, 32-33				
	2-23 Policy commitments	SR 20-21				
	2-24 Embedding policy commitments	SR 37-38				
	2-25 Processes to remediate negative impacts	SR 40-43				
	2-26 Mechanisms for seeking advice and raising concerns	SR 40-43				
	2-27 Compliance with laws and regulations	SR 22-23, 98-99, 119				
2-28 Membership associations	SR 46-47					
2-29 Approach to stakeholder engagement	SR 40-43					
2-30 Collective bargaining agreements	SR 123					
Material topics						
GRI 3: Material Topics 2021	3-1 Process to determine material topics	SR 30-31				
	3-2 List of material topics	SR 30-31				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			ASSURANCE
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
Economic performance						
GRI 3: Material Topics 2021	3-3 Management of material topics	AR 15, SR 110-111				
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	AR 15, SR 110-111				
	201-2 Financial implications and other risks and opportunities due to climate change	SR 151, TCFD Report; https://file.scgsustainability.com/wp-content/uploads/2022/06/29085200/TCFD-Report-2022.pdf				
	201-3 Defined benefit plan obligations and other retirement plans		a, b, c, d, e	Confidentiality constraints	This information is for internal use.	
	201-4 Financial assistance received from government	SR 110-111				
Market presence						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 100-101, 123-125				
GRI 202: Market Presence 2016	202-1 Ratios of standard entry level wage by gender compared to local minimum wage	SR 123-125				
	202-2 Proportion of senior management hired from the local community	SR 123-125				
Indirect economic impacts						
GRI 3: Material Topics 2021	3-3 Management of material topics					
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported		a, b, c	Information unavailable/incomplete	This information has been included in community investment. Please SR 49, 102-103	
	203-2 Significant indirect economic impacts		a, b	Information unavailable/incomplete	Impact valuation has been conducted by project base such as Sharing the Dream, Learn to Earn, The Power of Community, Skills Development School, and Q-CHANG.	
Procurement practices						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 90-91				
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	SR 130-131				
Anti-corruption						
GRI 3: Material Topics 2021	3-3 Management of material topics	AR 218-226				
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	AR 218-226				
	205-2 Communication and training about anti-corruption policies and procedures	AR 218-226				
	205-3 Confirmed incidents of corruption and actions taken	AR 218-226				
Anti-competitive behavior						
GRI 3: Material Topics 2021	3-3 Management of material topics	AR 218-226				
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	AR 218-226				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			ASSURANCE
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
Tax						
GRI 3: Material Topics 2021	3-3 Management of material topics	- Tax Policy ; https://scc.listedcompany.com/misc/cg/2022/20220608-scc-tax-policy-en.pdf				
GRI 207: Tax 2019	207-1 Approach to tax	- Tax Policy ; https://scc.listedcompany.com/misc/cg/2022/20220608-scc-tax-policy-en.pdf				
	207-2 Tax governance, control, and risk management	- Tax Policy ; https://scc.listedcompany.com/misc/cg/2022/20220608-scc-tax-policy-en.pdf				
	207-3 Stakeholder engagement and management of concerns related to tax	- Tax Policy ; https://scc.listedcompany.com/misc/cg/2022/20220608-scc-tax-policy-en.pdf				
	207-4 Country-by-country reporting	AR 103, SR 110-111, 125				
Materials						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 78				
GRI 301: Materials 2016	301-1 Materials used by weight or volume	SR 112				
	301-2 Recycled input materials used	SR 112				
	301-3 Reclaimed products and their packaging materials	a, b	Information unavailable/incomplete	Information of reclaimed products and packaging materials are collected by business unit for efficient production and quality improvement.		
Energy						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 52-55, 74-77				
GRI 302: Energy 2016	302-1 Energy consumption within the organization	SR 114-115				
	302-2 Energy consumption outside of the organization	a, b, c, d	Confidentiality constraints	Energy data are very confidentiality of suppliers, transporters, customers and related stakeholders in value chain.		
	302-3 Energy intensity	SR 114-115				
	302-4 Reduction of energy consumption	SR 22, SR74-75, SR114-115				
	302-5 Reductions in energy requirements of products and services	SR 18				
Water and effluents						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 92-93				
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	SR 92-93				
	303-2 Management of water discharge-related impacts	SR 92-93				
	303-3 Water withdrawal	SR 116-117				
	303-4 Water discharge	SR 116				
	303-5 Water consumption	SR 116-117				
Biodiversity						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 96-97				
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	SR 96-97				
	304-2 Significant impacts of activities, products and services on biodiversity	SR 96-97				
	304-3 Habitats protected or restored	SR 96-97				
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	SR 96-97				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			ASSURANCE
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
Emissions						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 74-77, 94-95				
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	SR 74-75, SR 113				Yes
	305-2 Energy indirect (Scope 2) GHG emissions	SR 74-75, SR 113				Yes
	305-3 Other indirect (Scope 3) GHG emissions	SR 77, SR 132				
	305-4 GHG emissions intensity	SR 113				
	305-5 Reduction of GHG emissions	SR 113				
	305-6 Emissions of ozone-depleting substances (ODS)		a, b, c, d	Information unavailable/incomplete	Collection of data is not required by law or corporate.	
	305-7 Nitrogen oxides (NO _x), sulfur oxides (SO _x), and other significant air emissions	SR 119				Yes
Waste						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 78-81				
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	SR 78-81				
	306-2 Management of significant waste-related impacts	SR 78-81				
	306-3 Waste generated	SR 118				Yes
	306-4 Waste diverted from disposal	SR 118				Yes
	306-5 Waste directed to disposal	SR 118				Yes
Supplier environmental assessment						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 90-91				
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	SR 90-91, SR 130-131 https://www.scgsustainability.com/en/sustainable-value-towards-suppliers-en/				
	308-2 Negative environmental impacts in the supply chain and actions taken	SR 90-91, SR 130-131				
Employment						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 98, 100				
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	SR 124				
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees		a, b	Information unavailable/incomplete	The benefit vary by country and type of employment.	
	401-3 Parental leave	SR 124				
Labor/management relations						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 98, 100				
GRI 402: Labor/Management Relations 2016	402-1 Minimum notice periods regarding operational changes		a, b	Information unavailable/incomplete	Under Labor Protection Act as minimum.	
Occupational health and safety						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 82				
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	AR 78, SR 82-85				
	403-2 Hazard identification, risk assessment, and incident investigation	AR 78, SR 82-85				
	403-3 Occupational health services	AR 78, SR 82-85				
	403-4 Worker participation, consultation, and communication on occupational health and safety	AR 78, SR 82-85				
	403-5 Worker training on occupational health and safety	AR 78, SR 82-85				
	403-6 Promotion of worker health	AR 78, SR 82-85				
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	AR 78, SR 82-85				
	403-8 Workers covered by an occupational health and safety management system	SR 133-141				
	403-9 Work-related injuries	AR 92, SR 120-121				Yes
	403-10 Work-related ill health	AR 92, SR 120-121				Yes

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			ASSURANCE
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
Training and education						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 100				
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	AR 172, SR 124				
	404-2 Programs for upgrading employee skills and transition assistance programs	AR 170-173, SR 100-101				
	404-3 Percentage of employees receiving regular performance and career development reviews	SR 100				
Diversity and equal opportunity						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 98, 100				
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	AR 184-185, SR 39, 123				
	405-2 Ratio of basic salary and remuneration of women to men	SR 123				Yes
Non-discrimination						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 98, 100				
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	AR 220, SR 98-99				
Freedom of association and collective bargaining						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 90, 98				
GRI 407: Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	AR 180, 182, SR 41, 90, 98-99, 133				
Child labor						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 90, 98				
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	AR 180, 182, SR 41, 90, 98-99, 133				
Forced or compulsory labor						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 90, 98				
GRI 409: Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	AR 180, 182, SR 41, 90, 98-99, 133				
Security practices						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 98				
GRI 410: Security Practices 2016	410-1 Security personnel trained in human rights policies or procedures	AR 182, SR 90, 98-99, 133				
Rights of indigenous peoples						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 98				
GRI 411: Rights of Indigenous Peoples 2016	411-1 Incidents of violations involving rights of indigenous peoples	SR 98-99				
Local communities						
GRI 3: Material Topics 2021	3-3 Management of material topics	AR 148, 160 SR 31, 40, 43, 102				
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	SR 102-103				
	413-2 Operations with significant actual and potential negative impacts on local communities	SR 31, 82				

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			ASSURANCE
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
Supplier social assessment						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 90-91				
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	AR 173, SR 90-91, SR 130-131 https://www.scgsustainability.com/en/sustainable-value-towards-suppliers-en/				
	414-2 Negative social impacts in the supply chain and actions taken	SR 90-91, SR 130-131				
Public policy						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 110				
GRI 415: Public Policy 2016	415-1 Political contributions	SR 110				
Customer health and safety						
GRI 3: Material Topics 2021	3-3 Management of material topics	AR 173, SR 42, 86				
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	AR 173, SR 86-87				
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	SR 87				
Marketing and labeling						
GRI 3: Material Topics 2021	3-3 Management of material topics	SR 31, 86, 88				
GRI 417: Marketing and Labeling 2016	417-1 Requirements for product and service information and labeling	SR 78-81, 86-87				
	417-2 Incidents of non-compliance concerning product and service information and labeling	SR 87				
	417-3 Incidents of non-compliance concerning marketing communications	SR 87				
Customer privacy						
GRI 3: Material Topics 2021	3-3 Management of material topics	AR 85-86, 167, 173				
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	AR 220				

AR = One Report

SR = Sustainability Report

Task Force on Climate-related Financial Disclosures (TCFD)

Recommendations		Disclose	
		AR	SR
GOVERNANCE	Disclose the organization's governance around climate-related risks and opportunities.		
	a) Describe the board's oversight of climate-related risks and opportunities.	73-74	34-38
	b) Describe management's role in assessing and managing climate-related risks and opportunities.		
STRATEGY	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.		
	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	75-76	28-33, 52-59, 74-77, 92-93
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.		
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.		
RISK MANAGEMENT	Disclose how the organization identifies, assesses, and manages climate-related risks.		
	a) Describe the organization's processes for identifying and assessing climate-related risks.	73-86	28-31, 34-38
	b) Describe the organization's processes for managing climate related risks.		
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.		
METRICS and TARGETS	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.		
	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	-	20-23, 49, 74-77
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	89	
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	-	

AR = One Report

SR = Sustainability Report

Sustainability Accounting Standards Board Response (SASB)

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/REFERENCE
Activity Metrics	Production by major product line	Quantitative	Metric tons (t)	EM-CM-000.A RT-CH-000.A RT-CP-000.A	P.112
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO ₂ -e, Percentage (%)	EM-CM-110a.1 RT-CH-110a.1 RT-CP-110a.1	P.113, 126
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-CM-110a.2 RT-CH-110a.2 RT-CP-110a.2	P.74
Air Quality	Air emissions of the following pollutants: (1) NO _x (excluding N ₂ O), (2) SO _x , (3) particulate matter (PM10), (4) dioxins/furans, (5) volatile organic compounds (VOCs), (6) polycyclic aromatic hydrocarbons (PAHs), and (7) heavy metals	Quantitative	Metric tons (t)	EM-CM-120a.1 RT-CH-120a.1 RT-CP-120a.1	(1) (2) (3) P.119 (4) (5) (7) P.126
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage alternative, (4) percentage renewable*	Quantitative	Gigajoules (GJ), Percentage (%)	EM-CM-130a.1 RT-CH-130a.1 RT-CP-130a.1	(1) (2) (3) (4) P.114-115, 126
Water Management	(1) Total fresh water withdrawn, (2) percentage recycled*, (3) percentage in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m ³), Percentage (%)	EM-CM-140a.1 RT-CH-140a.1 RT-CP-140a.1	(1) (2) (3) P.116-117
	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	Quantitative	Number	RT-CH-140a.2 RT-CP-140a.3	P.119
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RT-CH-140a.3 RT-CP-140a.2	P.92-93
Waste Management	Amount of waste generated, percentage hazardous, percentage recycled*	Quantitative	Metric tons (t), Percentage (%)	EM-CM-150a.1 RT-CH-150a.1 RT-CP-150a.1	P.118

*Represents group level only

CONSTRUCTION MATERIALS Specific

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/REFERENCE
Biodiversity Impacts	Description of environmental management policies and practices for active sites	Discussion and Analysis	n/a	EM-CM-160a.1	P.96-97, 119
	Terrestrial acreage disturbed, percentage of impacted area restored	Quantitative	Acres (ac), Percentage (%)	EM-CM-160a.2	3,507 ac, 7.89%
Workforce Health & Safety	(1) Total recordable incident rate (TRIR)* and (2) near miss frequency rate (NMFR)* for (a) fulltime employees and (b) contract employees	Quantitative	Rate	EM-CM-320a.1	(1) P.120 Safety KPIs are disclosed in accordance with GRI and GCCA. (2) P.121 (a) 21.975 Cases/ 200,000 hours worked (b) 2.565 Cases/ 200,000 hours worked
	Number of reported cases of silicosis	Quantitative	Number	EM-CM-320a.2	P.121
Product Innovation	Percentage of products that qualify for credits in sustainable building design and construction certifications	Quantitative	Percentage (%) by annual sales revenue	EM-CM-410a.1	P.110
	Total addressable market and share of market for products that reduce energy, water, and/or material impacts during usage and/or production	Quantitative	Reporting currency, Percentage (%)	EM-CM-410a.2	P.110
Pricing Integrity & Transparency	Total amount of monetary losses as a result of legal proceedings associated with cartel activities, price fixing, and anti-trust activities	Quantitative	Reporting currency	EM-CM-520a.1	No case found in 2022

*Represents group level only

CHEMICALS Specific

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/REFERENCE
Community Relations	Discussion of engagement processes to manage risks and opportunities associated with community interests**	Discussion and Analysis	n/a	RT-CH-210a.1	P.12
Workforce Health & Safety	1) Total recordable incident rate (TRIR)* and (2) fatality rate* for (a) direct employees and (b) contract employees	Quantitative	Rate	RT-CH-320a.1	P.120 Safety KPIs are disclosed in accordance with GRI
	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Discussion and Analysis	n/a	RT-CH-320a.2	P.29, 82-83
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	Reporting currency	RT-CH-410a.1	P.110
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	Quantitative	Percentage (%) by revenue, Percentage (%)	RT-CH-410b.1	(1) P.121 (2) P.121
	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	Discussion and Analysis	n/a Community Relations	RT-CH-410b.2	P.87
Genetically Modified Organisms	Percentage of products by revenue that contain genetically modified organisms (GMOs)	Quantitative	Percentage (%) by revenue	RT-CH-410c.1	Not Applicable
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Discussion and Analysis	n/a	RT-CH-530a.1	Annual Report 2022, P.81
Operational Safety, Emergency Preparedness & Response	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)	Quantitative	Number, Rate	RT-CH-540a.1	P.121
	Number of transport incidents*	Quantitative	Number	RT-CH-540a.2	P.121

*Represents group level only

**Applies the same practice as SCG

CONTAINERS & PACKAGING Specific

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/REFERENCE
Activity Matrix	Percentage of production as: (1) paper/wood, (2) glass, (3) metal, and (4) plastic	Quantitative	Percentage (%) by revenue	RT-CP-000.B	(1) 84.5% (4) 12.4%
	Number of employees	Quantitative	Number	RT-CP-000.C	P.7 Annual Report 2022, P.07
Product Lifecycle Management	Percentage of raw materials from: (1) recycled content, (2) renewable resources, and (3) renewable and recycled content	Quantitative	Percentage (%) by weight	RT-CP-410a.1	(1) P.112 (2) P.112
	Revenue from products that are reusable, recyclable, and/or compostable	Quantitative	Reporting currency	RT-CP-410a.2	70,812 MB (SCG Green Choice and Eco Product)
	Discussion of strategies to reduce the environmental impact of packaging throughout its lifecycle	Discussion and Analysis	n/a	RT-CP-410a.3	P.16, 78-79
Product Safety	Number of recalls issued, total units recalled	Quantitative	Number	RT-CP-250a.1	Zero recall
	Discussion of process to identify and manage emerging materials and chemicals of concern	Discussion and Analysis	n/a	RT-CP-250a.2	P.87
Supply Chain Management	Total wood fiber procured, percentage from certified sources	Quantitative	Metric tons (t), Percentage (%)	RT-CP-430a.1	2.46 MT, 100% of FSC™-CW/ COC : FSC-C133879
	Total aluminum purchased, percentage from certified sources	Quantitative	Metric tons (t) CO ₂ -e, Percentage (%)	RT-CP-430a.2	Not Applicable



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

